Evaluating the Potential of a Market-Based Transfer of Developments Program to Preserve Open Space in Santa Barbara County

A Group Project submitted in partial satisfaction of the requirements for the degree of Master's in Environmental Science and Management for the

Donald Bren School of Environmental Science and Management
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Taylor Carroll Connie Chen Jeff Dunbar Rachel Gore Darren Greve

Advisor:

Dr. Charlie Kolstad

Date_____

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As authors of this Group Project report, we are proud to submit it for display in the Donald Bren School of Environmental Science and Management library and on the website such that the results of our research area available for all to read. Our signatures on the document signify our joint responsibility to fulfill the achieving standards set forth by the Donald Bren School of Environmental Science and Management.

Taylor Carroll

Rachel Gore

Connie Chen

Darren Greve

Jeff Dunbar

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The Group Project is required of all students in the Master's of Environmental Science and Management (MESM) Program. It is a three-quarter activity in which small groups of students conduct focused, interdisciplinary research on the scientific, management and policy dimensions of a specific environmental issue. This final Group Project report is authored by MESM students and has been reviewed and approved by:

Dean Dennis Aigner

Professor Charlie Kolstad

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ABSTRACT

Santa Barbara County has faced tremendous population growth since the 1970s, and will likely continue to do so in the future. Although urban growth boundaries and strict agricultural zoning regulations have limited most new development to existing urban areas, thousands of acres of open space and agricultural land have still been converted to residential development in recent years.

With the addition of a functional Transferable Development Rights (TDR) program, Santa Barbara County governments could promote higher-density development in existing urban areas while achieving widely supported open space and agricultural preservation goals at little or no public expense. A TDR program is a voluntary, market-based land preservation tool which allows communities to reduce or eliminate the future development potential in areas targeted for preservation in exchange for increasing the existing development potential in areas targeted for growth. To be effective, a TDR program must be tailored to fit the unique economic, social, and political realities of Santa Barbara County.

This report makes practical policy recommendations for implementing TDR in Santa Barbara County based on a thorough review of best practices in TDR program design, detailed economic analyses of two Santa Barbara County housing markets, and a host of primary interviews with developers, planners, and policymakers. We find that developers are currently constrained through existing zoning and a strong developer demand to increase density would exist in TDR markets. The three primary recommendations of this report are to 1) develop independent TDR programs for collections of cities and communities that share common land preservation goals, 2) identify regulatory mechanisms that will encourage TDR transactions in the face of developers' unique economic constraints, and 3) mandate the use of TDR whenever any parcel is re-zoned for higher-density residential and commercial uses.

EXECUTIVE SUMMARY

Communities throughout the country are challenged with the intense problem of balancing growth while preserving their undeveloped land. Santa Barbara County represents a local example of a community struggling with the planning implications of urban sprawl. Since 1970, the County has attracted 130,000 new residents and as a result lost 14,000 acres of open space and agricultural land to urban development[1]. The County's Planning and Development Department predicts a similar increase in population over the next thirty years and is operating on the basis that development pressures are such that new dwellings are needed to absorb the increase in population[2]. This will no doubt result in the conversion of thousands of acres of undeveloped land to urban development. The question remains as to whether policies can be put in place that will help preserve valuable open space, given this expectation of future growth.

Current debate is centered on the question of which policies to use to address the tension between preserving land and developing land, which is a conflict between community interest in land preservation and private interest in maximizing land value through development. Regulatory policies, such as restrictive zoning, are traditionally used to achieve preservation and growth management goals. However, recent trends show local governments using market-based mechanisms such as Transferable Development Rights (TDR) in conjunction with established policy tools to achieve land use policy goals.

To date, much of Santa Barbara County's open space and agricultural land has been sheltered from development through the enforcement of regulatory policies such as urban growth boundaries for urban areas and low-density agricultural zoning designations for rural areas. In addition, the County has also relied heavily on the State's Williamson Act[3] program to temporarily preserve most of the County's remaining agricultural lands. Yet, these policies do not guarantee the permanent preservation of the lands they regulate; rather, the protections they afford are subject to changing attitudes and political wills. The widespread use of acquisition-based preservation strategies would be prohibitively expensive. In contrast, a market-based Transferable Development Rights policy can potentially permanently preserve land in the context of future growth with minimal taxpayer burden. A tenuous relationship exists between private property rights and governmental preservation policies; a TDR program's voluntary market mechanism affirms private property rights and seeks to minimize this inherent tension.

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[1] Santa Barbara County: Land & Population 2030; November 2000.
[2] The 2003-2008 County Housing Element calls for a need of 6,064 additional dwelling units by the year 2008 in the unincorporated County and 17,531 in all areas combined.
[3] Williamson Act is a California State policy that provides property tax benefits to encourage farmers to keep their land under agricultural production for a minimum of 10 years.

What is a TDR Program?

A TDR program is a voluntary, market-based land preservation tool which allows communities to reduce or eliminate the future development potential in areas targeted for preservation in exchange for increasing the existing development potential in areas targeted for growth.

A TDR program allows landowners of "sending sites" (parcels targeted for preservation) to sever the development rights from their property and sell them on the open market. Landowners retain the bundle of other rights associated with the land while being compensated at fair market value for lost development potential. Once the development rights are sold from the property, the land is protected from future development in perpetuity with a conservation easement.

Figure 1: Example of transfer of development rights.

On "receiving sites" (parcels designated for increased development), the local planning agency grants developers the right to build at increased density above baseline zoning with the purchase of TDRs (Figure 2). Increased density diffuses fixed costs over a greater number of houses and leads to increased profits for the developer. The voluntary nature of TDR programs allows private landowners and developers the ability to make decisions that are in their own best interest.

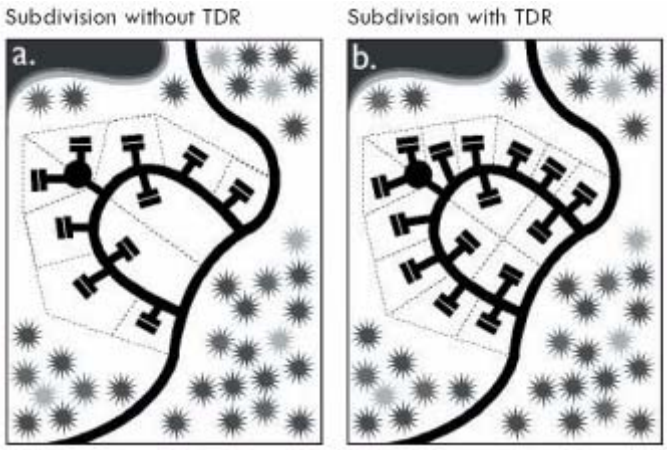

Figure 2: Increasing density from 10 to 15 units/acre.

Project Purpose and Objectives

This project examines the viability of using TDR as an additional policy tool at both the city and County levels by asking the question: Can a market-based TDR program be an effective policy tool to permanently preserve land in the context of future growth? In particular, we ascertain the political and economic feasibility of using TDR programs for open space and farmland preservation. Further, we seek to identify optimal TDR policy guidelines that would meet the housing needs and preservation goals of the regional communities. We identify TDR characteristics which would facilitate success as well as those attributes that may lead to program failure. Additionally, we model developers' willingness to pay for development rights in a TDR market to provide information about market demand in two distinct and different housing market areas. This provides insight for the identification of incentives that would stimulate healthy participation on both the supply and demand sides of a development rights market.

Project Approach

Recognizing the variability of TDR programs as they pertain to geo-political issues and the spatial variability in land values, this report addresses TDR in the context of two Santa Barbara County housing market areas (HMAs): the South Coast HMA and the Santa Maria HMA. We analyzed the feasibility of a TDR program using the following three approaches:

1. Thorough research of existing TDR programs to identify a set of key program components that are requisite to a successful TDR program.
2. Analysis of the current regional land use regulation regimes, regional geo-political issues, and development patterns in the County to frame how a TDR policy could be structured to be consistent with the existing regulatory framework.
3. An economic analysis that models the developers' willingness to pay for increased density, and thereby estimates demand in a TDR market.

For the economic analysis, we used Multiple Listing Service house sales data to model project revenues and financial cost estimates from local developers to model project costs. Using these models, we calculated developers' willingness to pay for increased densities in the targeted housing market areas. The South Coast HMA is a region with geographically limited amounts of developable land, high land values, coastal habitat, constrained development opportunities and strong political and inter-jurisdictional obstacles to transferring development. On the other hand, the Santa Maria HMA, possessing vast amounts of potentially developable land, is an area experiencing dramatic growth and loss of valuable farmland with rather homogeneous land values. These significant differences provide useful comparisons and contrasts regarding the mechanics of how a TDR policy could be inserted into the tool box of land use policies in these areas.

Key Findings

We find that a TDR program is both a politically and economically feasible policy tool to permanently preserve land in the context of future growth. However, because of the variability in land markets and geopolitical issues across the region, a one size fits all TDR program for the County will not prove effective. The success of a TDR program is contingent upon harmonizing the economic, political, and regulatory variables inherent to each locale.

A strong demand would exist in a TDR market. From a developer's perspective, we found that most new developments have been built at sub-optimal densities (i.e. densities where project profits are not maximized). Our economic analysis indicates that developers possess a strong demand to increase their project densities with TDR purchases in both the Santa Maria and South Coast HMAs. Figure 3 illustrates this fact for the Goleta area within the South Coast HMA.

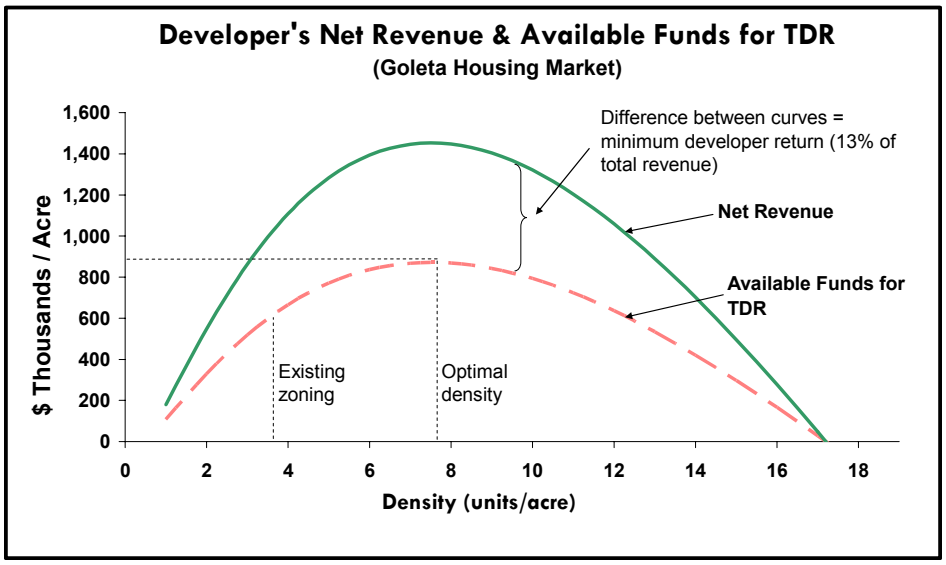

Figure 3: Developer net revenue and TDR budget in Goleta area of South Coast

In the Goleta area, where average densities are currently 3.7 units/acre, our model estimates developers maximize net revenue at an optimal density of 7.6 units/acre. In the Santa Maria area, where average densities currently range from 3.3 to 4.6 units/acre, our model estimates developers maximize profits at 10.5 units per acre.

Notably, our economic analysis indicates that there is a much stronger demand for TDRs in the South Coast HMA than in the Santa Maria HMA (Figure 4). In the Goleta area, for example, we show developers would be willing to spend up to $871,139 to build 7.6 residential units on a single acre of vacant urban agriculturally zoned land (Figure 3). In contrast, developers would only be willing to spend up to $250,934 to build 10.5 units on a similar acre in the Santa Maria HMA.

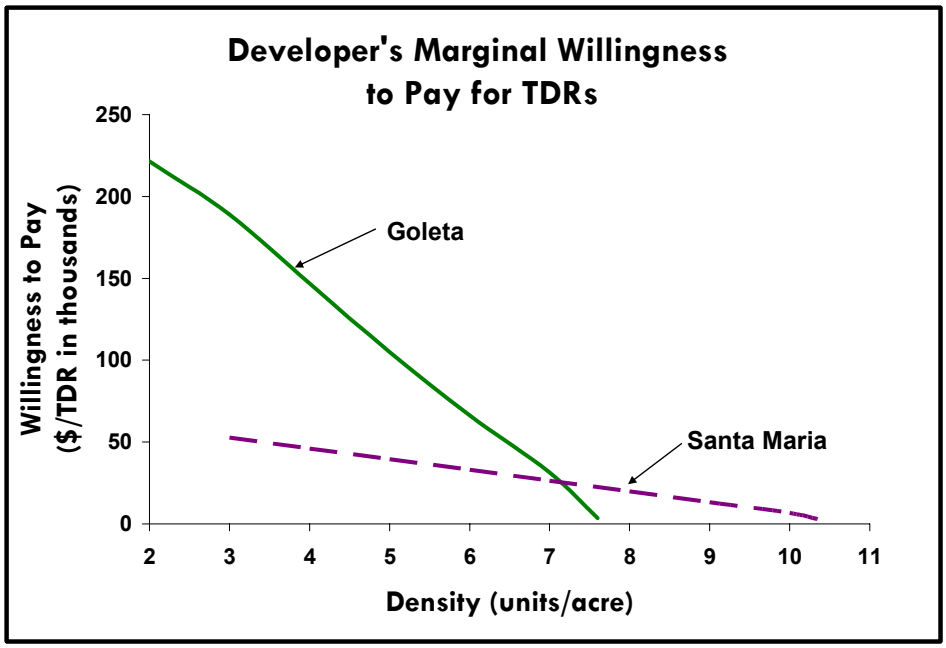

Figure 4: Developers' marginal willingness to pay for TDRs to increase density in Goleta and Santa Maria housing market areas. Willingness to pay per TDR decreases with increasing density. Note that willingness to pay is substantially larger for the Goleta area than in the Santa Maria area.

These results were substantiated through discussions with local developers who indicate that in a housing market, such as the South Coast, where vacant land values are generally 1/3 of the final selling price of a new home, they would be willing to spend ¼ of the revenue generated from a home sale at a particular density to build an additional unit. Our economic model agrees well with this premise through the range of single family home densities we analyzed. We estimate developers may be willing to spend up to 20% of revenue from a house sale at a particular density for the ability to build an additional unit in the Goleta housing market. For example, with a house selling for $800,000 in a subdivision with a density of 4 units/acre, a developer would be willing to pay $160,000 to a sending area landowner to put an additional unit on an acre of land in the subdivision.

In addition to our economic analysis we looked into the geo-political issues associated with transferring development rights. We found that cross-jurisdictional transfers (i.e. transfers from County controlled lands to city controlled lands) face significant political barriers in some areas of Santa Barbara County. The reality is that certain cities are currently unwilling to accept transfers from County lands, while other cities may be more amenable. Because these political realities exist, programs targeted within jurisdictions or between jurisdictions with common political motivations and preservation goals will initially face less opposition. As the TDR program(s) gains credibility, cross-jurisdictional transfers will become more plausible.

Key Recommendations *(see Part 8 for complete and more detailed descriptions)*

1. **Initially assess the market for TDRs by determining developer demand for increased density.**

The success of TDR programs hinges on stimulating developers to purchase development rights. If strong developer demand exists the supply of development rights from sending

area landowners is likely to follow. Existing programs struggle with little market participation by initially designating sending sites without addressing the demand on the receiving sites. Receiving sites should be identified with sufficient development value to motivate developers to purchase development rights and be located in areas where the community wishes to encourage additional development. The estimated developer demand on these receiving parcels should be used to identify adequately valued sending parcels and establish equitable transfer ratios. In this way the economic limitations of the lands a TDR program can effectively preserve are properly acknowledged.

2. Require TDR purchases when re-zoning/up-zoning parcels for development.
The County and city planning agencies of Santa Barbara should consider requiring mandatory TDR purchases for all parcels going through re-zone to higher densities. This includes urban agricultural lands being re-zoned to residential, as well as existing residential, vacant, or mixed used parcels being up-zoned to higher densities. This action is warranted in light of the strong developer demand and pressure to meet housing requirements. A mandatory mechanism makes development contingent upon preservation and allows the jurisdiction to obtain an added social benefit with minimal taxpayer burden. Examples of potential receiving sites for mandatory TDR purchases include the following:

- Vacant urban residentially zoned parcels upon which owners are desiring higher density residential development
- Urban agriculturally zoned parcels that are being considered for re-zone to residential development
- Urban center parcels currently zoned commercial / industrial which are being considered for re-zone to high density town-home or mixed use development.[4]

3. Limit the geographic scope of the TDR program to allow receiving site communities to benefit from proximal preservation (sending) sites.
The size of the jurisdiction and the geo-political boundaries across which development rights are transferred has a significant impact upon the success of a TDR program. TDR programs would be best focused at the community/city levels to allow both inter and intra jurisdictional transfers, located within a relatively confined geographic area with similar preservation goals, and preferably within an area of similar real estate market values. From a public policy perspective, this will provide less opposition and will be politically and administratively easier to establish.

Receiving sites face varying degrees of opposition depending on community values. We find that communities will need to carefully weigh the trade-offs of increased density with subsequent land preservation. To effectively minimize opposition, the sending sites and receiving sites need to be spatially linked; communities need to be nearby the preserved sites in order to witness the benefits that result from increased density.

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[4] In the cities of Santa Barbara, urban center commercial/industrial parcels may possess a strong near-future demand in a TDR market as these parcels become increasingly valuable for mixed use residential development. Currently, planning agencies are trying to encourage mixed use on these parcels; as this high density mixed use demand grows TDR could be made mandatory.

In the Santa Maria HMA, where agricultural activities dominate the local economy, our political analysis determined that existing communities would benefit most from a TDR program that designates highly productive agricultural areas outside the UGB as sending sites, while restricting receiving sites to the undeveloped areas within the UGB. Where highly productive agricultural lands and urban open spaces are less common throughout the South Coast HMA, however, our political analysis determined that existing communities would be better served by a TDR program that permits the few remaining prime agricultural lands within the UGB to serve as either sending or receiving sites.

4. Create realistic incentives for sending site landowners and receiving site developers.

Transfer ratios act to equalize development value on sending sites with development values on receiving sites and encourage participation on both the supply and demand sides of a TDR market. Transfer ratios indicate the number of TDRs allocated to sending site(s) divided by the parcels' existing allowed zoning[5]. In situations where sending and receiving sites have relatively similar development values a 1:1 transfer ratio can be used. However, in situations with sending sites possessing significantly greater values than receiving sites, a transfer ratio greater than 1:1 is needed. This reduces the selling price of development rights, thereby motivating developers to purchase TDRs while fully compensating sending site landowners for lost development potential (see Figure 5 below).

In the South Coast, due to the uniquely high development values and the subsequent large value disparities from one location to the next, a transfer ratio greater than 1:1 will likely be necessary and could be established as a function of appraised value on the sending parcel(s) and an estimated developer willingness to pay for units across the designated receiving parcels.

For example, consider a hypothetical housing market in which developers are estimated to be willing to pay $100,000 to increase their project densities by one unit across the designated receiving sites. Next assume the development value on a particular sending site is appraised at $500,000. Dividing the development value on the sending site ($500,000) by the developers' estimated willingness to pay for units ($100,000) yields 5 TDRs to be allocated to the sending site landowner.

In the Santa Maria area, due to the relatively homogeneous land values throughout the housing market area, transfer ratios would best be established as a function of the sending sites' existing zoning and distance to the urban centers; (i.e., sites closer to the urban fringe are allocated more TDRs assuming preservation value is highest near urban fringes and decreases further from the urban growth boundary).

[5] For example a 100 acre farm with existing zoning of 1 unit/25 acres is allocated TDRs based on 1TDR/5 acres. The transfer ratio in this case is (1/5) / (1/25) = 5:1

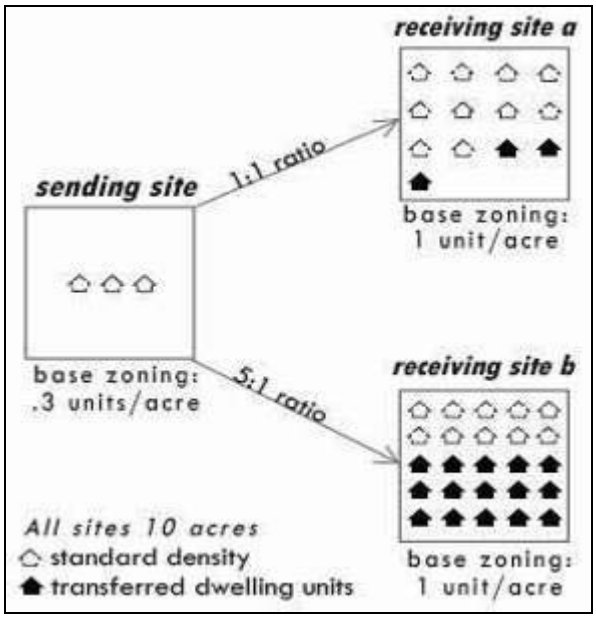

Figure 5: Example transfer ratios

Important incentives for developers are:

- Designating receiving areas that are in high demand for development
- Provide a sufficiently large density bonus that permits developers to build at increased density with TDR purchases (typical bonuses range from 50% to 100% above baseline zoning)
- Allow the developer to finance the cost of the TDR and thereby reduce project holding costs
- Guarantee developers using TDR that their 'by right' amount of development will not be reduced. Use mini EIRs to pre-determine the allowed density bonus and actual existing zoning on the receiving sites.
- Reduce the developers' time to permit with the use of TDR; TDR should expedite the permit process and thus further encourage developers to participate.
- Facilitate Transactions within the TDR market using a bank and/or TDR auctions.

A TDR bank can buy and sell development rights during periods of little market activity and establish landowner and developer confidence. In addition, periodic TDR auctions bring market players together and establish the market price for development rights. Both banks and auctions act to reduce the transaction costs in a TDR market which will further encourage market player participation. Furthermore, a TDR bank can also serve as a clearing house of information related to recent transactions for willing TDR buyers and sellers. This can lead to increased market participation. Seed money for a TDR bank could come from CREF grants, state grants and bond money, local sales tax, and/or private donations.

Conclusion

This report provides evidence to support a TDR program's political and economic feasibility in Santa Barbara County. As with all complex environmental problems that integrate social,

regulatory, and economic variables, the solution to preserving land in the context of future growth is not straightforward. These variables must be exhaustively explored to arrive at balanced creative solutions. As with most public policies, there are those that capture the benefits of the policy and those that bear the cost. A TDR program, if structured properly, minimizes these inequities. We show evidence to support our recommendations that assessing developer demand, requiring purchase of TDRs to up-zone, limiting the size of the program, creating incentives for participation, and utilizing a bank are keys to the success of a TDR program in Santa Barbara County. If Santa Barbara County is to move forward with a TDR policy it will require bold leadership and vision by the community and our public officials.

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ACRONYMS

GIS	Geographical Information Systems
GMA	Growth Management Act, Washington State
GP	General Plan
IGA	Intergovernmental Agreements
IRR	Internal Rate of Return
LUP	Land Use Plan
MC	Marginal Cost
MDR	Market for Development Rights
MR	Marginal Revenue
NIMBY	Not in My Backyard
PRD	Planned Residential Developments
SBC	Santa Barbara County
SLO	San Luis Obispo County
TDC	Transferable Development Credit
TDR	Transferable Development Right
UGB	Urban Growth Boundary
WTP	Willingness to Pay

GLOSSARY OF TERMS

Annexation The process of adding land to a city's jurisdiction

Build-Out The maximum planned capacity of an urban area based on the current General Plan. Planned build-out is rarely reached due to unforeseen issues (e.g. design, site constraints, growth management, and market forces) (Land and Population: 2030).

Development Agreement An legally binding contract between the developer and planning agency granting the developer a 'by right' amount of development on the property.

Developer Return The percent of total revenue a developer expects to make after covering all costs, including payment to investors.

Density Bonus Extra density (above baseline zoning) that can be achieved by purchasing a TDR to develop in a receiving site. The extra density increases the profits for the developer of the receiving site development.

Development Right One of the many property rights associated with a parcel of land; grants the landowner the right to build on the property according to zoning guidelines

Entitlement Costs The costs associated with both ownership transfer of a property and zoning changes.

Financing Costs The sum of costs incurred by a developer in borrowing money from both the banks and private equity investors

Down-zone To change the zoning for an area by reducing the allowable density (units per acre)

General Plan A government's (here, a county or city's) long-range land-use plan

Infill Development on vacant or underdevloped parcels within an urban area

Internal Rate of Return The percent return demanded by private equity investors on lent money

Leapfrog development New development which is not contiguous with existing development, leaving vacant land in between

Marginal Cost Additional cost associated with producing one or more unit of output.

Marginal Revenue Additional revenue resulting from increasing sales by one unit

Net Revenue Total revenue less total costs (not including developer return)

Pre-Development Agreement Legally binding contract between the landowner and developer for an established price of the land; the price may be set at a fixed value or as a percent of revenues from a development project.

Prime Farmland Land with the best combination of physical and chemical characteristics for the production of crops, recently used for irrigated crops, and farmed within the last four years (Land and Population: 2030).Definition should come from Ag Element

Prime Interest Rate The percentage rate on bank loans available to preferred borrowers

Receiving Site Receiving areas are sites that are determined to be more appropriate for development and increased densities. Their selection is typically determined by an existing growth management plan that delineates areas where development should be concentrated.

Sending Site Sending areas are sites that a community would like to preserve and are generally selected based on community input. These areas may include environmentally sensitive land (e.g. wetlands, coastal bluffs), open space, farmland, historical landmarks, etc.

Smart Growth Planned development to sustain long-term strategies for managing growth, which may include protecting open space, reduction of dependence on cars, creating walkable communities, and/ or promoting economic development

Sprawl Typically low density, dispersed, automobile- dependent developments on the edge of cities and towns

Taking The concept of taking comes from a clause in the fifth amendment of the United States Constitution, which states "nor shall private property be taken for public use, without just compensation." Basically, if land is taken for public use through the government's power of eminent domain, the owner must be compensated.

Total Costs The sum of all costs incurred by a developer in a development project – including financing costs

Total Revenue The sum of all revenue gained from the sales of houses in a development project

Transfer ratio The amount of development that is allowed to be transferred from a given sending site divided by the baseline zoning designated on the site. For example, baseline zoning on a sending site allows 1 unit to be built on every 25 acres, but with TDR development rights can be transferred at a rate of 1 unit every 5 acres. This equates to transfer ratio of 5:1 for the sending site landowner. Transfer ratios determine, along with price, the market supply of development rights in a TDR market.

Transferable Development Right The right to develop a parcel of land associated with land ownership which is severable and transferable from the bundle of other rights associated with land ownership.

TDR Policy Local government policy that grants landowners the ability to sell development rights off their property to willing buyers. Buyers of TDRs are granted the ability to increase the number of allowed units on their property. The land from which the rights are sold is referred to as the sending site and the land that receives the development rights is referred to as the receiving site. The development right, once separated from the sending site ensures the preservation of that site in perpetuity with a conservation easement.

TDR Bank Typically a non-profit organization, which buys development rights from landowners and in turn, sells those rights to developers without the need for two transactions to occur at the same time as. The bank should be a reliable (constant) buyer and seller of TDR regardless the economic cycles of the land market. Further, the bank's

participation in the TDR market may boost the confidence of landowners and developers to participate in the market as well.

Under-zoned Parcels which could accommodate more density, but are zoned for lower density

Up-zone To change a parcel's zoning to allow for more units or increased square footage

Urban fringe Land on the outside edge of the urban growth boundary

Urban Growth Boundary or Urban Boundary Line A boundary around an urban area (incorporated and unincorporated), adopted by decision-makers, is a line beyond which development is not supposed to occur (Population Growth: 2030).

Valuation of TDR A number of methods may be used to determine the value of a development right. Local economists and real estate professionals should be assigned to analyze TDR alternatives in a TDR-based zoning study. The analysis involves 1) estimating the value of a development right to a receiving site developer and 2) estimating profits to sending site owners for selling development rights verses selling the entire property.

Willingness to pay (Developer's TDR Budget) The maximum amount of money that may be contributed by a developer for increased density.

Approach

The political and economic feasibility of a transferable development rights policy and optimal policy guidelines are determined through several approaches. These methods range from the quantitative to the qualitative and when combined together provide a resulting set of key findings and recommendations put forward in the conclusion of the report.

Development of useful recommendations for workable TDR policy options for Santa Barbara County is accomplished by examining: (1) TDR background information to determine successful program components, (2) the existing land use regulatory framework, geo-political issues, and development trends in Santa Barbara County, and (3) an empirical economic analysis that models the potential demand for development rights in Santa Barbara County TDR markets. These three approaches are subsequently applied in two different housing market areas (South Coast and Santa Maria). This allows us to compare and contrast how TDR mechanisms might be used in different geographical areas with distinctly different preservation goals, geo-political issues, land values, and growth trends.

This report begins in Part 1 by introducing the background of the problem and clearly articulating the research question we seek to answer. Part 2 introduces the concept of how the TDR mechanism works, its advantages and drawbacks as well as a thorough analysis of the numerous existing successful and unsuccessful TDR programs across the country. The successful attributes of these programs are compiled and distilled into a set of key components that are requisite to a TDR program's success (Part 2.3).

Part 3 of the report provides a context for considering TDR policy in Santa Barbara County by analyzing the regional growth, geo-political, and regulatory issues across the County. This section ends by making apparent the limited capacities of existing local preservation policies to permanently preserve land and argues why TDR could be a timely preservation tool. Furthermore, Part 3 reviews the political realities and housing market sales which demonstrate the uniqueness of the County's five housing market areas and the importance of exploring individual policy options. Consequently, this report presents two separate examinations of TDR policy options: (1) for the South Coast and (2) Santa Maria housing market areas.

Our research shows that a TDR program's success hinges on strong developer demand for increased density and willingness to purchase TDRs. In Part 4 we provide thorough economic descriptions of the mechanisms and market player decisions on both the demand and supply sides of a TDR market. In particular we evaluate the developers' perspectives and approaches to a TDR market in order to better understand incentives that would motivate developers to participate in a TDR program. Developer demand for TDRs will only exist if developers are constrained from building at densities that are not optimal for profit maximization. Therefore, a consideration of developer density constraint must first be confirmed. Part 4.6 describes the concepts and theory behind the economic model we develop with the purpose of estimating the developers' demand and willingness to pay for TDRs.

Part 5 empirically applies the model to both housing markets. Using local house sales data, interviews with developers, County employees, land use consultants, and County and city resources, these analyses produce empirically-based total revenue/acre and total cost/acre functions at various densities. In addition, key information including development costs,

land costs, impact fess, County administrative fees, internal rates of return (IRR), and developer commission fees are included in the cost functions to realistically reflect the expenditures developers face. In determining developers' willingness to pay, the potential funds available for TDR purchases and TDR demand at various densities can be extracted from resulting revenue and cost equations. The assessment of developer demand can assist TDR policy makers in their decisions regarding the designation of sending sites and the allocation of transferable development rights to the sending site parcels.

Parts 2 through 5 represent the significant findings of this report. In Part 6, these findings, as they pertain to program structure, the local regulatory framework, and TDR market economics are synthesized and used to draft suggested TDR policy guidelines in the South Coast and Santa Maria housing market areas. To develop TDR recommendations for these two areas, resources such as County and city comprehensive plans, coastal plans as well as other jurisdictional literature offer land use planning goals and concerns that Santa Barbara County and its cities are currently pursuing. These issues must be taken into account when initiating TDR policy recommendations and the evaluation of a successful TDR program.

Part 6 compares and contrasts the suggested guidelines of the two areas and offers insights into how TDR will likely vary across the County. Part 7 applies the results from the economic analysis in Part 5 to analyze the potential developer willingness to pay for TDRs to increase project densities on identified plausible receiving sites in each of the two housing markets. This provides a direct application of the economic analysis and offers an estimation of the revenues a TDR mechanism could generate for preservation on specific receiving sites.

The report concludes in Part 8 with a compilation of the key findings and a comprehensive list of the key recommendations to assist County and city officials with TDR decisions in the future. A conceptual framework of the approach is detailed in the following diagram (Figure 0-1).

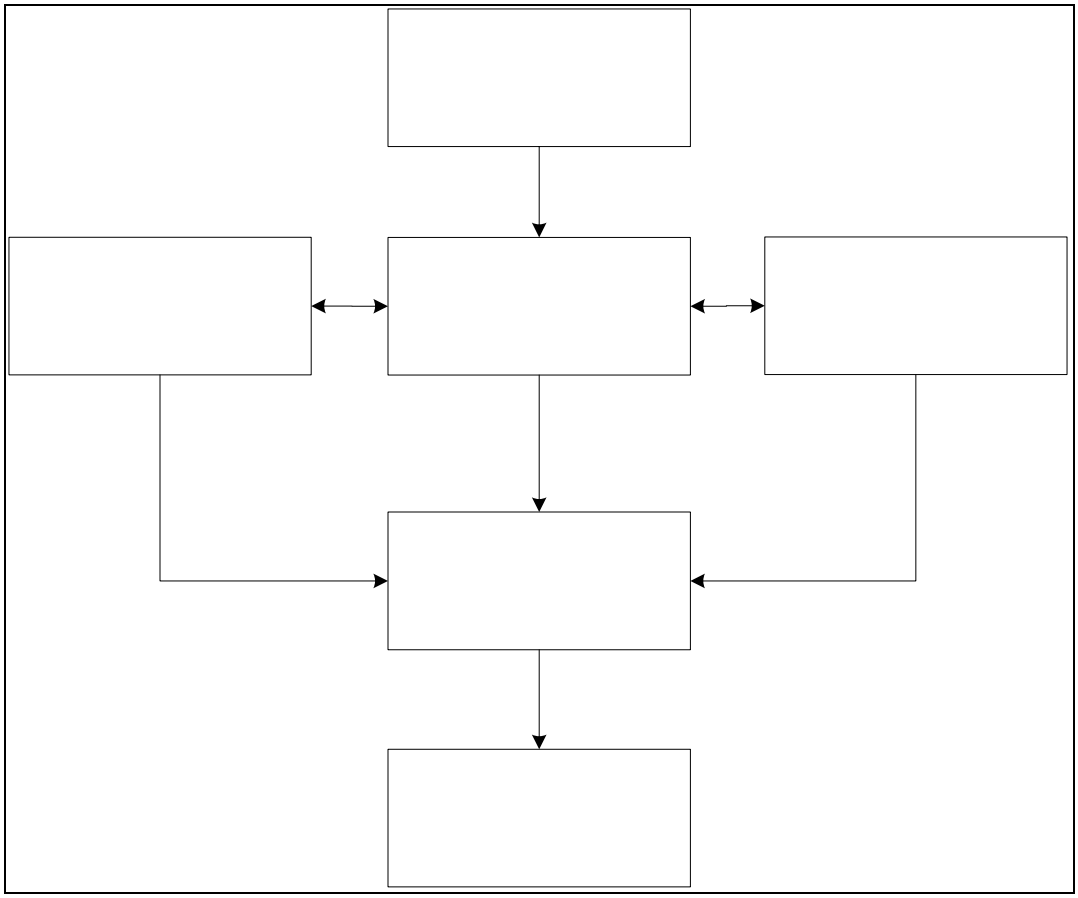

Figure 0-1 Project Approach Conceptual Diagram

TDR country-wide background information

Part 1 Discussion of Project Background and Objectives

1.1. Introduction

Growing communities in the United States face the intense challenge of balancing growth with the preservation of their undeveloped lands. Local planning agencies are struggling with how best to address the negative impacts of urban sprawl. Current debate is centered on the questions of which policies to use and how best to implement them. Recent trends in regulation show local governments using market-based mechanisms such as Transferable Development Rights (TDR), in conjunction with the traditional regulatory policies of restrictive zoning to achieve preservation and growth management goals. As evidence to these changing attitudes, California's State Legislature passed Assembly Bill 857 in 2002 which includes language that provides incentives and encourages local governments to consider market-driven land conservation policies.

Market-based policy instruments, such as TDR, seek to permanently preserve land in the context of future growth and development with minimal taxpayer burden. In many instances, market-based or incentive-based policies have demonstrated increased efficiency in achieving policy goals. Individuals may choose their most appropriate level of participation given their supply and demand preferences. A tenuous relationship exists between landowner property rights and preservation policies; TDR policies minimize this tension by supporting and affirming private property rights. However, if incentives are improperly addressed, the interaction of variables ranging from the geo-political to the economic can lead to market failure and result in market-based mechanisms operating inefficiently.

Santa Barbara County represents a local example of a community struggling with the planning implications of urban sprawl. The County has undergone dramatic growth from 268,000 to over 400,000 residents since 1970 with 14,000 acres of open space and agricultural land converted to urban development[6]. The County Planning and Development population predictions indicate that the next thirty years will mirror the growth experienced in the previous three decades with an expected increase of approximately 160,000 new residents County-wide by the year 2030[7]. Alternatively, the Santa Barbara County Association of Governments (SBCAG) predicts a faster initial growth, followed by a slowing for a net gain of 120,000 new residents as areas run out of residentially-zoned land. The North County is expected to experience the most dramatic growth while the South Coast's growth rate is expected to slow due to the predicted jobs-housing imbalance[8].

Previous development trends in the County have occurred at low to moderately low densities creating a pattern of sprawling development. Using the above mentioned population predictions, the County Planning Department predicts a total city and County-wide housing need of up to 14,361 additional residential units by the year 2012[9], based on

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[6] Santa Barbara County 2030: The Open Lands, 2002, 6.
[7] Santa Barbara County Housing Element, U.S. Census data 2000, 14.
[8] Watkins et al. ,Santa Barbara County Economic Outlook, 2004, 10.
[9] The future housing needs problem is, at its heart, a price problem and not a shortfall of the number of housing units. Santa Barbara County remains a region of high housing demand with a subsequent environment of high priced homes (median home price in Santa Barbara County is $476,000; South Coast $900,000). The County can decide to let the market increase the price of housing to limit the need for extra houses as affordability becomes the deterrent for residents to locate in Santa Barbara. However, the paradigm continues

current average persons per household and average housing densities of 3.3 houses/acre. This housing need is estimated to require 6,528 acres of land to be converted to urban development between 2000 and 2012[10]. Figure 1-1 below illustrates the range of threat to the County's agricultural and open land through the year 2012 with the actual and future projected losses of land to urban development at a range of densities.

Seven of the County's nine urban cities are expected to surpass maximum build-out by the year 2030[11]. This could create tremendous future pressure to develop rural and agricultural land along the urban edges of the County's cities. The trend of urban fringe development is already evident in Santa Maria where the City is annexing large tracts of agricultural land to the west as well as to the east of U.S. Highway 101 for residential housing needs; in the South Coast, the urban growth boundary has been extended once and ex-urban development threatens areas of the undeveloped Gaviota Coast.

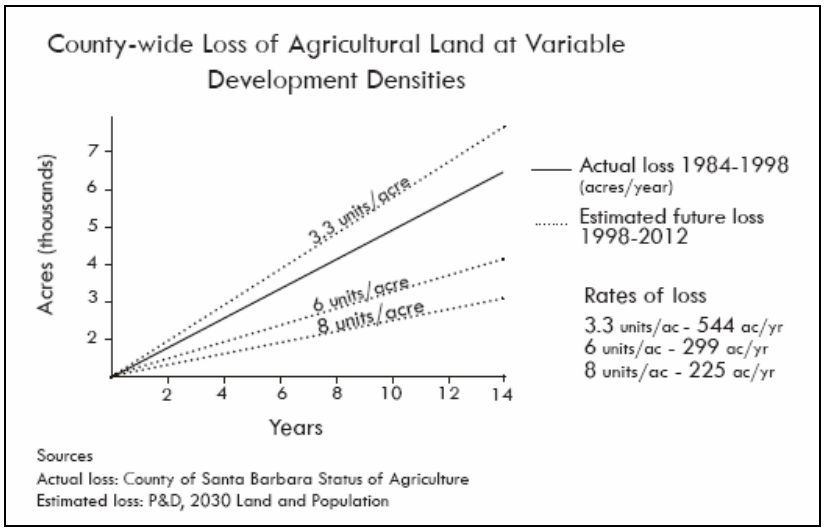

Figure 1-1 County-wide Loss of Agricultural Land at Variable Development Densities

The potential future loss of land to urban development poses a significant socio-economic problem for both the County Board of Supervisors and the Planning Agencies. Agriculture is the County's primary industry, providing for $400 million in annual sales and 12% of County-wide employment[12]. Open space provides ecological value in terms of species habitat and environmental services including water purification and erosion control. Open space carries with it intrinsic and aesthetic qualities which the residents of the region value as essential to their quality of life. The rural character and aesthetics of open space are essential to the thriving tourist industry of the South Coast and the Santa Ynez Valley.

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to be addressed at the planning level as a housing needs problem. In a high demand real estate environment, the County is limited in its ability to affect price with increases in housing supply. The planning agency wishes to encourage a diverse mix of socio-economic residents which requires a diverse mix of housing types and prices, thus establishing the 'housing needs' issue.

[10] SBC Land and Population 2030, 2000, 13; The unincorporated areas of the County call for a housing need of 6,064 by the year 2008, Santa Barbara Housing Element 2003-2008, 121.

[11] SBC 2030: The Open Lands, 2002, 8.

[12] Watkins et al, 2004, 38.

The County and city governments face challenges creating and implementing policies that serve to increase housing density, thus lessening the development pressure on open space. Additionally, local governments face the difficulty of meeting state mandated Regional Housing Needs Allowances (RHNA) which may require rezoning vacant, underdeveloped, and agricultural land to increase the housing stock. Local governments will have to balance open space preservation goals with the intense demand for additional houses. This will require bold vision and use of new and creative solutions by the community, the cities, and County officials.

1.2. Political Climate for Open Space Preservation

A movement toward political action for open space preservation and the mitigation of urban sprawl is currently underway in the United States. The 1998 general election campaigns staged hundreds of battles as local politicians and activists used ballot measures to reign in development or pay for land preservation. In a widely cited report by the Brookings Institute, it was found that no fewer than 240 state and local measures related to conservation, park lands, and smarter growth appeared on the ballots in November 1998[13]. Voters overwhelmingly supported these measures: 72 percent received majority approval-often with margins greater than 65 percent. Bond and other finance measures around the country raised at least $4.5 billion, mostly for land acquisition. The explosion of land preservation ballot measures showed no signs of abating in either the 1999 off-year election or the November 2000 general election. In 1999 voters passed 92 amendments for open space in 22 states and in 2000 voters approved 208 measures in 29 states generating over $7.4 billion in revenue for preservation[14].

The citizenry of Santa Barbara County place a high priority on the rural character and open space of the region. The past and recent supervisory elections saw officials elected to office with a firm commitment to agricultural preservation. These elections, together with grassroots open space preservation movements focused on the direct acquisition of expensive open space parcels such as the Ellwood Deveroux bluffs and Arroyo Hondo Canyon, are evidence to the increasing elevation of land preservation on the local political agenda. Despite this community commitment to land preservation, Santa Barbara County is one of the few counties along the central and south coast which possesses few established policies beyond the state run Williamson Act and strict zoning for the protection of its open and undeveloped lands. To the South, Ventura County has a SOAR[15] initiative aimed at the protection of farmland, and in the past has successfully passed open space tax initiatives to generate funds for preservation. To the North, San Luis Obispo County has in place two TDR programs[16] as well as an open space tax for preservation.

1.3. Problem Statement

Given the above mentioned expectation of future growth, the concern remains as to whether the current preservation policies are sufficient to prevent the future conversion of the County's remaining open spaces and agricultural lands. The Santa Barbara County

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[13] D. Press. Saving Open Space, Politics of Open Space Preservation in California. University of Caifornia Press, 2002, 2.
[14] Press, 2002, 2.
[15] SOAR requires any proposed zoning change of open space or farmland to be put up to a popular vote by citizenry, not a discretionary decision by the planning agency.
[16] San Luis Obispo has the Cambria TDR program as well as a County-wide TDR program

General Plan places a high priority on preserving the rural character and economic viability of its open space. Policies currently used to achieve preservation and managed growth are agricultural zoning, urban growth boundaries, purchase of easements, and the State Williamson Act[17]. These polices fall into two general categories; governmental regulation and direct acquisition with public and/or private funds. These preservation policies and strategies possess limited capacity to permanently preserve land; they are subject to changing attitudes and political wills and thereby could lead to development in the future. Additionally, some of these policies require large amounts of public funds through expensive purchase of easements or high cost administrative and legal zoning changes and would be prohibitively expensive.

1.4. Research Questions

This report asks the research questions: Can a market-based Transfer of Development Rights program in Santa Barbara County be a politically and economically feasible policy tool to preserve valuable farmland, grazing land, and/or environmentally sensitive habitat? Can a TDR policy serve to preserve land in the context of future growth with minimal expenditures of public money? If so, what are recommendations that would help the County structure such a TDR program in specific housing market areas?

1.5. Project Goals

This report seeks to predict the likely demand for development rights in two Santa Barbara County housing market areas by answering the question: how much would developers be willing to pay to increase their project densities? Answering this question provides insight into the potential effectiveness of TDR as a preservation policy and helps to establish the framework of a successful TDR program.

One of the most difficult aspects of implementing a TDR program is developing the right mix of incentives on the demand and supply sides of the TDR market. Farmers and landowners must be motivated to sell development rights instead of building lots. Developers must benefit from buying development rights instead of building houses at existing densities. This report identifies optimal TDR policy guidelines and provides recommendations for the implementation of TDR programs that would meet the needs and demands of the regional communities. Attributes that will ensure success as well as attributes that would lead to program failure are identified. Incentives that stimulate demand for a healthy development rights market are explored and analyzed in conjunction with a determination of who will bear the costs and who will capture the benefits from these policy options.

Ultimately, this report strives to increase the TDR dialogue at the city and County levels to assist planning officials in their decisions regarding future TDR policy.

[17] The Williamson Act is a state run farmland protection program that provides property tax relief to farmers if they keep their land in agricultural production. Contracts are granted on 10 year intervals.

Part 2 Country-wide TDR Policy Background

2.1. Description of TDR Policy

TDR programs allow for the voluntary severance of the right to develop a parcel of land from the ownership of the land itself, and a market is created with buyers and sellers of development rights. Ultimately, the success of the TDR market hinges on stimulating developers to purchase development rights.

2.1.1. Market-based policies

"Market-based" policies encourage behavior through market forces rather than traditional command and control methods. Market barrier reductions can make substantial gains in environmental protection by promoting market activity. When properly designed and implemented, market-based environmental policies should allow a desired level of environmental quality to be achieved at the lowest overall cost to society.

The effectiveness of market-based policies was made evident in the SO_2 tradable permit scheme initiated by the United States EPA in the late 1980's. This program capped the total SO_2 pollution limit, and allowed firms to buy and sell pollution credits among themselves to meet set pollution limits[18]. The success of the market-driven SO_2 pollution reduction scheme has led to an increased interest in market-based policies.

The difference between a pollution and a development right trading regime is that with pollution trading, the system is viewed as "creating rights" to be traded, while development rights trading is viewed as creating a market for "existing rights."[19] Trading development rights in land markets is focused on the premise that markets can achieve greater degrees of preservation of open space above the traditional command and control regulations of zoning and other planning tools at a fraction of the costs to both the private and public sectors.

Market-based models for land preservation directly address the conflict between developing land and preserving land, which is a struggle between community interest in land preservation and private interest in maximizing land value through development[20]. A tenuous relationship exists between private property rights and government preservation policies; TDR policies affirm private property rights and seek to minimize the inherent tension.

2.1.2. The TDR Mechanism

As stated above, a TDR program creates a market for willing buyers and sellers of development rights. The policy allows sending area (areas designated for preservation) landowners to sell the development rights from their property on the open market; landowners retain the bundle of other rights associated with the land while being compensated for lost development potential. Once the development rights are sold from

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[18] Firms that benefited from cost efficient spending on new technologies to reduce pollution would acquire the new technology and sell their pollution credit to firms who found it more costly to apply new technologies than to buy credits. Prior to the program's implementation, the energy industry was skeptical and expected high costs of pollution credits. However, when trading started the selling price of an SO_2 permit was much less than industry expectations; overall SO_2 pollution was dramatically reduced at a fraction of previous regulatory costs.
[19] Fulton, Mazurek, Pruetz, and Williamson. TDRs and Other Market-Based Mechanisms (Brookings Institution Center on Urban and Metropolitan Policy, 2004), 5.
[20] Fulton et al. 7.

the property, the land is protected from future development in perpetuity with a conservation easement.

In receiving areas (areas designated for development), the local planning agency grants developers a density bonus (i.e. the right to build at increased density above baseline zoning) with the purchase of TDRs. Increased density diffuses project costs over a greater number of houses and leads to increased profits for the developer. For example, a developer has the option to purchase three development rights from a sending parcel and is granted the ability to build three extra units above baseline zoning on a designated receiving site. The voluntary nature of TDR programs allows private landowners to make decisions that are in their best interest which can lead to economic efficiency advantages.

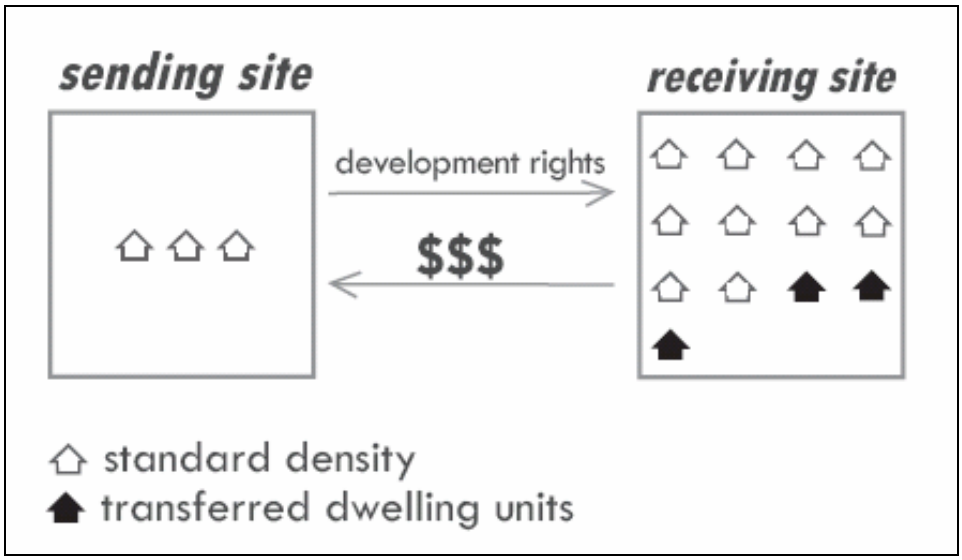

Figure 2-1 Diagram of Sending and Receiving Site Trades

TDR markets are used to relocate development away from areas considered valuable by the community, such as farmland or important ecological land, to areas with infrastructure to handle additional development. The goal is to promote dense development and preserve undeveloped land while simultaneously compensating landowners for lost development potential without excessive public expenditures. The policy should not be employed with the goal of reducing the total amount of development in an area. In some instances the policy simply relocates development, while in other situations it acts to relocate development with an increase in the number of overall dwelling units allowed in order to make trades possible (see transfer ratio in Part 2.2.5 below).

2.1.3. Who Benefits and Who Bears the Costs of TDR

With any policy there are individuals who bear the costs of the policy and individuals who capture the benefits. Effective TDR policy seeks to minimize the inequities between these two parties. The parties that capture the benefit in a TDR program tend to be receiving area landowners who acquire the benefits of increased density capitalized into the value of their land. The increase in land value is usually greater than the cost of the TDR required for additional development. Developers also capture a benefit with the opportunity to build projects at higher densities than would otherwise not be allowed.

Sending area landowners experience a decrease in the value of their land due to subsequent loss of development potential, but are able to retrieve this loss by selling development rights. It is important to point out that a TDR program cannot perfectly match the prices at which all sending area landowners are willing to sell with the prices at which all developers are willing to buy. Some inequities will exist in the market, the challenge is structuring the TDR program such that these imbalances are minimized. This is accomplished by creating a market with sufficient amounts of market players and allow for market compensation to both landowners and developers for participating.

Local governments and community residents benefit when they experience preserved open space with minimal increased impact upon their neighborhood and minimal expenditures of public money. The stakeholders who bear the burdens of the policy are the residents who experience a disproportionate share of the impact from increased density. The burden can manifest itself in the form of decreased property value and increased traffic and congestion. This can quickly result in residential 'not in my backyard' (NIMBY) attitudes towards increased density. These local NIMBY attitudes can be very powerful and can serve to derail TDR a program in its initial stages of development. Ultimately, the public benefit realized from the preservation of the sending parcels must outweigh the impacts incurred with developing the receiving area at higher density.

2.1.4. Advantages of a TDR Program

Respects Property Rights & Accounts for Multiple Stakeholder Interests: The voluntary nature of a TDR policy does not restrict development like other command and control regulatory tools. Rather, its flexible structure starts with the premise that growth will occur and finds common ground where developers, landowners, public officials, and the local community can find ways to accommodate growth in an acceptable way. The policy is equitable in that it respects private property rights by appropriately compensating landowners for lost development potential.

Cost Efficient: Planners and communities can use TDR in situations where zoning regulations and purchase of easements are considered to be too costly. A TDR program has the potential to preserve land, avoid the legality of a 'taking,' and subsequent expensive compensation that exists with other down-zoning preservation strategies. The market for development rights offers economic efficiency gains and minimizes county regulatory costs which a traditional command and control zoning regime would not provide.

Promotes Medium-Income Affordable Housing: A significant social benefit is acquired when the TDR market, if utilized effectively, creates an increased supply of medium-income affordable housing. This is accomplished with urban infill receiving sites. These types of smaller and denser dwelling units generally cost less than developments outside the urban area which require larger infrastructure costs.

Double Incentive to Landowners: Property owners selling a TDR receive the market price for their development right and also receive a property tax reduction from the state and local government by deed restricting their land with a conservation easement. This provides a double monetary incentive for landowners to reduce development on their land.

Decreased Infrastructure Costs: The net benefit of a TDR program should be the creation of more densely populated areas which would result in reduced infrastructure costs. Without

the promotion of infill development, sprawling and sparsely developed areas are likely to occur, resulting in increased infrastructure costs and higher public expenditures.

Preservation of Valuable Land: TDR programs may result in cost efficient preservation of economically valuable farmland, significant environmentally sensitive areas and/or historical sites.

Politically Feasible: A TDR program is potentially politically acceptable with its voluntary and flexible structure which accounts for landowner property rights, and developer interest. The policy should face minimal opposition from rural landowners, and attract support from developers because it allows for increased building opportunities.

Local government is not responsible for managing preserved land: It costs the state or county large sums of money to manage protected areas and public parks. With a TDR, the land protected is privately owned and managed; the county is not responsible for the costs of land management.

2.1.5. Drawbacks of TDR Programs

Potentially High Administrative Costs: The administrative costs of implementing a TDR program (i.e. the potential for a complex and time consuming transfer process) may outweigh the potential benefits of efficiency that the market may provide

Negative Spillover Effects: Neighborhoods receiving increased density may disproportionately bear the burden of increased density within the urban area while the benefit of preserved open space is enjoyed by all.

Demand/Supply Imbalance: A major difficulty is the potential imbalance between the demand and supply of development rights. This 'thin market' scenario can result from too little participation from the developers on the demand side or landowners on the supply side. This usually results from uninformed market players and/or improper incentives to stimulate participation.

Inter-Jurisdictional Political Barriers: A problem exists between city and county governments working together to relocate development and provide density up-zoning. Often, cities do not want to absorb the development from county lands. State level intervention to facilitate these trades may be timely and costly to implement.

Price Disparity: In areas where there is a large disparity in land values, the number of allowable units will need to increase in order to equitably compensate the sending area landowner (i.e. there will be limited incentive by developers to purchase expensive development rights just to build at marginally increased density).

Increased Amount of Development: Transfer ratios greater than 1:1 will lead to an increase in the total amount of development above the current zoning allotments which can create community opposition. Residents consider current zoning as a permanent cap on density and may not understand that density zoning is subject to continual change, especially in regards to a TDR program.

Conflicting with Affordable Housing: If alternatives exist for developers to build at increased density, there will be decreased TDR market activity. The density bonus provided through cities' and counties' affordable housing policies can act as a substitute for TDR.

Additionally, there is the problem that the state may not accept TDR as a viable mechanism to meet Regional Housing Needs (RHNA) requirements.

Patchwork or "leap-frog" Development: Without adequate regulatory constraints, a TDR program's voluntary nature may result in a patchwork of development with preserved and developed land in close proximity to each other with no distinct contiguous area of preservation. Additionally, preserved areas may not be the most ecologically significant if clear eligibility constraints are not outlined for sending sites.

2.1.6. Legality of TDR

Two common questions are realized regarding the legality of transferring development rights from one property to another : (1) does severing and selling development rights from a parcel of land violate the Constitution? (2) How can development rights be transferred from county land to a parcel in an incorporated city?

Properly managed TDR programs do not violate the 'Takings Clause' of the U.S. Constitution. This is primarily because TDR provides landowners with just compensation for lost development potential. One particular area of land use law involving government taking of land prompts concern among citizens whose land is down-zoned through a TDR program to promote its use. According to the Institute for Local Self Governance,

The law of takings derives from 12 words in the 5th Amendment of the U.S. Constitution: ". . . nor shall private property be taken for public use without just compensation." Simply defined, a taking occurs when a public agency either condemns property to build public projects (also referred to as eminent domain) or physically occupies or damages property. The Takings Clause does not prohibit these activities; it merely requires that the public agency pay property owners "just compensation." Zoning changes are commonly used as an incentive to use TDR. In a TDR program, the land owners selling their development rights should receive market compensation for their lost development potential which the courts have ruled as 'just compensation,' thereby not violating the takings clause.[21]

Many states have unincorporated land within their counties which is managed by county governments. These lands have different general plans from their neighboring cities within the county. Transferring development rights from one jurisdiction to another is possible, and effective, with proper state-level involvement. As noted below, Washington and Colorado successfully passed laws to allow for such transfers. California could consider similar options.

The Washington State Legislature passed the Growth Management Act (GMA) in 1990 and strengthened it in 1991 to address their unmanaged growth and desire to protect natural beauty. Beginning in the fall of 1991, King County, the City of Seattle and the Suburban Cities of King County met jointly as the Growth Management Planning Council to develop and recommend Countywide Planning Policies, as mandated by the Growth Management Act, RCW 36.70A.210. This Act is necessary to address cooperative planning at both levels. The Countywide Planning Policies were created in a few different phases, to address

[21] Two major cases concerning TDR have appeared before the U.S. Supreme Court: *Penn Central Transportation Co. v. City of New York* in 1978, and *Suitum v. Tahoe Regional Planning Agency* in 1997.

increasingly complex issues. The Growth Management Planning Council is comprised of elected officials from Seattle, the suburban cities, and King County.

Each phase was approved by the Growth Management Planning Council and was placed in an amendment to the Kings County Countywide Planning Policies. The Countywide Planning Policies, as amended through the Phase II work, serve as the framework for each jurisdiction's own comprehensive plan, which must be consistent with Countywide Planning Policies by December 31, 1995. This ensures that individual comprehensive plans throughout the County will be consistent with the overall vision for the future of King County. The Growth Management Act fundamentally changes the way that comprehensive planning is to be done and land use decisions are to be made in Washington State. The challenge of the Growth Management Act is to establish a countywide vision and devise a strategy to achieve it. This includes balancing growth, economics, land use, infrastructure, and finance. If resources are inadequate to realize the vision, then the strategies and land use must be revised.[22]

Again in Colorado, state involvement was necessary to assist with inter-jurisdictional development right transfers. The *Boulder County Comprehensive Plan* is adopted pursuant to C.R.S. 30-28-106. This Colorado statute states that it is the duty of county planning commissions to make and adopt a master plan for the physical development of the unincorporated area within the county. Besides this important statutory provision, there are several other state laws that are the basis for the plan's ideas.

Part 2 of Article 1 of Title 29 of the Colorado Revised Statutes authorizes local governments to enter into contractual agreements, or intergovernmental agreements, for the purpose of planning or regulating the development of land, including but not limited to the joint exercise of planning, zoning, subdivision, building and related regulations. This statute provides the basis for the Boulder County Intergovernmental Agreements addressed in this document. Intergovernmental Agreements (IGAs) between Boulder County and one or more cities are being used more frequently to address land use planning issues in specific geographic areas. These agreements are legally binding contracts between the government entities. Boulder County has entered into IGAs with municipalities for comprehensive planning, open space acquisition planning, Transferable Development Rights, and historic preservation, just to name a few.[23]

2.2. Key TDR Program Components

Drawing on the experience of more than 140 TDR programs nationwide, the literature suggests that most successful programs share many components in common. Appendix A provides brief descriptions of the important successful TDR programs found in other parts of the country which provide the basis for the following discussion.

A TDR program should be considered for a region possessing a strong demand for density with an active real estate market (i.e. where land is at a premium and developers desire to build at greater densities). In real estate markets where this is not the case, developers will be unwilling to buy development rights and the TDR program will experience minimal participation. Furthermore, communities interested in implementing a TDR program must

[22] King County Countywide Planning Policies, Updated August 2000.
[23] *The Boulder County Land Use Code*, www.co.boulder.co.us/lu/bccp/introduction.htm. November 14, 2004.

truly want the program to happen and be willing to face the trade-offs of greater density for increased preservation. There is enough complexity and uncertainty with TDR programs that interested planners and citizens need to make a concerted effort to educate the community on how the policy works to clarify any misconceptions which can derail early attempts to implement TDR policy.

If the above conditions exist for a TDR program, policy makers must decide how to craft a series of key TDR program components. Combined in a cohesive policy, these components need to create an active development rights market with proper incentives to stimulate developers to purchase development rights and encourage landowners to sell development rights. The structure of these components will vary and is dependant upon the characteristics inherent to each geographical region. Research indicates the six components of utmost importance to a TDR program's success are:

1. Clear TDR program goal(s)
2. Jurisdictional size and inter-jurisdictional cooperation
3. Suitable receiving and sending sites
4. Developer demand for increased density
5. Incentives for receiving site developers and sending area landowners
    a. Density Bonus
    b. Developer Incentives
    c. Transfer ratio
    d. Transfer rate
6. Facilitating the TDR market
7. Supporting TDR planning costs

2.2.1. Focused TDR Program Goals

The community needs to have a clear idea regarding what it wishes to accomplish in a TDR program. Important questions that should be reflected and answered in the goals of a TDR program are: *How much development is appropriate for the community*? *Where should development be discouraged and where should it be encouraged*? *What kind of infrastructure will be needed to support these areas? How will the infrastructure be paid for?*[24]

TDR programs are used in both urban and rural settings to achieve a wide variety of community goals. The overwhelming majority of TDR programs in the United States are used for either environmental protection or farmland preservation or a combination of the two. Fulton et al have organized TDR programs into eight broad categories[25]:

1. General Environmental
2. Specific Environmental
3. Farmland

[24] Gottsegen, Planning for TDR, Burlington County Freeholders 1992, 80
[25] Fulton, Mazurek, Pruetz, Williamson, TDRs and Other Market-Based Mechanisms; Brookings Institution Center on urban and Metropolitan Policy, 2004, 12.

4. Environmental and Farmland
5. Rural Character
6. Historic Preservation
7. Urban Design and Revitalization
8. Infrastructure Capacity

Most TDR programs are located in three parts of the country – California, Florida, and the Mid-Atlantic states of Pennsylvania and Maryland. Policy goals differ by region. In the Mid-Atlantic states, farmland preservation is most prevalent. In California and Florida, TDR mechanisms are most frequently used to achieve specific environmental goals[26].

A TDR policy is flexible; it could be written with multiple goals in mind or posses a singular focus. Research shows that the simpler and more focused a TDR program is, the greater likelihood of its success. For example, the goal of a TDR program could be the protection of the maximum quantity of valuable farmland regardless of how contiguous the preserved parcels. Alternatively, the community could employ a program with the goal of discouraging development on a small and distinct grouping of parcels that are valued by the community because of ecological or historical importance. Whatever the goals, it is important to have them clearly and succinctly defined for the remaining components to be properly addressed.

2.2.2. Jurisdictional Size and Inter-jurisdictional Cooperation

The size of jurisdictions using TDR policies vary. Some communities that might consider a TDR program are relatively large such as entire counties, while others, such as cities or townships, are much smaller. The size of the jurisdiction and the geo-political boundaries with which development rights are transferred across has a significant impact upon the success of a TDR program.

It is very difficult from a public policy perspective to have cities and counties work together to agree on cross-jurisdictional development transfers and density increases. The hindrance to cooperation is often related to conflicting goals and one jurisdiction bearing a disproportionate 'cost' or burden of the transferred development. A current question of concern that has yet to be answered with inter-jurisdictional transfers in California is: *what jurisdiction acquires the housing numbers to count towards their respective RHNA requirements*? In order for these cross-jurisdictional transfers to work effectively, the cities and County would need to establish an equitable transfer mechanism that accounts for both jurisdictions' interests. Only a few programs nationwide possess inter-jurisdictional agreements[27].

If these challenging political realities exist, it is important to maintain a jurisdictional size that limits the number of political boundaries crossed with development right transfers. Transfers that are located within a single jurisdiction, and preferably within the same real estate market area, will face less opposition and be politically and administratively easier to establish and administer. This is especially important for new TDR programs facing many significant hurdles at the initial stages. For example, limiting a TDR program to transfers within a city boundary, or transfers within county lands will face less opposition than a program focused on county to city transfers.

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[26] Fulton, Mazurek, Pruetz, and Williamson, 9, 2004.
[27] TDR programs with inter-jurisdictional agreements: King County, Washington, Boulder County, CO; Pinelands PDC program, New Jersey.

Alternatively, multiple political jurisdictions can try and use regional approaches, and work together to accomplish growth management goals. This involves a blurring of the geo-political boundaries and compromise in order to consider a region-wide growth management strategy. Large jurisdictions undertaking TDR, such as a large county, might consider limiting the scope of the program geographically so that the community can readily see the relationship between the sending and receiving sites and better understand the tradeoffs involved[28]. Any opportunity to give TDR program authority to the more local level should be used if it does not sacrifice the overall efficiency and effectiveness of the region-wide program.

2.2.3. Suitable Sending and Receiving Sites

This is often the most difficult aspect for any TDR program. Directly tied to the goals of the TDR program, the ultimate question a community must ask itself when identifying the receiving and sending areas is: *where does it wish to discourage development and where does it wish to encourage development*?

The single most important aspect of a receiving area is its ability to support development. Obviously, the land should be suitable for development and not unduly restricted by severe topography, wetlands or other sensitive features. The receiving areas should be identified as parcels in high demand for development near existing transportation corridors, water, sewer, and other pre-existing urban amenities. This will minimize site development costs, making development more attractive to developers who wish to build with the use of TDR. It is important to note that appropriate receiving sites are often high valued land with accompanying social benefits in an undeveloped state. The community will need to think carefully about how it wishes to designate the receiving sites, such that developers are motivated to build on the parcel(s) (i.e. a receiving area of *low* value, even with nearby urban amenities, will create minimal demand from developers).

The social benefit of the transferred density needs to stay within the community. When development density is increased in an area at a great distance from the area being preserved, the residents near the receiving site bear an unequal share of the burden without any of the added benefits. It is imperative for residents to see the net benefit of the preservation over the increased density on the identified receiving parcel(s). Research of other programs shows TDR programs work most equitably when the external benefits are relatively local[29]. San Luis Obispo's Cambria TDR program has been successful due to the fact that area residents see the direct benefit of the preserved area in relation to the receiving area.

The minimal size of the parcels receiving development and the aggregate acreage of all receiving parcels needs to be considered when framing a TDR program. TDR programs in New Jersey have assigned density bonuses[30] on receiving parcels to provide for at least 30% to 50% additional development right demand (i.e. excess capacity) in order to allow for

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[28] Kami Griffin, San Luis Obispo County TDR Program Director. Interview 5 January 2005, Santa Barbara, CA.

[29] Thorsnes et al., "Letting the Market Preserve Land: The Case for a Market-Driven Transfer of Development Rights Program." *Contemporary Economic Policy* (April 1999): 262-263.

[30] Density Bonus is the additional number of dwelling units above existing zoning allowed on the receiving site with the use of TDR.

competition among landowners and adjust for receiving area landowners who are unwilling to sell their property for development[31].

Sending areas are generally easier to designate; these sites do not face the local residential opposition to increased density. Effective sending areas for a TDR program are areas where the value of the development right closely matches the value received by the developer from the increased zoning density. The community usually knows the parcels upon which it wishes to discourage development. Sending sites could be prime farmland, environmentally sensitive habitat, parcels in prominent view sheds, land on steep slopes, or areas of historical importance. It is important to point out that when sending parcels are designated with high monetary value relative to the receiving parcels, the sending area landowners will demand a price for their development rights that are higher than what the developer is willing to pay resulting in little market activity. Therefore, to minimize this problem, sending and receiving sites need to be designated such that their respective development values are similar.

2.2.4. Developer's Demand for Density

Strong developer demand for increased density is essential for a successful TDR program; it is the engine that drives the TDR market and without it, any attempt at a TDR policy will struggle. Additionally, developers must be adequately constrained in their ability to build at higher densities on other non-receiving site parcels without TDR. If developers have the opportunity to build on alternative parcels up to their desired density without the use of a TDR mechanism, there will be minimal demand to purchase development rights.

Once the receiving areas have been identified and acceptable density bonuses applied, it is important to conduct a market analysis to assess the developers' demand for increased density on the receiving parcels. Real estate house sales at different densities within close proximity to the receiving parcel(s) should be used to establish developer demand at a range of densities. The market analysis should ultimately reveal the optimal density to build from the developer's perspective, and importantly, how much developers are willing to pay for development rights to build at increased density (this methodology is explained in detail in part 4.6).

A market analysis leads to important discoveries about the relationship between existing zoned densities and the density desired by developers. For example, if the market analysis shows that optimal developer density is roughly equivalent to the existing zoned density on the receiving site(s) the developers are not properly constrained by the zoning. In this situation, the TDR program would need to find alternative receiving sites where developers are sufficiently constrained by zoning. Alternatively, the identified receiving parcels could be down-zoned with the ability to increase density through the use of TDR[32]. This action would stimulate developers to purchase TDRs to achieve higher density.

On the other hand, the market analysis may show existing zoning to be lower than developers' optimal density and no down-zoning is needed to stimulate developer demand. When this is the case a strong developer demand is likely to exist in a TDR market.

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31 Gottsegen, 31, 1992.

32 The courts have ruled that TDR is not considered a 'taking' in this regard because the landowner is not having rights removed from his property.

Furthermore, if the developer demand is sufficiently strong on particular receiving sites, it may be possible to require a mandatory TDR purchase to develop the site[33].

2.2.5. Incentives for Receiving and Sending Area Landowners

Developers must be motivated to purchase development rights for increased density rather than building at existing zoning levels; sending area landowners must view the sale of their development right(s) as a preferable alternative to subdividing and developing on the site. In this latter case, the TDR mechanism needs to be structured such that the landowner is compensated for the fair market value of the potential development on his/her property. If both developers and landowners are not simultaneously motivated to participate in a TDR market, the program is unlikely to succeed.

The following discussion is organized into four sub-components devoted to addressing the required incentives for a healthy TDR market: 1. Density Bonus, 2. Developer Incentives 3. Transfer Ratio, 4. Transfer Rate. These four components seek to properly stimulate participation on both the demand and supply sides of the TDR market.

Density Bonus

The density bonus is determined by the planning agency and is guaranteed to the developer using TDR on a specific receiving site. It represents the maximum increase in density above the existing zoned density on the receiving parcel(s) that a developer is able to build to using TDR. There may be situations where developers will not build up to the maximum density allowed with the density bonus because of low market demand.

When determining the density bonus, the planning agency needs to consider two variables. Primarily, it needs to identify the maximum amount of additional development desired in the receiving area based on carrying capacity criteria. Secondly, consideration of the maximum allowable density increase on specific types of receiving parcels based on the physical limitations of the parcels and the existing infrastructure should be evaluated. For example, if a receiving area is identified in a neighborhood with limited capacity of water or sewer, it will have to adjust the density bonus accordingly or integrate the costs of the new infrastructure into the program – a costly and program derailing venture.

Generally, density bonuses have ranged from 50% to 100% for residentially zoned areas, and up to 600% to700% for some agriculturally zoned receiving areas[34]. The density bonus can be identified on a parcel-by-parcel basis or, more commonly, by using existing zoning classifications with assigned density bonuses. Alternatively, the density bonus for receiving parcels can be based on a distance from a central urban area, with closer sites receiving a greater bonus than more distant sites.

Developer Incentives to Participate in TDR Programs

TDR programs need to be structured so that developer risk is minimized. If developers perceive using TDR to be significantly greater in risk than the status quo, they will not engage in a TDR program. Risk can be minimized and TDR made attractive to developers in several ways.

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[33] Both the Chesterfield TDR program in New Jersey, and the Chatahochie TDR program in Atlanta, Georgia use a mandatory TDR mechanism for the development of receiving sites.

[34] As seen in many TDR programs including: Burlington County, NJ; San Luis Obispo County, CA; Pinelands County, NJ; and King County, WA.

1. Allow developers to finance the purchase of a TDR rather than paying for it up front prior to house sales. This minimizes developer holding costs35 and encourages developers to purchase TDRs. A TDR bank can accomplish this, but if a bank is not initially feasible, financing a TDR may still be possible and should impose a minimal burden on the seller of the TDR.

2. Guarantee the developer that a TDR mechanism will not reduce the 'by right'36 amount of development allowed on the receiving site. Developers value certainty; they need to be assured they will receive the density allotments through a TDR program and that the density bonus will not detract from the initial allowed number of units. If the planning agency, late in the development process, reduces the allowed amount of development, developers will be deterred from using TDR. Receiving sites need to be thoroughly identified and assessed for the actual allotted development on the parcel both with and without the TDR density bonus. If developers are convinced they will receive the pre-determined amount of development, and added TDR density will not reduce this, they will be amenable to engage in a TDR program.

3. Streamlining the administrative process when TDRs are used will further act to encourage developers to participate. Developers using TDR should have a fast track through the approval process. If the TDR program's permitting process is more complex and time consuming than the current system, developers will likely not assume the extra finance and development risks associated with project delays. In some TDR programs, developers were attracted to purchase TDRs based solely on the money saved through a streamlined permit process37.

Transfer Ratio

The transfer ratio seeks to balance supply of development rights with demand for development rights. More formally, the ratio equalizes lost development values on the sending sites with increased development values on the receiving sites. It describes the means by which Transferable Development Rights are allocated to the sending parcels. The ratio is the amount of development rights assigned to the sending parcels in the TDR program (# TDRs per acre) divided by the current zoning of the sending parcel (# units per acre). For example, a sending site with parcel zoning of 1 unit per 25 acres and a TDR allocation of 1 TDR per 5 acres has a 5:1 transfer ratio. Successful programs allocate sufficient TDRs in the sending area(s) such that the TDRs remain affordable to receiving area developers while also offering sufficient compensation to sending area landowners to motivate these landowners to participate.

When considering a transfer ratio, the planning agency must ultimately decide whether it wants to hold constant the amount of dwelling units allowed in its jurisdiction based on the current zoning or increase the total amount of allowable development in the area. Transfer Ratios of 1:1 maintain the total allotted development in the area and should be used when

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[35] Holding costs are the aggregate of development costs incurred by the developer during the lifetime of the project prior to house sales.

[36] 'By Right' development is the number of dwelling units allowed on a parcel based on existing zoning prior to the use of TDR.

[37] See Chesterfield's TDR program in Appendix A

the value of the sending and receiving parcels are roughly equal. Transfer ratios greater than 1:1 relocate development with an increase in the overall amount of development allowed above previous zoning allotments. It may be necessary to have transfer ratios greater than 1:1 when the value of the sending parcels' development potential is significantly greater than the values of increased development on the receiving parcels. This in effect increases the supply of development rights in the TDR market and subsequently decreases the market price, resulting in developers more willing to purchase TDRs.

Figure 2-2 illustrates the concepts of increasing the number of allowed housing units via transfer ratios. A 10-acre sending parcel in a highly valued area has a zoning of .3 units per acre, allowing for a maximum of 3 houses on the parcel. The development right value for each of the three potential houses is assessed at $500,000. A 1:1 transfer ratio would result in developers paying close to $500,000 for each of the development rights from this sending parcel. Instead, a 5:1 transfer ratio would grant 15 development rights to the sending parcel, and thereby allow not 3 units to be transferred, but 15 units to be transferred to the receiving area. This would decrease the willingness of the landowner to sell from $500,000 to $100,000 and subsequently result in developers more willing to pay for development rights.

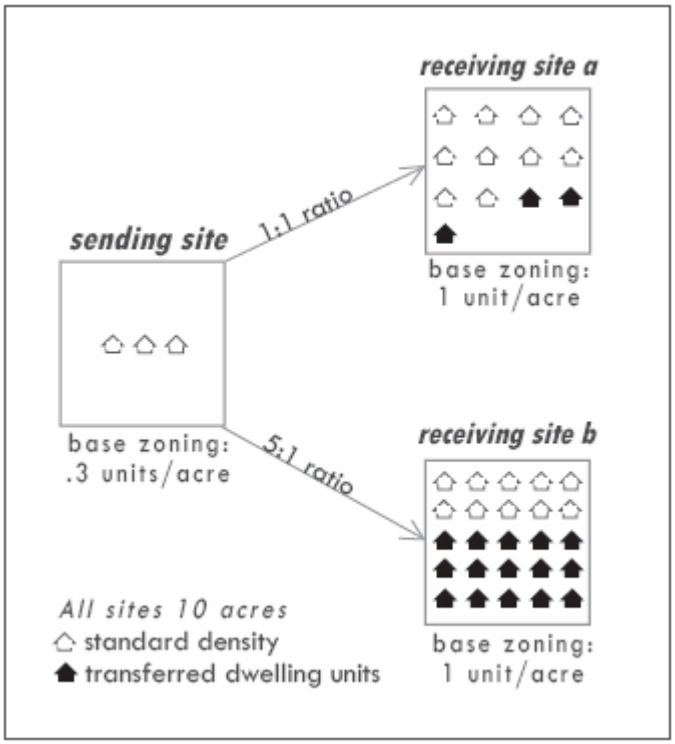

Figure 2-2 Conceptual Transfer Ratio Diagram

Transfer ratios are determined several ways:

1. Working from the supply side of the TDR market, programs can use a transfer ratio to accurately reflect the development potential of designated sending sites. This 1:1 ratio keeps the total amount of development in the region consistent with pre-existing zoning allowances. The number of dwelling units allowed by zoning on the

sending sites is directly transferred to the receiving areas. Total sending area development potential can subsequently be used to determine the extent of needed receiving areas. Chesterfield's TDR program in Burlington County, New Jersey uses this type of transfer ratio (see appendix A).

2. Approaching transfer ratios from the demand side of the market, TDR programs can initially determine the total amount of additional development desired on the pre–designated receiving sites. The total additional allowed development is used to determine the extent of sending sites designation. The transfer ratio balances supply as either 1:1, if enough sending sites are designated, or greater than 1:1 if few sending sites are designated. Programs can opt to have a tiered transfer ratio under this approach where sending parcels in closer proximity to the receiving area are given higher ratios than those further away.

3. Alternatively, programs can use an appraisal and estimation of developer willingness to pay to balance supply with demand and set transfer ratios. A sending site is appraised for value in its undeveloped and developed states. The difference represents the value of the development right to the landowner. The developer willingness to pay for increased density is also assessed, and the appraised development value of the sending parcel is divided by the developers' willingness to pay for TDRs across all the identified receiving sites. For example, recall the situation in Figure 3-1, where development right value on the sending parcel was determined to be $500,000 for each of the 3 allowed units, and the developers' willingness to pay for TDRs is estimated to be $50,000, the number of TDRs allocated to the sending parcel would be (500,000/50,000) x 3 = 30 TDRs assigned to the sending site landowner (i.e. a transfer ratio of 10:1).

Transfer Rate

The transfer rate describes the number extra units (or additional square feet) above baseline zoning a developer is able to build with a *single* TDR. The simplest and most common value used is 1 TDR = 1 extra unit. The transfer rate and the density bonus are different. The density bonus indicates a maximum increase in density a developer can achieve using the TDR process. The transfer rate attempts to minimize the inequities that can arise between developers using TDR to increase density. There are some situations where different types of units would require slightly different amounts of TDRs to be equitable due to the difference in value of the additional type of unit. For example, a high-density townhouse may require the developer to purchase .75 TDRs while a medium density detached unit may require 1 TDR, and a larger low-density house may require 1.25 TDRs.

Alternatively, certain receiving sites will be in more demand by developers than others. If a developer desiring to build on the less valued receiving parcels must pay the same amount for additional development as a developer wishing to build on the more valued receiving parcel an inequity exists due to a transfer ratio that was set to balance total market demand with total market supply. If a higher transfer rate is required (i.e. 1.5 TDR = 1 additional dwelling unit) for the highly valued receiving areas inequities in the market place will be minimized.

2.2.6. Facilitating the TDR Market

When a policy attempts to use market forces to regulate, it is important for the individuals and firms engaged in the market to have adequate information. If market players are misinformed, unaware, and/or the process is too time consuming, the potential success of a TDR program will be sacrificed as high transaction costs will deter market participation. An entity that serves to educate as well as bring buyers and sellers of development rights together will help ensure the success of a TDR program. Conrad and Field conclude that in a poorly organized market without an intermediary auctioneer or bank, the lion's share of surplus would probably accrue to developers. But, with an agency playing a more intermediate role, any surplus involved is expected to be more evenly distributed[38].

TDR Banks

A TDR bank can facilitate transfers with: (1) periodic purchases and sales of development rights, (2) financing the costs of developer TDR purchases, and (3) provide administrative assistance. TDR banks can exist at any level of government; state, county, municipal, or even part of a non-profit organization. While TDR banks are not required, their presence can serve as an important psychological support for landowners, developers, and government officials. This is especially true for TDR programs that are just starting, where confidence in the program's long-term viability needs time to develop, and desirability of development rights in the receiving areas remains unproven. In this case a TDR bank can make 'up-front purchases' of development rights and help to ensure program success at the initial stages.

A TDR bank's responsibilities can range from passive administrative roles to more active participation through careful timing of development rights purchases and sales. For example, TDR banks can act to stimulate the market when market activity is low, and provide stability when the market is volatile. TDR banks can be funded through public bond referenda, dedicated taxes for open space purposes or state and federal grants[39]. Another potential role of TDR banks is the provision of grants and low interest loans to support the construction of receiving area infrastructure. This acts to reduce developer costs and stimulate greater demand to build in the receiving areas.

TDR Clearing House

A clearing house can act to keep an updated list of registered landowners who wish to sell development rights, as well as a list of developers desiring to purchase development rights. In this way market players can easily access one another creating strong market participation and decreased program costs.

TDR Auctions

Alternatively, the planning agency may use regularly scheduled auctions for development rights as a forum to bring willing buyers and willing sellers together. This serves several beneficial purposes. Auctions can directly establish the market price for TDRs and quickly inform market players as to probable supply and demand. This can serve to expedite sales and increase overall market activity. If these auctions are held on a yearly or bi-yearly

[38] B. Field and J. Conrad, "Economic Issues in Programs of Transferable Development Rights" *Land Economics*, 4 (November 1975): 339.
[39] Gottsegen, 67, 1992.

interval, market players will be well informed and the overseeing agency will have updated information to assess the TDR program's effectiveness. Auctions also serve as a forum to educate the public about the local TDR program. These auctions have been known to not only stimulate and educate local landowners about the use of TDR but also attract developers from a larger geographical area.

2.2.7. Supporting TDR Planning Costs

TDR planning costs are one of the most frequently voiced concerns raised by municipalities considering TDR[40]. Not only does it appear complicated, it seems expensive and costs can easily escalate to levels that deter both planners and developers. This hurdle, however, is largely a perceived one. The planning costs for preparing TDR master plans and zoning ordinances are very comparable to those incurred in planning for conventional zoning. Counties probably would not spend more than a total of $100,000 to $150,000 for the planning associated with a preliminary TDR program[41]. This is a small investment considering this amount could easily be spent preserving a single farm under a county or state easement purchase program. Communities can minimize the planning costs associated with a TDR policy by keeping the language of the program straightforward and the administrative procedures minimal. Limiting the program to a small geographical size or small uniform geo-political area can also significantly reduce TDR program costs.

2.3. Range of TDR Policy Choices

The range of TDR applications, from farmland to open space preservation in both urban and rural areas, as well as the policy's varying methods of implementation, illustrate TDR policy's inherent flexibility. Besides TDR programs varying in the geography of their transfers, programs will also vary in their regulatory framework. The discussion that follows uses the regulatory context of TDR programs to describe the observed policy ranges.

The spectrum of TDR policies can be described using three variables. These are:

1. Degree of receiving/sending site designation (i.e. loose criteria designation or parcel specific designation)
2. Degree of regulatory requirements (i.e. voluntary/mandatory TDR purchases, use of down-zoning on receiving site to stimulate market)
3. Jurisdictional size (i.e. County-wide with inter jurisdictional transfers, or confined to a city with no inter jurisdictional transfers)

It is useful to visualize how these three variables interact with one another to produce a TDR policy range. Figure 2-3 illustrates this range from 'a' to 'c.' Program 'a' represents the largest type of program in terms of jurisdictional size with the least regulatory requirements. Adding complexity through additional regulatory requirements would subsequently trend the TDR policy to a smaller area as evident in program 'c.' Successful programs exist within the full spectrum of policy choices, and one combination does not succeed above all others.

[40] Gottsegen, 77, 1992.
[41] Gottsegen, 77, 1992.

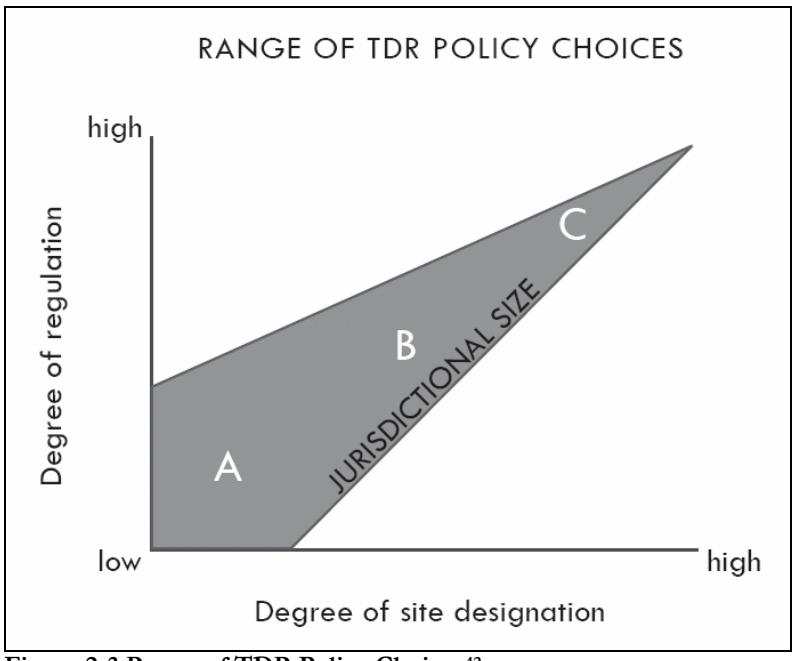

Figure 2-3 Range of TDR Policy Choices[42]

Policy 'A':

Policy 'a' is representative of a Market for Development Rights (MDR) program. Under this policy framework jurisdictional size can be large and there are limited regulatory requirements. An MDR program allows any parcel to act as either a sending or receiving site. The free market identifies land for either preservation or development. Land with high value for farming could be allocated for development if residential home buyers place a greater value on the land. The goals of a program with an MDR structure are usually the preservation of the greatest amount of land regardless of its value and whether the preservation is contiguous. Planners have been reluctant to implement such policies because of community desire for contiguous preservation, not scattered development. They fear such a policy would have the market allocate a disproportionate amount of land desired for preservation to urban development.

Policy 'B':

A more constrained policy version of a MDR program is that found in situation 'b.' Under these conditions regulations and constraints are put in place to maximize social benefit. This kind of policy would designate large areas for growth (receiving areas) and large areas for preservation (sending areas). Jurisdictional program size would shrink to a more manageable area, and the policy framework would assign density bonuses and seek to balance development right demand with development right supply. Transfer ratios would most likely be determined using one of the methods 1-3 in Part 3.2.6. The Pinelands in New Jersey, Montgomery and Calvert Counties in Maryland are several programs that represent the middle of the TDR policy spectrum.

Policy 'C':

[42] Concept: Greve, D; Design: Bernstein, J

A TDR policy characteristic of situation 'c' exists in a very confined and relatively small geographical area, with no inter-jurisdictional transfer difficulties. This allows for regulatory requirements to be high without sacrificing program effectiveness. Program 'c' represents the most prescriptive framework, with sending sites identified and receiving site(s) specifically designated and planned according to a determined amount of development potential from the sending sites. In addition, the receiving sites may require mandatory TDR purchases to be eligible to build in the receiving area. This TDR framework would involve extensive regulatory involvement by the planning agency in order to design the receiving parcel(s) in such a way that developers would be willing to purchase TDRs. Highly prescriptive TDR programs can work if there is a strong developer demand and a working relationship between developers and the planning agency. An example of this is Chesterfield's TDR program in Burlington County, New Jersey.

2.3.1. Discussion of TDR Policy Ranges

Successful TDR programs balance the degree of regulatory requirements with the ability to create incentives for a healthy TDR market. Programs 'A' through 'C' illustrate the regulatory range of TDR programs through a broad range of jurisdictional sizes. These programs represent different attributes available for planners to choose from when drafting customized local or regional TDR programs. The success of TDR programs hinges on the stimulation of developers to buy development rights. If a program is too costly to administer or too costly for a developer to use the TDR process, the program will certainly fail.

It is possible to have efficient degrees of regulation that are not too costly for the planning agency and the market players. From the planner's perspective, a succinct and straightforward regulatory framework guided by a singular goal will make it easier for County staff to follow and administer. Large jurisdictional sizes tend to lead to program failure. Increased regulatory requirements and administrative costs for large areas can easily escalate to deter both planners and developers from using TDR. If jurisdictional size needs to be large, the scope of the program from the overseeing agency should be broad; the details and mechanics of the program can be effectively delegated to the smaller jurisdictions within the region.

Part 3 History and Context for TDR Policy in Santa Barbara County

The idea of implementing a TDR program in Santa Barbara County is not new. In fact, county-level research around the TDR concept dates back more than ten years. The TDR policy option was first considered as a potential planning tool at both the Planning Commission and Board of Supervisors hearings on the Goleta Community Plan in the early 1990s.[43] Following approval of the Goleta Community Plan in July of 1993, County planners made a concerted effort to develop a functional county-wide TDR program. This early effort culminated when the Santa Barbara Planning Commission held a series of Initiation Hearings on a proposed county-wide TDR program throughout June, July, and September of 1994.[44]

At that time, however, the proposed TDR program failed to win the requisite level of political support that would have been needed to proceed from the research phase to the implementation phase. One reason for this initial failure was the program's heavy reliance on large undeveloped parcels in the Goleta Valley as the primary receiving sites for transferable development rights. This aspect of the plan provoked a strong response from existing Goleta Valley residents who opposed the idea of adding higher density development to an area that many perceived to be overcrowded already. Shortly thereafter, many residents in the unincorporated community of Goleta began pushing for incorporation[45], and all further concerted efforts to develop a TDR program in Santa Barbara County were largely stymied.

Nevertheless, at least some County planners, developers, and landowners clearly remain intrigued by the TDR concept as a promising policy tool for managing growth and preserving agricultural land and open space. Recent evidence of this continued latent interest in TDR can be found in a variety of places. In the 1997 Orcutt Community Plan, for example, TDR was highlighted as a policy tool which should be investigated, and several "key sites" were identified as potential sending and/or receiving sites under any TDR program.[46] Similarly, the National Park Service cited TDR as a promising policy alternative when it considered designating the Gaviota Coast as a National Seashore in 1993.[47]

In addition, several private landowners and at least one municipality have experimented with various TDR schemes on single-project or city-wide basis in Santa Barbara County. In the private sector, for example, a private developer recently reached an agreement with the County of Santa Barbara to preserve the coastal property known locally as "Ellwood Bluffs." In exchange for giving up the right to build large homes on the coastal bluff, the developer was first given an inland parcel on which to build (via a County-orchestrated land swap), and then permitted to transfer some of the development rights from the coastal property to the inland parcel. In contrast, the City of Santa Barbara has taken the TDR concept beyond the County's limited use as a single-project mitigation tool. With the adoption of City Ordinance 4790 in 1992, the City of Santa Barbara became the first municipality in Santa

[43] The Goleta Community Plan was approved by the County Board of Supervisors on July 20, 1993 (Planning Commission Staff Report 6/22/94 and 7/6/94, 3.
[44] SBC Planning Commission Staff Report, 9/28/94, 1.
[45] After several unsuccessful attempts during the late 1990s, the City of Goleta was finally incorporated as a City in February, 2002.
[46] Orcutt Community Plan, 2001. 30, KS7.3, KS8.1-8.4, KS11.1-11.3,. KSB.2-B.3, , KS22.2-22.3, KS22.7
[47] NPS Gaviota Coast Draft Feasibility Study, 99.

Barbara County to implement a city-wide TDR program to enable transfers of commercial development rights within the city limits. As noted in the ordinance itself, one of the primary purposes of this program is to provide flexibility and incentives for developers seeking to redevelop dilapidated commercial spaces within the context of a self-imposed growth cap on new commercial space.[48] Even local nongovernmental stakeholder groups such as the Citizens Planning Association and Common Ground[49] have convened either public or private forums on the feasibility of TDR for Santa Barbara County within the past two years.

To some extent, the reasons for this persistent interest in the TDR concept for Santa Barbara County may stem from the public's perception that various County governments are increasingly struggling to address the growth management challenges which have persisted in Santa Barbara County for the past 30 years.

From a regional planning perspective, however, the true value of a TDR program almost certainly lies in its potential to achieve many of the County's widely supported agricultural and open space preservation goals at little or no public expense. As illustrated below, the importance of this potential benefit cannot be overstated.

3.1. Preservation vs. Development Problem

As noted in the introduction to this report, Santa Barbara County represents a prime example of a region that is struggling to meet widely supported agricultural and open space preservation goals while still allowing for (and planning for) continued population growth over the next several decades. On one hand, the County has identified a number of land use management goals that place a high priority on preserving agricultural land and open space. On the other hand, the County is charged with providing a diverse array of housing types for people of all economic levels in a collection of housing markets that have already absorbed significant growth over the past 30 years. A review of the County's current and projected growth trends, juxtaposed against its existing land use management goals and policies, illustrates the reality that additional policy tools will almost certainly be needed to balance and harmonize these obligations in the future.

3.2. Santa Barbara County Growth Trends

In terms of sheer population size, Santa Barbara County has grown rapidly over the past thirty years. According to U.S. Census Data, the total population in Santa Barbara County increased from 264,324 residents in 1970 to 399,347 residents by 2000[50]. Although the County's population growth rates have subsided somewhat in recent years, the total County population still grew by 8% during the 1990-2000 census period[51].

In all likelihood, Santa Barbara County's recent growth trends will continue into the future. Various population growth models currently estimate that Santa Barbara County will need to absorb between 55,500 and 68,000 new residents by 2010.[52] Looking further ahead, the

[48] SB City Code, Chapter 28.95, Section 28.95.010.
[49] Common Ground is an association of Gaviota Coast landowners which periodically convenes to discuss those particular land use issues which are pertinent to their land holdings.
[50] SBC Housing Element 2003-2008, 12
[51] SBC Housing Element 2003-2008, 12.
[52] SBC Housing Element 2003-2008, 13.

County's population is projected to grow by anywhere from 160,000 and 250,000 additional residents by the year 2030.[53]

3.3. Santa Barbara County Land Use Management Goals

In the context of this observed and anticipated growth, Santa Barbara County has outlined a number of land use management goals which are expected to guide all development decisions County-wide. Among the various elements of the Santa Barbara County General Plan, the Open Space Element, Conservation Element, Agricultural Element, and Land Use Element each contain goals which emphasize the regional community's desire to prevent sprawling development patterns that would result in the continued consumption of the County's remaining agricultural lands and open space.

The Open Space Element specifically seeks to "prevent the monotony of seemingly endless urban sprawl that characterizes so much of Los Angeles and Orange Counties." Reflecting on County-wide open space preservation goals, the Open Space Element further asserts that "without doubt, high quality scenic areas should be preserved, both to retain the present quality of life and to ensure the future of the tourist sector of the economy"[54]. The ecological systems' goal outlined in the Conservation Element is to use planning policies to preserve the natural environment so that the County will look relatively the same in the next century.[55] Two of the five primary goals outlined in the Agricultural Element are 1) to ensure the integrity of agricultural operations will not be violated by non-compatible uses and 2) to protect agricultural lands from adverse urban influences.[56] Finally, ensuring that "cultivated agriculture shall be preserved in rural areas" is one of the primary regional goals outlined in the Land Use Element.[57]

By promoting each of these goals through policies and procedures outlined in the General Plan, Santa Barbara County seeks to discourage the premature and unnecessary conversion of open space to urban uses which result in increased costs of community amenities and services to residents.

3.3.1. Existing Policies to Direct Growth Away From Open Space

To meet the various General Plan goals outlined above, Santa Barbara County governments have relied on numerous policy tools to manage growth issues in their respective jurisdictions. As in many jurisdictions in California, much of Santa Barbara County's agricultural land and open space has historically been sheltered from development through the enforcement of Urban Limit Lines[58] in urban areas and low-density agricultural zoning designations in rural areas. Together, these two policies alone have played a major role in directing most new development in Santa Barbara County into existing urban areas over the past 30 years.

In addition to these two ubiquitous policies, however, many local governments have adopted their own unique policies for further managing their particular growth and development issues. Some of these policies are designed to regulate the pace of future development, while

[53] As reported in SBC 2030 Open Lands, 6.
[54] Open Space Element, 15.
[55] Conservation Element, 72.
[56] SBC Agricultural Element, 11-12.
[57] Land Use Element, 80-81.
[58] Also known as Urban Growth Boundaries, or UGBs.

others attempt to constrain the location of future development. In the unincorporated area of Montecito, for example, a Community Growth Ordinance helped regulate the pace of development by limiting the allowable number of new residential units to 19 per year until 2005.[59] The cities of Carpinteria, Santa Maria, and Guadalupe have adopted so-called "urban green belt" policies in an attempt to maintain agricultural and open space buffers between their own communities and other surrounding communities.[60] These policies seek to protect the valuable agricultural lands and open spaces near the urban fringes of existing communities, where most people live, work, and play. Since 1989, the City of Santa Barbara has relied heavily on voter-approved Measure E to increase the intensity of residential development in the city's urban core.[61] Approved by voters on November 7, 1989, as a ballot initiative, Measure E amended the City's charter to limit the amount of new non-residential development to 3 million square feet until 2010.[62] By imposing this strict limit on commercial growth within the city limits, Measure E made it easier for planners and developers alike to focus on residential redevelopment efforts within the city limits. Similar redevelopment efforts have also been initiated in Santa Maria, Orcutt, Goleta, and Carpinteria.[63]

However, even with all of these growth management policies in place to direct development toward existing urban areas, thousands of acres of valuable agricultural land and open space have still been converted to residential or other urban uses as cities in both the South County and North County regions have exercised their annexation and rezoning powers on urban fringe lands over the past 30 years.

In the South County region, over 1,100 acres of agricultural land have been converted to urban use in the Goleta Valley alone since 1967, while another 200 acres of the remaining 1,200 acres of Goleta's urban agricultural land remain threatened today[64]. Similarly, in the North County region, the Santa Maria Valley lost 2,800 acres of mostly prime farmland to urban uses between 1968 and 1998[65]. In the Community of Orcutt alone, 1,110 acres of land have been converted from agricultural uses to residential uses since 1969.[66]

Notably, this persistent consumption of agricultural land is being driven, in part, by the widespread authorization of relatively low-density housing developments County-wide. According to the Santa Barbara County Planning and Development Department, the average densities of the current housing stock range from 3.3 to 6.0 units per acre.[67]

Looking ahead, if future development proceeds along the same lines as Santa Barbara County's historically low-density development patterns, more than 13,000 acres additional acres of undeveloped open space and agricultural land may need to be consumed to provide

[59] 2030 Land and Population, 30.
[60] 2030 Land and Population, 21.
[61] 2030 Land and Population, 29.
[62] SB City Charter, Sect. 1508 + SB City Planning Dept.'s Measure E Handout.
[63] 2030 Land and Population, 40.
[64] 2030 Land and Population, 15.
[65] 2030 Land and Population, 14.
[66] As reported in SBC 2030 Land and Population, 18.
[67] SBC 2030 Land and Population, 13.

as many as 86,000 new housing units for the anticipated number of new residents noted above.[68]

3.3.2. Existing Policies to Achieve Preservation Goals

One of the most reliable ways (indeed, perhaps the only way) to prevent the current development trends from continuing is to permanently preserve the County's remaining rural lands. To achieve the level of protection required for permanent preservation, however, Santa Barbara County governments would need to either assume full or partial ownership of all the remaining rural lands (e.g. through fee-simple acquisitions or the purchase of conservation easements), or convince all of existing landowners to voluntarily place permanent restrictions on the current and future use of their rural lands.

If recent history is any guide, however, the likelihood that existing preservation policies will suffice to mitigate the effects of anticipated future development is not high. Historically, aside from the establishment of Los Padres National Forest in 1898, there has never been a concerted government effort to permanently preserve agricultural lands and open spaces in Santa Barbara County through either fee-simple acquisitions or conservation easements.[69]

In general, Santa Barbara County governments have demonstrated only an intermittent commitment to permanently preserving agricultural lands and open spaces throughout the County as various opportunities to capitalize on temporary external funding sources and/or willing donors presented themselves over time. In the Goleta Valley, for example, only 12 acres of the Valley's 846 acres of productive farmland have been permanently preserved.[70] In fact, according to both the Santa Barbara County General Services Office and the Parks Department, the County has never retained money in its annual budget for the purpose of acquiring agricultural land or open space.[71] Likewise, the sporadic open space preservation efforts of both private citizens and local land trusts in Santa Barbara County have been generally limited to opportunistic single-project initiatives of the "Save the Ellwood Bluffs" variety.[72]

In 2005, the National Association of Home Builders recognized Santa Barbara County as the most expensive housing market (i.e. land market) in the United States.[73] Given the high cost of land in Santa Barbara County, any attempts to permanently preserve the County's remaining agricultural lands and open spaces via County-funded fee-simple acquisitions or conservation easement programs would be prohibitively expensive.

To date, Santa Barbara's private citizens, land trusts, and local governments have collectively preserved over 18,000 acres of open space in perpetuity through direct acquisitions and over 8,000 additional acres have been preserved through permanent easements. Over 7,000

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[68] 2030 Land and Population, 40.
[69] Per interviews with Ron (SBC Real Estate Agent at General Services Office), Peggy Burbank (Planner III at SBC Planning & Development), and Claud Garcia-Celay (at SBC Parks Dept).
[70] SBC 2030 Land and Population, 36.
[71] Per interviews with Ron (SBC Real Estate Agent at General Services Office), Peggy Burbank (Planner III at SBC Planning & Development), and Claud Garcia-Celay (at SBC Parks Dept).
[72] Wherein small groups of local community activists quickly organize independent fundraising efforts to buy specific undeveloped parcels as soon as they are targeted for development by existing landowners or prospective developers.
[73] Per Bankrate.Com article by Holden Lewis on 1/13/05.

additional acres have also been preserved by the State in Santa Barbara County. However, these piecemeal open space preservation efforts have come at an extremely high cost. In 2004 dollars, Santa Barbara's private citizens, land trusts, and local and county governments have collectively paid well over $80 million for just over 10,000 acres of direct acquisitions since the early 1800's.[74] Notably, these costs represent only the cash expenditures involved in securing these acquisitions. The true cost of preserving this land, after all of the associated transaction costs are tallied (e.g. lawyer fees, site inspection fees, appraisal fees, etc.), is almost certainly much greater than $80 million.

Likewise, preserving land through public expenditures on conservation easements would also be prohibitively expensive. The Land Trust for Santa Barbara County estimates that it would cost somewhere between $75 million and $100 million to acquire easements for the remaining unprotected lands on the Gaviota Coast alone.[75]

In the short-term, as an alternative to the prohibitively expensive proposition of spending public monies on direct acquisitions and conservation easements, Santa Barbara County governments have relied heavily on the State's Williamson Act agricultural preservation program to protect the County's remaining agricultural land in rural and urban fringe areas. At present, the state holds 2,187 contracts with private landowners who have collectively agreed to place 551,678 acres (roughly 78%) of Santa Barbara County's remaining agricultural land into agricultural preserve status for a minimum of 10 years through the Williamson Act.[76]

Yet, even if the Williamson Act was used everywhere, it is still only a short-term solution. Because Williamson Act contracts only last for 10 years, this policy cannot, by definition, achieve the County's permanent preservation goals over the long-term. At present, even the short-term viability of the Williamson Act as a primary preservation strategy is proving insufficient to protect the County's remaining agricultural lands. The total number of acres that are being temporarily protected under the Williamson Act in Santa Barbara County has declined in each of the past two years – a sign that some agricultural landowners may want to convert their land to non-agricultural uses in the near future.[77] In fact, Santa Barbara County ranked eighth, fifth, and seventh on the State's list of "Top 10 Counties with the Greatest Amount of Nonrenewal Initiations" in 2001, 2002, and 2003 respectively.[78]

In the absence of appropriate growth management policies (and the political will to consolidate future growth into higher-density development patterns), the anticipated demand for additional lower-density housing will undoubtedly create tremendous pressure to develop rural and agricultural land along the urban fringes of the County's existing cities and unincorporated residential communities.

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[74] Cumulative acquisition cost data in 2004 dollars was derived by applying a Consumer Price Index conversion factor (available online at: http://oregonstate.edu/Dept/pol_sci/fac/sahr/cv2004.xls) to historical acquisition expenditures reported in SBC 2030: Open Lands and the "Histories of Individual Parks" document by Mary Louise Days (1977).

[75] As reported in the Gaviota Coast Feasibility Study, 86.

[76] See Jeff's Excel workbook for status quo of preservation.

[77] 2004 Williamson Act Status Report, 44-45.

[78] A non-renewal initiation is the first phase in the process which landowners must complete in order to opt out of the Williamson Act after enrolling their land in the program for an initial 10-year period.

3.4. TDR: An Idea Whose Time has Come

By comparison to these existing high-cost preservation policies, TDR would be an economically efficient method for achieving Santa Barbara County's agricultural and open space preservation goals. By implementing a TDR program in Santa Barbara County, both city and County governments could harness the power of the private sector to achieve their respective preservation goals at little or no public expense. Overall, as noted earlier in this report, some of the advantages that TDR could offer, over and above those afforded by existing policies, include:

Flexibility – As a market-based program, TDR is a land use management tool that can dynamically respond to changes in supply and demand for future development;

Compatibility – To the extent that it could promote higher-density development inside existing UGBs (near existing urban infrastructure) while simultaneously preserving large amounts of open space in rural land urban fringe areas, a TDR program would be consistent with all of the County's General Plan land use management and housing goals outlined above; and

Efficiency – To the extent that private money would be used to preserve open spaces in the course of executing a transfer of development rights from one parcel to another, a TDR program would be an extremely efficient means to achieve desired agricultural and open space preservation goals.

In light of all the factors detailed above, Santa Barbara County appears to be an ideal location to implement a TDR program for the purposes of managing growth and preserving agricultural land and open space. The rapid development of a TDR program for Santa Barbara County would be both timely and prudent for all of the following reasons:

- There will likely be substantial long-term demand for additional housing in both the North and South County regions;
- Thousands of acres of productive agricultural land are already at great risk for development and annexation into existing urban areas;
- The cost of permanently preserving agricultural land and open space through easements or direct acquisition is prohibitively expensive; and
- Previous efforts to implement a TDR program in Santa Barbara County have set the stage for continued progress though a modified approach.
- Importantly, Part 5 shows that a strong developer demand would exist if a TDR program were implemented in this County.

Part 4 TDR Market Player Decisions

The following discussion explains in detail the economics of a TDR policy from both the demand and supply sides of the market. Factors that lead to insufficient developer demand and landowner supply of developer rights are explored. Thorough analysis of market player participation is used to identify incentives that stimulate developers to purchase development rights and motivate landowners to sell development rights. This section of the report is used to set up the context from which an economic model is derived to estimate developer demand or willingness to pay for development rights in specific housing markets.

4.1. TDR Market Description

TDR programs allow for the voluntary severance of the right to develop a parcel of land from the ownership of the land itself, and a market is created with buyers and sellers of development rights. The equilibrium market price of a development right, 'a' in Figure 4-1, is established where total quantity of development rights supplied equals total quantity demanded. In reality this equilibrium condition is not static but rather dynamic and changes as the number of development rights are bought and sold as the real estate market fluctuates. The area of triangle 'abc' represents the landowners' surplus, a situation where the landowners owning rights 1- 500 are acquiring a surplus as the equilibrium price is greater than the price at which they are willing to sell their development rights. The area of triangle 'adc' represents the developer surplus; the amount developers are gaining when their willingness to pay is less than the price. The relative elasticity of demand and supply dictates the market players who capture the greatest surplus.

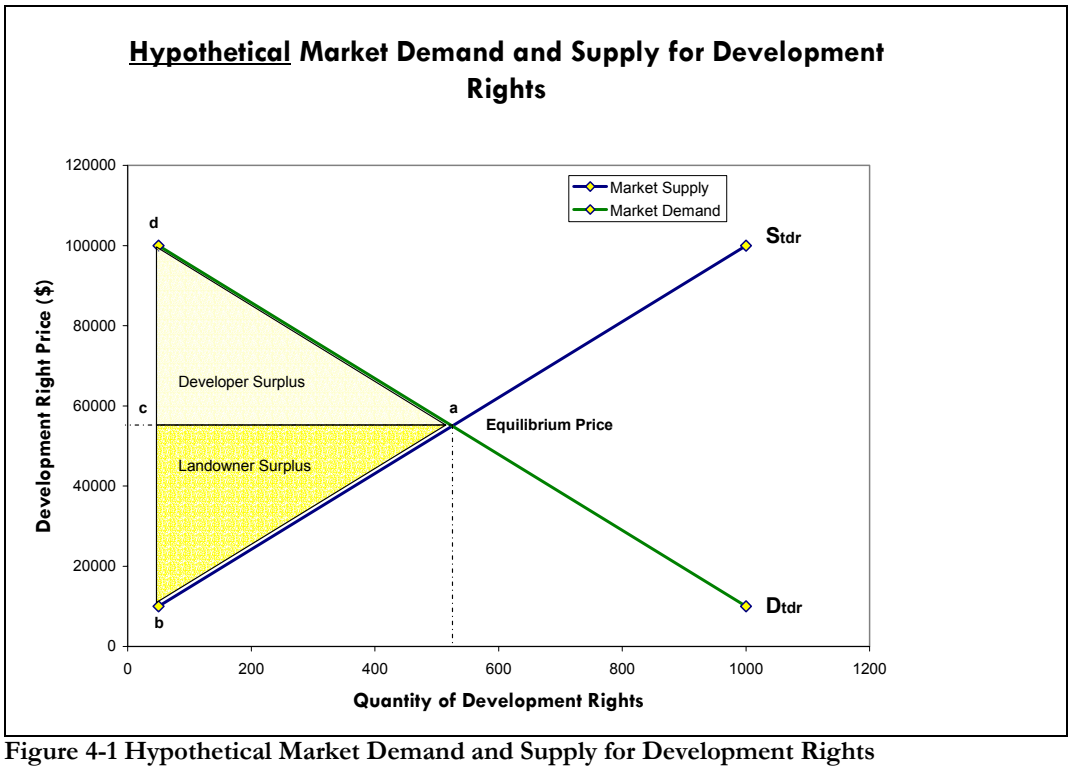

Figure 4-1 Hypothetical Market Demand and Supply for Development Rights

4.2. Difficulties of the TDR Market

Balancing supply and demand in a TDR program can be difficult because of the unusual nature of land markets. Land markets are usually characteristic of few market players and possess unpredictability with market player timing decisions (i.e. a development right sale is a

one-time, permanent action)[79]. The challenge has always been constructing a TDR program with the right mix of incentives to create a healthy market for development rights. Farmers and landowners must have incentives to sell development rights rather than subdividing and building. Developers must benefit from buying development rights instead of building at existing zoning.

On the supply side, programs struggle when they fail to structure the market such that the decrease in value to the sending area from lost development potential is equal to the value of the sold development right. On the demand side, problems arise when it is assumed that the value decrease on the sending site will be directly equal to the value increase created with the ability to build an additional house on the receiving site. A well structured transfer ratio minimizes these market problems by equalizing lost development value on the sending site(s) with increased development values on the receiving site(s) and thereby encourages market player participation.

Unfortunately, in most TDR systems TDR price will not always perfectly match all buyers' willingness to pay with all sellers' willingness to sell. Contributing factors include the varying perceptions of buyers and sellers and the variations in land values between sending and receiving areas. It is impossible for any TDR program to be so perfectly defined that a landowner gets precisely the right value. The market needs to be large enough with active players so that willing buyers and sellers can make satisfactory transactions possible[80].

Often times proper incentives are created, but willing buyers and sellers are uninformed and have difficulty linking up with each other. Innovative jurisdictions using TDR programs have been able to offset this through TDR auctions where the local government advertises the auction and brings together buyers and sellers to establish the equilibrium market price. Other jurisdictions have used TDR banks as a ready supply of development rights; the bank acts as a constant buyer and seller of TDRs to landowners and developers. Conrad and Field concluded that in a poorly organized market without an intermediary auctioneer, developers would probably accrue the most surplus. But with an agency playing a more active intermediary role any surplus involved might be more evenly distributed[81].

4.3. Supply Side of TDR Market

A TDR program caps the total supply of development rights at a certain amount depending upon the allocation scheme and how much land is designated as sending sites. The market supply of development rights is the aggregate of the willingness of landowners to sell their development rights at different prices and is represented as an upward sloping supply curve in Figure 4-1. Landowners are often 'land rich and cash poor,' representing a willingness to sell at lower prices; other landowners are less in need of money may not want to sacrifice the future development potential of their land with a TDR sale. The program is voluntary, allowing the sending site landowners the option to enroll in the program and sell development rights or not enroll and retain the right to develop their land. The latter landowner has decided that he/she can make more money by subdividing the property and building houses. The former landowner, after enrollment in the program, has development

[79] Fulton, et al, 2004.
[80] Roddewig and Ingraham; Transferable Development Rights Programs; APA, (401),1987
[81] Conrad and Field; Land Economics, 1975

restricted on the parcel and can sell immediately or wait to speculate on the increase in value of the development right.

4.3.1. Insufficient Supply

Insufficient supply is a result of sending area landowners not willing to participate, not knowing how to participate in the market, or simply the result of too few TDRs allocated to designated sending areas. TDR programs need to be structured such that the following causes of inefficient supply are minimized. Developer demand for rights may be minimal such that landowners are not willing to sell their development rights for the price developers are willing to pay. Sending area landowners may also be hesitant to participate because the decision to sell development rights is a permanent and irreversible decision to forfeit future development on their land. A TDR bank, clearing house or auction can act to educate and bring otherwise unknowing landowners into the TDR market increasing supply. Finally, proper designation of sending sites (i.e. sending sites with development values roughly equal to development values on identified receiving sites) with adequate transfer ratios can insure sufficient development right supply in the TDR market.

4.3.2. Landowners' Willingness to Sell Development Rights

Assuming a neo-classical TDR market, landowners behave in a rational manner based on profit maximization, where the willingness to sell their development rights increases with increasing price of the development right; as evident by the upward sloping supply curve in Figure 4-1. The value of the right to the landowner is the difference between the land's value in developed and undeveloped states (or in current use). If the value of an unsold development right is growing at the rate of interest then the owner is indifferent to selling or holding the development right. If the value is appreciating faster than the real interest rate, the landowner will hold onto the development right and speculate on its increased value. If the real rate of interest is greater than the value of the development right then the landowner will likely sell and put that money in an investment that yields a greater rate of return[82].

4.4. Demand Side of TDR Market

The market demand for development rights is the aggregate of the developers' willingness to pay for increasing density on all the identified or potential receiving sites in a TDR market. Figure 4-1 shows a downward sloping demand for TDRs, indicating that developers are willing to purchase more development rights as the price decreases. Too often, TDR programs have focused on the supply side of the market and less on the demand side by not addressing the incentives that would stimulate developers to buy development rights. If a strong demand for building at increased density exists and the incentives are put in place, the supply of development rights to be sold by landowners will usually follow.

Developers are likely to support TDR programs because density bonuses allow them to build at greater densities that would otherwise not be allowed under current zoning, resulting in increased total revenues. Additional density also reduces land and site development costs by diffusing costs over a larger number of housing units. The diffusion of costs at higher densities allows for economies of scale, which results in greater total project profit.

It is important to have a strong housing market to create a healthy demand for density. When housing demand is high, builders are more likely to purchase development rights to

[82] Thorsnes and Simons, Contemporary Economic Policy, Vol 17, (2) April 1999.

meet the demand. In urban housing markets, where limited land exists for development with high land prices, developers are often more willing to pay to build additional units in a development project than purchase expensive land to build more houses. Alternatively, if developers are not building up to the maximum allowable density in subdivisions, this is a strong indication that a demand for development rights does not exist and TDR may not be the best policy choice.

4.4.1. Insufficient Developer Demand to Purchase Development Rights

Insufficient developer demand can be the result of several variables:

1. Developers need to be constrained by existing zoning to properly activate the TDR market. Developers will only be interested in participating in a TDR program if it offers them opportunities that are otherwise unavailable. If opportunities exist to build at greater density using another policy (e.g. affordable housing policy) or if they are able to build at greater density on alternative unrestricted parcels in the area, developers will not engage in a TDR program. For example, demand for infill density development will not be strong if land along the urban fringe is not restricted from development. Development on land not designated as receiving areas needs to be limited through zoning, and alternatives for density beside TDR should be minimized in order to stimulate developer participation.

2. Insufficient additional revenue is realized which does not provide the required profit margin and return on additional investment from building at increased density in the receiving areas. If this is the case either the value of the receiving parcel(s) is too low or the allowed density bonus is not great enough.

3. Housing markets may be weak in areas, resulting in only minimal demand for increased density by potential homebuyers and developers.

4. The local government sets up a TDR program in such a way that using TDRs is difficult and expensive for the developer or landowner. High transaction and administrative costs will deter the developer from using a TDR program.

4.4.2. Developers' Willingness to Purchase Development Rights

Assuming a developer behaves to maximize profit, his/her willingness to purchase development rights is based on the profitability of building an additional unit above baseline zoning. This is function of net revenue or project revenue less all project costs. The developer demand is defined as the dollar amount of net revenue a developer is willing to pay for a TDR to increase density while still providing his investors and himself the same expected return. This theory is applied in Part 5.6, wherein an economic model uses empirical data to estimate developers' demand or willingness to pay for development rights in the two real estate market areas of Goleta and Santa Maria.

As a developer purchases development rights to build additional units, the value of houses within the development project marginally decreases due to increased density and smaller lot sizes. However, as density is added, total revenue for a given acre increases because of additional units, while total costs/unit decrease; Figure 4-2 illustrates this concept with increasing subdivision density with and without the use of TDRs.

Developers seek to maximize their project profits, and will purchase development rights up to the density where the additional revenue gained from building an extra unit, is equal to the additional cost of building an additional unit (i.e. marginal revenue equals marginal cost). This represents the density level where net revenue[83] is maximized. When the marginal revenue of building an additional unit is less than marginal cost, the incentive to purchase a development right no longer exists as the developer is paying out more than he receives. The difference between the developer's total costs and the developer's total revenue (i.e. net revenue) represents the theoretical maximum willingness of a developer to pay for development rights to build up to a particular density (i.e. units/acre). In reality, developers will not proceed with a development project unless a certain developer return is met or exceeded. Therefore, the net revenue needs to be reduced by the expected developer return to obtain the developers' funds available for TDR purchases.

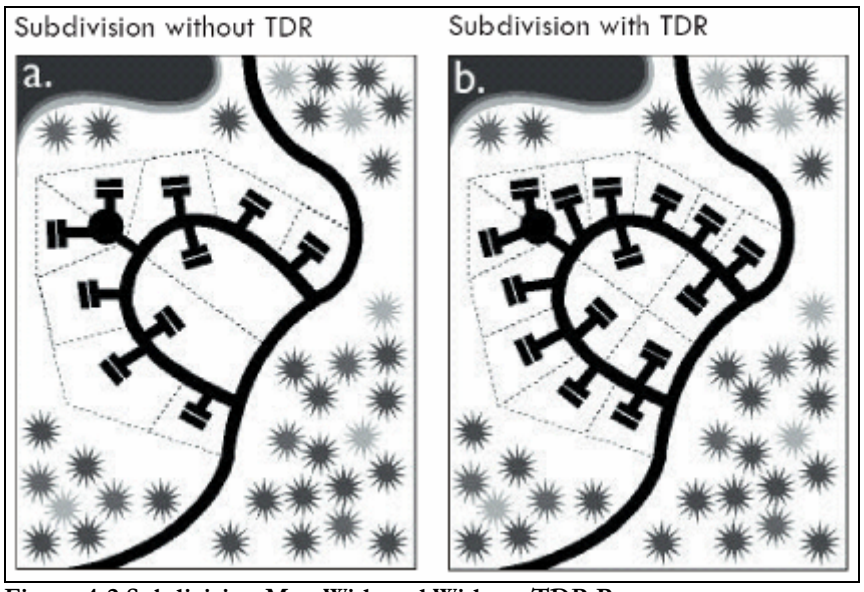

Figure 4-2 Subdivision Map With and Without TDR Program

(source: Pinelands Development Credit Program)

An essential prerequisite to a successful TDR program is a thorough understanding of the development process. When developers consider projects there are a myriad of variables and costs they must take into account before the development project makes economic sense. This section was compiled through several interviews with local developers in an attempt to understand developers' economic perspective and be better informed about drafting incentives for the demand side of a TDR market. The following discussion describes in detail developers' revenues, costs, and expected returns.

Project Revenue

Total revenue is a function of the type and number of houses built in the development project, the current housing market during time of sale, and the finance market. Large low-density single family detached homes yield different revenues per unit than smaller higher density townhouses. Total revenue for a project is the sale price per unit multiplied by the number of units in the development project. The sale price per unit fluctuates based on the

[83] Net Revenue is the revenue above all fixed costs the developer receives from a project (see glossary of terms)

local real estate market and national interest rates for home loans. In a more attractive finance market with lower home loan interest rates, potential home owners will be more willing to buy, due to decreased mortgage payments, creating higher demand and resulting in higher home prices.

Project Costs

Developers incur an array of costs with a development project, and must balances these costs with unpredictability in the housing and finance markets to arrive at a set of development risks. These risks (described in Part 4.5.3) are carefully considered before proceeding in a development project. Project costs include the following: land costs, site development costs, construction costs, impact fees, financing costs – both to banks and private investors, permitting/entitlement costs, developer overhead, commission costs, design costs, legal costs, insurance costs, and property taxes.

Land Costs: The cost of land varies and is a function of location, improvement, and designated use (i.e. agriculturally or residentially zoned). Varied land cost is explained by factors such as an area's access to employment, shopping and amenities, transportation, public facilities, public perception of the area, view-shed, school districts, soil quality, etc. In most modern real estate markets, the cost of land in the country is a major determinant of housing costs. Generally, in the U.S., land costs are estimated to comprise approximately 25 percent of the total development costs of a residential dwelling[84].

Site Development Costs: These are the costs associated with lot grading, and bringing water, sewer and roads to an unimproved parcel. This cost will vary with the specific topography of the parcel as well as the lot size for the houses in the subdivision. With decreasing lot sizes (i.e. higher density) site development costs associated with each lot on the parcel will decrease due to economies of scale. The industry trend is that as the density or number of lots on a parcel is doubled, the individual lot development costs decrease by half[85].

Construction Costs: These are the direct costs of house construction and typically refer to labor and materials. Construction costs are determined on a square foot basis and will vary depending upon the prevailing wages, skill experience, and labor union affiliation in the area. Square foot construction costs can range from $50 - $100[86].

Impact Fees: Impact fees are imposed on developers by the municipality to pay for the increased use of public infrastructure in the area. Impact fees help finance fire stations, schools, hospitals, roads, and traffic related issues.

Financing Costs: The cost of borrowing money is a major component of housing development. Developers borrow money from banks and private investors to pay for development projects. Financing costs depend upon the rate of interest for borrowed money and the time frame of the development project. Banks and private investors need to make a return on their lent money. Developers consider the revenues they need to make to meet the rate of return their investors demand. Small changes in rates of borrowing can have a significant effect on the developer's bottom line.

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[84] Santa Barbara County Housing Element, 2003.
[85] Stapleton, Matt; personal interview, 1/05.
[86] Santa Barbara County Housing Element, 2003.

Banks will appraise the value of the project and generally loan money to a developer for 75% of the total project costs at 1% above the prime interest rate.[87] A developer may contribute 5% to the total project costs, and the remainder will be financed by private investors. These equity investors seek a higher return on their invested money. This return, or internal rate of return (IRR), is generally 20-25%[88]. The time duration of the loans from the banks and investors will dictate the interest payments made by the developers.

Permitting/Entitlement Costs: The local planning agency requires a list of permits with varying costs. These permit costs insure the development industry meets certain standards. In many instances, this can include expensive CEQA reviews to be conducted on the site before permits are granted. Zoning changes and ownership transfer procedures can also cause time delays and lead to expensive entitlement costs[89].

Developer Overhead: This is the 'cost' the developer incurs for managing the project. This can be considered the amount needed to pay overhead expenses. Typical overheads are 2-3 percent of the total revenue[90].

Commission & Closing Costs: A broker or real estate agent is paid 3% of the sale price of the house.

Design Costs: The developer pays architectural firms to design the project. These will vary according to the density, site characteristics, and degree of complexity of the development project.

Legal, Insurance, and Property Tax Costs: A developer will usually purchase land before construction begins and houses are sold. In addition to interest payments on borrowed money, the 'holding costs[91]' of the land for this time take the form of property tax and insurance while the developer is the legal owner. Legal costs may also arise at any point in the development project. In many cases, excessive legal costs can make a development project no longer economically viable to the developer and his/her investors.

Developer Return

Developer return, (developer profit), is the percent of total revenue the developer expects to receive at any density. Typical developer returns in the industry are 13-15% of total revenue[92]. If a developer is not able to receive this pre-determined percent of total revenue after all liabilities are met, s/he is not likely to proceed with the project. In the case of TDR, a developer needs to achieve his/her expected return after paying all costs including the payment to his/her investors before being willing to purchase development rights to increase density.

4.4.3. Developers' Perspectives on Risk

Developers have the array of costs, as described above, associated with a development project. These costs are carefully calculated and measured against the local political land-use

[87] Campanella, Ridgeway; personal interviews, 1/05.
[88] Campanella, Ridgeway; personal interviews, 1/05.
[89] Entitlement costs are cost associated with transferring ownership of the property.
[90] Campanella, John. Bermant Development Corp.; personal interview, 2/05.
[91] Holding costs are the aggregate of costs developers incur during the life of the project prior to home sales.
[92] Campanella, John- Bermant Development Corp., personal interview, 2/05.

climate as well as current and projected interest rates to determine the degree of risk associated with a development project. These risks are: market risk, development risk, finance risk, and construction risk. The aggregate of these risks are considered and ultimately determine the feasibility of a development project.

Market Risk: Developers consider the risk associated with whether they are able to sell the houses after completion for what they had originally planned for prior to construction. The housing market in the area may change during the life of the project resulting in increasing or decreasing residential demand for the type of housing being built. Interest rate fluctuations may also increase during the construction phase and limit a buyer's ability to afford housing.

Development Risk: Risk is associated with the uncertainty of the developer to obtain the entitlements, zoning changes and permits for a project. Included in this are the potential legal fees and insurance. Because developers borrow large sums of money from banks and private investors with desired returns on investment money, time is an especially important variable for developers to consider. A question developers continually ask themselves is: will the project be slowed in the permitting phase, thereby increasing the 'holding costs' and reducing the profit margin? Development risk estimates the time to project approval and how it will affect holding costs.

Financial Risk: The cost of borrowing money is a major component of housing development. Financing can be divided into two categories: construction (interim) financing and mortgage (permanent) financing. Construction financing is usually short-term in nature and is used for acquisition and development of houses. Mortgage financing is long-term, and usually buys out the construction financing and is paid for by income received from sales[93]. Development decisions depend on available financing and the current and projected future interest rates. Minor fluctuations in interest rates may add or subtract thousands of dollars from construction costs and sale prices. Developers borrow money from banks and willing investors to finance the development project. The financial risk increases when the development product has uncertainty in the market place as investors desire a greater return with an associated riskier project. The often cited example of this is a higher density townhouse development that has yet to be proven as a financially secure investment in some housing markets.

Construction Risk: variability in material costs and labor costs can affect the outcome of a project. This risk has generally proven less significant, but there have been instances when the price of lumber dramatically increased in the earlier stages of a project affecting the developer's bottom line.

4.4.4. Discussion of Developers' Perspectives

Developers try to maximize their profit given specific housing types in an area and ultimately must answer the question: *Is the aggregate of risks 1-4 worth the potential profit*? Developers engage in strategies to minimize total risk. A developer will not enter into a contract to buy land without a pre-determined price. This 'pre-development agreement' with the landowner can vary with the landowners' degree of sophistication. Some landowner-developer contracts are set at a fixed price. Other more astute landowners, in possession of desirable land, will

[93] Santa Barbara County Housing Element, 2003.

enter into a contract where the developer pays an upfront amount for the land as well as an additional percentage of the final selling price for the all the houses.

Developers usually will only buy a property once it is 'entitled[94]' for development and a 'development agreement[95]' is reached with the local planning agency allowing a specified number of units to be built. Additionally, local developers may be reluctant to become pioneers in high-density development because of apprehension whether a market actually exists for higher density products. They are leery of taking the economic risk associated with a new style of development and assuming the costs of risky new development over a long planning period.

Local developers see density as a marketability problem. In many cases, they would prefer to sell more homes at more moderately priced higher densities because they move off the market faster realizing a return on their investment more quickly. However, developers perceive buyers as wanting only detached housing products typically built at lower densities. The evidence is mixed about consumer preferences changing toward higher density. In some areas, there is a strong demand for townhouse-style high density homes. In other areas, the market is showing the traditional demand for lower density suburban houses on ¼ acre lots.

The current literature does not appear to answer the question about whether developers continue to build at low density because of market demand or because this is what the building industry has traditionally built since the 1950's. Additionally, there is a great inertia to move toward density and mixed use within both the building industry, and the local planning agencies. Fortunately, statewide and nationwide trends show more and more home buyers interested in compact housing types, particularly condos. This is particularly true of many Baby Boomers who are about to retire and are looking for communities with cultural amenities and good restaurants nearby – seeking freedom from their car[96].

It is important for policy makers to draft TDR policies that minimize the causes of insufficient demand and create incentives to allow developers to build up to the point where their marginal revenue will equal marginal costs. This can be accomplished with programs which: designate proper receiving areas (i.e. valuable areas where developers will want to build), create the proper density bonuses, manipulate zoning to constrain development on desired undeveloped land, streamline the permitting process, guarantee the developers their 'by right' development with TDR, and finance the developer TDR purchase.

4.5. Conceptual Economic Model: Developers' Demand for Development Rights

An empirical economic model is developed with the purpose of assessing the willingness of developers to pay for development rights at a range of densities in a TDR market. This methodology is empirically applied to the South Coast and Santa Maria housing market areas in part 5 and used to frame policy discussions in part 6. Developer demand is defined as the dollar amount of net revenue (i.e. total revenue – total costs) a developer is willing to pay for a TDR to increase density while covering all costs and still providing his investors and

[94] Entitled land is land that has a legally binding contract between the previous land owner and the developer which recognizes the developer's ownership and any agreed upon payment system

[95] A development agreement is a legally binding agreement between the developer and planning agency granting the developer the agreed upon zoning and number of dwelling units

[96] Peter Whoriskey. "Planners' Brains vs. Public's Brawn", *Washington Post*, 8/04

himself the same expected returns[97]. Developers' willingness to pay for TDRs is not constant through density ranges. Rather, developers may be willing to pay more or less for increased density depending upon the zoning the are currently allowed to build at. This demand information is essential for jurisdictions desiring a TDR program and provides a framework with which to structure TDR policy. Programs have struggled by initially allocated development rights to sending areas without adequately addressing the developers' willingness to purchase these rights. This model approaches the TDR market from the demand side. Once the market demand for development rights is assessed, the extent of sending site designation and the transfer ratios can be determined using the estimated developer demand. The steps to the model are outlined below:

Step 1. Quantifying the Relationship of Housing Densities with Housing Prices

It is important to understand how the market price of a house varies with density in the region where a TDR program is to be implemented. The analysis needs to be focused on a specific housing type (i.e. single family detached houses versus townhouses or apartments); a separate analysis should be conducted for different housing types. Data including sale price, house size, and parcel size need to be obtained for a specific housing market area. Neighborhood amenities, such as proximity to schools, ocean, pubic parks, view-sheds, etc. are known to significantly affect the value and subsequent selling price of land and houses[98]. Therefore, it is important to minimize this spatial heterogeneity and use sales data from a housing market area that is relatively homogeneous with respect to geography, age of houses, and land values.

The parcel size associated with a house sale needs to be transformed into a subdivision density. This is accomplished by comparing parcel sizes (in square-feet) to typical parcel sizes of known subdivision densities (units/acre). By calculating density in this fashion roads, sidewalks, and subdivision open space are accounted for which are important from a planning and building perspective. The result is a data set from a fairly homogeneous area consisting of sale price, actual density, and house size.

Regression of subdivision densities on house sale prices provides a functional relationship between the two variables. The 'fit' of the data is important and care must be taken to remove outliers and manipulate the data to give the best representation of how price varies with house density. The fit of the data may need to be adjusted due to under-or over–estimation of the house sale prices at different densities (see Appendix B for further description).

Step 2. Derivation of Total Revenue/Acre

The regression of density on house sales is used to generate a total revenue/acre expression for a range of densities. This is accomplished by multiplying the estimated price per unit at a specific density (i.e. the regression equation from step 1) by the # units/acre at the specified density. Residential preferences and housing demand trends would predict that with increasing density, housing prices would decrease; consumers generally will not pay more to

[97] Alternatively the value of the development right to the developer can be estimated by determining the increase in value land acquires with up-zoning. The marginal change in value of the land as more development is added represents the theoretical value of the development right. This method was not used in this report as the necessary data was not available.

[98] Geoghegan, et al. "Spatial Landscape indices in a Hedonic Framework", *Ecological Economics*, (1997), 2.

live in an increasingly smaller single family detached dwelling unit. But, the total revenue per acre acquired by the developer would increase, up to a certain density, because of the ability to put more dwelling units on a given acre. Beyond this point the density is so great for a particular housing type that consumer demand diminishes; at these densities residents will pay less and live in an apartment or condo rather than a very small detached house. This relationship is shown graphically in Figure 4-3 below.

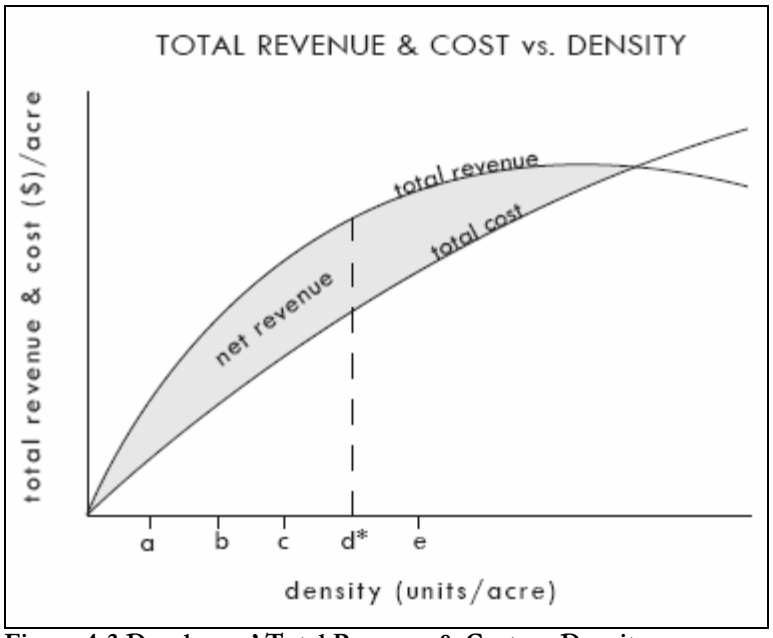

Figure 4-3 Developers' Total Revenue & Cost vs. Density

Step 3. Derivation of Total Cost/Acre

Developers do not build to maximize total revenue, they build to densities that maximize their project profits. Therefore, it is imperative to acquire precise cost information to accurately predict developer demand. All the costs discussed in Part 4.5 need to be determined for the specific area. Costs can vary significantly from one area to the next, therefore careful attention is needed when collecting cost data. The costs include: land costs, site development costs, construction costs, impact fees, financing costs – both to banks and private investors (IRR), permitting/entitlement costs, developer overhead, commission, design costs, legal costs, insurance costs, and property taxes.

When all developers' costs, including IRR to investors are aggregated into a total cost for a house at a particular density, the cost is multiplied by the density (units/acre), to obtain a total cost/acre at a particular density. By plotting the cost/acre versus the density a relationship of costs/acre at a range of densities is observed. Similar to total revenue, it can be expected that as the density increases for a given acre of land, the total costs/acre would increase as more units are added onto the acre. However, as costs become diffused over larger numbers of units, economies of scale are established at higher densities. This results in the marginal, or per unit total costs to decrease. Using regression to derive a relationship between total cost/acre and density this trend would be expected and is illustrated in Figure 4-3 above.

Step 4. Determining Developer Willingness to Pay

Assuming an unsubsidized development project that is economically viable to the developer, the total revenue curve will lie above the total cost curve over a certain range of densities. This is evident when the total cost and total revenue curves are shown together in Figure 4-3. Above some density the costs start to exceed the revenue, but this is not the point of optimal developer density. The optimal developer density (d* in Figure 4-3) occurs where net revenue is maximized and the distance between the two curves is the greatest (i.e. where the marginal revenue gained from an additional unit is equal to the marginal cost from building the additional unit – where the slopes of the two curves are equal). Past this point developers are making less money for each additional unit and would not build beyond d*.

As stated above, the developer demand is defined as the dollar amount of net revenue a developer is willing to pay for a TDR to increase density while still providing his investors and himself the same expected return. Integrated into the total cost function are all the costs incurred by a developer, except the cost of the TDR. Therefore, the difference between the total revenue and total cost curve at the range of densities represents the developer's net revenue above all costs. This is the theoretical maximum amount a developer is willing to spend on TDR to increase density without diminishing the return demanded by either the bank or private investors.

However, a developer has associated with any project a required 'developer return' that must be met or exceeded to make the project economically feasible from his/her perspective at any density. Developer return is calculated as a percentage of total revenue[99]. Therefore the developer's net revenue must be reduced by the developer return at the range of densities to obtain the developer's willingness to pay (TDR budget) for TDRs.

Developer return is a fixed percent of total revenue, and therefore varies with density. It is important to identify the range of the developer's TDR budget as a percent of net revenue. This is accomplished by subtracting the developer return from the net revenue for the range of densities, the resulting TDR budget is divided by the net revenue to obtain the TDR budget range as a percentage of net revenue. The results are fairly limited in range (i.e. 20 – 35% of net revenue), therefore taking a high and low percentage or median should accurately represent developer willingness to pay for TDR at a range of densities. Figure 4-4 is a conceptual graph of the net revenue, and 25% of net revenue reflecting the developer willingness to pay curve with optimal density d*.

[99] Typical developer returns, also called developer profit, are 13-15 % of total revenue

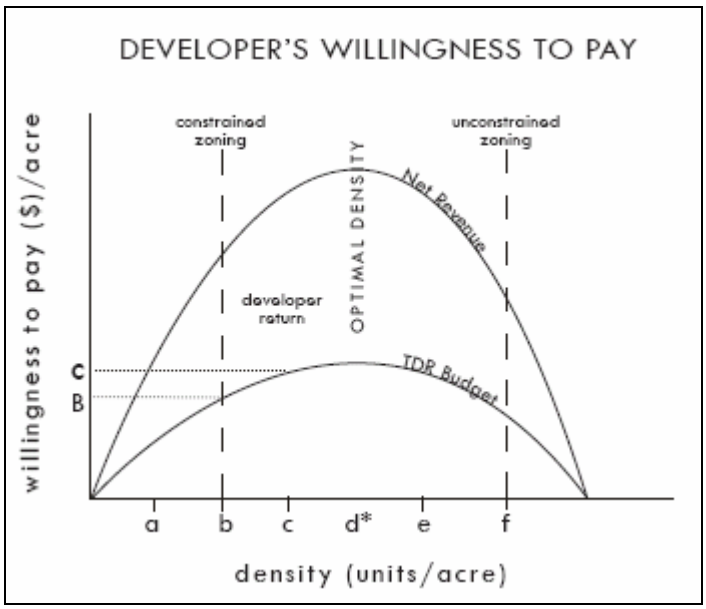

Figure 4-4 Developers' Willingness to Pay

Figure 4-4 illustrates that if the developer wished to increase his density from 'b' to 'c' he would be willing to pay the difference between 'B' and 'C' while still being able to pay his investors the same amount and acquire the same developer return, as at density 'b.' Furthermore, the TDR Budget curve in Figure 4-4 illustrates the concept that the developers' willingness to pay is not constant through the range of densities. Rather, developers are willing to pay more for TDRs at lower densities of single family detached units than they are at higher densities.

If the existing zoning is set at 'f' there will be no developer demand to purchase development rights as developers are not constrained in the housing market by zoning regulations. Alternatively, if existing zoning is set at 'b' the developer is constrained by zoning and would be willing to purchase development rights up to the optimal density of 'd*' and a market for TDR would exist.

Application to TDR framework

Using this model, the development industry's willingness to pay for additional development on the major types of receiving sites (i.e. urban ag, commercial mixed use etc.) can be determined. Additionally, when the relative zoning constraints on these types of receiving sites are identified, the amount a developer is willing to pay to move from the existing density to his/her optimal density can be estimated. If the willingness to pay for development rights is aggregated across all the receiving areas relative to the existing zoning, an approximate total market demand for development rights can be established. This important information can be used to balance development right supply with development right demand (i.e. determine how much land and of what values to set aside as sending parcels and to identify transfer ratios). Furthermore, an empirical demand analysis can provide some insights regarding an estimated market price for TDRs.

This empirical analysis is applied to both the South Coast and Santa Maria housing market areas in the following section. This provides an estimation of the demand for TDRs in these areas and supports the TDR policy discussion for each HMA in Part 6. Furthermore, the

results of this conceptual model are applied in case study receiving site analysis for each HMA to determine the dollar amounts developers would be willing to pay for increased density on identified receiving sites.

Part 5 Economic Analyses of South Coast and Santa Maria Housing Market Areas: Developers' Willingness To Pay for TDRs

Existing TDR programs have struggled with little market activity by initially designating sending sites without adequately addressing the market demand for extra density on the receiving sites. By initially addressing the willingness of developers to pay for extra density on plausible receiving sites, policy makers are better equipped to effectively structure a TDR program. The results help to identify sending sites with values that would establish equitable transfer ratios for balanced supply and demand. This demand-focused approach acknowledges the limitations of the TDR mechanism and the lands the policy can effectively preserve, rather than trying to preserve expensive parcels using receiving sites that would only be of minimal value to developers. Furthermore, the results of a demand analysis provide insights into the optimal (re)zoning of receiving sites with density bonuses and an estimated market price of development rights.

The economic analysis estimates demand in two housing markets (Goleta and Santa Maria) and answers the question: how much would developers be willing to pay to increase their project densities? The analysis finds that developers are constrained at existing zoning levels in both housing markets and would be willing to pay to increase their project densities through TDR purchases. Notably, the analysis indicates that there is a much stronger demand for TDRs in the South Coast housing market than in the Santa Maria. In any case, if a TDR program were to be implemented in these areas, strong developer participation would likely result.

The model uses empirical house sales data and local development industry information to derive total revenues, total costs, and subsequent net revenues for single-family detached development projects on receiving sites at different densities. The willingness to pay for a development right is defined as the amount of money a developer will spend to build additional units on a given receiving site after covering all costs without decreasing the amount he/she pays investors or the expected developer return (profit). The theory behind this method is described in Part 4.6.

The analysis considers only the development of single family detached dwelling units on urban agriculturally zoned receiving site parcels in the Goleta area of the South Coast HMA and the Santa Maria and Orcutt areas of the Santa Maria HMA. It is recommended that additional analyses be conducted for each of the major receiving site categories (i.e. urban agriculturally zoned, commercial/industrial mixed use, and vacant residential) as well as an analysis of the demand for higher density town-home and mixed use projects. With this information, it is possible to estimate a *total* market demand by aggregating willingness to pay across all the identified receiving sites. The method for determining developer demand is comprised of five steps:

1. Quantifying the relationship between sale price and density ~ Regressing density on house sales
2. Calculating total revenue/acre
3. Quantifying the relationship between costs and density ~ Regressing density on total cost
4. Determining net revenue and optimal density
5. Determining developer willingness to pay (developer funds available for TDRs)

The quantitative analysis is addressed below with further detail of data manipulation for each of the five steps for the South Coast HMA analysis in Appendix B and the five steps for the Santa Maria HMA analysis in Appendix C.

Step 1. Regression of Density on House Sales Data

Single-family detached house sales data from the 2004 Multiple Listing Service (May-August) is used for the market analysis of the Goleta housing market. To minimize heterogeneity, data is only used from the Goleta housing market area, making the analysis representative of this area, not the entire South Coast. The Goleta housing market is composed of a mostly homogenous housing stock built within the last forty years with typical parcel sizes of 6,500 to 7,000 square feet (i.e. density 4 units/acre). The median home price in the Goleta area was $833,000 in 2004[100]. The only significant geographical variable within the Goleta market is location on the north or south side of U.S. Highway 101, which is indicative of the proximity to the ocean. The age of the house is determined to not significantly affect price; house size is significant but was left out of the regression because house size is partially captured with density[101].

Single-family detached house sales data from 1997-2004 was gathered from various developer sales teams, real estate Multiple Listings Service, and the County Assessors office for the City of Santa Maria and Orcutt community[102]. To minimize potential heterogeneity, data is limited to the City of Santa Maria and Orcutt area where housing prices are a function of density and house size rather than location and topographic amenities. The Santa Maria housing market is composed of similar house styles built within the last forty years with an average density ranging from 3.3 to 4.6 units/acre. The median home price in the Santa Maria area was $341,500 in 2004 (Economic Outlook, 2004).

The Goleta sales data are plotted against density[103], fitted with a regression trend line and the subsequent equation is shown in Figure 5-1 below. The best fit of the data is a non-linear exponential function ($y = ae^{(bx)}$), ('a' and 'b' are constants, 'x' is density) shown in equation 1:

(1) $\text{Price} = 1{,}000{,}000 * e^{-.0828*\text{density}}$

With $R^2 = .27$; the coefficient and intercept are significant (T = -7.184, and 328 respectively with standard errors of .0115 and 43,193)[104].These statistics indicate the fit is explaining 27% of the data with greater than 95% confidence. Furthermore, the fit is significant (F = 70) with a standard error of $166,061. The dashed error-lines around the regression equation represent +/- one standard deviation of the best-fit line. The exponential fit under-estimates sale price at the lower and higher densities, which leads to a degree of uncertainty in the resulting demand predictions at these densities. See Appendix B for further discussion of step 1 methods, outlier removal, and error analysis.

Santa Maria Valley sales data are plotted against density and fitted with a regression trend line and subsequent equation shown in Figure 5-2 below. The best fit of the data is a linear

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[100] Watkins et al, Santa Barbara Economic Outlook, 2004

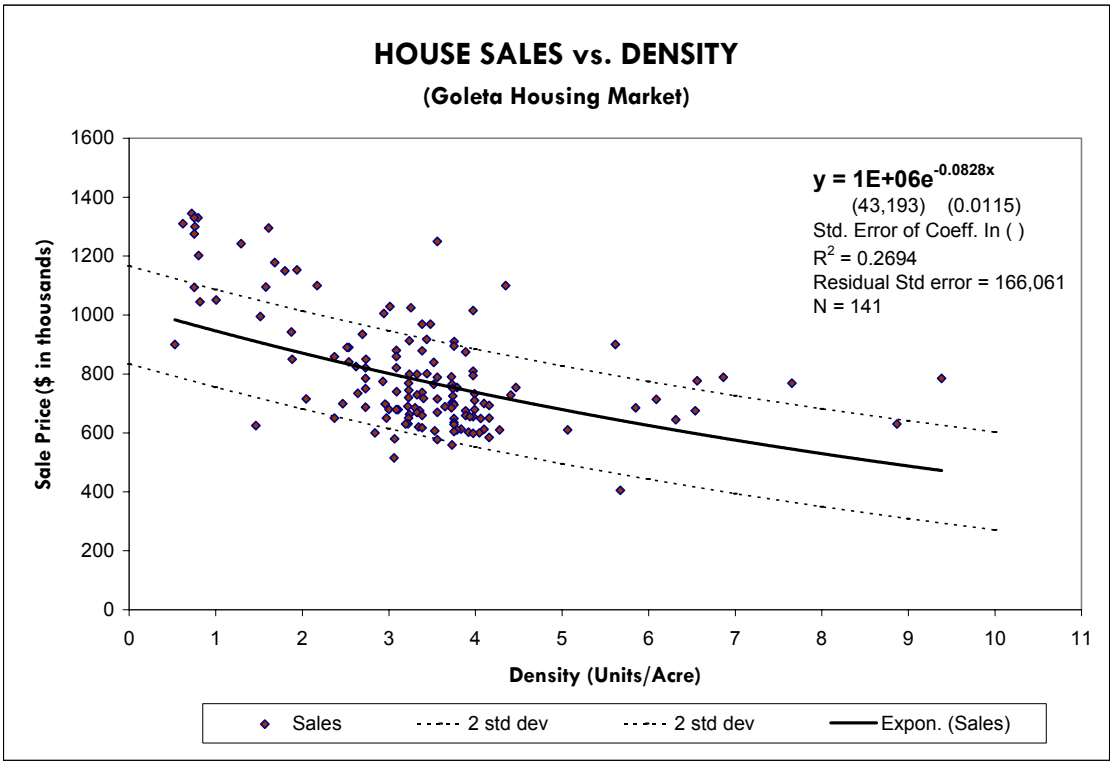
[101] Statistical analysis on significance of house age and house size is detailed in Appendix B.

[102] Sales data was converted to December 2004 dollars using real estate market return data from the Santa Barbara Economic Outlook, 2004.

[103] Density is derived though a correlation of parcel size and typical subdivision densities (see Appendix B)

[104] α=0.05

function (y = m*x + b) ('m' and 'b' are constants and 'x' is density); P-value[105] = 9.654 E^{-15} and R^2 = 0.2595. See Appendix B for further discussion of methods and sensitivity analysis.



[105] $\alpha = 0.05$

Figure 5-1 House Sales vs. Density (Goleta Housing Market Area)

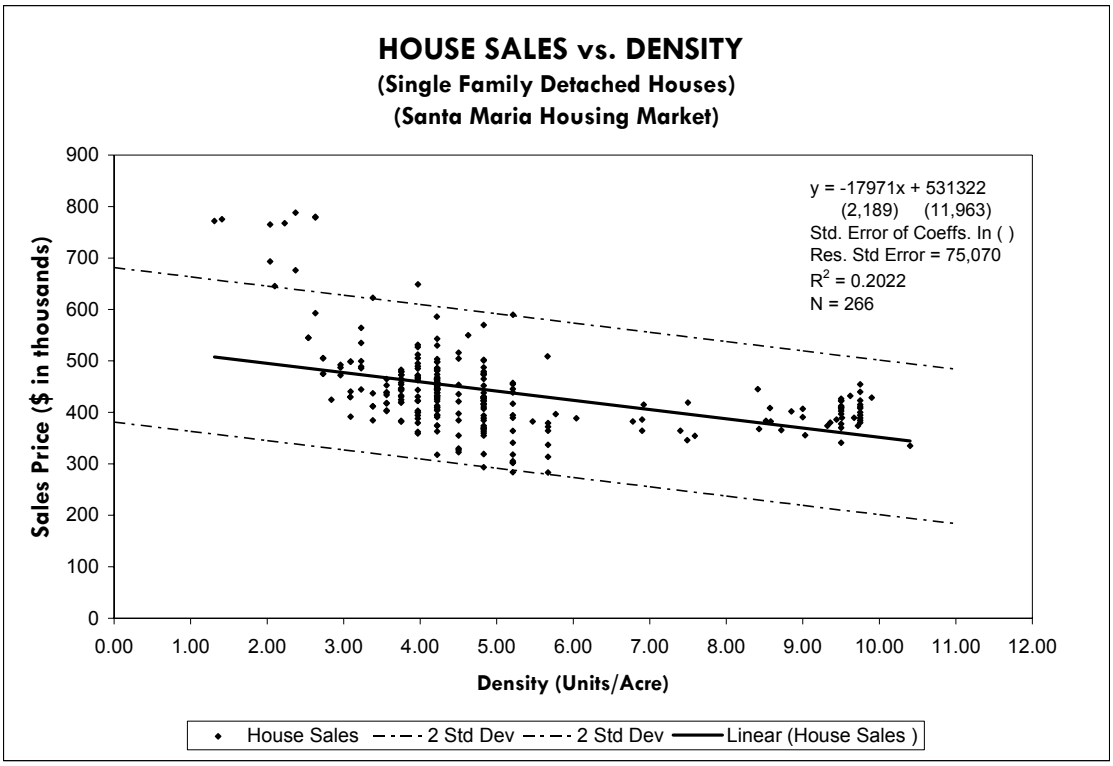


Figure 5-2 House Sales vs. Density (Santa Maria Housing Market Area)

Step 2. Derivation of Total Revenue/Acre

Equation (1) established in Step 1 (Goleta: $y = (1{,}000{,}000)e^{(-.0828*x)}$; (Santa Maria Valley: y = -17971*x + 531322) is used to derive total revenue per acre at a range of densities. This is accomplished by multiplying the regression equation by the density or number of units per acre:

(2) Goleta: Total Revenue = $(1{,}000{,}000* e^{(-.0828*density)})*$ density;

(3) Santa Maria : Total Revenue = (-17971*density + 531322)* density

Figure 5-3 and Figure 5-4 illustrate the expected trend that total revenue/acre increase as density increases. Total revenue increases up to a maximum density of 11 units/acre and 15 units/acre for Goleta and Santa Maria Valley respectively, with a marginal revenue that is continually decreasing to zero at a density of 11 and 15 units/acre for each of the two areas. Beyond these densities, the marginal revenue is negative as homebuyers are no longer preferring detached units, but rather higher density town-homes, condos and apartments.

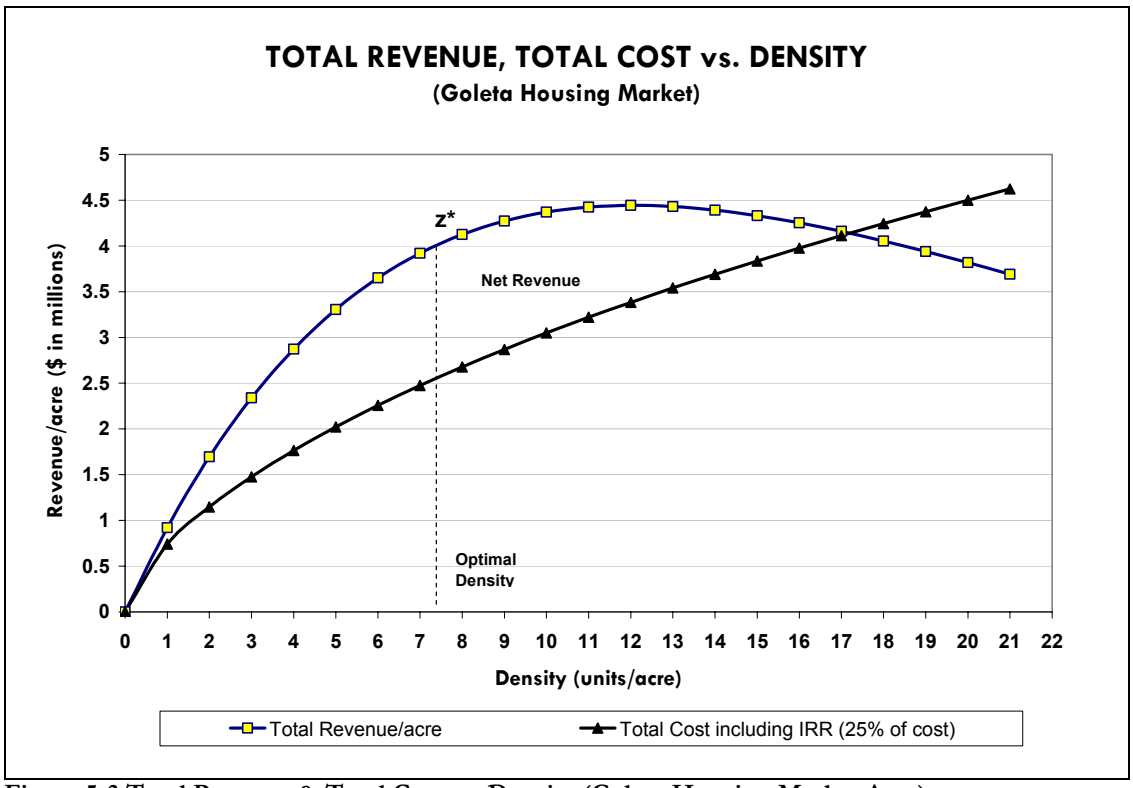


Figure 5-3 Total Revenue & Total Cost vs. Density (Goleta Housing Market Area)

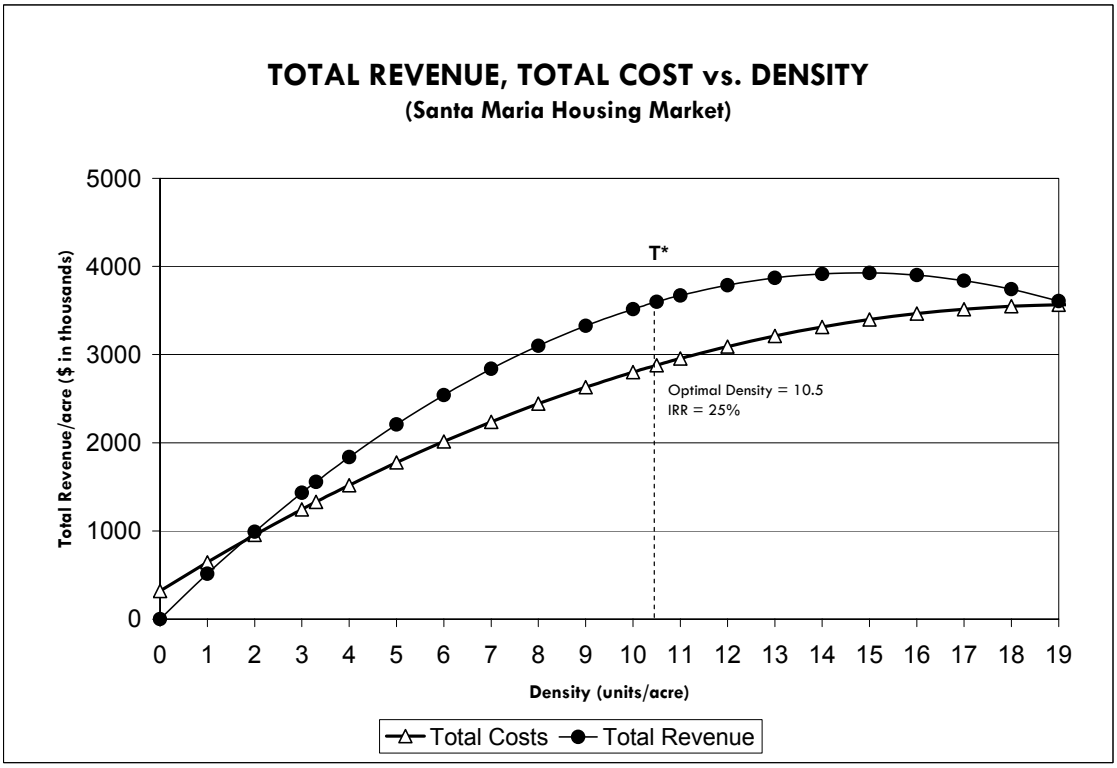


Figure 5-4 Total Revenue & Total Cost vs. Density (Santa Maria Housing Market Area)

Step 3. Derivation of Total Cost/Acre

Developers incur an array of costs associated with development projects (see Part 4.5.1). Cost information was obtained through multiple interviews with local developers, information from County documents, and a comparative analysis of current vacant and undeveloped land values. These costs include: (specific cost details are explained in Appendix C)

1. Land Costs
2. Site Development Costs
3. Construction Costs
4. Impact Fees
5. Financing Costs – interest paid on bank loans & interest paid to equity investors (IRR)
6. Permitting/Entitlement Costs
7. Developer Overhead
8. Commission & Closing Costs
9. Design Costs
10. Legal Costs
11. Insurance Costs
12. Property Taxes

It is important to point out that the land values used in this analysis (Goleta: $200,000/acre; Santa Maria Valley: $170,000) are the values associated with urban agriculturally-zoned parcels in the Goleta and Santa Maria area. When an urban agriculture parcel is identified as a receiving site, the land increases in value due to the potential for greater development opportunities. Therefore, the cost of the land to the developer may increase. It is difficult to estimate the extra amount a landowner would ask for his/her receiving site property; but it should be noted that land costs may likely be different than what is used in this analysis[106].

The array of costs are combined into a unit cost at a particular density. The unit cost is multiplied by the density (units/acre) to achieve a total cost/acre at a particular density. Plotting the total cost/acre versus the density (Figures 5-5 and 5-6 below) shows a relationship of total costs/acre at a range of densities. The best fit of the cost data is a power function for the Goleta data, and polynomial for Santa Maria:

(4) Goleta: Cost = $651626*density^{0.6094}$

(5) Santa Maria: Cost = -8437*density^2 + 331986*density + 326085

Figure 5-5 and 5-6 show the expected trend that as density increases, the cost per acre also increases. However, the total cost per acre increases at a decreasing rate as economies of scale establish themselves (i.e. greater density diffuses costs over more units); in economic terms the marginal costs are decreasing as density increases. The error-lines represent +/- two standard deviations of the data fit.

[106] The developer 'TDR budget' determined in this analysis can be thought of as the actual increase in land value as the land changes its ability to absorb more units. However, it is difficult to ascertain how much of this increase in value will be acquired by the landowner selling the receiving site or the developer building on the receiving site.

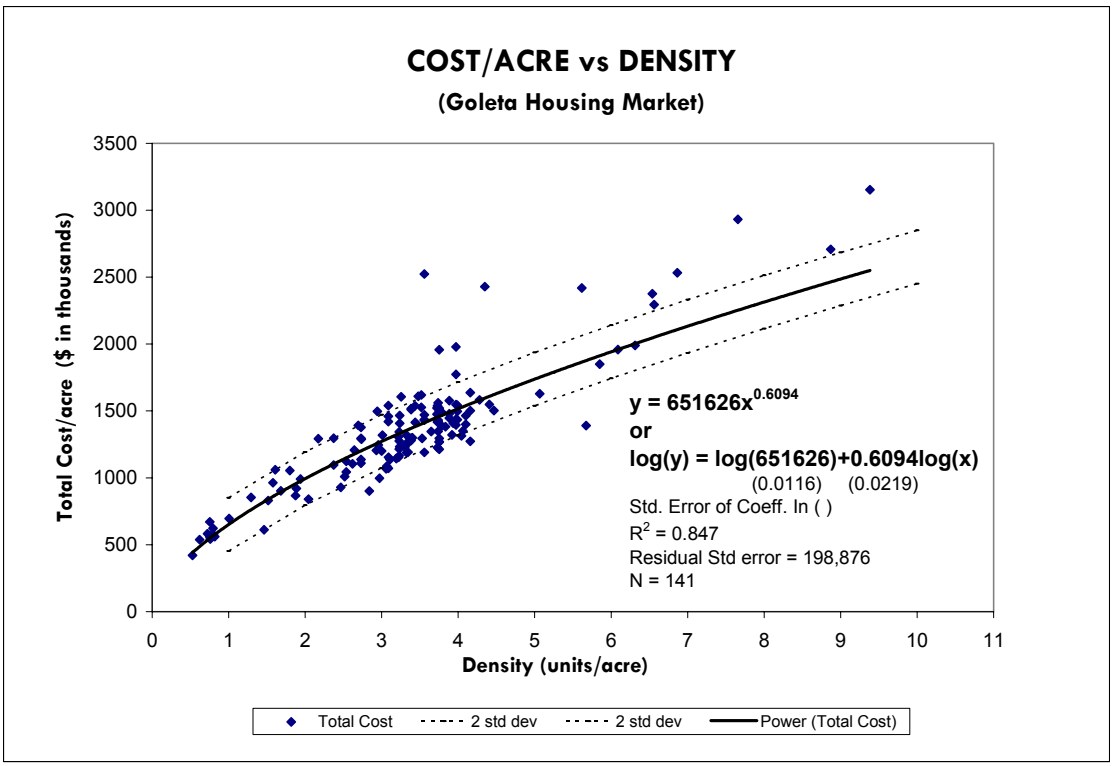


Figure 5-5 Cost per Acre vs. Density (Goleta Housing Market Area)

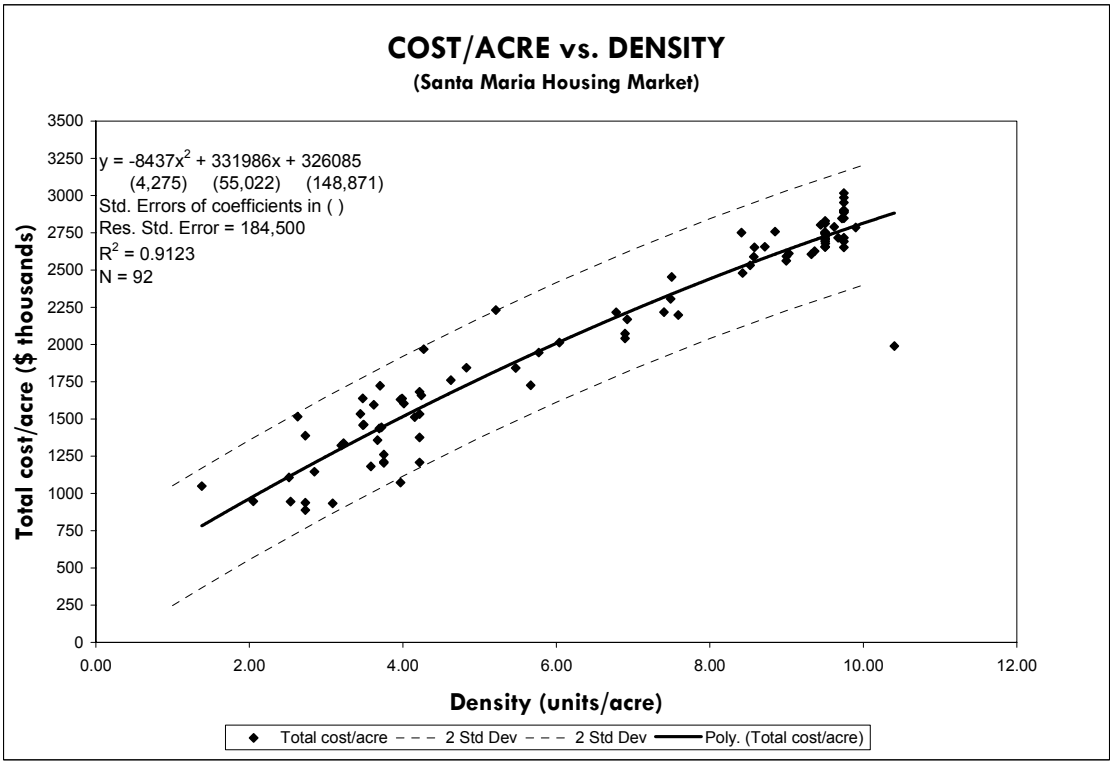


Figure 5-6 Cost per Acre vs. Density (Santa Maria Housing Market Area)

Step 4. Determining Net Revenue and Optimal Density

Developers are willing to purchase extra density up to the point where the marginal revenue gained from an additional unit is equal to the marginal cost of building the additional unit.

This optimal developer density (Z* in Figure 5-3 and T* in Figure 5-4) occurs when the distance between the total revenue and total cost curves is greatest; where net revenue is maximized (i.e. where the slopes of the two curves are equal). Past this point developers are making less profit and no incentive exists to build at densities above Z* or T*.

Step 5. Determining Willingness to Pay for Development Rights (TDR Budget)
The difference between the total revenue and total cost curves (i.e. net revenue) at the range of densities represents the revenue above all costs and the theoretical maximum amount a developer is willing to spend for a TDR while still covering all costs and payments to investors. However, developers expect to make a certain profit or "expected developer return" and most likely will not proceed with a project unless this is met or exceeded. This developer return represents the money paid to a development company for its expertise and knowledge of the development market. Discussions with local developers revealed that on average developers need to make 13% of their total project revenue at any density as an acceptable developer return[107]. Both the Goleta and Santa Maria analyses use 13% of total revenue as developer return.

In these analyses, a fixed percent of net revenue is used to calculate the developer's funds available for TDR purchases through a range of densities. This was obtained by subtracting the developer return as 13% of total revenue from the net revenue to arrive at a percent of net revenue that would be spent on TDR. This amount varies from 55-65% of net revenue for the Goleta analysis and 25-39% of net revenue for the Santa Maria analysis.

Therefore, the developer funds available for TDR in the Goleta analysis are 60% of net revenue and 35% of net revenue in the Santa Maria Valley analysis. These amounts are rough estimates due to the nature of the cost function being based on agriculturally-zoned land values. Despite this uncertainty, the TDR budget represents the willingness of a developer to pay for development rights, while still acquiring his/her 13% expected return and covering all costs. The net revenue and TDR funds available are shown graphically in Figure 5-7 for Goleta and in Figure 5-8 for the Santa Maria area.

[107] Bermant and Towbes Development Companies, Personal Interview. 3/5/05 and 11/1/04.

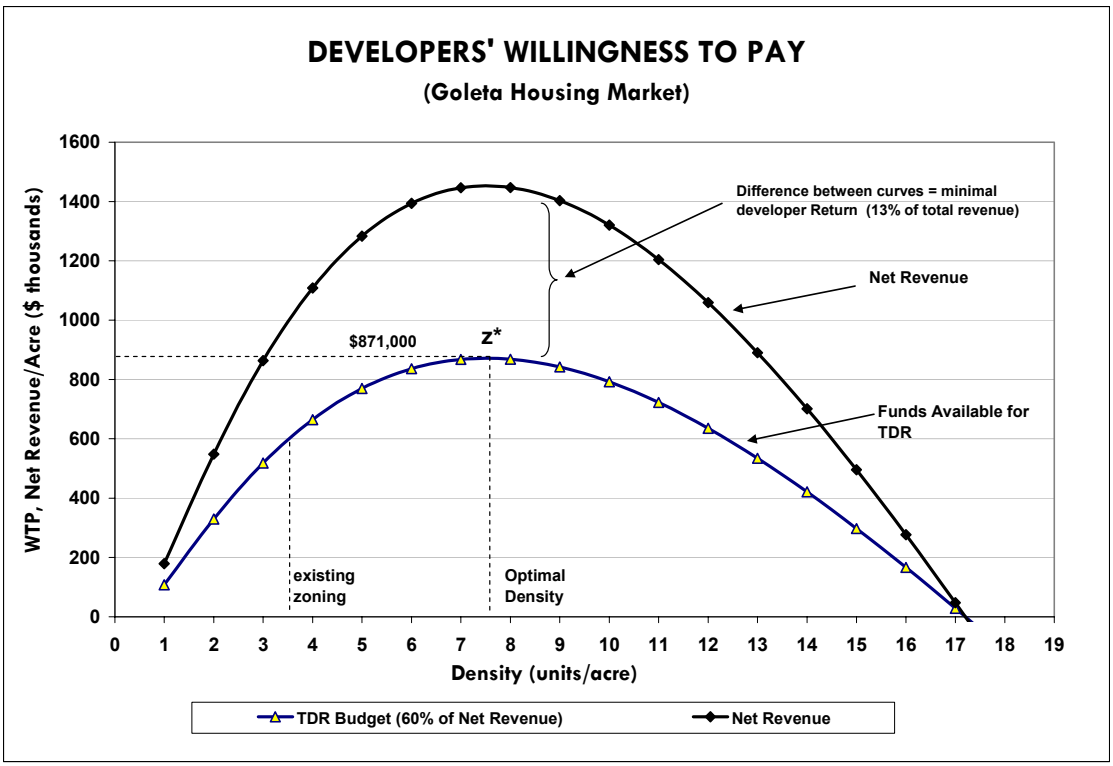


Figure 5-7 Developer's Willingness to Pay (Goleta Housing Market Area)

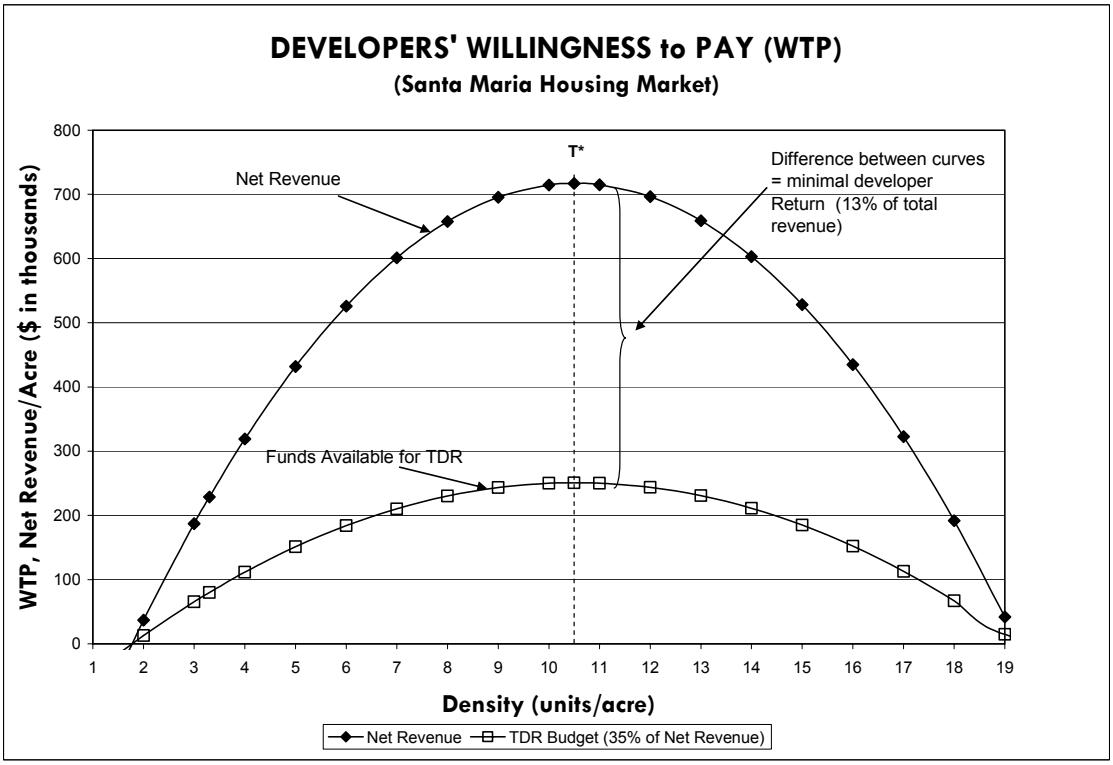


Figure 5-8 Developer's Willingness to Pay (Santa Maria Housing Market Area)

Figure 5-9 shows the developers' marginal willingness to pay for TDRs in both the Goleta and Santa Maria housing market areas. Importantly, Figure5-9 shows that developers' willingness to pay is not constant through the range of densities, but rather incrementally

decreases with increasing density due to the subsequent decrease in revenue per unit as subdivision density grows. The curves in Figure 5-9 were plotted as the derivatives of the willingness to pay functions in for Goleta and Santa Maria respectively.

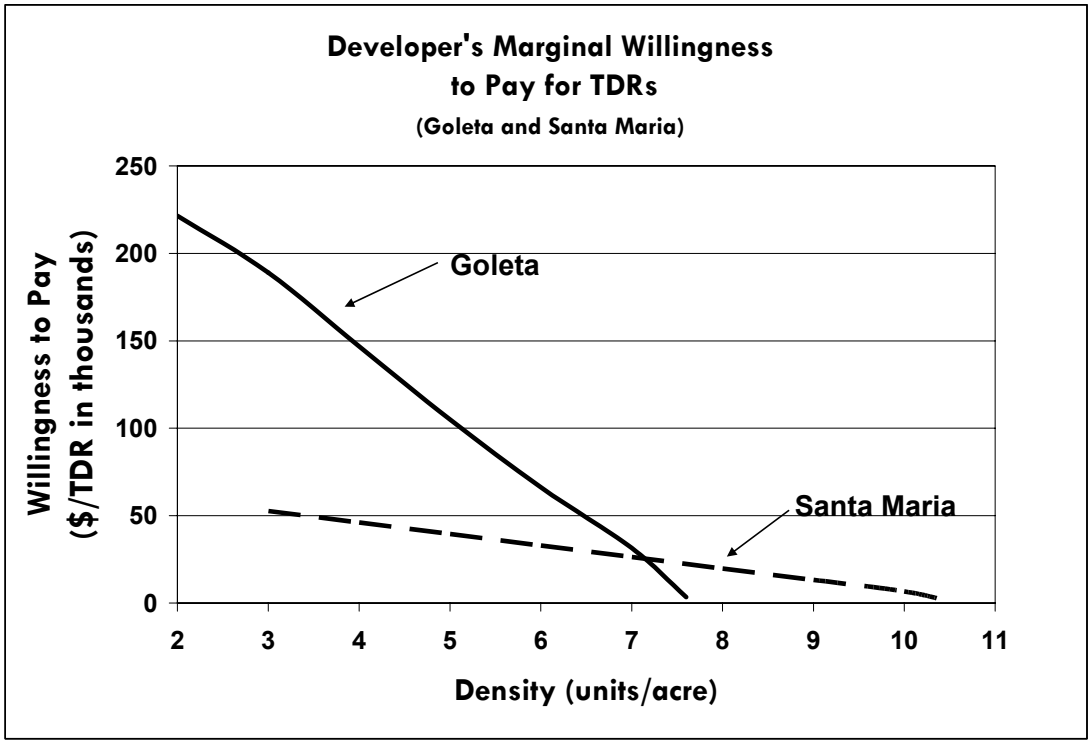


Figure 5-9 Developer Demand for TDRs (Santa Maria Housing Market Area)

5.1. Results

Figure 5-7 predicts Goleta developers are willing to spend a maximum of $189,012/acre to increase density from 2 to 3 units/acres, but only $105,022/acre to move from 4 to 5 units/acre. As the density in a building project increases, developers' incremental willingness to pay decreases as less revenue is generated per unit with increasing density. The common lot size in the Goleta housing market area is 0.15 to 0.17 acres (6,500 – 7,000 sq ft lots) which corresponds to a density of 3.3 - 3.5 units/acre. The model is showing that developers are constrained at this existing low density zoning and would be willing to pay to increase density up to the optimal 7.6 units/acre on vacant urban agriculturally zoned receiving parcels. At densities beyond 7.6 developers will not build single family detached units due to a decrease in their project profit.

Figure 5-8 shows developers in the Santa Maria Valley willing to pay up to $46,050/acre to increase from 3 to 4 units per acre, but only $32,922/acre to increase from 5 to 6 units per acre. The Santa Maria and Orcutt areas' residential developments average 3.3 to 4.6 units/acre. The analysis shows developers are also constrained by zoning regulations and would be willing to pay to build up to densities of 10.5 units/acre.

It is important to point out that vacant urban agriculturally zoned parcels, if re-zoned to residential development, would likely be planned developments targeted to a specific number of units (i.e. Planned Residential Developments), rather than designated a zoning classification. Therefore, if developers are permitted build to their optimal density on urban agricultural parcels, the model shows developers willing to spend, as an aggregate, up to

$871,000/acre to place 7.6 units on a single acre of this type of receiving site in Goleta. In Santa Maria, as a planned residential development, if the change in density were to increase from 2 to 10.5 units/acre, the aggregate of the willingness to pay at each density would be approximately $250,934/acre.

The results for the Goleta analysis were checked against local developer knowledge for accuracy. Interestingly, the model's predictions agree strongly with local developers' willingness to purchase increased density. Developers along the South Coast have said that in a housing market of high land costs (i.e. where land costs are roughly 1/3 the selling price of a house), they would be willing to spend up to ¼ of their revenues from house sales at a particular density to increase their buildable density in a subdivision by one unit/acre[108]. For example, with a house selling for $800,000 in a subdivision at a density of 4 units/acre, a developer would be willing to pay $160,000 to a sending area landowner to put an additional unit on an acre of land in the subdivision.

The model's results, shown below in Figure 5-10, agree closely with local developers' claims of willingness to pay through the range of densities analyzed. There is only a 7 -10% range of underestimation of the modeled results versus what developers have said they would be willing to pay. The results significantly diverge above densities of 10 units/acre because our model only captures single family detached units, not high density town-homes and apartments which occur at densities above 10 units/acre. Finally, error analyses were conducted to show high and low estimates of developers' funds available for TDR purchases (see Appendices A and B).

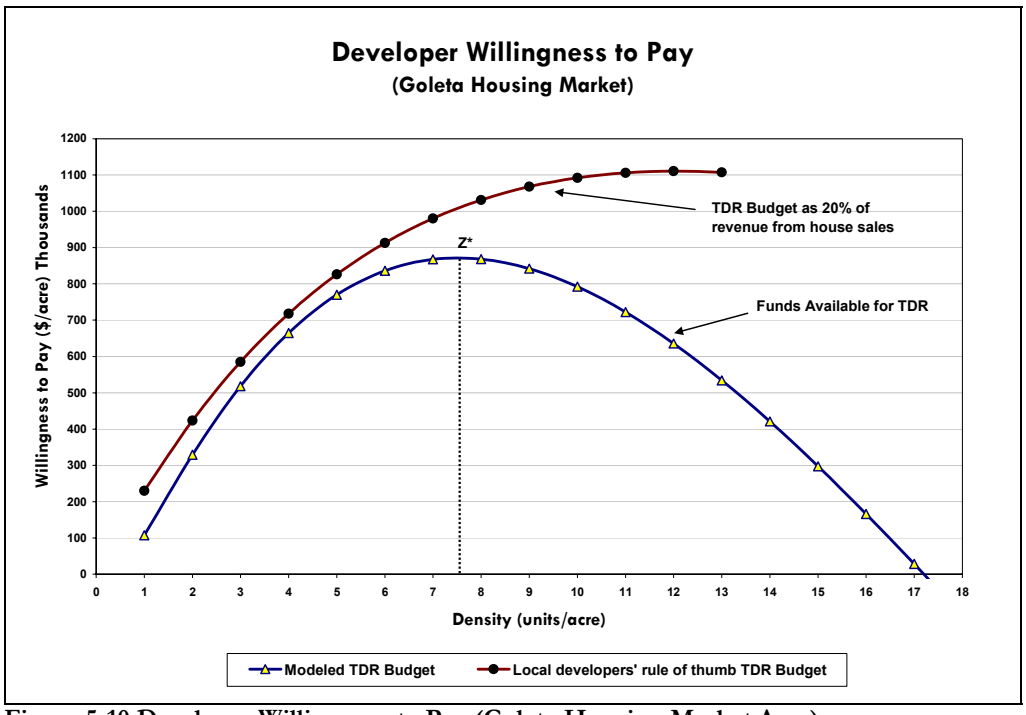


Figure 5-10 Developer Willingness to Pay (Goleta Housing Market Area)

[108] John Campanella, of the Bermant Development Corp. Personal interview, 2/05.

5.2. Discussion of Results

It is important to note that these analyses are only addressing developers' demand to build on vacant urban agriculturally zoned parcels in the Goleta and Santa Maria and Orcutt areas. A different cost function would exist for vacant residentially zoned parcels or urban center parcels zoned for mixed use . Despite this, the model provides significant policy findings in both housing markets. There is evidence to support the assertion that strong developer willingness to pay for increased density exists in these areas of Santa Barbara County. Developers in these areas are constrained with existing zoning and are building at densities at which their project profits are not maximized.

Notably, our economic analysis indicates that there is a much stronger demand for TDRs in the South Coast HMA than in the Santa Maria HMA (Figure 5-9). In the Goleta area, for example, we show developers would be willing to spend up to $871,139 to build 7.6 residential units on a single acre of vacant urban agriculturally zoned land. In contrast, developers would only be willing to spend up to $250,934 to build 10.5 units on a similar acre in the Santa Maria HMA.

As mentioned above, it is likely for urban agricultural parcels to be re-zoned in the future as 'planned residential developments,' (PRD) with a fixed number of dwelling units rather than fixed density residential zoning. To illustrate the effectiveness of a TDR policy, the Goleta model shows that if a 10 acre urban agricultural parcel is re-zoned as a PRD to the developers' optimal density of 7.6 units/acre, a developer would pay as much as $8,710,000 in exchange for the ability to build 76 houses on the site. Part 7 is an example of a detailed case study using the results from this empirical economic analysis on the Bishop Ranch parcel, an actual potential urban agriculturally zoned receiving site in the Goleta area.

The model's results are further validated with a comparison of the market prices of TDRs in other programs as shown in Table 5.1 below. Table 5.1 shows that development rights have sold on the TDR market between 5 and 16.7 percent of the median home price in the program areas.

The value of a TDR as a percentage of house price is expected to be higher for the Goleta market compared to the Santa Maria market and the program areas in Table 5.1. This is because of Goleta's strong real estate market and very high land values. In the South Coast, where developable land is at a premium, developers are likely to be more willing to purchase development rights to build additional houses rather than paying high prices for expensive land. This premise indicates a greater likelihood of developers being willing to pay a greater percentage of the revenue from a house sale for a TDR.

South Coast developers have indicated they would be willing to pay as much as 25% of the selling price of a house for a TDR in a market where land costs are 1/3 of revenue[109]. This further validates the model; at a density of 4 units/acre, the Goleta total revenue function, Figure 5-2, estimates developers' total revenue to be $2.87 million/acre. Figure 5-7 estimates a willingness to pay of $664,911/acre, indicating 23% of total revenue. In the Santa Maria area, land costs are less, therefore, a developer may not be willing to pay as much to increase

[109] Campanella, John; Bermant Development Corp. Personal interview, 2/05.

density as in the South Coast. At a density of 4 units/acre in the Santa Maria Valley model, a developer's total revenue is $1.83 million/acre and the willingness to pay is $151,092/acre, indicating 8.3% of total revenue.

Table 5-1 Development Right Market Prices in Other TDR Programs

Location of TDR Program	Median home price	TDR Value	TDR as Percent of Median home price	Date
San Luis Obispo (N. County)	378,000	15,000	4.0	2003
San Luis Obispo (S. County)	475,000	23,000	4.8	2003
Malibu, California	752,000	35,000	4.7	1990
Boulder, Colorado	300,000	50,000	16.7	2000
Calvert County, Maryland	153,000	2,500	1.6	2002
Montgomery County, Maryland	200,000	10,000	5.0	2000
Chesterfield, New Jersey	380,000	50,000	13.2	2004
Pinelands, New Jersey (Monroe Co)	262,000	30,000	11.5	2004
Lake Tahoe, California	600,000	3,000	0.5	2003
Central Pine Barrens, NY	263,000	20,000	7.6	2000
Goleta (Low)[110]	800,000	105,022	13	2004
Santa Maria (Low)[111]	291,000	13,000	4.4	2004
Goleta (High)[112]	800,000	189,012	23	2004
Santa Maria (High)[113]	291,000	52,000	17.9	2004

Sources: San Luis Obispo: Griffin, Kami. Personal Communication. 11/16/04.
Santa Maria: Economic Analysis, section 5 of this report.
Goleta: Economic Analysis, section 5 of this report.
Malibu: Pruetz, Rick; Beyond Takings and Givings; 2003
Boulder: Pruetz, Rick; Beyond Takings and Givings; 2003
Calvert: McConnell et al; 2003
Montgomery: Pruetz, Rick; Beyond Takings and Givings; 2003
Chesterfield: Chesterfield Township TDR Auction, 4/21/04
Pinelands: Pinelands Development Credit Bank, Guillermo Vivas, personal communication, 7/04
Lake Tahoe: Pruetz, Rick; Beyond Takings and Givings; 2003
Central Pine Barrens: Pruetz, Rick; Beyond Takings and Givings; 2003

The information from the economic model represents a significant policy finding for the framework of a potential TDR program in the South Coast and Santa Maria Valley areas of Santa Barbara County. In light of the strong developer demand as shown in the economic models, the County and city planning agencies should consider requiring mandatory developer TDR purchases for all parcels being considered for re-zone or up-zone to increased density. This makes development contingent upon preservation and allows the jurisdictions to acquire the social benefit of land preservation while meeting state mandated housing requirements. Examples of receiving sites that should be considered for mandatory TDR are:

[110] Estimate from the Goleta economic analysis to increase density from 4 to 5 units/acre.
[111] Estimate from the economic analysis to increase density from 8 to 9 units/acre in Part 5.0.
[112] Estimate from the Goleta economic analysis to increase density from 2 to 3 units/acre.
[113]Estimate from the economic analysis to increase density from 2 to 3 units/acre in Part 5.0.

- **a.** Vacant urban residentially zoned parcels upon which owners are desiring higher density residential development
- **b.** Urban agriculturally zoned parcels that are being considered for re-zone to residential development
- **c.** Urban center parcels currently zoned commercial / industrial, which are being considered for re-zone to high density town-home or mixed use development.[114]

114 In the cities of Santa Barbara, urban center commercial/industrial parcels may possess a strong near-future demand in a TDR market as these parcels become increasingly valuable for mixed use residential development. Currently, planning agencies are trying to encourage mixed use on these parcels; as this high density mixed use demand grows TDR could be made mandatory.

Part 6 Recommendations for Successful Policy Structures in Two Housing Market Areas

6.1. Housing Market Areas

The Santa Barbara County Housing Element of the General Plan identifies five different housing markets areas (HMAs), each with similar housing needs, demands, ecological constraints and supporting infrastructure. As illustrated in Figure 6-1 below, these areas are Santa Maria, Lompoc, Santa Ynez, Cuyama, and South Coast.

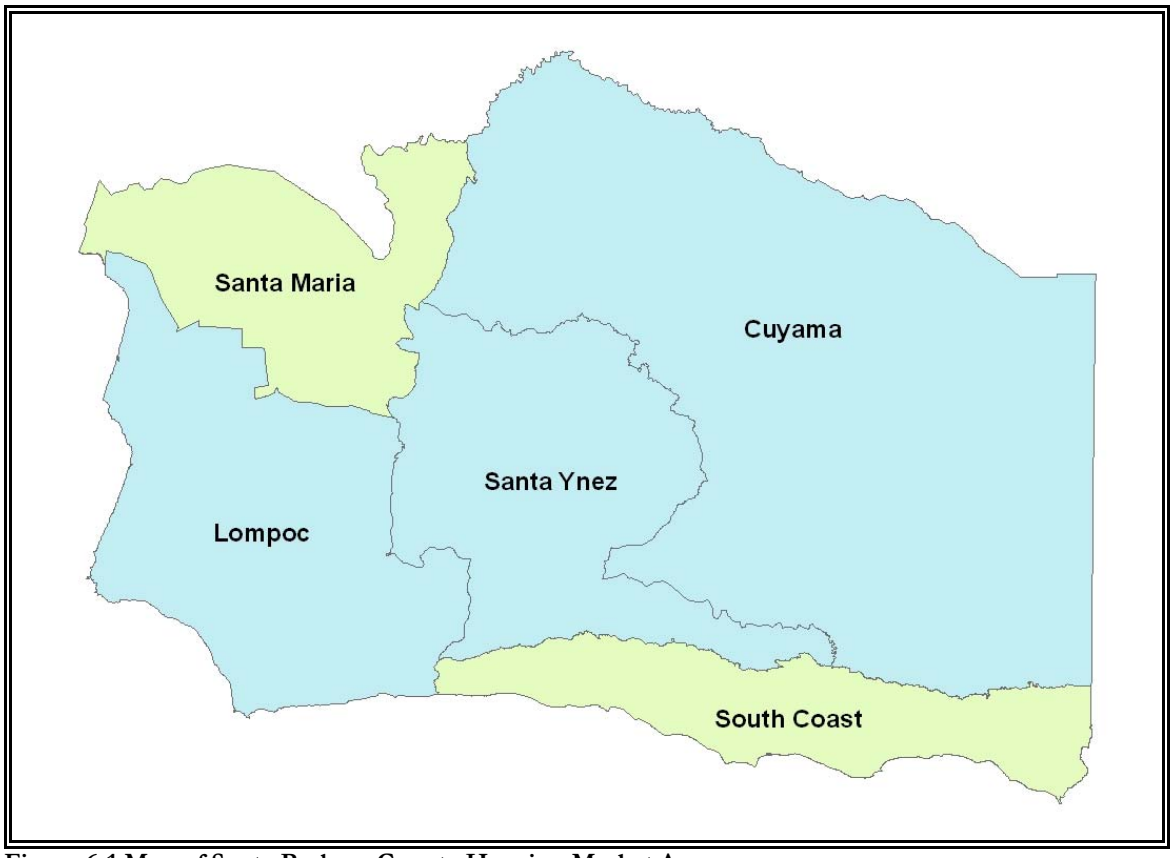


Figure 6-1 Map of Santa Barbara County Housing Market Areas

Because housing needs, the real estate market, and land use issues vary significantly from one HMA to the next, any effort to implement a TDR program in Santa Barbara County is not likely to succeed if it fails to recognize these differences. Part 6 focuses on two distinctly different HMAs to illustrate how HMA-specific TDR programs could be structured differently based on regional variables. Specifically, analyses of the Santa Maria and South Coast HMAs were chosen for the reasons outlined below.

The Lompoc and Santa Maria Housing Markets are expecting the greatest population growth between the years 2000 and 2010. Figure 6-2 is a comparison of the number of homes sold in the largest cities in each of the housing market areas, except for Cuyama, and shows that Santa Maria leads the way in number of houses sold. The Cuyama market consists of mostly Los Padres National Forest and farmland where there are three small communities. Due to lack of adequate housing for farm workers and minimal area suitable for housing, overcrowding is a major problem. Note that the number of house sales in the City of Santa Barbara is decreasing.

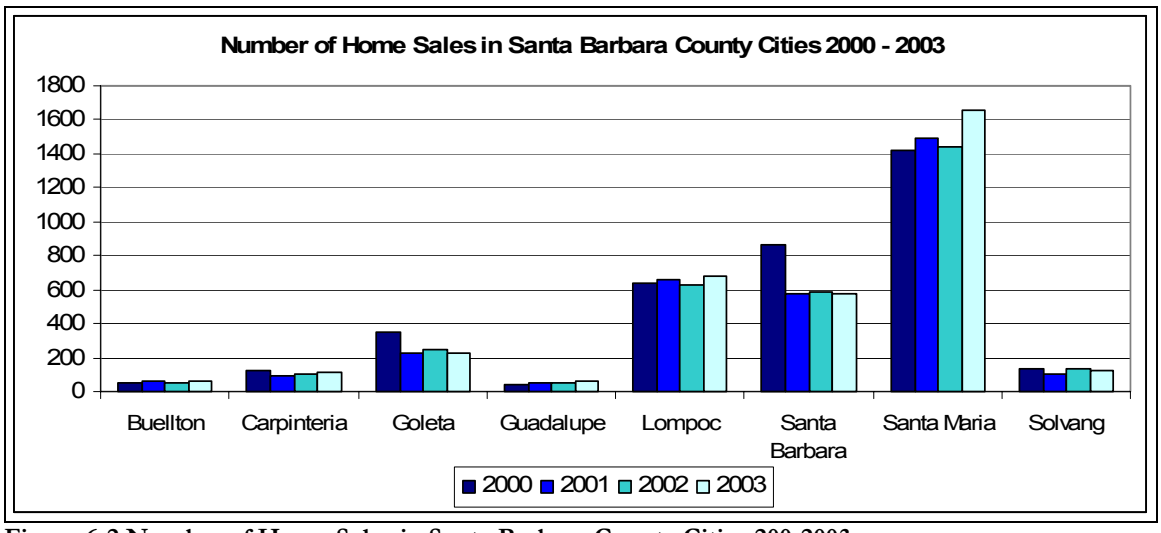


Figure 6-2 Number of Home Sales in Santa Barbara County Cities 200-2003.

Source: The 2004 Santa Barbara County Economic Outlook, UCSB Economic Forecast Project, Volume 21, April 2004.

Figure 6-3 shows the number of residential building permits issued in different areas of the County. Lompoc values are a combination of unincorporated and incorporated building activity. The data for Guadalupe, Lompoc City, Santa Barbara and Santa Maria are from the Construction Industry Research Board. The County of Santa Barbara provided the data for unincorporated areas, including Lompoc and Santa Ynez Valley. Data from small areas (i.e. Isla Vista, Carpinteria, Buellton) were too insignificant to include.

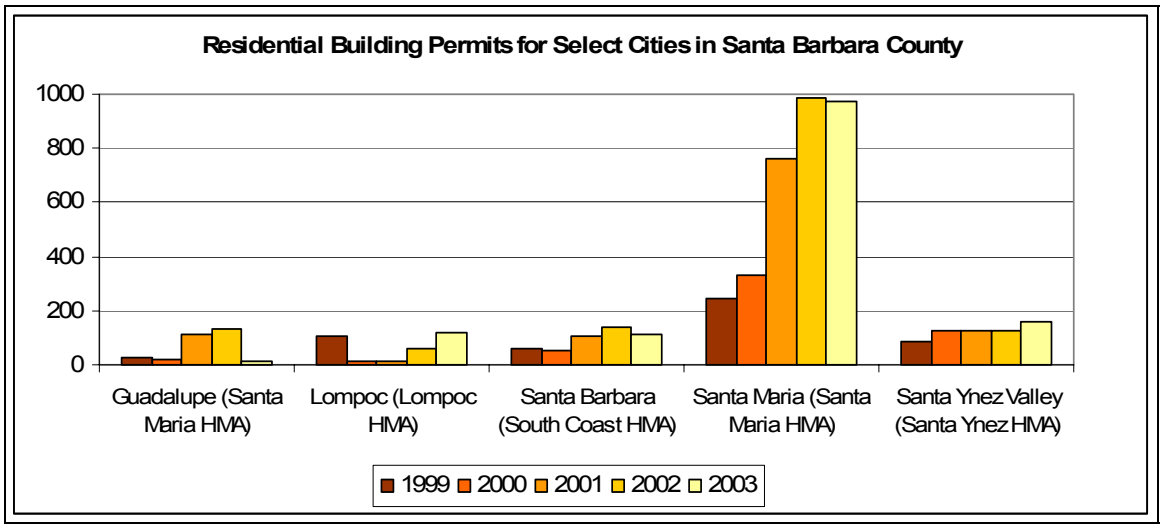


Figure 6-3 Residential Building Permits for Select Cities in Santa Barbara County

Source: Construction Industry Research Board and County of Santa Barbara

Part 6 compares and contrasts the details of a possible TDR policy structure in the South Coast Housing Market Area (HMA) with that of one in the Santa Maria HMA. This serves to elucidate the important differences in policy structures for a successful program in each of these two geographic locations. These analyses of policy structures evaluate some of the key components as previously discussed in Part 3.2, which include: program goals, political tenability, legal issues, program constraints, criteria for receiving sites, criteria for sending

sites, developer incentives, and transfer ratios. The accompanying case studies in Part 7 provide economic assessments of developer willingness to purchase development rights on plausible receiving sites in these two housing markets.

The goal of both policies is to limit suburban development on prime agricultural land by discouraging development on large tracts of agricultural land outside of the urban growth boundary and encouraging development within the UGB (rural to urban transfer scheme). Similarities in program structure are presented first and differences are discussed afterward.

6.2. South Coast and Santa Maria Land Markets and Issues

Both the South Coast and Santa Maria Housing Market Areas are logical places to consider a TDR policy. As highlighted in Part 4.3, both have unique lands the communities wish to preserve with existing policies that have limited capacity to permanently preserve land at minimal public expense. The land markets of these areas differ, yet many similar TDR policy components could be suitable for both areas. A brief description of each HMA is noted below.

South Coast −The South Coast Housing Market Area consists of the land south of Highway 101 where it extends north near Gaviota and extends east to Rincon Creek. It encompasses the land from the Pacific Ocean to the Los Padres National Forest. The cities of Carpinteria, Santa Barbara and Goleta as well as the communities of Summerland, Montecito, Hope Ranch and Isla Vista are located in this region. The South Coast is geographically constrained with limited developable land that is highly valued and therefore poses challenges for TDR that will be useful to address.

A plausible TDR scenario could greatly benefit this area. According to the Santa Barbara County 2030: The Open Lands document,

The estimated demand for land in Goleta over the next 30 years exceeds all of the urban land available (including all of the urban agricultural parcels) by over 2,000 acres. That assumes 1) the fairly slow growth rates of the 1990s continue, 2) the other South Coast communities will all meet their own demand, and 3) the jobs and housing imbalance on the South Coast continues.

Santa Maria − The Santa Maria Valley Housing Market area is located in the northwestern portion of Santa Barbara County and contains the cities of Santa Maria and Guadalupe as well as the unincorporated communities of Orcutt, Casmalia, Garey, and Sisquoc. This HMA borders San Luis Obispo County to the north, the Pacific Ocean to the west, extends south to the northern edge of both Los Alamos and Vandenberg Air Force Base, and extends east to Tepesquet Road.

The Santa Maria HMA analysis is limited in scope to the City of Santa Maria and the Orcutt Community. This area has recently been experiencing strong growth which has created a tension between development and the City's and County's desires to preserve agricultural land and open space in the Santa Maria Valley. The Santa Maria Valley is the largest agricultural area in Santa Barbara County which accounts for a significant portion of the County's economic base. The Santa Barbara Agricultural Element explicitly states that "expansion of urban development into active agricultural areas outside of urban lands is to be discouraged as long as infill development is available" (1991, 12). This situation provides a unique opportunity to assess the policy effectiveness of a TDR program in this rapidly

growing and sprawling area which is surrounded by some of the County's most viable agricultural land.

6.3. Goals of the Policies

Thorough research was conducted on existing TDR programs throughout the country and on the region's goals concerning growth and preservation. This information was used to identify a TDR program structure that would best meet the preservation goals of the area of concern. Of the countless planning goals mentioned in the County's General Plan, the most pronounced issues are addressed below. These four goals were determined from a lengthy assessment of the County's and each of the relevant cities' and communities' general plans, interviews and conversations with local government employees and conservation experts, and a thorough review of current TDR literature. The policy structure which best attempts to fulfill the following community goals for each HMA, is identified and analyzed in further detail below.

1. Preserve the greatest amount of open space by keeping development within the urban growth boundary to prevent sprawl
2. Stimulate developer demand for TDRs by encouraging developers to build at greater density
3. Increase density near existing public infrastructure (i.e. roads, utilities, schools)
4. Present the most politically favorable policy structure

South Coast HMA –The recommended policy structure attempts to maintain the current UGB by recommending that large tracts of agricultural land outside the urban growth boundary be designated as sending sites and developable parcels in the urban core become high density receiving sites. To accommodate the dual goals of preserving agricultural land and preventing growth beyond the UGB, prime agricultural land located within the UGB could be identified as either sending or receiving sites. Communities in the South Coast have expressed strong desires to maintain active urban agricultural parcels.

Santa Maria HMA –The goal of the policy is to reduce sprawling development by transferring development rights from agricultural lands surrounding the Santa Maria and Orcutt areas to parcels within the respective UGBs. To achieve this goal, an urban infill policy is recommended and suggested to be structured as follows: establish a TDR transfer scheme that transfers development rights from rural (outside the UGB) sending sites to urban infill (within the UGB) receiving sites.

These two policy structures are very similar, promoting sending sites located outside the respective UGBs and receiving sites located within the UGBs. However, this report suggests urban agricultural sites in the South Coast could be designated as either sending or receiving sites, which means that transfers could occur within the UGB. In the Santa Maria HMA, all urban agricultural parcels (within the UGB) are recommended to be designated as receiving sites only. This is because of the relative abundance of viable farmland surrounding the Santa Maria UGB versus the lesser amounts surrounding the South Coast UGB which also possesses a strong community support for the preservation of its urban agricultural land.

6.3.1. Political Tenability

Each of the relevant general plans emphasizes a desire to preserve open space, agricultural land, pristine views, a greenbelt and/or ecologically sensitive habitat. Additionally, the

pressure to meet state housing requirements and to keep development contained within the urban growth boundary are topics of concern in each of the plans. Politically, this may be the right time to suggest an inter-jurisdictional TDR policy option. However, strong political barriers exist in some areas of the County for development transfers across jurisdictions (i.e. transfers from County controlled lands to city controlled lands or vice versa).

The following paragraphs detail the South Coast and Santa Maria HMAs' desires as expressed in the corresponding general plans. Specific information regarding the County of Santa Barbara's preservation goals and housing needs is detailed in Part 4. Many ranchers and farmers have expressed desires to keep their family farms, but fear that increased development incentives will force them to sell. The Williamson Act is successfully utilized by a majority of farmers in the County, suggesting a strong desire to keep productive land in use. However, this Act provides temporary preservation, while a TDR achieves permanent preservation status.

South Coast – The South Coast HMA has to contend with various land use issues, including mixed use in the downtown areas, development on coastal bluffs, and a challenging affordable housing climate. The County and cities' general plans each seek to preserve open space and provide for a variety of housing types. The City of Santa Barbara appears more open to mixed use development in its downtown areas and specifically the "funk zone,"[115] and looks favorable at potentially engaging in inter-jurisdictional transfers through a TDR program for increasing downtown densities.

The City of Santa Barbara published an updated Housing Element in 2003 with evidence pointing to "the need for an increased City presence in regional and statewide issues as well as the urgent need for regional land use and transportation planning in the coming years." A strong sense of community pride has shaped the City of Santa Barbara's growth to maintain a high quality of life and will continue to do so in the coming years. To promote development of more affordable units, the City has already enacted a bonus density program, which increases density in return for rent or price controls on some or all of the units in the development. The City is wary of measures to further increase the volume of proposed housing as slowing the development review process would be counter-productive to the 2003 Housing Element goals.

The City of Carpinteria prefers to maintain the City's character by encouraging density along the main transportation corridor and to encourage development that is compatible with surrounding land uses, including unique coastal resources, the agricultural greenbelt and other viewsheds. According to the City of Carpinteria General Plan, the "open field agricultural 'greenbelt' is one of the most important attributes of the area that helps define the character of the city."

The City of Goleta's Draft General Plan highlights relevant goals in the Land Use, Agricultural and Open Space Elements. According to this Plan, "[t]he City will promote conservation of existing or zoned agricultural lands"[116] This Draft Plan also mentions other significant goals which coincide with the policy option presented here, such as opposing new

[115] The Santa Barbara Funk Zone is an area of mixed use development located south of Hwy 101 between State Street and Calle Cesar Chavez.
[116] City of Goleta Draft General Plan. Pol. DF 1.8, 19.

development outside the current city limits to the north and south, including the extension of services to such development, the land use should remain primarily residential, mixed use can be encouraged, provided there is good potential for alternative transportation and conserving the City's agricultural heritage by protecting these resources as open space. In Goleta, a TDR program focused on the preservation of the most productive agricultural lands would possess the most political traction.

Santa Maria – Currently, the City of Santa Maria and the Orcutt Community are issuing the greatest number of building permits in the County.[117] This translates into a high demand for vacant land within and surrounding urban areas. However, the land that surrounds these areas is valuable to the Santa Maria and Orcutt communities, for both agricultural and aesthetic reasons.[118] The need for a preservation tool is pressing and currently, there is ample political will to adopt a TDR policy; the Orcutt Community Plan lists Transferable Development Credits (Rights) as a policy that needs to be considered in the near future and local developers have used TDR in the past on a case-by-case basis (OCP, 30 and 71). The County's interest in this policy stems from County and community goals to preserve agricultural lands, environmentally sensitive areas, open space, and to maintain the rural character of the area (Santa Maria General Plan: Exhibit LU-1 pg. 9; OCP, 3). Politically, the time is favorable for a transfer of development rights program to be implemented in this area.

Conversations with local developers reveal they are currently constrained by development regulations and are willing to pay to build additional units[119]. Community opposition currently arises when vacant lands (open space or agricultural) are converted, thus forever changing the landscape. However, a TDR program focused on infill development and rural preservation, will minimize public opposition.

Both the South Coast and Santa Maria HMAs possess similar political obstacles yet, geographically, the Santa Maria area has more developable land and is facing stronger development pressure. Goleta's City Council has expressly stated that they are growth adverse; the City of Santa Barbara is largely built-out and has limited development options. Subsequently, both recommended policy structures seek to maximize political tenability by balancing the need for development while enabling preservation of various types of open space. These structures also place few restrictions on receiving site criteria which allows more buyers and sellers to participate in the program.

6.3.2. Jurisdictional Size

Communities need to assess where development should be encouraged and where it should be discouraged. A successful TDR program, with an inter-jurisdictional structure, requires regional planning among different jurisdictions to set a clear path for future growth patterns. Proper jurisdictional size for a TDR program must be carefully considered. Both HMAs encompass large areas with many geopolitical boundaries and unique land types. Research has revealed that limiting development right transfers to areas in close proximity to each other can help balance the benefits and burdens of preserved open space and high density

[117] The 2004 Santa Barbara County Economic Outlook, UCSB Economic Forecast Project, Volume 21, April 2004, 37.
[118] Santa Barbara County 2030: The Open Lands Agriculture and Open Space. 2002, 3-4.
[119] Campanella, Bermant Development Corp. Personal communication, 2/05.

developments. Therefore, the suggested TDR policy structures are limited in jurisdictional size to include the Cities of Goleta, Santa Barbara, and Carpinteria for the South Coast HMA and the City of Santa Maria, and the community of Orcutt for the Santa Maria HMA and these Cities' surrounding lands.

South Coast – With the current political environment and geographic uniqueness (Gaviota Coast)[120] of the South Coast, it is recommended that an additional TDR program structure – rural to rural – be established concurrently with the above proposed urban infill South Coast HMA policy structure. This rural to rural policy structure attempts to preserve ecologically important watersheds and sensitive coastal land along the Gaviota Coast by preserving coast land and transferring development rights to parcels more appropriate for development (north of Highway 101). This involves transferring rural development rights from parcels within high quality watersheds and coastal bluffs and focusing it into new rural dense neighborhoods along the foothills. While there is a strong emphasis on keeping growth within the UGB, there is equally persuasive sentiment to protecting the natural seashore along the Gaviota Coast. The National Parks Department performed an initial study on this region in the spring of 2003 to access its ability to become a national seashore. A passage from this study elucidates the value of this land,

The study area is part of one of the rarest global biomes, the Evergreen Sclerophyllous Forest (Mediterranean communities), characterized by a mild Mediterranean climate caused by the interaction of global weather and cold-water upwelling on the west coast of a continent. It is one of only five such locations in the world that contain this unique climate and associated vegetation. The Gaviota Coast is the largest continuous stretch of rural coastal land in southern California and the healthiest remaining coastal ecosystem. Although the coastal area between Coal Oil Point and Point Sal comprises only 15% of southern California's coast, it includes approximately 50% of its remaining rural coastline.

The lands west of the South Coast UGB are not currently zoned for high density and do not have the public infrastructure to support large communities. However, development potential can easily change with a conditional use permit granted from the County. A rural-to-rural TDR program could move potential development from these ecologically significant areas to land more suitable for development within the same locality and possessing similar land values.

Santa Maria– It is recommended that a TDR program be limited to Santa Maria and Orcutt because they possess similar preservation goals of their surrounding lands. Keeping the program size confined to this area ensures the communities to witness the benefits of preservation and the tradeoff of increased density. A rural to rural TDR policy could potentially be successful in the Santa Maria area because of the highly developable land surrounding the area; but conversion of viable agricultural land does not correspond with the preservation goals of Santa Maria or Orcutt[121]. Therefore, a rural to rural TDR program is not recommended for the Santa Maria area as it is in the South Coast area.

[120] The Gaviota Coast was identified by the National Parks Department as having some of the most pristine ecologically important coastline on the entire west coast.
[121] Santa Barbara County General Plan: Agriculture Element, 1991, 12.

6.3.3. Regulatory Requirements & Constraints

To effectively implement a TDR policy, the Santa Barbara County Board of Supervisors would need to adopt several significant changes to the County's existing zoning ordinances. These include but are not limited to the following: (1) the County's zoning ordinances would need to be amended to allow private landowners to buy, sell, or otherwise transfer development rights independently without affecting any other rights associated with the ownership of real properties, (2) the County's zoning ordinances would need to be amended to restrict the geographic area where development rights could be received, (3) the County's zoning ordinances would need to be amended to mandate the use of TDRs to meet 100% of the increased development potential whenever a request for rezoning is granted on a particular parcel.

To implement this policy option, inter-jurisdictional cooperation between participating cities and Santa Barbara County is necessary. Accomplishing this may require state involvement by means of a voter referendum or state mandate. In similar circumstances in Washington state and Colorado, state involvement streamlined the process of trades between city and county lands. More information is provided in the Legal Issues Part 2.1.6.

A constraint of the TDR program would be that participation may be limited due to preservation options; land owners can chose to participate in a TDR program, another preservation program, or not participate at all. Land owners who meet the criteria as a receiving site (described below in Part 6.2.4) would have the option of developing their land as it is currently zoned or utilize the TDR program to increase the density. If receiving site land owners decide to participate in the TDR program, their development would have to adhere to the normal development review process. Land owners who meet the criteria for sending sites (described below in Part 6.2.5) would have the option of developing their land instead of participating in the program. Additionally, sending site owners have the option to participate in other land preservation policies, such as the Farmland Preservation Program or conservation easements. To ensure adequate participation in a TDR market, incentives for the sending and receiving site land owners would be needed needed. Incentives are discussed in further detail in Part 6.2.6.

Public perception or lack of knowledge of the program may constrain program effectiveness. The County, cities, and communities utilizing the program and other knowledgeable entities should cooperate to educate the residents of Santa Barbara County about the benefits of preserving open space, agricultural land, coastal habitat and ecologically sensitive areas while simultaneously encouraging density development within urban areas to better serve the needs of the community. Educating the public on the benefits of the program has been essential to the success of many programs.[122]

South Coast − It is recommended that transfers of development rights be allowed to occur within the UGB to promote the conservation of prime agricultural land within urban areas. The political entities that reside within the South Coast UGB (Cities of Goleta, Santa Barbara, and Carpinteria) would need to work together to allow these transfers. Resistance to transfers within this area may constrain the program success; it is recommended that all political entities work participate in regional planning to define preservation goals and establish inter-governmental agreements to structure how transfers would occur.

[122] TDR programs in Chesterfield Township, Lumbertown Township, Cambria Lodge Hill.

Santa Maria – This urban infill policy structure does not support transfer of development rights within urban growth boundaries. Urban growth boundaries are established to allow development within their limits. In the past, the City of Santa Maria allowed agricultural land owners (distant from existing development, but within the UGB) to sell their development rights. As development patterns evolved, this preserved land became surrounded by urban development and has rendered the land unsuitable for agricultural production[123]. Therefore, it is recommended that no sending sites be located within the UGB.

6.3.4. Discussion of Receiving Sites

In the South Coast HMA and Santa Maria HMAs, receiving sites in the suggested urban infill policy structure are recommended to be defined as 1. undeveloped parcels, 2. under-developed parcels (i.e. commercial or industrial sites) or 3. agricultural land located within the urban growth boundary. These include, but are not limited to urban agricultural areas, tracts of vacant land, and parcels suitable for residential development based on "proximity to transit, jobs, shopping and recreation as well as availability of services like sewer lines and utilities"[124].

In the past, TDR programs have failed by not assessing the demand for increased density on the potential receiving sites. It is recommended that receiving sites be identified in areas of high market value, leading to strong developer demand for density. Results from the economic analysis in Part 5 shows that there is adequate developer demand in both HMAs.

Care should be taken not to develop on ecologically sensitive habitat consisting of coastal bluffs, riparian zones, wetlands, marshes, endangered species habitat and the like.[125] It is recommended that TDR purchases be mandatory to develop parcels that will require a rezoning to allow for increased density (e.g. urban agricultural land being re-zoned to residential).[126] Maps in Appendix D, 1, 2, and 3 represent potential South Coast HMA receiving sites and maps 4, 5, and 6 represent potential Santa Maria HMA receiving sites according to the following criteria.

Undeveloped parcels:

Undeveloped parcels are parcels located within the urban growth boundary which have been identified in the Santa Barbara County Housing Element as having the potential for being developed based on their current land use designation. Due to zoning constraints imposed by the Coastal Plan, parcels located within the Coastal Zone (within 1 km of the coastline) would undergo further evaluation to be designated a receiving site.

Underdeveloped parcels:

These are parcels within the urban growth boundary which may be up-zoned to higher density or mixed use. These were selected after lengthy discussions with County planners and reviews of the Housing Element. These parcels are identified as having the potential to be redeveloped at a higher density or another more appropriate land use, such as areas for mixed use or multi-family.

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[123] John Karamitsos. Santa Barbara County Planning and Development. Email communication. 11/2/04

[124] *Goleta Valley Urban Agricultural Newsletter,* II. The Future of Goleta Valley's Agriculture, 8.

[125] A complete list of areas to be preserved appears in the SB County Open Space Element.

[126] This is discussed in more detail below in Part 6.2.6.

Agricultural parcels:
These parcels are zoned for agricultural use located inside the urban growth boundary. They are identified as receiving sites because they have the potential to be rezoned and developed as residential or a mix of residential and commercial.

South Coast – Currently some of the urban agricultural parcels are classified as prime, of statewide importance or possessing unique soils. By allowing prime farmland (prime farmland, farmland of state importance or unique farmland), which is located within the urban growth boundary to send or receive density, the landowners have a greater opportunity to determine the future of their land. Under this policy option, these sites must:

- Be located within the UGB
- Not contain noted development constraints (e.g. a wetland, endangered species habitat, steep slope, etc.) if used as a receiving site.

6.3.5. Discussion of Sending Sites

In both HMAs, any type of open space the community wishes to preserve outside the respective UGBs (agricultural land, coastal habitat or ecologically sensitive areas) may serve as sending sites. Choosing sending sites should not be an obstacle in Santa Barbara County; citizens are eager to protect many types of unique open space. Successful TDR programs across the country typically focus on one type of land to preserve. According to the *Rural Settlement Pattern Strategy Phase III Pilot Project Report*, there are certain key elements all TDR programs must address. The first mentioned is "[t]here must be a clear mission to protect agriculture, important natural areas, or some other resource of value to the specific community within which the program is established"[127]. Therefore, this report recommends focusing on preserving agricultural land because it is economically viable and is important to the County's rural character[128].

In both of the proposed policy structures, sending sites are located outside the urban growth boundary and recommended to be undeveloped tracts of land, which meet the requirement for prime agricultural land (prime farmland, farmland of state importance or unique farmland). This land is vital to the County and State economic vitality and provides thousands of acres of open space. "Every effort should be made to preserve fertile lands for agriculture"[129].

Since TDR programs are based on market values of development rights, it is important to identify sending and receiving sites that are similar in development value. Otherwise, there is potential for low receiving site owner participation. If the development value on the sending site is much greater than that of the receiving site, the sending site land owner may require much more for the development right than what a receiving site land owner is willing to pay. This potential problem may be attenuated by transfer ratios (discussed in Part 6.2.7) but this mechanism is limited.

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[127] *Rural Settlement Pattern Strategy Phase III Pilot Project Report:* A report prepared for the Transfer of Development Credits Technical Advisory Committee on Criteria and Pilot Projects for the San Luis Obispo County Department of Planning and Building, 23.
[128] Santa Barbara County 2030: The Open Lands Agriculture and Open Space.
[129] Santa Barbara County: Land Use Element. (1980), 96.

South Coast −Since there are two goals to this program, restricting growth outside the UGB and moving development away from prime agricultural land, owners with prime agricultural land within the UGB would have the option to send or receive development on their parcels. If they choose to receive development, it can only be done through purchasing a TDR.

Determining region-specific minimum sending site size has helped many communities to preserve large expanses of continuous open space. Based on other TDR programs, the agricultural sending sites for this policy option are recommended to be a minimum of fifty contiguous acres outside of the UGB and fifteen acres within the UGB, whether through a cooperation between two or more landowners or a single landowner.[130] This would allow for the vast amount of agricultural land owners to participate in this program; adjacent parcels of no less than 10 acres could also participate. This encourages neighbors to participate and ensures an adequate amount of contiguous land to sustain agriculture and to discourage leap-frog preservation. The site should currently be in agricultural use and intend for sustained agricultural use for a minimum of fifteen years after the transfer of development rights. Land under the Williamson Act may apply to send rights; however, specific legal requirements to get out of the Williamson Act would apply so as to avoid double compensation for being in an agricultural easement.

6.3.6. Developer Incentives

Choosing the right incentives for developers is a key component to a successful program. To encourage participation in TDR programs, incentives beyond those that are inherent in any market-based policy (described in Part 2.1.1) are needed in order to stimulate developer demand for TDRs. The following developer incentives recommended for these programs are based on incentives successfully used in other jurisdictions (Part 2.2.5 contains a detailed list of incentives). These incentives are designed to strongly encourage the use of TDRs to allow for dense development on the undeveloped and agricultural land within the UGB.

The current development situation in urban Santa Barbara County areas allows moderately dense residential development (~3.3-6 units/acre), which may result in only moderate demand for transferable development rights[131]. Recently, there have been a few developments of high density detached homes and town homes, but these developments are still consuming viable agricultural land[132].

Requiring mandatory use of TDR for receiving sites being considered for re-zone from agricultural to residential or commercial/industrial can act to force market participation in light of the strong existing developer demand. This device is used in the Marin County, the Pine Barrens, and Chesterfield programs and is recommended by Rick Pruetz author of "Beyond Takings and Givings," and Kami Griffin, SLO County TDC Program Manager. If mandatory TDR purchases are used in a program effective developer incentives must be put in place to ensure participation. Some of these incentives are outlined below:

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[130] Nearby San Luis Obispo County TDR program used a minimum of 40 acres for development; the Calvert County, MD TDR program used 50.

[131] If current developments are built at fairly high densities, there is less incentive for developers to want to buy TDRs to increase density.

[132] The Cottages at Autumn Glenn, JM Development. Personal communication, 10/10/04.

- Decrease the time to start construction by streamlining the permitting process for uses of the TDR program (mini EIRs).
- Allow developers of receiving sites to initiate development prior to paying for development rights (i.e. allow the developer to finance the cost of TDRs).
- Guarantee to developers that using the TDR mechanism will not detract from the 'by right' amount of development allowed on the project site prior to TDR use.
- Use a non-profit organization to serve as a TDR bank.
- Clearly delineate receiving and sending sites to avoid future confusion.
- Maintain existing zoning restrictions on parcels not designated as receiving sites to motivate developers to use TDR to increase project density.

Discussion of Recommended Incentives:

The above incentives are recommended to be included in the TDR policy for either HMA to encourage developer participation in the TDR program.

Making the purchase of TDRs mandatory for developers when re-zoning (non-developable land to developable, or from lower density to buildable to higher density buildable) is recommended; this makes future development contingent upon preservation and allows the jurisdictions to capture the benefit of increased preservation while meeting state mandated housing requirements. Currently, development is consuming viable agricultural land which required re-zoning by the city and/or county planning agency. When development occurs in this fashion, development potential on these lands is being "given away" without the community receiving a benefit (other than more houses; although in many cases developer impact fees can act to partially mitigate development through the creation of parks etc.). Mandating the use of TDR for re-zones would ensure the community a benefit in the form of land preservation while also allowing for development to meet growth needs.

Streamlining the permitting process, if TDRs are used, can significantly decrease a developer's holding cost, which can encourage developers to participate in the program. Developers own the land on which they are building, but often buy the land with borrowed money. Therefore, the less time developers have to wait before liquidating their product (selling houses), the more money they save.

Allowing developers to initially start construction of their project prior to paying for the TDRs decreases the amount and time that money is borrowed, thus decreasing a developers' holding costs. This follows the streamlined permitting process reasoning above.

TDR banks act to facilitate transfers between willing buyers and sellers of development rights by eliminating the temporal problem of matching TDR sellers and buyers. TDR banks are usually non-profit organizations such as land trusts and are usually seeded with money from state bond initiatives, local sales tax, and/or private donations. In practice, other programs utilize banks to help facilitate transfers through several avenues. Banks can purchase development rights to sell in the future, broker deals between willing sending and receiving site owners, and act as financiers to reduce holding costs to developers.

Clearly delineated receiving and sending sites clarify whether land owners can receive development, sell development, have the option to buy or sell, or do neither. It also aids

planners and the public to develop their community in a controlled manner. Maps 1, 2, and 3 in Appendix D are maps of potential receiving sites in and around the City of Goleta, the City of Santa Barbara and the City of Carpinteria based on the receiving site criteria described above. Maps 4, 5, and 6 in Appendix D are maps of potential receiving sites for Santa Maria City and for the Orcutt Community.

Maintaining development restrictions encourages the use of TDR by not allowing developers to circumnavigate the program to build at higher density. It is recommended that this be achieved through strict zoning on non-receiving sites.

6.3.7. Transfer Ratio

Transfer ratios as described in Part 2.2.5 along with density bonuses are important to the allocation of development rights in an area. Transfer ratios equalize the development value of the sending site with the development value of the receiving site. This is important in order to balance the price disparity between the value lost from giving up the right to develop and the price a developer is willing to pay for a development right while allowing the sending site land owner to be justly compensated for his/her lost development potential. Transfer ratios function to encourage sending site land owners to sell their development rights and developers to buy. Higher transfer ratios equate to more development rights – for the sending site owner – thus, lowering the price at which they are sold on the market. Given the market value of development rights, the more rights one owns the more money he/she can receive once the rights are sold.

In this policy structure, 1 TDR equals 1 house. If high density units are developed (e.g. condominiums or apartments) the ratio could be adjusted to accommodate the decreased value and size of the housing unit (i.e. 1 right equals 1.25 condominium or apartment, etc.).

Since the South Coast HMA and the Santa Maria HMA vary significantly in land values, different transfer ratios are recommended for each area to encourage sending site land-owner and developer participation.

South Coast – Due to large disparities in land values in along the South Coast, an alternative approach to a transfer ratio based on a distance-to-target basis might be more appropriate. One way to structure a TDR program in the face of this significant parcel-specific variation in land values would be to assign transfer ratios on a parcel-by-parcel basis. Under this specialized TDR program structure, it is recommended that the designated sending sites have an appraisal of their respective development value. The difference in value of the parcel in its existing undeveloped condition and in a developed state would represent the parcel's development value.[133] This sending site development value would then be divided by the estimated willingness of developers to pay across all designated receiving areas in the TDR program service area of South Coast HMA. For sending sites, the result of this calculation would be the number of TDRs allocated to each sending site. For example, an undeveloped sending site valued at $600,000 may have a fully developed appraisal value of $1,000,000; which equates to a development value of $400,000 (i.e. $1,000,000 – $600,000). If the willingness of developers to pay is estimated to be $50,000/TDR, then the allocated number of TDRs on the sending site would be 8 (i.e.$400,000/$50,000).

[133] Perhaps something akin to the formula used to calculate land values in the Williamson Act.

By allocating TDRs and transfer-ratios on a site-specific basis in this way (as opposed to allocating rights on a baseline zoning or distance-to-target basis), sending-site landowners would be able to capture the full market value of their sites' real development potential. Similarly, receiving site owners would be required to pay a fair market rate for the right to build one additional house on any particular parcel.

Santa Maria – Since the Santa Maria Housing Market area is fairly homogenous in topography and land values, it can be assumed that surrounding land closest to the city or community would be of higher preservation value than land farther away. Given this assumption, a recommended transfer ratio scheme for Santa Maria City and the Orcutt Community could go as follows: land closest to the urban growth boundaries would have the highest transfer ratio (T_1), land farther out would have a slightly lower transfer ratio (T_2), and land from the T_2 boundary to the edge of the sphere of influence would have the lowest transfer ratio (T_3). The transfer ratio scheme described is illustrated below in Figure 6-1. This scheme should be determined by TDR administrators and should be flexible in the allocation of T1, T2, and T3; the areas for T1, T2, and T3, may or may not be concentric circles because some areas farther from the UGBs may have a high preservation value which, should be reflected in the assigned transfer ratio.

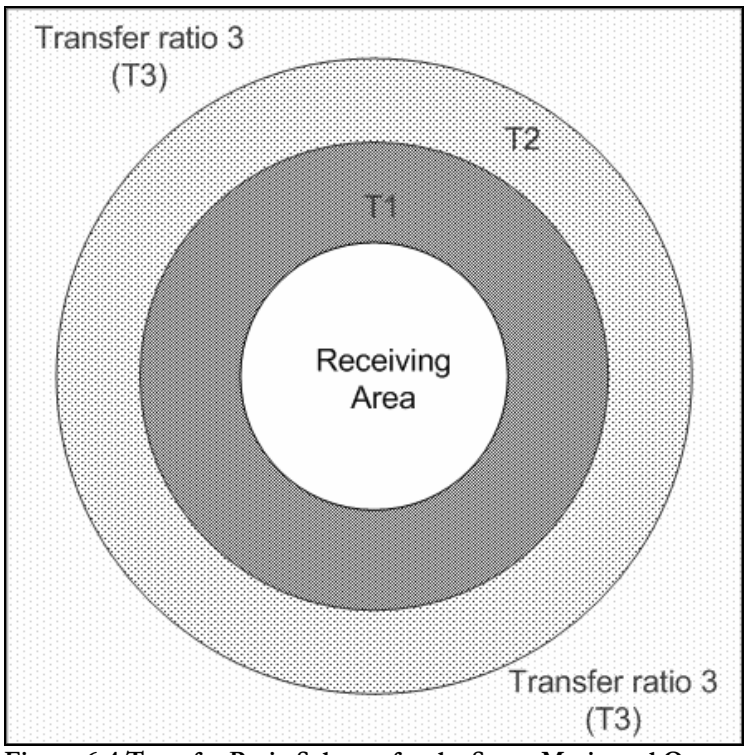

Figure 6-4 Transfer Ratio Scheme for the Santa Maria and Orcutt Areas

6.3.8. Forecasting TDR Market Activity

The following TDR market forecasts are based on each area's political, geographical, and development trends which help predict where the proposed rural-to-urban TDR program might begin. The South Coast HMA has diverse housing market prices and ecologically sensitive bluffs. The Santa Maria HMA has a more homogenous house pricing trend with similar land types throughout the area.

South Coast −Based on the locations of potential sending and receiving sites and current political trends, most initial transfers of development rights are likely to be intra-jurisdictional. The legal framework is not in place to allow transfers from the County to city lands, or vice versa. Transfers will likely initiate in County jurisdictional lands, from rural agriculture to unincorporated parcels within the UGB. Transfers are also likely to occur between parcels within city controlled lands.

Intra-jurisdictional transfers in the City of Santa Barbara are especially likely. The City of Santa Barbara has already taken steps towards transferring development within its limits and shows the political will to potentially work with the County on inter-jurisdictional transfers. Areas in the City's urban downtown posses a strong near-future demand for mixed use development that could create strong demand in a TDR market.

The draft Goleta General Plan encourages mixed use development and the preservation of its viable urban agricultural parcels. The City of Goleta would likely begin intra-jurisdictional trading focused on the preservation of its viable urban agriculturally zoned parcels through the use of TDR to promote higher density in areas designated for mixed use development along the Hollister corridor.

The City of Carpinteria is surrounded by a coveted green belt, which is under County jurisdiction. Therefore, Carpinteria will likely encourage inter-jurisdictional transfers to preserve this land through a TDR program by up-zoning some of its rural residential land or incorporating more mixed use development.

Transfers of rights from coastal bluffs and similarly high priced lands are likely to occur more slowly. These are high-value parcels and landowners will probably wait to see if the program is working well before transferring their valuable development rights.

Santa Maria −Given the relatively homogenous land values in the Santa Maria HMA, it is predicted that initial trades will take place between those who own prime agricultural lands outside but adjacent to the UGBs of Santa Maria and Orcutt and those who own large undeveloped parcels inside the Orcutt UGB. Owners of active prime agricultural lands possess the incentive to sell TDRs because pressure to develop their land increases as urban development approaches. Since the Community of Orcutt is within the same jurisdiction (County) as the surrounding rural lands, no inter-jurisdictional barriers to transfers exist between rural areas and urban parcels in Orcutt. Furthermore, there is a significant supply of large vacant and urban agricultural parcels which could be re-zoned for residential uses within Orcutt. Hence, developers could quickly capture the economic benefits of building large-scale developments on these large parcels at higher densities than would otherwise be permitted without the use of TDR.

Transfers from rural areas into the City of Santa Maria are likely to happen more slowly because the legal framework is not currently in place to allow transfers from County lands to city lands, and because the City of Santa Maria has already annexed significant amounts of County land and converted it from non-residential to residential uses within the past 30 years.

Part 7 Case Studies on Potential Receiving Parcels

Actual examples of receiving sites are used to help illustrate developer demand given the recommendations that TDR be mandatory on parcels being considered for re-zone as described in the recommended policy structure for the South Coast and Santa Maria areas and supported by the real estate activity occurring in each area. While specific sites are chosen for this analysis, this is not intended to represent site-specific mitigation, but rather to demonstrate the total developer demand for zoning changes on potential receiving sites under each of these suggested TDR policy guidelines.

7.1. Case Study on Potential Parcels in South Coast HMA

The following case studies illustrate potential developer demand for TDRs to build at increased density on actual receiving sites as outlined in the South Coast TDR policy option described in Part 6. The chosen sites are limited to vacant agriculturally zoned parcels located within the South Coast's urban growth boundary. Therefore, the case studies estimate developers' demand to build on potential receiving sites requiring re-zone from agriculture to residential uses with mandatory TDR purchases.

The results from the Goleta empirical economic analysis in Part 5, figure 5.7, are applied on the two case study receiving sites and illustrate the site specific optimal density and the estimated dollar amount developers are willing to pay for TDRs to move from the sites' current zoning densities to the developers' optimal densities. Tables 7-3 and Table 7-5 below show the results of these site specific case studies and reveal the significant developer funds available for TDR purchases for the development of these sites.

Two sites were chosen as case studies for the South Coast: (1) The Bishop Ranch, located within the City of Goleta and (2) the Christmas Tree Farm, located within the unincorporated area of urban South Coast. The Bishop Ranch is a 265-acre agriculturally-zoned parcel located east of state highway 101, between Glen Annie and Los Carneros roads as shown in Figure 7-1. This site, which consists of three parcels, is owned by the University Exchange Corporation, but Larwin Company, a developer, has an option to build on the site pending zoning changes from agricultural to residential uses on the property.

Bishop Ranch represents an ideal receiving site due to its close proximity to urban centers and its lack of viability for prime urban agricultural production. The land was used for orchards and grazing, but has been fallow for the last 15 years due to poor soil quality and water availability. Currently, the site is being considered for development to help meet Goleta's housing needs, but faces significant obstacles from the City Council to re-zone the site from agricultural to residential uses. In spite of the City Council's insistence on maintaining agricultural zoning on the site, various recent public workshops held by the City revealed that local citizens and businesses may be open to the idea of future development on Bishop Ranch.[134]

[134] Shultz, Thomas. "Goleta general plan worries advocates for new homes." *Santa Barbara Newspress*, March 29, 2005.

The Initial Conceptual Plan, drafted by a consultant contracted by Larwin Company[135], includes a potential layout map and total buildable acres. This analysis considers the new residential zoning and densities as outlined in the Initial Conceptual Plan seen in attached Map 1 in Appendix D. The proposed development densities range between 600 to 1,500 homes on 179 acres of buildable land.[136]

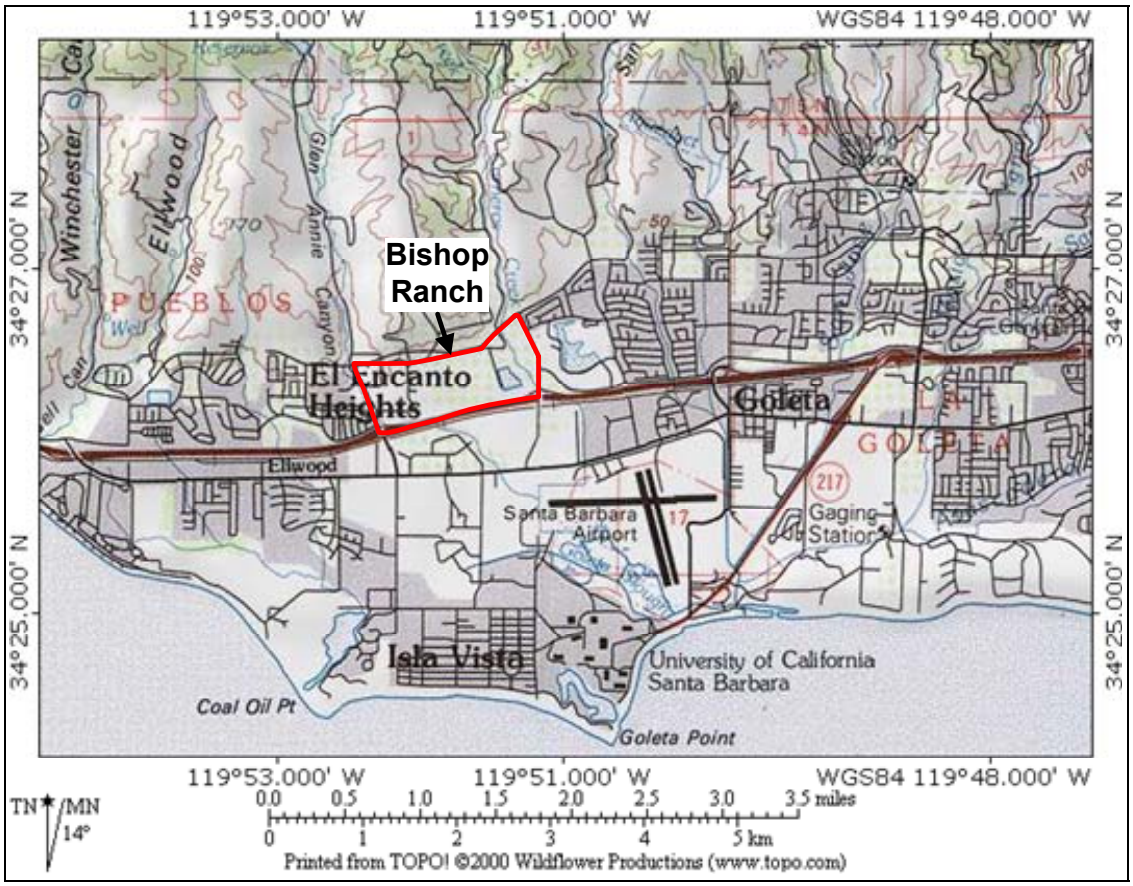

Figure 7-1 Site Location Map for Bishop Ranch

A second receiving site considered is the 26-acre Christmas Tree Farm located within the County's jurisdiction between the City of Santa Barbara and the City of Goleta near the intersection of Patterson Avenue and Cathedral Oaks Road as shown in Figure 7-2. Currently zoned for agriculture, but possessing marginal soil quality, the site is being considered for residential development by the County. Various workshops were held to obtain community input on the proper development densities, and a recent public workshop on March 5, 2005, demonstrated the County and local community's desire to locate high density and affordable housing development on the site with densities between 6.6 - 12.3 units per acre.[137] In essence, Bishop Ranch and Christmas Tree Farm are ideal receiving sites under this proposed policy option; the public has anticipated development on these sites for

[135] McLellan, Urban; Managing Director Bishop Ranch LLC.
[136] Shultz, 2005.
137 PANA Newsletter. http://www.panaspeedbump.org/htmls/htmlnews/0403.html

years and the sites fit all the criteria outlined in the South Coast TDR policy option described in Part 6, also see Table 7-1.

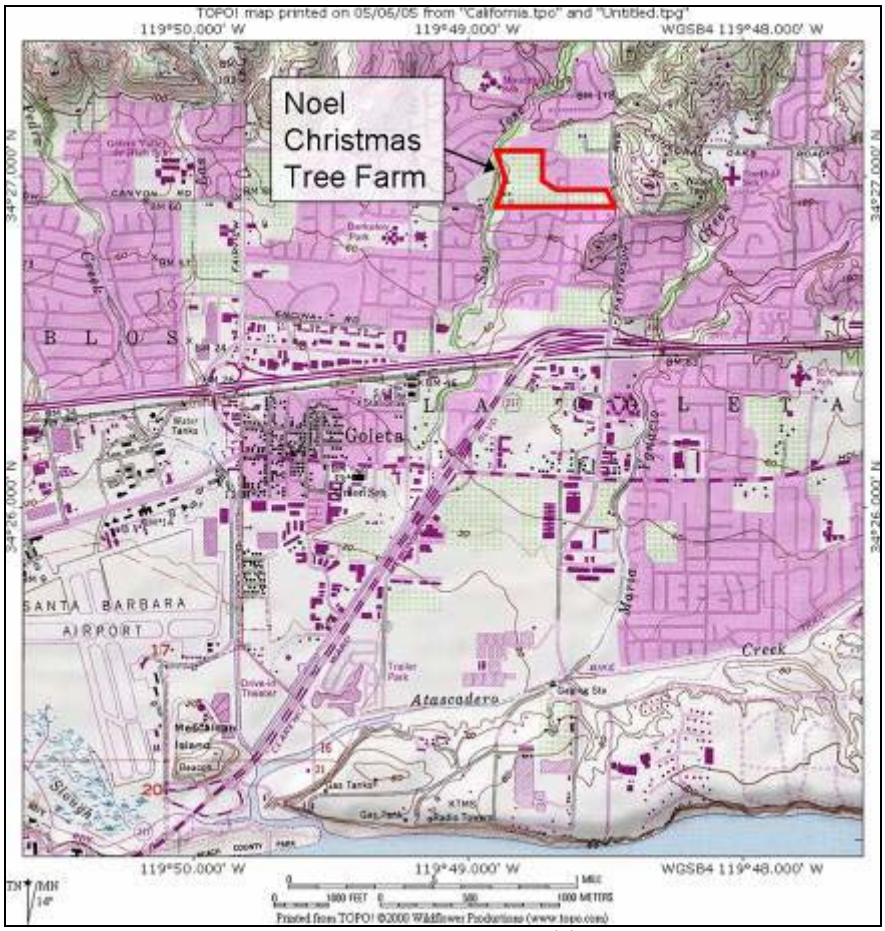

Figure 7-2 Site Location Map for Noel Christmas Tree Farm

Table 7-1 Suitability Criteria as a Receiving Site

Bishop Ranch and Christmas Tree Farm	Yes	No
Inside UGB	✓	
Near current infrastructure	✓	
Near a road	✓	
Can be rezoned for residential development	✓	
Prime agricultural land		✓
On coastal bluff		✓
Contains ecologically Sensitive habitat		✓
Within flight path		✓
On known fault line/ other hazardous constraint		✓
On steep slope (>30%)		✓

Addressing density bonuses and transfer ratios

Transfer ratios and density bonuses would be decided upon based on Density Bonus Program guidelines as outlined in the Housing Element. However, as evident from the

economic analysis of the Goleta area, the optimal density is 7.6 units per acre for developer profit maximization (Part 5). The case study analyses assume the two sites would be re-zoned from agricultural uses to residential uses up to the developers' optimal density. The initial baseline density shown in both tables is assumed to be 4 units/acre; this likely to be the lowest density the two agricultural sites would be re-zoned to.

The case studies focus on the demand for TDRs on potential receiving sites in the Goleta area, not the sending areas' development values and subsequent willingness to sell development rights. When determining the transfer ratio, care should be taken to decide if the same amount of development should be allowed and redistributed or if additional housing units should be allowed in denser neighborhoods.[138] It is likely that the sending area development values are greater than the willingness of developers to pay for TDRs on both the Bishop Ranch and the Christmas Tree Farm. This would indicate that transfer ratios greater than 1:1 would be needed to motivate both landowners to sell development rights and developers to purchase development rights and result in increasing the overall amount of allowed development in the TDR program service area.

Market participants may be skeptical of the TDR policy if demand is not shown to meet or exceed supply from the start. Therefore, evaluating the potential number TDRs demanded before the policy is in place allows adequate time to readjust site requirements to ensure a market-based program will work. A method of translating zoning changes into developer demand for TDRs is shown below for the Bishop Ranch and Christmas Tree Farm. It is important to point out that the analysis assumes that the zoning change from agriculture residential and subsequent eligibility for developers to build on these sites is contingent upon a mandatory TDR purchases (i.e. for every house built above the baseline agricultural zoning the developer would need to purchase a TDR).

Table 7-2 Current Allowable Units on Bishop Ranch

Site	Current Zoning[1]	Current Zoning Units/ Acre	Total Acres[2]	Total Buildable Acres[3]	Base # of Units
Bishop Ranch	Ag-I-40	0.03	265	174.5	7.95

1. Current zoning on Bishop Ranch is Ag-I-40, one unit to every 40 acres.
2. Total acres obtained from County parcel data.
3. Total buildable acreage was obtained from the Bishop Ranch Initial Conceptual Plan which accounts for acres set aside as open space, environmentally sensitive areas, parks, etc.

138 Office of Public Service and Outreach University of Georgia Institute of Ecology. Transferable Development Rights. http://outreach.ecology.uga.edu/tools/tdr/TDRs.pdf

Table 7-3 Number of TDRs Demanded on Bishop Ranch After Potential Zoning Changes

Rezone Scenario with Mandatory TDR	New Zoning Units/ Acre[1]	Total Buildable Acres[2]	Number of units at new zoning	Total # of TDRs Demanded[3]	Willingness to pay per acre[4]	Total Willingness to pay[5]
Res 4	4	174.5	698	691	$664,912	$116,027,107
Res 5	5	174.5	873	866	$769,933	$134,353,394
Res 6	6	174.5	1047	1040	$836,243	$ 145,924,328
Res 7	7	174.5	1222	1215	$867,717	$ 151,416,603
Zoned at developer's optimal density	7.6	174.5	1326	1320	$871,139	$ 152,013,825

1. The new zoning scenarios for residential development will likely start at 4 units/ acre for single-family detached units. This analysis shows the incremental increase of units from 4 units/acre up to the optimal density of 7.6 units/acre. This column shows the units per acre at new residential zoning.
2. Though Bishop Ranch is 265 acres, its total buildable acres is shown to be 174.5 acres as indicated in the Initail Conceptual Plan for the Bishop Ranch. The acres that are not buildable may represent areas for roads, parks, environmentally sensitive areas, conservation easements, etc.
3. The total number of TDRs demanded is the number of units allowed at the new residential zoning minus the units allowed at the current baseline agricultural zoning. This assumes that the use of TDR is mandatory for all parcels undergoing an up-zoning.
4. Willingness to Pay per acre is calculated as the aggregate of marginal WTP from the base density to the new zoning from the results of the economic analysis in Section 5.0, the lower curve in figure 5-7.
5. The total willingness to pay is the amount a developer is willing to pay for TDRs to increase from the current zoning to the new residential zoning for the entire buildable acres of the Bishop Ranch receiving site. It is calculated by multiplying the willingness-to-pay per acre by the total buildable acres. It is important to note that this amount does not take into account developer land costs for the acres that are not buildable, the inclusion of this extra land cost is likely to decrease total willingness to pay for the entire site.

Figure 7-3 below is a plot of the results from the total willingness to pay and total TDRs demanded shown in Table 7-3 above. The graph illustrates the concept that developer willingness to pay for TDRs on the Bishop Ranch is not constant throughout density ranges. Rather, developers are willing to spend significantly more per TDR at lower densities and less for TDRs as the density on the Bishop Ranch increases. Beyond a single family detached unit density of 7.6 units/acre (i.e. 1320 total TDRs bought for the Bishop Ranch) developers are not willing to pay for additional TDRs because their marginal costs in relation to their marginal revenues are such that they are unable to obtain the their expected developer returns.

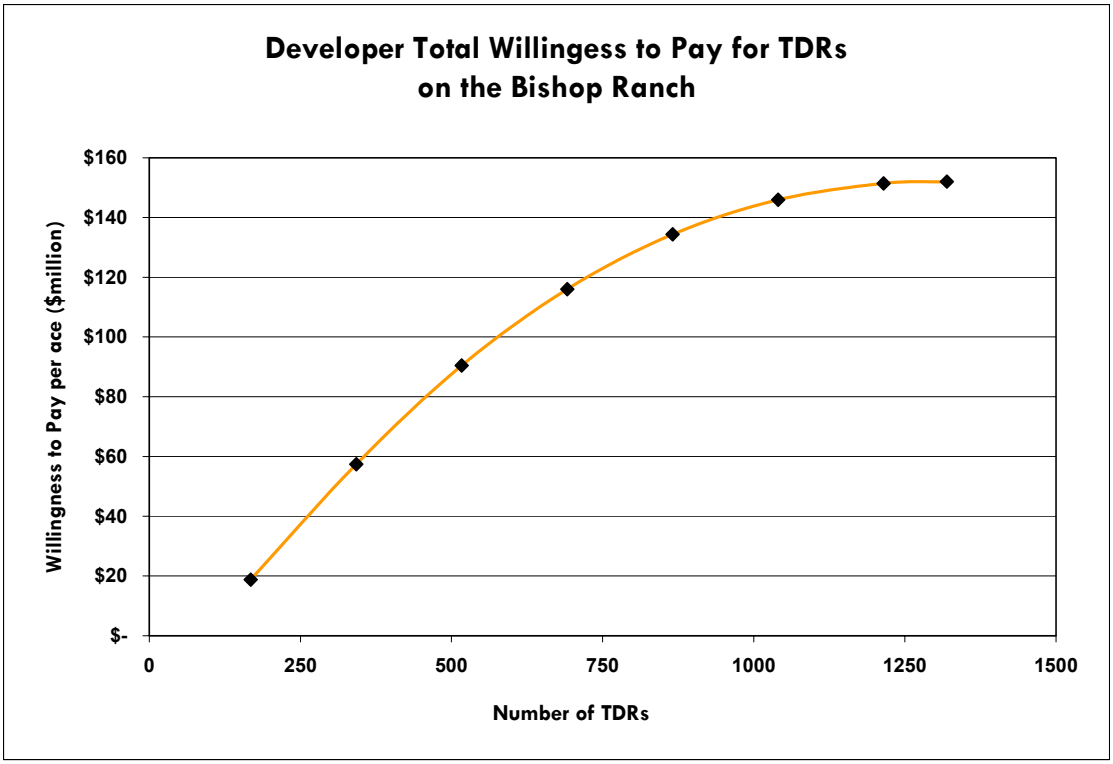

Figure 7-3 Bishop Ranch Willingness to Pay

Table 7-4 Current Allowable Units on Christmas Tree Farm

Site	Current Zoning	Base Zoning Units/ Acre	Total Acres	Total Buildable Acres	Base # of Units
Christmas Tree Farm	Ag- I-5	0.2	26	17.12	5.2

1. Current zoning on Christmas Tree Farm is Ag-I-5, one unit to every 5 acres.
2. Total acres obtained from County parcel data.
3. The number for total buildable acres was assumed to be 65% of total acreage based ona rough estimate of the existing constraints of the property.

Table 7-5 Number of TDRs Demanded on Christmas Tree Farm After Different Zoning Change Scenarios

Rezone Scenario with Mandatory TDR	New Zoning Units/ Acre[1]	Total Buildable Acres[2]	Number of units at new zoning	Total # of TDRs Demanded[3]	Willingness to pay per acre[4]	Total Willingness to pay[5]
Res 4	4	17.12	68	63	$64,912	$11,383,290
Res 5	5	17.12	86	80	$769,933	$13,181,261
Res 6	6	17.12	103	98	$836,243	$14,316,473
Res 7	7	17.12	120	115	$867,717	$14,855,314
Zoned at developer's optimal density	7.6	17.12	130	125	$871,139	$14,913,907

1. The new zoning scenarios for residential development will likely start at 4 units/ acre for single-family detached units. This analysis shows the incremental increase of units from 4 units/acre up to the optimal density of 7.6 units/acre. This column shows the units per acre at new residential zoning.
2. Total buildable acreage is estimated to be 17.2 acress. The number for total buildable acres was assumed to be 65% of total acreage based on a rough estimate of the existing constraints of the property.
3. The total number of TDRs demanded is the number of units allowed at the new residential zoning minus the units allowed at the current baseline agricultural zoning. This assumes that the use of TDR is mandatory for all parcels undergoing an up-zoning.
4. Willingness to Pay per acre is calculated as the aggregate of marginal WTP from the base density to the new zoning from the results of the economic analysis in Section 5.0, the lower curve of figure 5-7.
5. The total willingness to pay is the amount a developer is willing to pay for TDRs to increase from the current zoning to the new residential zoning for the entire Christmas Tree Farm receiving site. It is calculated by multiplying the willingness-to-pay per acre by the total buildable acres. It is important to note that this amount does not take into account developer land costs for the acres that are not buildable, the inclusion of this extra land cost is likely to decrease total willingness to pay for the entire site.

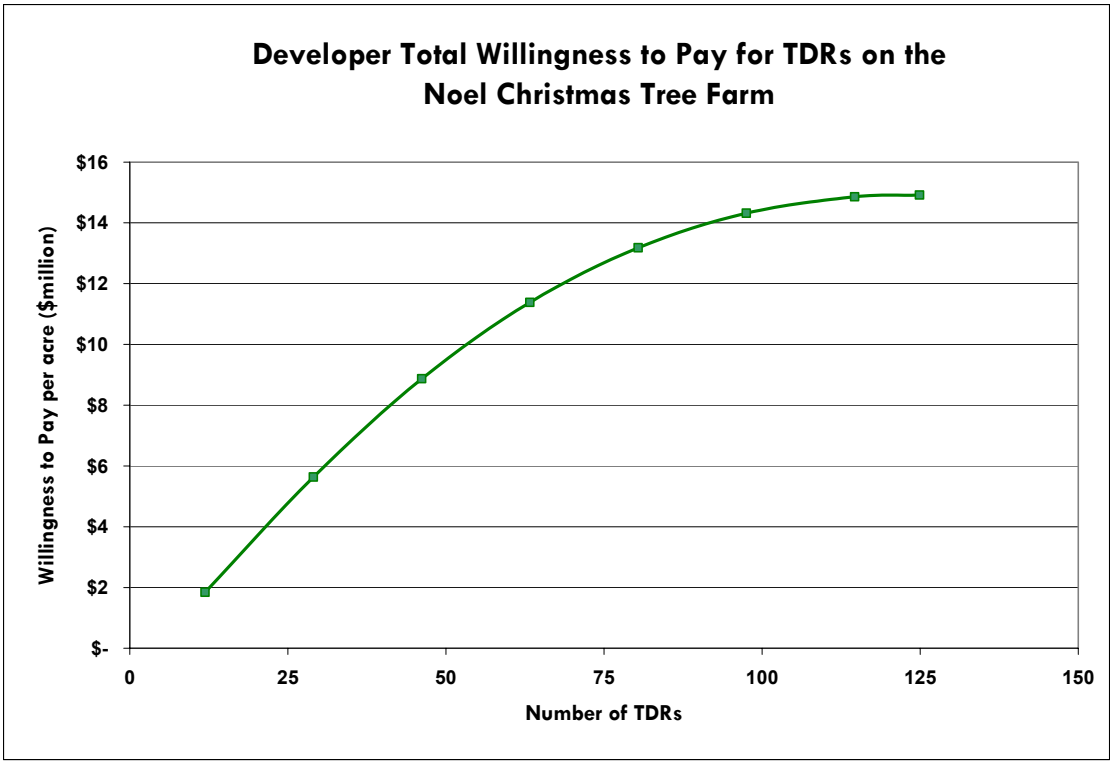

Figure 7-4 Marginal and Total Willingness to Pay for TDR in South Coast

Results

The total number of TDRs demanded is approximately 1320 and 125 TDRs for the Bishop Ranch and Christmas Tree Farm respectively. This represents the number of TDRs demanded when these sites are increased from their current agricultural zoning to the optimal residential zoning of 7.6 units/acre as determined in Part 5. These results are based on buildable acres according to the latest development proposal for Bishop Ranch and best estimated buildable acres for Christmas Tree Farm.

The 1320 TDRs demanded for Bishop Ranch, would create a total developer willingness to pay of up to $152,013,825 to increase density from the current agricultural zoning (AG I–50) to a density of 7.6 units/acre and thereby be able to build 1320 single family detached units on the site. Alternatively, if the City Council of Goleta decides to only allow 866 units to be built on the Bishop Ranch (density of 5 units/acre), Part 5 shows that developers would be willing to pay up to $134,353,394.

On Christmas Tree Farm, the maximum total developer willingness-to-pay for TDRs is estimated to be up to $14,913,906, with 125 TDRs demanded. The Christmas Tree Farm would be re-zoned from the current zoning of AG I– 5 to residential zoning of 7.6 units per acre with the ability of developers to build 125 additional units.

As mentioned in the footnotes to the tables, the willingness to pay numbers do not account for the costs developers incur when purchasing land with portions of the parcel that are not developable. As indicated in the analysis, the Bishop Ranch is 265 acres yet only 174.5 acres are buildable. The costs for the undevelopable portions of each site would need to be incorporated into the analysis to determine the developers' willingness to pay. This can be expected to decrease the developer willingness to pay by a certain amount. However, this amount is difficult to determine because the uncertainty in the costs developers pay for these undevelopable portions of land (i.e. they often receive tax breaks for putting this land under conservation easement etc., and the land is often priced differently from the buildable acreage). Furthermore, the case studies do not incorporate affordable housing requirements which developers face in a development project. The affordable requirements can also be expected to lower the estimated total developers' willingness to pay for TDRs on the two case study receiving sites.

The theoretical maximum amounts developers are willing to pay on both case study sites represent significant funds that are potentially available for TDR purchases and subsequent preservation of open space in the Goleta area. It is likely that the Bishop Ranch and Christmas Tree Farm, if re-zoned for residential purposes, would be re-zoned as Planned Residential Developments (PRDs) with a fixed number of units to be built on the sites. If mandatory TDR purchases are required of developers to build on these sites, significant revenues of many millions of dollars could potentially be generated resulting in the permanent preservation of lands designated as sending sites by the community.

7.2. Case Study on Potential Receiving Parcels in Santa Maria HMA

This case study is an actual example that applies the findings from the Santa Maria Valley economic analysis to illustrate developer demand for TDRs for the recommended policy structure (detailed in Part 6). This case study analysis is performed on a few of the Key Sites (KS) (Mini-EIR sites) identified in the Orcutt Community Plan (OCP). Key Sites are a parcel or group of parcels that have been identified as areas that have the greatest potential for development which would have a community-wide influence as stated in the Orcutt Community Plan.

> Consistent with State planning law, the OCP may be used to expedite the permitting of development projects within several Mini-EIR sites. Owners of these sites entered into "public/private" partnerships to provide more detailed environmental review and major regional planning studies for future projects to be consistent with

the project description where, when developed, only minor additional environmental review may be required (KS1.1).

The Key Sites are representative of the economic analysis because they were previously zoned for agriculture and have been rezoned as planned residential development (PRD). The Key Sites are used in the analysis because they represent a traditional transfer scheme with minimal constraints; development rights would be transferred from areas outside the UGB to within the urban core of the Orcutt Community and both the sending and receiving sites are located in County lands. Thus, no inter-jurisdictional transfer barriers exist.

It should also be noted that these Key Sites are prime examples of how receiving sites could be identified and analyzed as to their development potential; such that a developer may have the luxury of a streamlined permit process. The following case study Key Sites are also recommended to be identified as mandatory TDR sites.

Additionally, the OCP provided detailed information that includes the following: current zoning, future possible rezoning, land use, environmental and agricultural constraints, and planned development potential. This provides information regarding the amount of land available to be developed and the density at which the land is planned to be developed; this can be translated into demand for transferable development rights.

Demand for development rights is determined by analyzing details of the receiver site. These details include:

- Buildable acreage
- Current zoning
- Number of units associated with the current zoning
- Optimal density for a developer according to the economic analysis outlined in Part 5.0
- Number of units associated with optimal density zoning

Key Site Data

Key Site 14 is an 86.76-acre lot that is located south and east of Highway 135, just south of Old Town Orcutt (Figure 7-5). Currently, the site is used for cattle grazing and oil transportation via pipelines. It consists of some riparian habitat and eucalyptus growth that provide for the rural visual character that is important to the community.

Key Site 15 is a 128-acre lot that is located between Highways 1 and 135 . The surrounding land uses are general commercial, large residential lots, and planned development (KS 14). The site is undeveloped with the exception of two abandoned oil storage tanks. A large portion of the site contains significant habitat and is therefore undevelopable. The developable portion of the site is broken down into 3 acres for shopping center/SC, 37 acres of industrial park/MRP, and the remainder, 53 acres, is zoned for planned residential development/PRD. Key site 15 is a visual gateway to Orcutt and is slated to be designed to provide the most appealing view of the community.

Key Site 22 is located west of the Santa Maria airport along highway 1 and consists of 16 parcels totaling 1179.45 acres. Approximately 480 acres are in agricultural production while the rest of the site is open grassland, floodplain, wetland, and grazing. The current zoning

on the site is RR-20, residential ranch at 1 unit per 20 acres. The project description for Key Site 22 plans for a low buildout of approximately 2000 units and for a high buildout of approximately 3000 units. Low buildout of about 2000 units would require 721 acres to be rezoned for residential development with varying zoning from Res 1.0 to Res 6.0, 13 acres rezoned for two schools, and 3 acres for commercial use. High buildout of about 3000 units would require 619 acres to be rezoned to residential development with varying zoning from Res 1.0 to Res 9.0, 67 acres for three schools, and 18 acres rezoned for commercial use. The rest of the site – in both cases – will remain as open space for the protection of the site's environmental resources. The Orcutt Community Plan stipulates that Key Site 22 can only be built when 60% of the available units on all the other Key Sites have received Land Use Permits[139]. For simplicity, the analysis will only focus on KS 22 at high buildout.

Table 7-6 Key Sites 14, 15 and 22 Suitability as a Receiving Site

Key Sites 14, 15, 22	Yes	No
Inside UGB	✓	
Near current infrastructure	✓	
Near a road	✓	
Prime/state/unique agricultural land		✓
Unavoidable ecologically Sensitive habitat		✓

139 Orcutt Community Plan, KS22.2

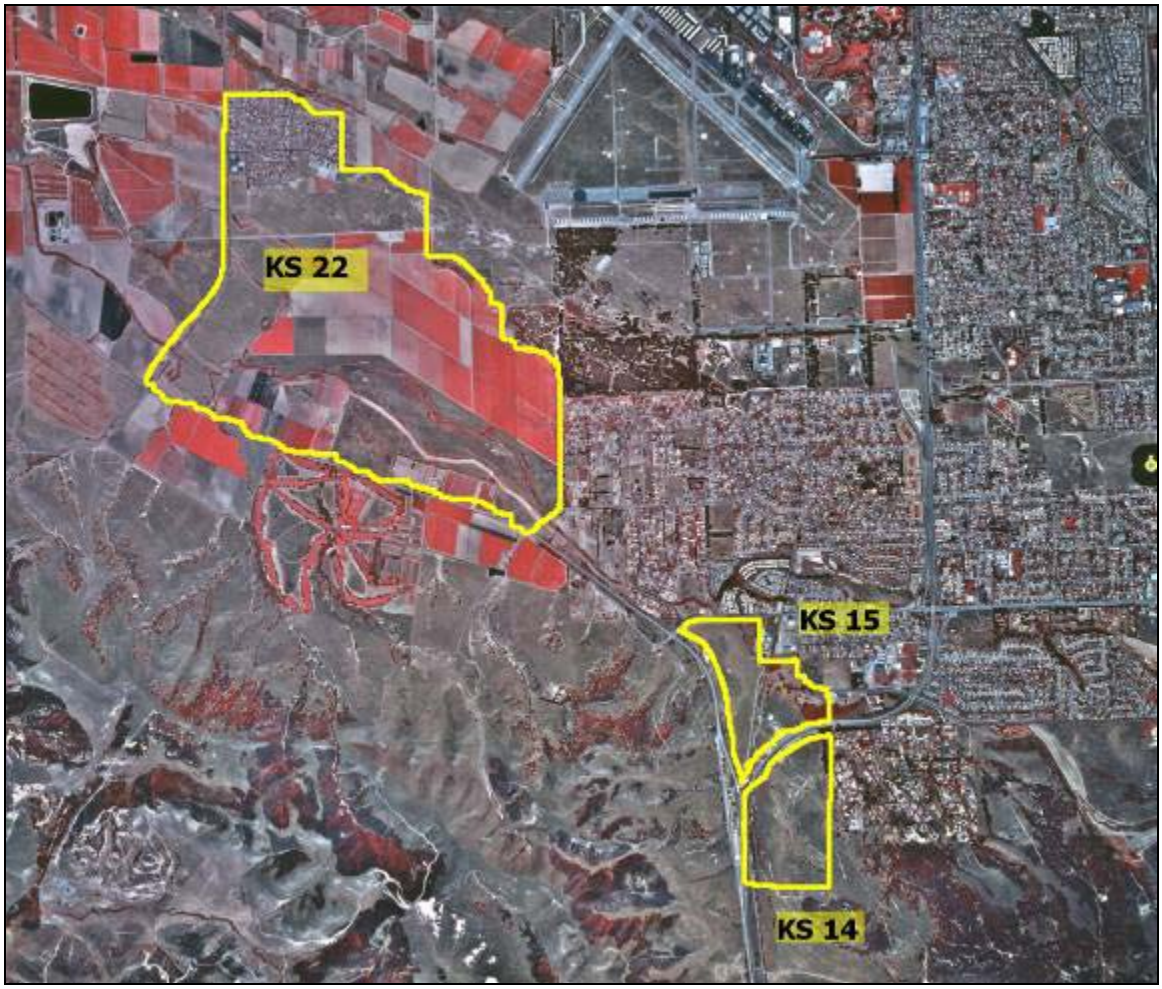

Figure 7-5 Locations of Key Sites 14, 15 and 22 in the Orcutt Community

Analysis

In order to calculate the total developer willingness to pay on each Key Site, several components need to be assessed. The buildable acreage is obtained from land use constraints, agricultural and environmental constraints, and local constraints outlined in the OCP. This acreage is multiplied by the base zoning to determine the base number of units that can currently be built. These results for each Key Site are displayed in Table 7-7 below. A hypothetical rezone is applied to represent an increase in developer density above the current zoning; this hypothetical rezone is up to the density where developer profit from the economic analysis is maximized (10.5 units/acre) or the maximum density according to constraints. Multiple new zonings are displayed in Tables 7-8, 7-9, and 7-10 to illustrate the marginal decrease in willingness to pay as density increases. The number of units that could be built at this new zoning is determined by multiplying the buildable acres by the new zoning. The difference between the number of units at the current zoning and the number of units at the new zoning is the demand for development rights on the particular Key Site (receiver site). Willingness to pay per acre is calculated by aggregating the marginal willingness to pay – results from the economic analysis in Section 5.0 and the lower curve in figure 5-8 – up to the new zoning. A total willingness-to-pay for the demanded development rights is calculated by multiplying the number of buildable acres by the per acre willingness-to-pay amounts. The results of the analysis are shown below in Tables 7-8, 7-9, and 7-10 and graphically in Figures 7-5 and 7-6 for KSs 14 and 15. The total willingness-to-

pay is the estimated maximum amount a developer would be willing to pay to increase from the current zoning to the new zoning.

One constraint of the total willingness to pay amount is that many parcels contain development constraints that render a portion of the parcel non-buildable. However, the economic model (section 5.0) assumes the entire parcel to be buildable. Since this is not always the case (all of the case study sites have development constraints), a cost must be added to account for this extra land that does not create revenue. This cost is not reflected in the total willingness to pay amounts because it is not easily quantifiable. This cost is assumed to be the same price that was used in the economic model – $170,000/acre for an urban agricultural acre; but in reality, this cost may be less than this assumed value, due to possible tax breaks from easements.

Table 7-7 Current Allowable Units on Key Sites

Site	Current Zoning	Current Zoning Units/ Acre	Total Acres	Total Buildable Acres[3]	Base # of Units
Key Site 14	PRD 1.5	1.5	86.76	74.76	112
Key Site 15	PRD 3.3	3.77	128	53	199
Key Site 22 3000[1]	RR 20	0.05	1179.45	619	30

Table 7-8 Number of TDRs Demanded on KS 14 After Potential Zoning Change

Site	New Zoning: Units/Acre	Total Buildable Acres[3]	New Development Potential (# units)	# of TDRs Demanded[4]	Willingness to Pay per Acre[5]	Total Willingness to Pay for TDRs ($)
Key Site 14	4	74.76	299	187	$102,665	$7,675,235
	8	74.76	598	486	$221,225	$16,538,781
	10.5	74.76	785	673	$241,992	$18,091,321

Table 7-9 Number of TDRs Demanded on KS 15 After Potential Zoning Change

Site	New Zoning: Units/Acre	Total Buildable Acres[3]	New Development Potential (# units)	# of TDRs Demanded[4]	Willingness to Pay per Acre[5]	Total Willingness to Pay for TDRs ($)
KS 15	8	53	424	212	$129,151	$6,845,003
	10.5	53	557	357	$149,918	$7,945,654

Table 7-10 Number of TDRs Demanded on KS 22 After Potential Zoning Change

Site	New Zoning: Units/Acre	Total Buildable Acres[3]	New Development Potential (# units)	# of TDRs Demanded[4]	Willingness to Pay per Acre[5]	Total Willingness to Pay for TDRs ($)
Key Site 22 flight zone	1	19	19	19	N/A	N/A[140]

[140] The willingness to pay results from the economic analysis is limited to densities above 1 unit/acre and therefore cannot estimate the willingness to pay for the units in the flight zone.

Key Site 22 low	3.3	152	502	494	$80,060	$12,169,120
Key Site 22 med	4.6	309	1421	1406	$135,297	$41,806,958
Key Site 22 high	10.5	139	1460	1453	$250,934	$34,879,687

1. Key Site 22 is planned to be rezoned for buildout of 2000 or 3000 residential units consisting of several residential areas with zoning ranging from res 1.0 to res 9.0 (Orcutt Community Plan). In this analysis, only the high buildout of 3000 units is considered and the highest zoned density is changed to reflect the highest demanded density found in the economic analysis.
2. Total acres allocated by Orcutt Community Plan.
3. Total Buildable acres within each key site were determined from the Orcutt Community Plan.
4. The number of TDRs demanded to build out this area is the number of new development potential minus the base number of units.
5. Willingness to Pay per acre is calculated as the aggregate of marginal WTP from the base density to the new zoning from the results of the economic analysis in Section 5.0, the lower curve in figure 5-8.

Results

The total number of TDRs demanded for Key Sites 14, 15 and Key Site 22 at high buildout is 4,402. This is assuming that Key Sites 14 and 15 and Key Site 22 in the high density area, are developed up to optimal developer density (10.5 units/acre). The results from the case studies show that developers would be willing to pay a substantial amount of money to increase their densities, but their willingness to pay would marginally decrease as density increases. Figures 7-6 and 7-7 show the total and marginal willingness to pay for Key Sites 14 and 15.

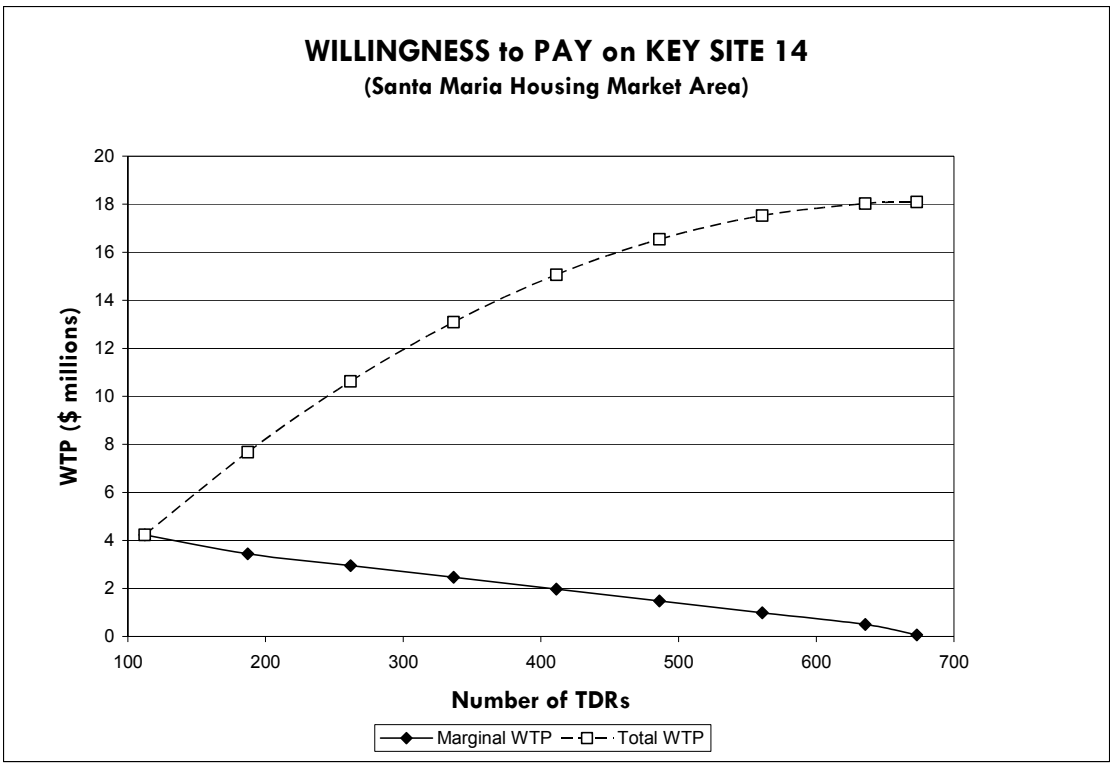

Figure 7-6 Marginal and Total Willingness to Pay for TDRs on KS 14 in Santa Maria Area[141]

On Key Site 14, a total of 673 TDRs are demanded at a density of 10.5 units/acre. Aggregating the marginal developer willingness-to-pay throughout densities, a developer would be willing to pay approximately $241,992/acre to increase from 1.5 units/acre to 10.5 units/acre. This equates to a total willingness-to-pay (TDR budget) of approximately $8,091,321 for the entire 74.76 buildable acres of KS 14 (Figure 7-6).

[141] The X-axis, "Number of TDRs" represents the number of additional houses above the current zoning.

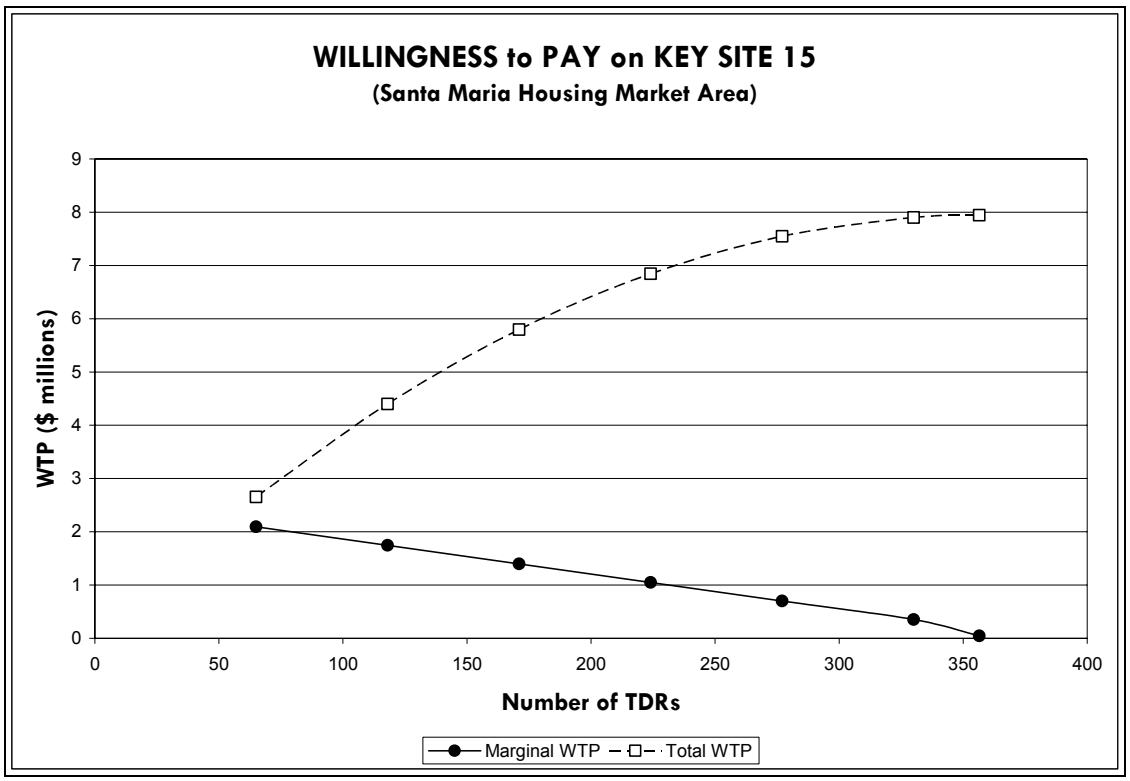

Figure 7-7 Marginal and Total Willingness to Pay for TDRs on KS 15 in Santa Maria Area[142]

A total of 357 TDRs are demanded on KS 15 when the density is increased from 3.77 units/acre to 10.5 units/acre. Aggregating the marginal developer willingness-to-pay throughout densities, this equates to a willingness-to-pay of approximately $149,918/acre or a total estimated TDR willingness-to-pay of $7,945,654 for the 53 buildable acres (Figure 7-7).

The analysis of KS 22 differs from the other Key Site analyses in that it is a large receiving area with areas of differing densities, where as the entire area of the others are planned to be developed at one specific density. The analysis of KS 22 at high buildout estimates a total demand of 3,372 TDRs. The willingness-to-pay results from the economic analysis is limited to densities above 1 unit/acre and therefore cannot estimate the willingness to pay for the units in the flight zone. A total of 3,353 TDRs on 600 buildable acres are demanded on KS 22 (less the flight zone). Aggregating the marginal willingness-to-pay to increase from the current zoning to the new zoning, the per acre willingness-to-pay would be $80,060 at a density of 3.3 units/acre, $135,297 at a density of 4.6 units/acre, and $250,934 at a density of 10.5 units/acre. This demand translates into a total TDR willingness-to-pay of $88,855,765 for the entire KS 22 (less the flight zone).

[142] The X-axis, "Number of TDRs" represents the number of additional houses above the current zoning.

Part 8 Discussion of Overall Results

8.1. Key points of Discovery and Recommendations

The original goals of this project were to determine a TDR policy's political and economic feasibility for Santa Barbara County and to identify a set of recommendations regarding a TDR program's potential implementation. This report finds the County to possess a market environment conducive to establishing a politically and economically functional TDR program. However, inherent in a TDR policy for Santa Barbara County are a host of variables and side effects that will ultimately determine a program's success. The spatial variability of land values, geo-political context, and existing regulatory framework were assessed to generate a list of key findings and recommendations as described in the discussion below. Two challenging aspects with respect to implementing a TDR program proved to be: (1) developing the right mix of incentives on the demand and supply sides of the development right market, and (2) structuring the program to identify receiving sites that minimize local resident and inter-governmental opposition.

The list that follows is a set of key findings and recommendations that seek to address the variables which will affect a TDR program's success in Santa Barbara County. These recommendations are tailored to Santa Barbara's unique attributes but align well with the key components described in detail in Part 3 of the report.

8.1.1. Clear TDR Program Goals & Structure

A TDR program needs to be simple for market players to participate. If a TDR program is burdened by unclear or conflicting preservation goals or a complicated administrative process it will likely see little market participation.

1) Clearly define the preservation goal(s) of each TDR program. Ideally, each TDR program should focus on a single preservation goal, keeping in mind the market demand for housing development within identified receiving areas.

a) A TDR program in the North County should focus on identifying receiving sites that will lead to the preservation of prime farmland.

b) A TDR program for the South Coast should focus on identifying receiving sites that will lead to the preservation of open space and agricultural lands both inside and outside the urban growth boundary

2) Structure the TDR permitting process to limit the opportunities for discretionary decisions by development review boards and committees.

a) The County and city governments should be empowered to clearly designate all sending and receiving sites (e.g. using an overlay district in the zoning ordinance) in a way that accommodates local public interest before implementing a TDR program.

b) The planning agency should determine the actual amount of development allowed "by right " on the receiving site prior to its enrollment in a TDR program. The actual amount of allowed development should not be determined from the existing zoning.

c) The permitting process should be expedited for projects using TDRs to achieve increased project densities.

3) Align a TDR program with existing affordable housing programs.

a) TDR should not be a policy tool to meet low or very low affordable housing requirements.

b) Affordable housing policies should not provide a density bonus to developers for middle income housing units on receiving sites. This may detract from developers using the TDR mechanism. The density bonus associated with low/very low income housing should have minimal impact on a TDR program.

8.1.2. Jurisdictional Size and Inter-jurisdictional Cooperation

Strong geo-political barriers exist to inter-jurisdictional transfers of development rights between certain government jurisdictions. Hence, from a public policy perspective at least, transfers that occur within a single County or city jurisdiction (and preferably within the same real estate market area) will likely be politically and administratively easier to establish and maintain than those that span multiple County or City jurisdictions.

4) Limit the geographic scope of TDR programs to ensure that communities with receiving sites can directly observe the social benefits from the preservation of nearby sending sites.

a) TDR programs should be adopted by individual County or city jurisdictions and structured such that receiving areas, sending areas, density bonuses and transfer ratios are identified by all the local stakeholders to better represent local interests and minimize opposition.

b) TDR programs throughout the County should be structured to allow for both inter- and intra-jurisdictional trades. Initially, because of the existing political barriers between many city and County governments, TDR market activity will likely occur within individual jurisdictions, not between them.

i) As a TDR program gains credibility, inter-jurisdictional transfers will likely become more plausible. A regional (i.e. South Coast) approach should be encouraged between city and County governments seeking to find viable solutions to preserving lands of common importance.

ii) Inter-governmental agreements should be reached to allow an equitable transfer mechanism that accounts for each jurisdiction's interests.

iii) A ratio needs to be established to identify the breakdown of housing numbers to count for RHNA requirements between jurisdictions (city or County) in an inter-jurisdictional transfer. This could be 50/50 or some other ratio, but it should be established in advance; not determined on a case-by-case basis.

8.1.3. Land Values and Mandatory TDR Use

It is important to recognize the market limitations of a TDR mechanism. A TDR market will see little participation if large disparities exist between sending and receiving site land values.

5) Receiving sites should be identified with sufficient development value to motivate developers to purchase development rights and be located in areas where the community wishes to encourage additional development. The estimated developer demand on these receiving sites should be used to identify equitable transfer ratios.

6) Sending sites should be identified in relative accordance to the estimated development value on the receiving sites. In this way, transfer ratios will be minimized with reduced local opposition.

7) Require mandatory purchase of TDRs for parcels that the planning agencies approve for re-zone to higher density. This action is warranted in light of the strong developer demand and pressure to meet housing requirements. It provides communities with the added social benefit of preserving open space and does not freely grant increased development potential to developers through unconstrained re-zones to higher allowed density.

Examples include the following:

i) For any urban agricultural parcels being considered for re-zone to residential or commercial development, the local planning agency may consider requiring mandatory developer TDR purchases. Additionally, farmland being annexed into city jurisdictions could be considered contingent upon the use of mandatory TDR to be eligible to build on these newly annexed parcels.

ii) Land being re-zoned to mixed use should be considered for mandatory TDR.

(1) The 'funk-zone' in downtown Santa Barbara and nearby industrially zoned parcels have the potential to act as a viable receiving sites for mandatory TDR; due to the high value, these sites may create significant developer interest to purchase TDR for the ability to build on these sites.

(2) Goleta's draft general plan identifies multiple areas for mixed use re-zoning which could serve as mandatory receiving sites.

(3) The urban core area of Santa Maria was identified for revitalization, including mixed use re-zones which could operate as mandatory receiving sites.

8.2. TDR Market Player Incentives

The success of TDR programs hinges on stimulating developers to purchase development rights from willing sellers on sending sites. Without sufficient developer demand and sending site supply, there will be minimal market player participation in a TDR program.

8) Sending Site Landowner Incentives

Appropriate transfer ratios are the key incentive for sending site landowner participation. Transfer ratios indicate how many development rights a sending site is able to transfer from the sending site parcel in relation to its existing zoning. The ratio is equal to the number of TDRs allocated to the parcel divided by the parcel's existing zoning.

a) TDR transfer ratios are optimally established by balancing development value on the sending sites with development value on the receiving sites in the program area. If the TDR program is constrained to a limited geographical area and in the same real estate housing market area this should not prove too difficult. Landowners of sending sites are unlikely to participate if the allocation scheme does not allow them fair compensation for severed development potential. Likewise, developers of receiving sites are unlikely to purchase development rights if the are overly expensive.

b) In general, 1:1 transfer ratios should be used if the value of the sending site(s) is similar in value to the receiving sites. A transfer ratio greater than 1:1 should be employed if the value of the sending site(s) significantly exceeds the value of the receiving site.

c) The transfer ratios in the Santa Maria Valley should be based on distance to urban core and preservation ranking. Lands further from the urban center would be allocated a

lower transfer ratio; however, lands of high preservation value, albeit far from the urban core, should have a higher transfer ratio.

d) The transfer ratios along the South Coast should be based on appraised values of potential development for sending areas and estimated developer willingness to pay on receiving areas, not a fixed ratio based on zoning. This is due to the high land values and the expected unwillingness of landowners to sell development rights without a certified appraisal of value.

i) South Coast transfer ratios could be determined by dividing the development value of the sending area by the estimated developer willingness to pay across all receiving sites in the program area. If the program area is geographically constrained there will be minimized inequities for participating market sending site landowners.

e) Provide development right bonuses for sending sites with preservation priorities. This in effect increases the transfer ratio for priority sending sites.

9) Receiving Site Developer Incentives

a) Allow the TDR to vary in units depending upon which types of receiving site it applies to (e.g. TDR = extra square feet for mixed use receiving sites; TDR = additional units for agricultural and residential receiving parcels; 1 TDR = 1.25 apartments).

b) Allow developers to finance the purchase of a TDR rather than paying for it up front prior to house sales. This serves to minimize holding costs and encourages developers to participate in the TDR market when they may initially be very cautious and unwilling to accept the risk of a new program.

c) Create certainty with the TDR program : developers must feel confident the planning commission will honor the increased density associated with TDR and not remove pre-existing development potential after actual buildable densities or 'by right' densities have been determined.

d) Streamline the administrative and building permit process when TDR is used. Developers using TDR should have a fast track through the approval process.

8.3. Facilitating Trades in the TDR Market

10) Use local non-governmental/non-profit organization to serve as a bank to facilitate trades, purchase rights, organize auctions, and educate the public.

a) A TDR bank can buy and sell development rights during periods of little market activity and establish landowner and developer confidence. This can lead to increased market participation. Seed money could come from CREF grants, state grants, local sales tax, and/or private donations.

b) TDR banks can assist with financing the TDR purchase for the developer

c) TDR banks can also serve to reduce County/city TDR administrative costs through facilitating transfers.

d) Periodic TDR auctions organized by the bank for County and cities can act to bring market players together and establish the market price for development rights.

e) A Clearing House which displays a record (e.g. online or in print) of willing sellers and buyers of development rights can serve to increase participation.

Part 9 Conclusions

This report aimed to determine the feasibility of a TDR program in Santa Barbara County and to develop a set of preliminary recommendations for such a TDR program. The approach to achieve these objectives included researching current TDR programs, evaluating Santa Barbara County specific land use and growth issues, and conducting housing market area-specific economic analyses. The report considers a feasible policy option for each of two HMAs within Santa Barbara County: Santa Maria and South Coast. Political, economic, and geographic tenability for workable TDR programs in the two housing market areas were considered throughout our research.

A comprehensive review of TDR background literature has shown that a successful TDR program requires strong demand in the TDR market. Accordingly, our HMA economic analyses found that the County possesses the environment necessary for TDR to succeed as a growth management tool. It contains areas where development demand is sufficiently strong, proper local land use goals are in place, and developers are constrained through zoning regulations. These areas are identified in this report as the South Coast and Santa Maria housing market areas.

This report recommends that the planning agencies take into account this strong developer demand and structure the TDR program that will capitalize on this opportunity and encourage developer participation. Currently, local planning agencies are up-zoning land to allow for increased residential development and rezoning agricultural land to provide for residential housing needs. These re-zones are occurring in areas where there is very strong developer demand to build homes which could become receiving sites in a TDR program. This demand suggests that the planning agencies should require mandatory TDR purchases for such re-zones for development. In this way the cities and the County make development contingent upon preservation and could benefit from preserved open space at reduced cost while developers are able to increase profits through increased density allowances. With established strong demand, the planning agencies should determine a clear preservation goal that is consistent with the desires of local communities. Consequently, the communities' desires to preserve open space as well as developer demand can substantiate the designation of sending and receiving sites.

Politically, the County faces serious challenges to the implementation of TDR programs. Existing political barriers need to be reconciled between the city governments and County government to maximize the potential effectiveness of a TDR policy. City and County officials must work together to arrive at manageable TDR programs aimed at minimizing sprawling development. When determining jurisdictional size and possibility of inter-jurisdictional transfers, the County needs to be certain that trades between sending and receiving sites are close to each other so that receiving site communities can benefit from the amenities of sending site preservation. In addition, local communities need to have the authority to decide how the TDR program will best be implemented in their local areas.

Other key components that will enhance the success of a TDR program include incentives for receiving site developers and sending area landowners and a TDR market to facilitate trades. Program components such as transfer ratios, density bonuses, and streamlined permitting process can be adjusted to adequately compensate landowners' lost development potential and minimize developers' costs of development. Finally, TDR banks can act as a constant buyer and seller of TDRs to stabilize TDR markets and decrease transaction costs.

The deliverables of this report include identification of key components of successful TDR policy, economic analyses of developer demand, case studies highlighting relevant receiving site developments, HMA specific receiving parcels map, and administrative recommendations for the County. Ultimately, it is our hope that this report will elucidate the workings of a TDR program for landowners, developers, and other concerned members of the local communities as well as assist planners in considering the implementation of TDR as a policy option for open space preservation in the context of future growth.

9.1. Recommendations for Future Research

Our demand-focused economic analysis considers market demand for development rights on a specific category of receiving sites in a particular area of each housing market areas (HMA). Additional research focused on aggregating developer demand for TDRs across all the different types of identified receiving sites in a particular jurisdiction, including parcels for mixed-use development, will provide a more accurate estimation of the total market demand for development rights. This report inventories potentially viable receiving areas in each HMA, however, it stops short of parcel-specific prioritizing of these sites for increased density; further research should focus on prioritizing these sites as receiving areas with their determined density bonus.

Furthermore, the supply side of the market is not completely addressed in this feasibility analysis. A more comprehensive analysis identifying the plausible sending areas, given the estimated demand, can assist in constructing inventories of receiving and sending sites to be used in assigning transfer ratios and density bonuses. Though this report includes interviews with County planning employees, local developers, and land use consultants, the potential sending site landowners and neighborhoods which may be subject to increased density with a TDR mechanism have not been examined. Conducting community surveys, public outreach education, and interviews can better attest the tenability of a TDR program, providing insights to public opinions on a TDR program, possible inputs to program structure, and landowners' perspectives regarding participation in the program as sending site owners.

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Part 11 List of Appendices

Appendix A. Survey of Components from Other Successful TDR Programs

Montgomery County, Maryland[143],[144]
Montgomery County has successfully preserved 30,000 acres of farmland in the western region of the county. It accomplished this by designating a 110,000 acre sending area, nearly 1/3 of the county's total land area, as an Agricultural Reserve. The sending area was down-zoned from an original zoning of 1unit/5 acres to 1 units/25 acres. The sending sites landowners within the Agricultural Reserve, called 'Rural Density Transfer Zones' were allowed to sell their development rights at a transfer ratio of 1:1, based on the previous 1 unit/ 5 acre zoning, thus avoiding 'takings' issues. The receiving areas were designated in the eastern urban areas of the county, nearby existing infrastructure where development pressure from the sprawling greater DC area was creating strong demand for development rights.

The Montgomery TDR program has a large jurisdictional size and is similar to program 'b' in the regulatory spectrum. It is a voluntary program with defined regulatory requirements. Rather than designating sending and receiving areas parcel by parcel, the program has identified 'zones' to transfer development from and to with a set of constraints.

Despite preserving large amounts of land in this area, the agricultural viability of the preserved land with TDR remains questionable. The TDR program allows landowners to retain 20% of the allocated development rights at a zoning of 1unit/25 acres. This has resulted in farmers selling development rights and subdividing the remaining amount of land at the lower density. This has created a strong market in the area for large houses on large tracts of land which limit the agricultural viability of the area. In order for land to be considered truly viable for agriculture, continuous tracts of 100 acre parcels need to exist; the 25 acre rural mansions in scattered throughout the area are limiting the agricultural viability.

Calvert County, Maryland[145]
Calvert's program, focused on farmland preservation, allows more flexibility in both sending and receiving areas than most other TDR programs in the country. Because the program does not specifically designate receiving and sending areas, but rather provides loose guidelines for their determination within specified zones, it offers more opportunity for the market to decide which properties are preserved and which are to be developed. Calvert's program lies further to the left of program 'b' on the regulatory spectrum; closer to a Market for Development Rights (MDR) program, with a relatively large jurisdictional size. Although 13,000 acres have been preserved with 12,644 TDR transactions, with this approach, the development patterns have been scattered and resulted in development where the market demand is greatest. This pattern of TDR development can be considered a success if the total acres of land preserved is the objective, but less successful if contiguous tracts of open farmland preservation and concentrated development are the goals.

Unlike the Montgomery program, in the Calvert program, the entire parcel is preserved when a single TDR is sold from the sending parcels. In order for a parcel to be eligible for selling TDRs it must meet certain requirements of size and soil conditions to qualify it as a viable sending parcel in the Agricultural Preservation District (APD). Each one-acre lot on

[143] Rick Pruetz, *Beyond Takings and Givings* (Marina Del Ray, CA: Arje Press, 2003), 208-212.
[144] Pruess Cohen. An Analysis of Equity Issues in the Montgomery County TDR Program (2002).
[145] McConnell et al, (2003).

the parcel that has not previously been developed on is granted one transferable development right. A developer needs to purchase 5 rights from rural land to build one dwelling unit in a receiving area

Prior to 1999, in order to establish a market for development rights, much of the land in the county was down zoned from 1/5 to 1/25, with subsequent transfer ratios of 1/5 and density bonuses ranging from 150% to 300% in the rural communities and the R-1 areas respectively. In 1999, a second down zoning took place with most of the land having its maximum density reduced by 50% and a subsequent increase in the density bonus to 300% and 700% respectively to counter the drastic down zoning. This was reinforced with an increase in the transfer ratio from 1/1acre to 2/1acre, thus increasing the supply of TDRs. The goal of the tighter zoning rules was to give farmers more incentive to enter the TDR program. (McConnell, Kopitz, Walls, 2003).

Chesterfield Township, New Jersey[146]
The Chesterfield TDR program is innovative with a single receiving area designed to accommodate all the townships remaining development capacity with a mandatory requirement for developers to purchase TDRs to be eligible to build on the receiving site. The existing zoning of 1/3.3 for all the developable parcels larger than 10 acres in Chesterfield would yield an aggregate of 1,200 units. The Old York Village receiving site was designed to absorb all these 1,200 units. The sending sites therefore, were designated on a 10 acre minimum parcel eligibility and were allocated 1 development right /3.3 acres (transfer ratio 1:1). With this TDR design, the planners of Chesterfield decided that the majority of development concentrated into a single area with smaller houses and lot sizes is more desirable than having developable parcels subdivide and cluster the development into subdivisions in an ad hoc fashion throughout the municipality. This TDR framework is indicative of program 'c' in Figure 5. Chesterfield itself is a very small jurisdiction (20 sq miles), and the TDR program with its mandatory requirements and specifically designated sending and receiving areas reveal a program with a large degree of regulatory

The receiving site is a grouping of 12 parcels zoned for agriculture totaling 560 acres. The receiving area went through an up-zoning from the original 1unit/3.3 acre zoning to an average of 2.14 units /1 acre; a 700% increase in density! This new receiving site development, called 'Old York Village,' providing a total of 1,200 units, and has been pre-planned with 'neo-traditional' planning principles and designs. The neo-traditional design plans for recreational areas and public open space to be integrated into the subdivision. Importantly, the only way a developer can build in this new development is by first purchasing a development right which represents the removal of development and from surrounding farmland and its subsequent preservation in perpetuity. Each credit bought by a developer is equivalent to a potential house able to be built in the Old York Village development.

King County, Washington[147]
King County, population 1,737,034, includes the Seattle metropolitan area in the west and the Wenatchee National Forest in the east. In 1998 King County adopted a TDR pilot program which allowed for transfers from rural portions of King County to the incorporated

[146] Various meetings and discussions with Chesterfield and Burlington County Planners (2004).
[147] Pruetz, 186-190.

cities. The program offered incentives for the cities to participate in the form of amenities such as transit enhancement and pocket parks. In 1999 the County budget included $1.5 million to fund a TDR bank and additional $500,000 for receiving area amenities to offset the impacts of increased densities.

In 2000 the City of Seattle and King County entered into an inter-local agreement that put the County's TDR program into effect. Under this agreement the city received $500,000 from the County for amenities on or nearby the receiving area. Development rights cannot be sold for use within incorporated cities unless the city and County have entered into an inter-local agreement and the city has adopted an implementing strategy for the receiving area. The City of Seattle believed that inter-jurisdictional transfers would be appropriate for its Denny Triangle neighborhood revitalization project, an area consisting of 25 city blocks. Projections call for a housing increase from 900 to 5,000 homes.

The sending sites are located in rural King County and include land zoned for agriculture, forest, listed habitat and land zoned as urban separator zoned R-1. Sending sites of Ag and forest can send twice the allotted density, etc. In 1999 a 313-acre forested sending site was preserved with a $313 million TDR transfer of 62 rural residential development rights which allowed for an additional 8,000 square feet of commercial floor area/development right. The Denny project sets a development right to be worth 2000 sq ft of additional residential floor area.

Although Seattle was receptive to higher densities in the Denny Triangle area, it is important to note that the city itself got something out of the deal – the half-million dollar payment from the county. This made the inter-jurisdictional agreement easier to negotiate.

Boulder County, Colorado[148]

Boulder County, population 291,288, lies 15 miles northwest of downtown Denver. Boulder's inter-jurisdictional TDR program allows transfers from sending areas in the County to receiving areas in or near the City of Boulder and seven other incorporated communities. The inter-jurisdictional program was created through voluntary agreements rather than through state or federal mandates. The program has produced 15 transfers between cities and the County preserving 4,700 acres at average TDR prices of $50,000.

The program is implemented through an inter-governmental agreement between the City of Boulder and Boulder County, which was adopted in 1995. Since then, seven other cities have entered the agreement. Sending area landowners have a 2:1 transfer ratio and if deliverable agricultural water is attached to the site a 3:1 ratio is used. Sending areas are designated into several categories: Rural Preservation, Accelerated Open Space Acquisition, Private enclaves and Northern Tier Lands. Receiving sites include land within the boundaries of the cities or lands which are being annexed that comply with the specific city-county IGA. In some cases, the city and county buy the underlying property for open space after the development rights have been sold; the TDR program obviously reduces the price of the open space land[149].

The TDR program has been dormant with sending area landowners unwilling to sell their TDRs. The City of Boulder has emphasized affordable housing contributions rather than

[148] Pruetz, 171-174.

open space contributions making it more convenient for developers to use the affordable housing mechanism for increased density. The Boulder program seems to suffer from high transaction and administrative costs which serves to deter potential developers from using TDRs.

San Luis Obispo County, California[150]
There are two TDR programs in San Luis Obispo County at this time: a community-based program of Cambria developed in the 1980s, and the county-wide program adopted in 1996. The County program tries to address the problem of 23,000 undeveloped lots in the unincorporated portions of the County of which 12,000 are in rural areas and 2,000 are in antiquated subdivisions. In addition the County General Plan would allow the creation of an additional 8,000 new lots in rural areas. In the 1980s development shifted away from the edges of urban areas to the rural areas, and it was concluded that this development pattern was to have significant consequences upon agriculture, the environment and public infrastructure.

The TDR ordinance of 1996 was designed to retire thousands of legal lots scattered throughout the rural regions of the County. There are three sending area designations: Agricultural, Natural Resource, and Antiquated Subdivision. The Antiquated Subdivision sending sites are assigned development rights either by an existing lot method where development rights are assigned equal to the number of legal lots or according to an 'exchange rate' method. Under the exchange method, the value of the lost development potential on the sending parcel is determined and divided by the 'willingness of a developer to pay.' The result is the number of credits assigned to the sending parcel. For example, If the development value of a sending parcel is $600,000 and it was determined that developers are willing to pay $40,000 the number of credits would equal 60/4 = 15, regardless of the existing zoning of the sending parcel[151]. The county planners are very skeptical of this method because it allows for so much more development than would otherwise be allowed. The current 'exchange rate' used is $20,000 but the County is looking to increase this very soon.

Receiving sites are constrained to parcels that: have no significant environmental amenities, are not located in an Agricultural Reserve, and are located within 5 miles of an urban limit line. The density bonuses vary depending on the receiving parcel's location. If the site is within an incorporated city's boundary line, the density bonus must be consistent with that city's policies. If the site is within 5 miles of an urban limit line the density bonus is 35%. If the receiving site is within 3-5 miles of a UGB the density bonus jumps to 50%. At distances greater than 5 miles no density bonus is granted. In addition the county grants an extra 25% bonus to base density receiving area developers who provide special amenities such as trails, coastal access, and public parks. The County program has approved four receiving areas and seven sending sites with a combined acreage of 8,300 acres. There is a desire from the county officials to change the TDR ordinance to be a completely community – based program.

Malibu Coast, California[152]

150 Pruetz, 226 - 233.

152 Pruetz, 201-207.

The Malibu coastal zone stretches along 27 miles of shoreline between the city of Los Angeles and Ventura County. The mountains in this area are laced with thousands of small lots created prior to the advent of modern subdivision regulations. These lots were originally designed as sites for weekend cabins and averaged between 4 and 7,000 sq ft. Many of these lots are on steep hillsides and are not suitable for septic systems. Despite these hazards, because of the areas natural beauty and proximity to L.A people continued to build houses in the Malibu hills.

The Coastal Act stated that new subdivisions can only be permitted where 50% of the existing lots were already developed. In 1978 64 % of the 13,475 lots were vacant[153]. Unless a solution was found, the Commission would have to allow the development of hundreds of substandard lots in antiquated subdivisions. The solution was a TDR program that was voluntary for sending area landowners and allows for receiving area developers to purchase development rights if they wished to develop additional homes on an existing legal lots. The Value of home sites in Malibu made the purchase of development rights and subdivision of land in the receiving area subdivisions economically attractive.

Developers were highly motivated to buy TDRs because the huge increases in land value that was gained by subdivision. Splitting a 10-acre lot into four 2.5-acre lots can produce 300-400% increase in value. To provide stability and consistency, the State Coastal Conservancy took a proactive role in creating and selling development rights. The Conservancy ensured dependable supply of TDCs by purchasing 213 rights with $2.6 million. The program retired a total of 924 lots. The TDR program was essentially a lot retirement program where sending area landowners, once they sold the development rights from the parcel, had very limited use of the land.

Appendix B. South Coast Economic Analysis Raw Data

1. Data collection

Empirical house sales data was used to estimate developer willingness to purchase development rights to increase the number of units built at a range of densities. Single family-detached house sales data of the Goleta housing market from the 2004, June – August, Multiple Listing Service were used. The attributes of the data set are: sale price ($), lot size (sqft), house size (sqft), year built, number bedrooms, number bathrooms, time of sale, and floor area ratio. The original data set consisted of 154 house sales with the corresponding attributes.

Neighborhood amenities such as views, proximity to shopping, and schools are known to significantly affect land values and subsequent house sale price (Bockstael et al, 2003). Therefore, to minimize heterogeneity in land values, the data set was confined to the Goleta housing market, and is therefore representative of this area only.

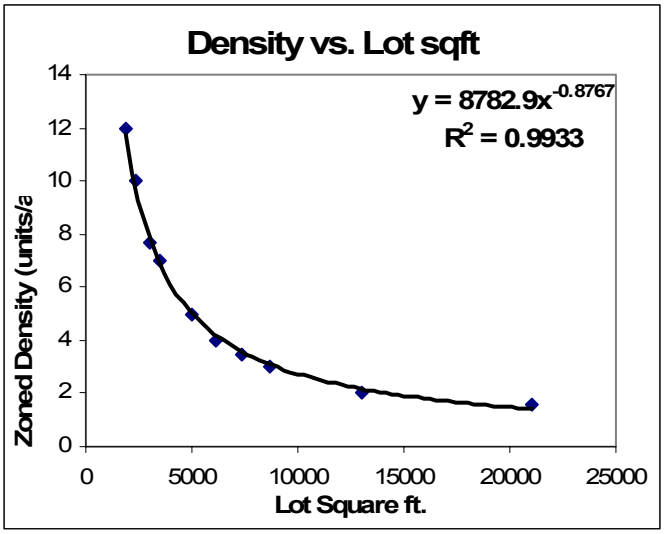
2. Conversion of lot size to Density

Parcel lot size was transformed from square feet to a density (units/acre) using known subdivision densities and the corresponding standard square foot lot sizes. It is important to use actual buildable densities for subdivisions as this is what the developer would base his/her finances on. Captured in the actual density is the amount of space/acre in a subdivision that is used for roads, sidewalks, and communal open space. Table B.1 below shows the standard subdivision densities and lot sizes that are used to establish a functional relationship between lot size and density. The equation derived in Figure B.1 was used to transform the data from lot size to density.

Table B.1 Standard Subdivision Lot Size and Density

Lot Size (sqft)	Density (units/acre)
1900	12
2400	10
3000	7.7
3500	7
5000	5
6100	4
7400	3.5
8700	3
13000	2
21000	1.6

Figure B.1



3. Data set statistics

The box plots and qqplots of the data indicate the data set is significantly skewed at the tails. This is especially apparent at the more expensive, lower density house sale ranges; the skew at the opposite tail with lower sale prices and higher densities is less skewed. Outliers were removed to minimize data skew based on hat values from regression #2 below.

Figure B1. boxplot (Price) complete data

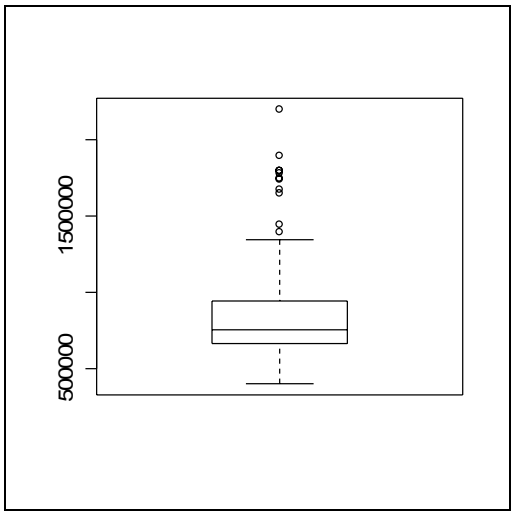
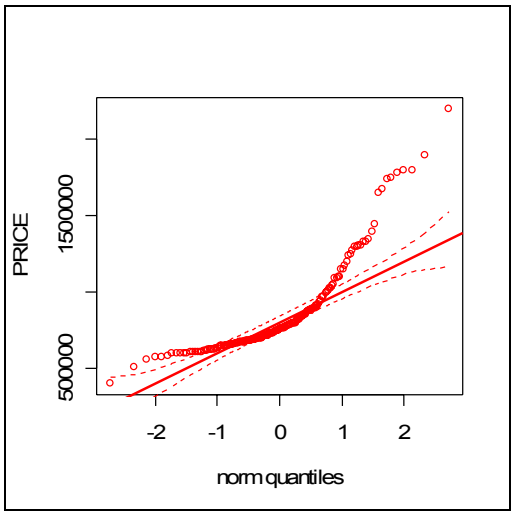


Figure B2. qqplot (price) complete data



3. Regression #1: Density, Year Built, House Size on Sale Price

Regression #1 is used to determine if house age and house size significantly impact price. The regression statistics are shown below.

lm(formula = PRICE ~ H_SQFT + Density3 + BUILT)
Residuals:

Min	1Q	Median	3Q	Max
-339331	-99908	-4875	77035	644631

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)

```
(Intercept)     961067.38  2248405.21   0.427       0.66967
H_SQFT          324.34       24.74       13.108      < 2e-16 ***
Density3        -36482.67  10130.52     -3.601      0.00043 ***
BUILT           -308.40      1157.77     -0.266      0.79032
---
Signif. codes:  0 `***' 0.001 `**' 0.01 `*' 0.05 `.' 0.1 ` ' 1
Residual standard error: 155100 on 150 degrees of freedom
Multiple R-Squared: 0.7619,     Adjusted R-squared: 0.7572
F-statistic:   160 on 3 and 150 DF,  p-value: < 2.2e-16
```

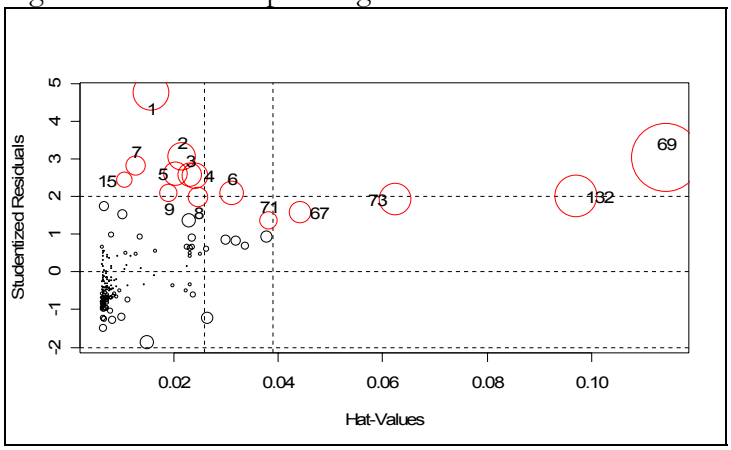
The P-value for the year built indicates the age of the house is not significant to price; density and house size are significant. It is assumed that the affect of house size on price is partially captured in the density variable (smaller lots have smaller homes, and the Goleta housing stock is single story), therefore, house size and year built are not considered in regression #2

4. Regression #2: Density on Price (complete data set)

Regression #2 is used to remove outliers. The regression statistics are shown below.

```
lm(formula = PRICE ~ Density3)
Residuals:
   Min     1Q  Median     3Q    Max
-461926 -162982  -79916  109533 1102891
Coefficients:
                Estimate     Std. Error     t value      Pr(>|t|)
(Intercept)     1270834      46980          27.050       <2e-16 ***
Density3        -125706      13280          -9.466       <2e-16 ***
---Signif. codes:  0 `***' 0.001 `**' 0.01 `*' 0.05 `.' 0.1 ` ' 1
Residual standard error: 250400 on 152 degrees of freedom
Multiple R-Squared: 0.3709,     Adjusted R-squared: 0.3667
F-statistic:  89.6 on 1 and 152 DF,  p-value: < 2.2e-16
```

Figure B.3 Influence plot Regression #2



Data points 1,2,3,4,5,6,7,8,9, and 15 were removed from the data set. These points represent high sale prices (greater than $1.45 million) and low densities (large lot sizes) and can be considered outliers of the data set. These are likely to be large homes with ocean views in the foothills of the Goleta Valley. These are not representative of the typical subdivision prices and densities that would be built for the sake of this analysis.

Date points 71,73,67,69, and 132 were not removed from the data set. These are identified as outliers on the influence plot because they represent higher densities (7-9 units/acre); they are not removed from the data set because of the need for sales data at higher densities.

Log-Log and semi-Log manipulations of the data were explored to provide a better fit of the regression line and minimize skew. However, these manipulations did not significantly change the regression fit and but were used in the analysis to obtain coefficient statistics.

The final box plot and qqplot of the price data with the above mentioned removed outliers is shown below. The data set remains skewed, but skew has been minimized with removal of the outliers (compare figure B.5 with B.2).

Figure B.4 Box plot- Price (outliers removed)

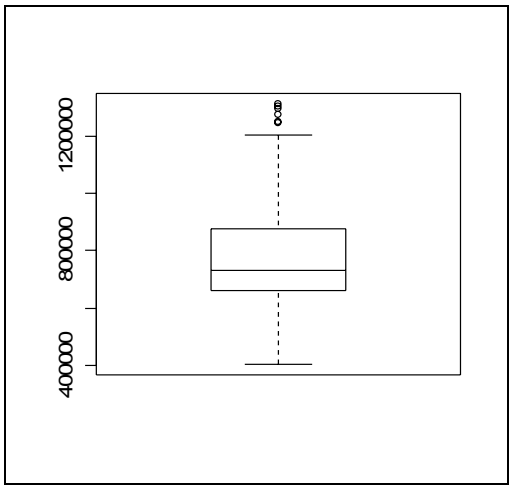
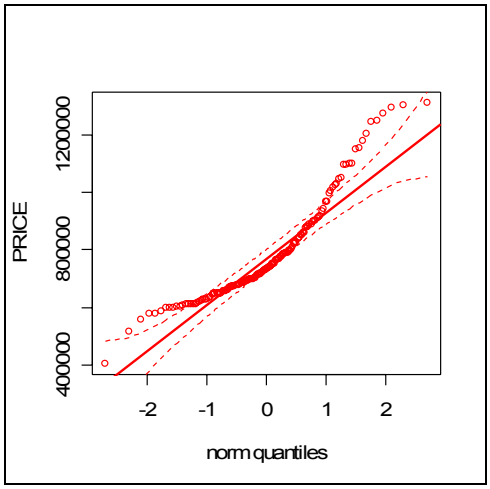


Figure B.5 qqplot – Price



5. Regression #3 : Density on Price (Outliers removed)

Regression #3 (Price = 1,027,696*$e^{-0.0828*density}$) shown in figure B.10, a non linear exponential data fit, represents the final best fit regression of house density with house selling price, R = .2694. The exponential regression statistics were obtained by a transformation to linearity by regressing density on the natural log price. The intercept and coefficient of the exponential regression are both significant at the 95% confidence level, alpha = .05 (coefficient = -.0828, std error = .01153, T = -7.18; intercept =1,027,696, T = 328); the model fit is also significant F = 51.6, and P = 3.6x10^-11, as shown below under exponential regression statistics. The standard error of the linear fit ($166,061) is used for the error analysis.

It should be noted that a non-linear exponential regression explains less of the data than a linear fit (R-square = .27 vs .29, Figure B.6), yet an exponential fit is used in the analysis of the report. Figure B.6 shows that both a linear and an exponential fit underestimate price at low and high densities. However, the exponential fit does not under-estimate the sale price at the higher densities to the extent of the linear fit. Minimizing this under-estimation is important to the analysis, thus the exponential fit is used

Linear Regression statistics: Price = -74529(density) + 1049749

Density ~ Price

Regression Statistics	
Multiple R	0.540448174
R Square	0.292084228
Adjusted R Square	0.287027687
Standard Error	166061.0221

Observations	142

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.59291E+12	1.59E+12	57.76364	3.86308E-12
Residual	140	3.86068E+12	2.76E+10		
Total	141	5.45358E+12			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	1049749.588	35853.08014	29.2792	1.49E-61	978866.124
X Variable 1	-74529.11967	9806.154107	-7.60024	3.86E-12	-93916.41283

Exponential Regression statistics: Price = 1,027,696*e^ -.0828*density

Density ~ ln Price

lnY = 13.84 - .0828(x)

Regression Statistics	
Multiple R	0.519012923
R Square	0.269374414
Adjusted R Square	0.26415566
Standard Error	0.195258989
Observations	142

(166,061)

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.967938732	1.967939	51.61661285	3.66122E-11
Residual	140	5.337650173	0.038126		
Total	141	7.305588905			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	13.84282774	0.04215701	328.3636	5.348E-204
X Variable 1	-0.082839371	0.011530338	-7.18447	3.66122E-11

Figure B.6 Linear and Exponential Regressions #3

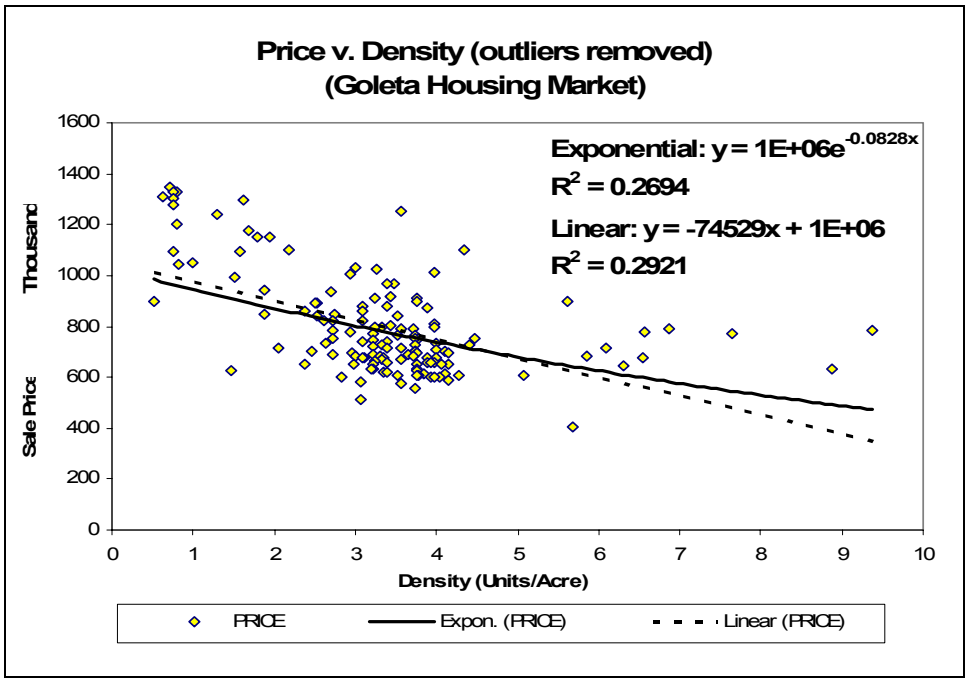


Figure B.7 qqplot Residuals of Exponential Regression #3

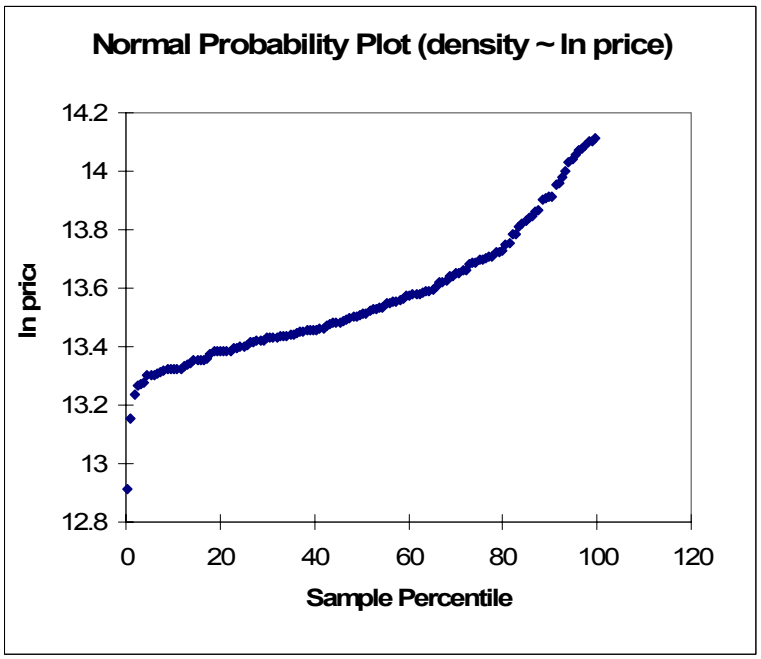


Figure B.7 indiactes that the residuals are relatively normally distributed with slight skew at the tails, indicating the exponential regression equation is explaining the majority of the data.

Figure B.8 Standardized Residual Plot Exponential Regression #3

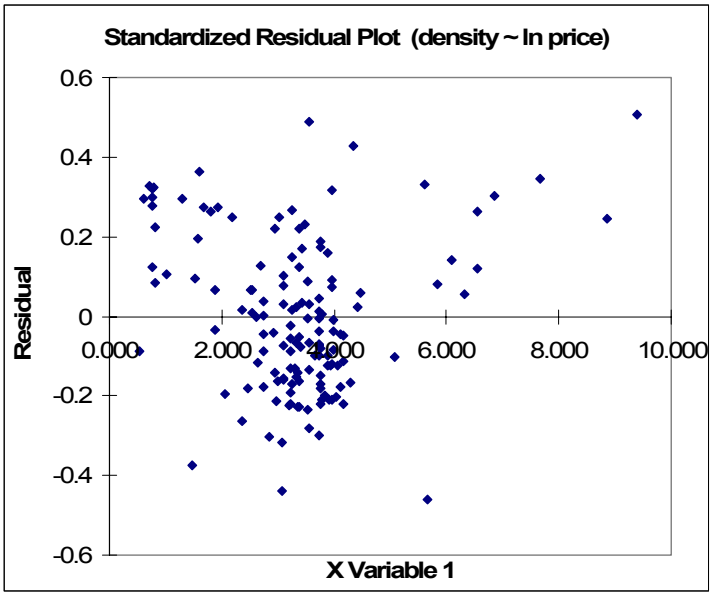


Figure B.8 indicates there is some heteroskedasticity in the data. The variance throughout the residuals seems to be non constant as fitted values increase. This indicates that the exponential regression equation possesses a degree of uncertainty.

Figure B.9 Cooks D-plot of Exponential Regression #3

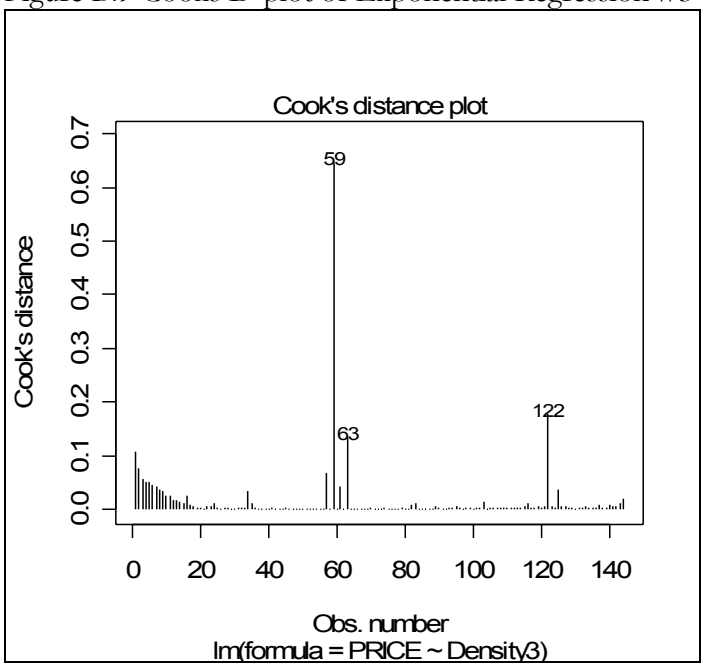
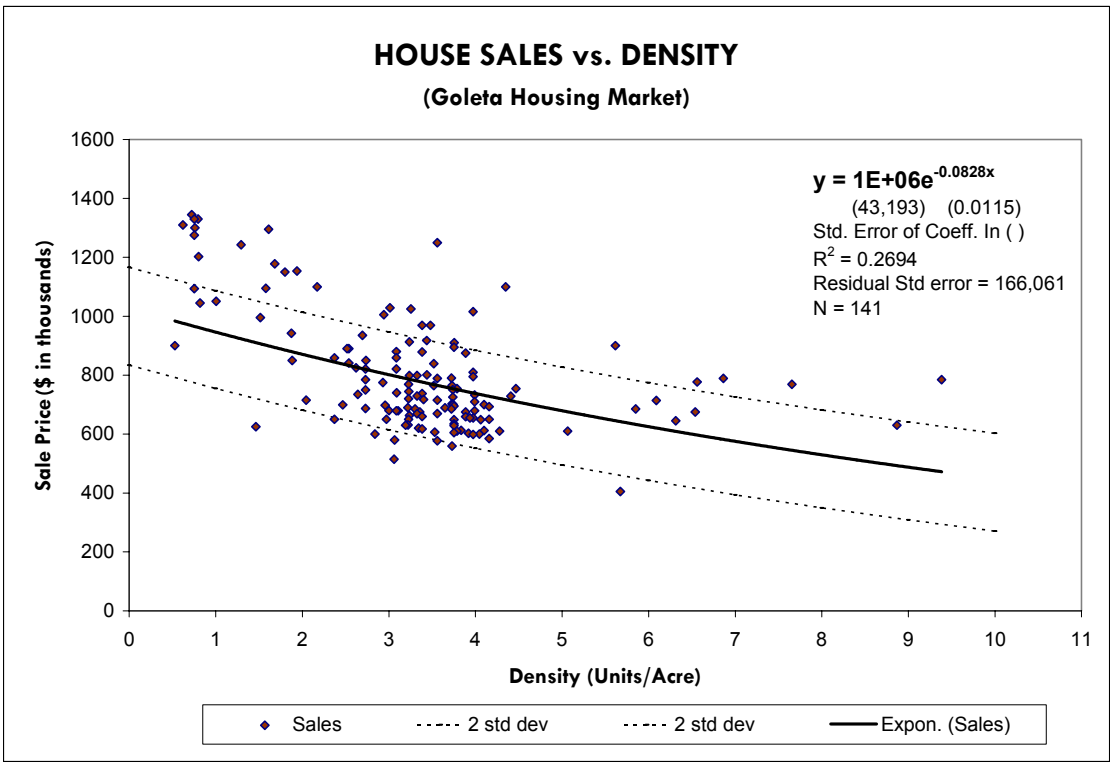


Figure B.9 indicates exponential regression #3 possesses, 3 significant outliers; these were not removed. These data represent some of the few data points at the higher densities.

The final regression of density on sales with an exponential fit of the data, and corresponding error, is illustrated in Figure B.10 below. The error lines represent +/- one standard error of the linear fit of the data ($166,061).

Figure B.10



6. Derivation of Total Revenue/Acre

The exponential regression equation is multiplied by the density to obtain a total revenue/acre function through a range of densities. Total revenue is shown along side total cost in Figure B12 #8 : 'Determining Net Revenue.' High and low estimates of total revenue/acre are calculated using the standard error of the estimate of density on sales ($166,061). These are shown below under Error Analysis # 10, in Figure B.15 and B.16.

7. Derivation of Total Cost/Acre

The array of developer costs used in the analysis is described in detail below. The cost data associated with lot size and house size was obtained from the finalized data set of regression #3 above. Each of these costs was aggregated together to produce a total cost/unit and subsequently multiplied by the density to arrive at total cost/acre. The total cost/acre was plotted against density, with subsequent regression equation shown in Figure B.11 below.

A power function provided the best fit (Cost = 651,626*density $^{.6094}$), R-squared = .847. The power fit regression statistics were obtained by a transformation to linearity by regressing log density on log cost. The coefficient and exponent of the power fit regression are both significant at the 95% confidence level, alpha = .05 (exponent = .6094 , std error = .022, T = 27.8; coefficient = 651,626, T = 501); the model fit is also significant F = 774, and P = 6.22x10^-59, as shown below under power regression statistics. The standard error of the power fit ($198,876) is used for the error analysis. A linear fit (R-square = .8059) was not used because it does not explain the assumed decreasing marginal costs, while the power function reveals the expected decreasing marginal costs as density increases. Figure B.11 below shows high and low estimates of (+/-) one standard error of the total cost/acre estimate.

Power Regression statistics: Cost = 651,626*density ^.6094

log density ~ log costs no lrr

irr,commission, and dev overhead added in after regression

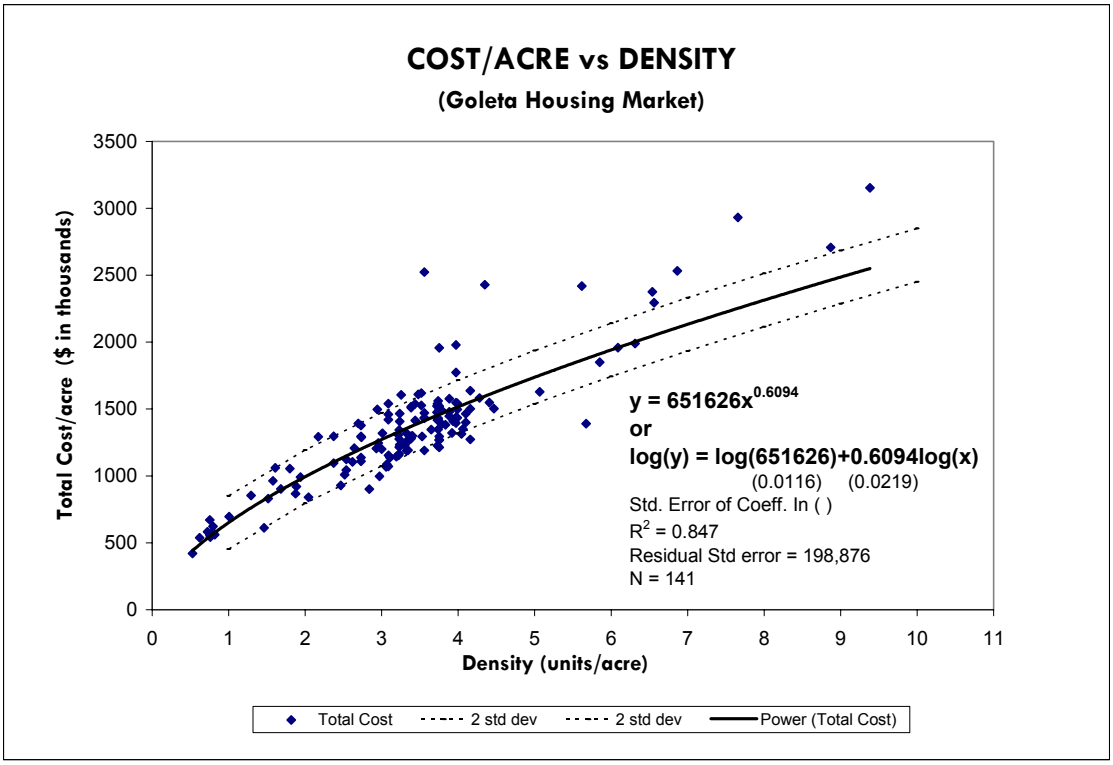
Regression Statistics		
Multiple R	0.920320928	
R Square	0.846990611	
Adjusted R Square	0.845897687	
Standard Error	0.058158779	198,876
Observations	142	

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.621314372	2.621314	774.9765	6.22123E-59
Residual	140	0.473542098	0.003382		
Total	141	3.09485647			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	5.813998594	0.01160038	501.1904	1.1E-229	5.79106402
X Variable 1	0.609416874	0.021891232	27.8384	6.22E-59	0.566136734

Figure B.11



Array of Developer Cost

Land Costs: Values are obtained for undeveloped land zoned for agriculture inside the urban growth boundary of Goleta with no direct sewer or water hook up on the parcel.

Comparative sales indicate that this type of land in the Goleta area is selling for $200,000/acre (Kerry Mormann & Associates Real Estate).

Site Development Costs: Interviews with developers indicated that to bring water, sewer, and roads to a 5000 sq ft lot in a subdivision that is easily accessible, and non topographically challenging would costs $50,000. This would double if the subdivision were located in the foothills were slopes are a concern (Ridgeway, Stapleton, Bermant). The site development costs are allowed to fluctuate depending on the size of the lots in the subdivision with the assumption that with smaller lot sizes the per lot development costs decrease as economies of scale establish themselves. The analysis uses a trend that for every doubling of density, there is a subsequent 40% reduction in the per lot site development costs (Stapleton et al).

Construction Costs: Direct construction costs (i.e. labor and materials) were assumed to be $90 sq ft. (SBC housing Element). The square foot size of the house was multiplied by 90 to arrive at a total construction cost per house.

Impact Fees: An Impact fee of $30,712 /unit is used and was obtained from the Santa Barbara County Planning and Development 'building and permit' section of the website (SBC P&D).

Financing Costs: Financing costs are the returns demanded by the bank and private investors on lent money. Bank financing costs are generally 75% of total project costs, while investor financing costs are generally 25% or less depending on how much the developer contributes to the total costs. These cost can vary with the inherent risk of the development project (i.e. investors will require greater returns for riskier investments) as well as the time horizon of the loan.

This analysis calculates bank financing costs using 1% above the prime interest rate (7%) as the costs incurred by developers for money borrowed from a lending agency. The time horizon for borrowed money was assumed to be 24 months which corresponds to interest accruing on 60% of the borrowed money[154]. Therefore, bank financing costs are calculated to be 7% of 60% of 75% of project costs.

Investor financing costs, also called the internal rate of return (IRR), is the percent return on lent money demanded by private investors. This analysis uses the industry standard of 25% of lent money as the IRR[155]. IRR is calculated as 25% of 25% of project costs, and is treated as a fixed cost. In actuality IRR is not a fixed cost, but is rather is a percentage of net revenue – this usually amounts to be 25% of lent money.

Commission/Closing Costs: When a developer sells homes he/she pays real estate agents and other brokerage fees to finalize the sale. These are determined to be 3% of total revenue.

Developer Overhead: The developer overhead is considered the payment the developer makes to himself, his employees and to cover overhead. The industry standard for the area is 2-3% of the total revenue from the development project (Bermant et al).

Permit/Entitlement, Legal, Design, Marketing, Insurance, and Property Tax Costs: These costs are combined into a single 'Other Costs' category for the purposes of the analysis. These costs

[154] Campanella, Bermant Development Corp. Personal interview. 3/1/05.
[155] Campanella, Bermant Development Corp. Personal interview. 3/1/05.

will vary depending on the complexity of the development and the length of time it takes to start construction. For the purposes of this analysis, they were aggregated to 15% of total revenue.

8. Determining Net Revenue

Net revenue/acre is equal to total revenue/acre less total cost/acre. This represents the theoretical maximum amount a developer is willing to pay for increasing density. Figure B.12 shows the total revenue and total cost curves together, and the developers' optimal density (i.e. where net revenue is maximized). Figure B.13 shows the net revenue (total revenue – total costs) through the range of densities.

Figure B.12

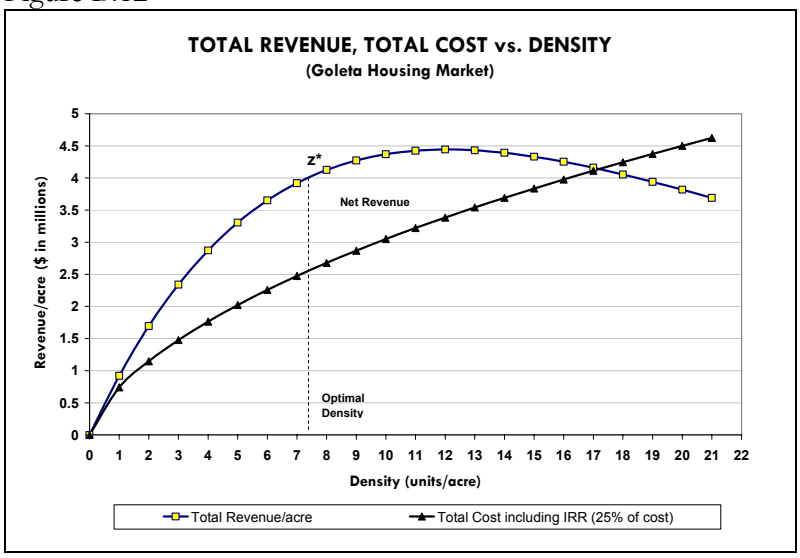
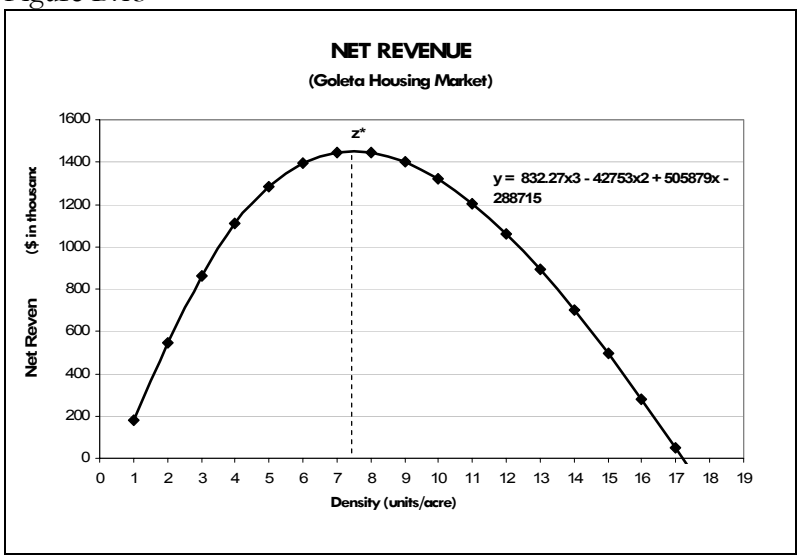


Figure B.13



9. Determining Willingness to Pay (TDR Budget)

Developers are not willing to spend all the net revenue for increasing density; rather they will spend some fraction of this total. A development needs to make an expected return (or profit) to the developer before money can be spent on TDRs. This developer return is the

expected percent of total revenue the developer expects to make on the project. Industry standard is 13-15% of total revenue, and is used in this analysis[156].

Using a developer return of 13% of total revenue and subtracting this from net revenue, the funds available for TDR is obtained. This TDR budget was calculated as a percent of net revenue through the range of densities to arrive at an accurate estimate of a developer's net revenue that could be spent on TDR. Table B.2 below shows that developers are willing to spend 60-65% of their net revenue to increase density in the range of densities for this analysis.

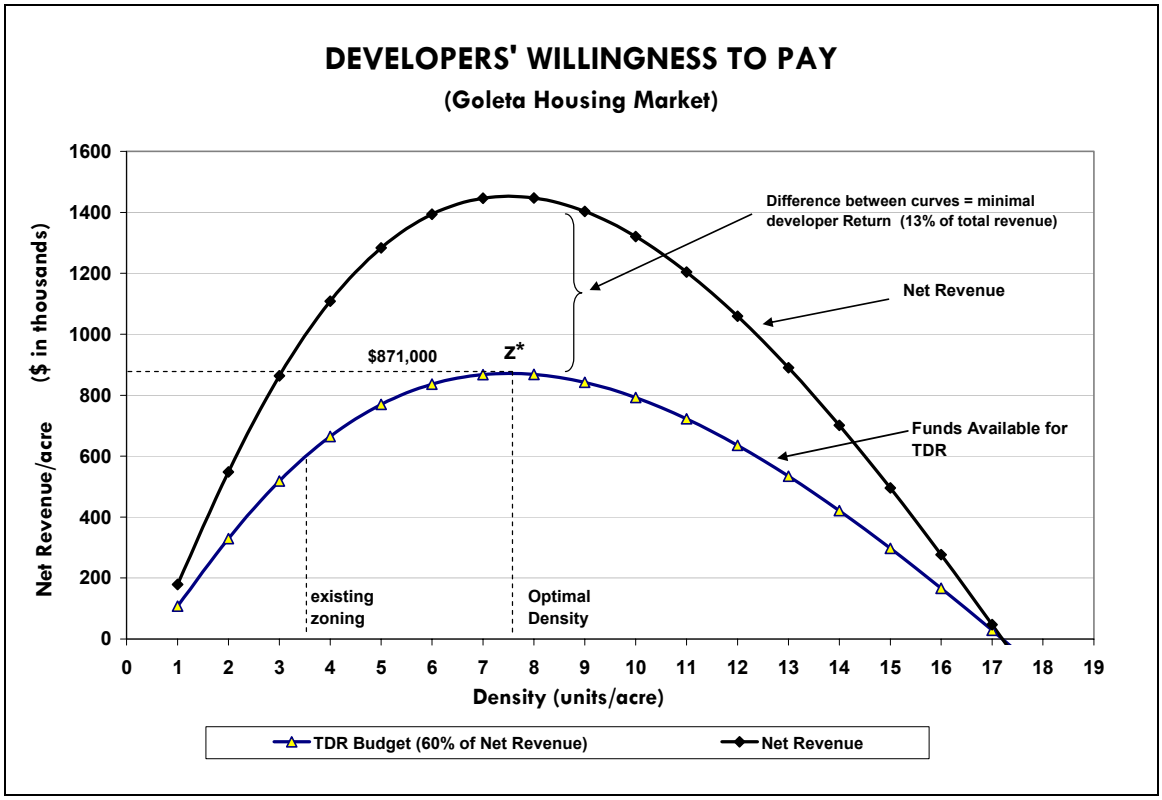
Table B.2

Density	Net Revnue	Net Rev - dev return (tdr budget)	TDR budget as % of net rev
1	**$179,279**	**$59,609**	**33.2**
2	**$548,465**	**$328,145**	**59.8**
3	**$863,486**	**$559,267**	**64.8**
4	**$1,108,186**	**$734,794**	**66.3**
5	**$1,283,222**	**$853,571**	**66.5**
6	**$1,393,737**	**$919,127**	**65.9**
7	**$1,446,194**	**$936,483**	**64.8**
8	**$1,447,262**	**$911,025**	**62.9**

Using the estimated 60% of net revenue as the developers' TDR budget through the range of densities provides Figure B.14; indicated in this figure is the willingness of a developer to pay to increase density by an additional unit (i.e. 3 to 4) as well as the aggregate amount he/she is willing to pay to move from a very low density (<1) to some higher density. The optimal developer density was determined to be 7.6 units/acre with a willingness to pay $871,000 to build these additional units on an acre of land.

Figure B.14

[156] Campanella, Bermant Development Corp. Personal interview. 3/1/05.



10. Error Analysis

The standard errors associated with the Total Revenue/acre and Total Costs/acre were used to derive an error analysis through a high and low estimate of the developers' TDR budget. The standard error of the Revenue was (+/-) $166,061; the standard error of the Cost was $198,000. These represent one standard deviations of the regression equations. These standard errors were applied to the revenue/acre and cost/acre functions to obtain a high and low estimate for both total revenue and total cost.

Figure B.15 shows these high and low estimates; Figure B.16 shows the corresponding developers' high and low TDR budget estimates. The high estimate predicts developers would build to an optimal density of 10 units/acre and be willing to spend $1.25 million for these 10 additional units per acre; the low estimate predicts developers would build to 6 units/acre and be willing to spend $306,970. Recall the numbers used in the analysis are: optimal density 7.6, and willingness to spend $871,000 for these extra units. The observed difference between the high and low estimate speaks to the degree of uncertainty in this analysis due to the original exponential fit of the sales data only explaining 27% of the data and underestimating revenues at the low and high densities.

Figure B.15

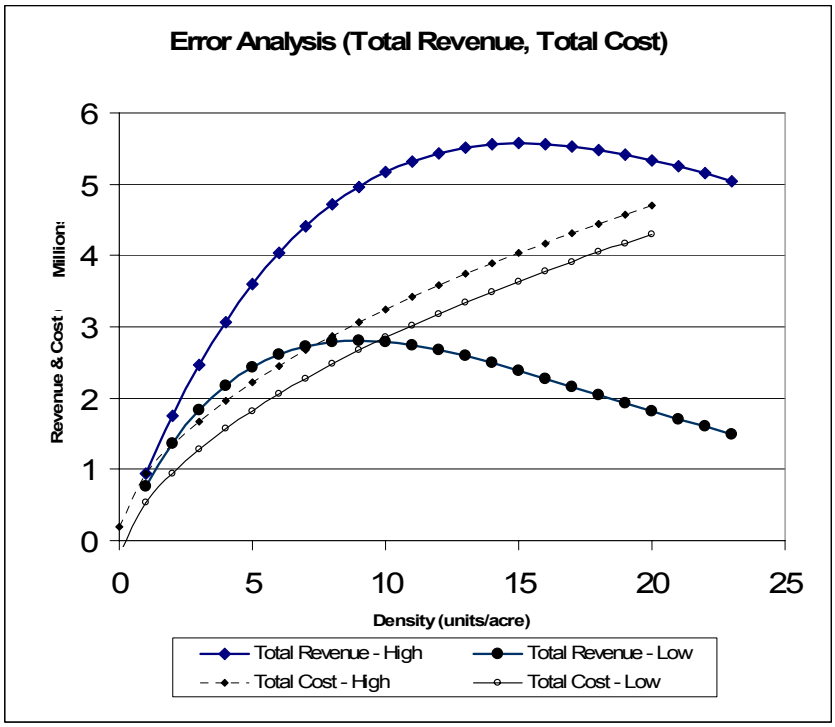
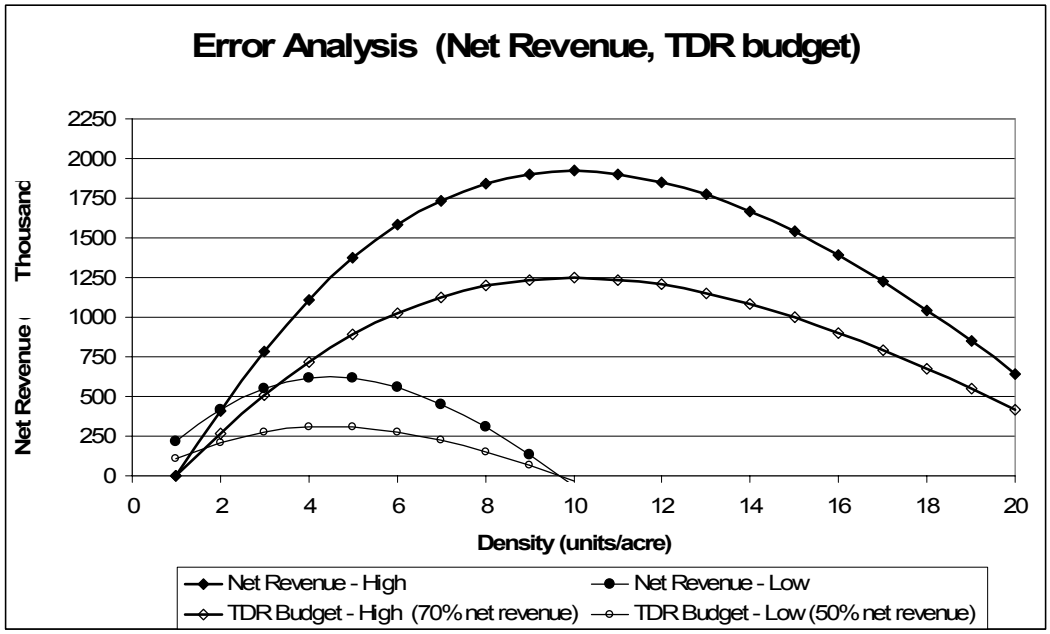

Error Analysis (Total Revenue, Total Cost)
Revenue & Cost (Millions)
0
1
2
3
4
5
6
0
5
10
15
20
25
Density (units/acre)
Total Revenue - High
Total Revenue - Low
Total Cost - High
Total Cost - Low

Figure B.16


Error Analysis (Net Revenue, TDR budget)
Net Revenue (Thousands)
0
250
500
750
1000
1250
1500
1750
2000
2250
0
2
4
6
8
10
12
14
16
18
20
Density (units/acre)
Net Revenue - High
Net Revenue - Low
TDR Budget - High (70% net revenue)
TDR Budget - Low (50% net revenue)

Appendix C. Santa Maria Economic Analysis Raw Data

1. Data Collection

Data on single family-detached house sales were collected to analyze a developer's willingness to pay for Transferable Development Rights. Initially, Geographic Information System data, purchased from the Santa Barbara County Tax Assessor, was used. However, comparison of the house sale prices in the GIS data to real market data was found to be inaccurate. Data was also collected from local developer sales teams in the Santa Maria area. This data provided homogeneity among the data by limiting the sales to houses that were most recently built and sold. This data was then added to Multiple Listing Sales data from various real estate websites to make the analysis more robust in density and housing type. Ultimately, the data set totaled 287 house sales with corresponding lot sizes.

The house age variable is not entirely accounted for in the analysis except that most of the data are from several subdivisions built in the past 9 years. Additionally, an analysis of house age and sale price was conducted for the South Coast and was found to not be a significant variable in house sale price (regression 1 in appendix B). House size effects are partially captured with lot size and subsequent density; assuming larger homes are built on larger lots (i.e. lower densities). Neighborhood amenities such as views, proximity to shopping, and schools are known to significantly affect land values and subsequent house sale price (Bockstael et al). To minimize heterogeneity in land values, the data set was confined to the Santa Maria and Orcutt housing markets, and is therefore representative of this area only.

2. Conversion of lot size to Density

Parcel lot size was transformed into a density (units/acre) using known subdivision densities with standard square foot lot sizes. Table A.1 and Figure A.1 in appendix A shows the standard subdivision densities that are used to transform the data from lot size to units/acre.

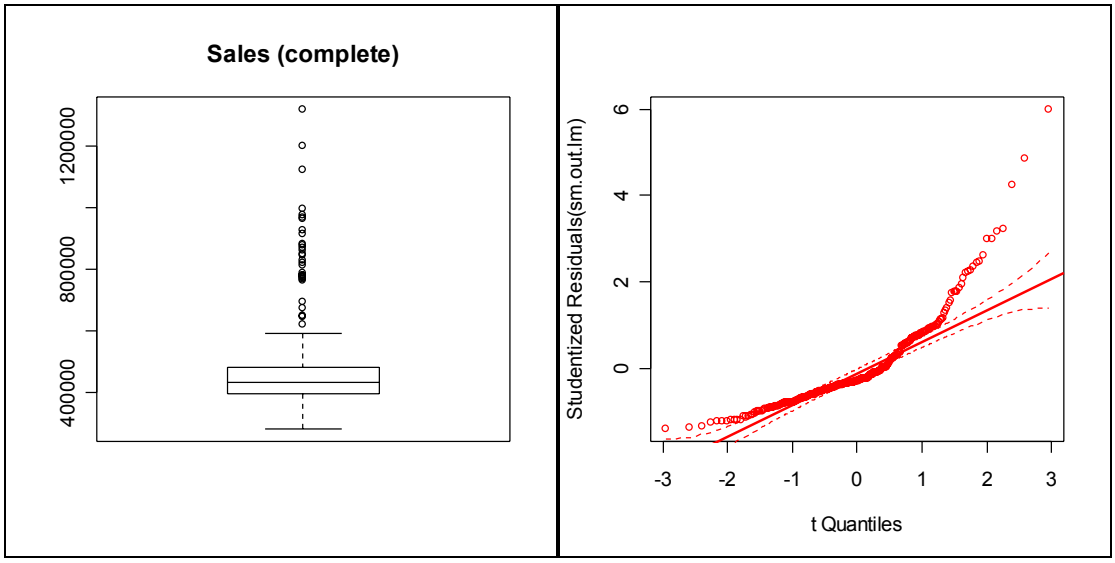
3. Data set statistics

Since a relationship between sales price and density were analyzed, there are many statistical assumptions that were tested to assure significance.

To provide a better fit of the sales data on density, Log-Log and Semi-Log transformations of the data were explored. This resulted in no significant gains in regression fit or statistical significance.

The following figures display the boxplot and quantile-quantile plot of the complete sales data. The plots indicate that the data is not normally distributed. This is also observed in the raw data set of sales regressed on density. At the lower densities, sales do not follow the linear relationship well as it does at the middle to higher densities.

Figure C.1. Boxplot Sales (Complete) Figure C.2. QQ-Plot Sales (Complete)



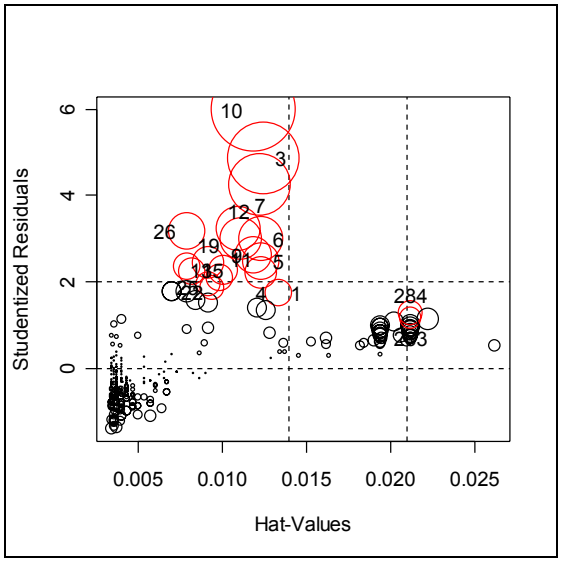
3a. Regression #1: Density on Sales (complete data set)

```
lm(formula = Sales ~ Density3)
Residuals:
   Min     1Q  Median     3Q    Max
-179401  -79948  -38955   47495  722308
Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   649274      18479   35.14   <2e-16 ***
Density3      -36548       3481  -10.50   <2e-16 ***
---
Signif. codes:  0 `***' 0.001 `**' 0.01 `*' 0.05 `.' 0.1 ` ' 1

Residual standard error: 128600 on 284 degrees of freedom
Multiple R-Squared: 0.2796,     Adjusted R-squared: 0.2771
F-statistic: 110.3 on 1 and 284 DF,  p-value: < 2.2e-16
```

The summary of the regression of the complete data set sales on density show that the relationship is significant, p-value=2.2e-16, α=0.05.

The influence plot of the data (Figure C.3) shows which data points have the greatest leverage and influence on the parameters. Influence is based on Cook's D equation. The data points that have the largest influence and greatest leverage on the parameters were removed from the data set. Data points with a sale price above $800,000 or densities below 1.31 units/acre were removed because these data points most likely were not representative of the type of house that the analysis is estimating. Some data points with hat values greater than 2 or 3 times the average were not removed because data was needed for a large range of densities for the analysis.

Figure C.3 Influence plot of the complete data set



4. Regression #2: Density on Price (outliers removed)

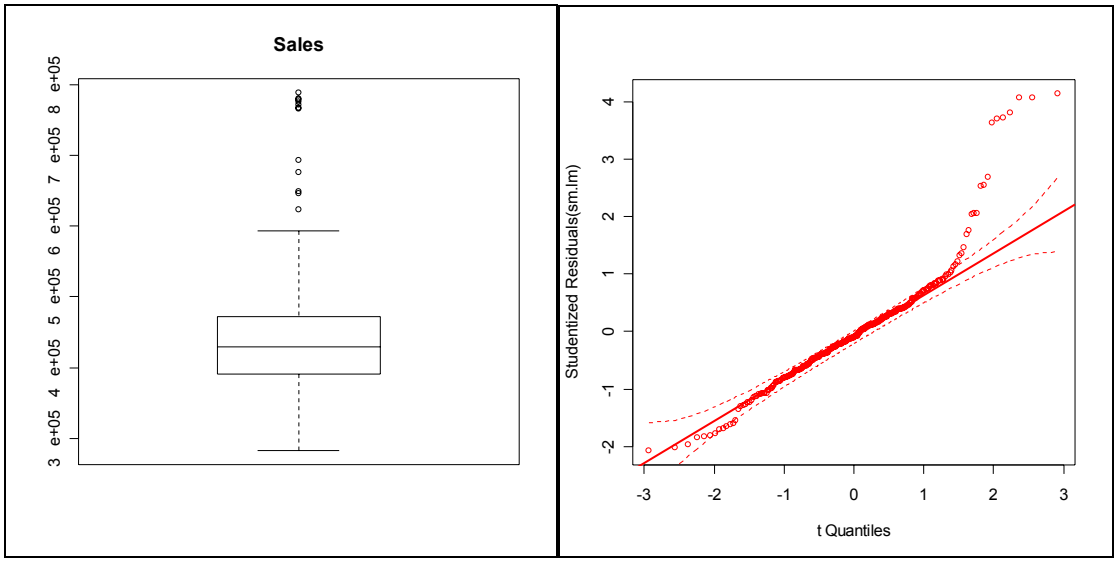
```
lm(formula = Sales ~ Density3)
Residuals:
   Min     1Q  Median     3Q    Max
-153858  -44405   -7775   29290  299330
Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   531323      11963   44.41  < 2e-16 ***
Density3      -17971       2189   -8.21 9.65e-15 ***
---
Signif. codes:  0 `***' 0.001 `**' 0.01 `*' 0.05 `.' 0.1 ` ' 1

Residual standard error: 75070 on 266 degrees of freedom
Multiple R-Squared: 0.2022,     Adjusted R-squared: 0.1992
F-statistic:  67.4 on 1 and 266 DF,  p-value: 9.654e-15
```

The summary of the regression of the data set – without outliers – sales on density show that the relationship is significant, p-value=9.65e-15, α=0.05. There has not been a large effect on the significance by removing the outliers.

Comparison of the box plot and qq-plot of the data without outliers to the original plots show that removal of the outliers significantly improved the data, making its distribution more normal.

Figure C.4 Boxplot Sales (No Outliers)

Figure C.5 QQ-plot Sales (No Outliers)



For the analysis, a linear fit is used even though a non-linear model appears that it may fit the data better. When a non-linear exponential regression was used, there was no improvement in the fit of the data; the R-square remained at, 0.2022. Additionally, the exponential regression was not an improvement in explaining the data at the higher and lower densities. Other non-linear regressions such as, logarithmic, polynomial, power, were not used because they falsely interpreted the data; a logarithmic model better estimates the data at low densities but underestimates the data at high densities. The analysis attempts to best predict the relationship at higher densities. A polynomial model better estimates the data at low densities as well, but underestimates the data at medium densities (5.5-7.5 units/acre) and over estimates the data at high densities (>9 units/acre). A power model was not used in the regression fit of the data because when this model is used to calculate total revenue, compared to developer input, it over estimates the revenue for the type of house the analysis is attempting to model. Therefore, the best model for this data is a linear model, which is shown in Figure B.6.

Figure C.6 Regression of Sales on Density

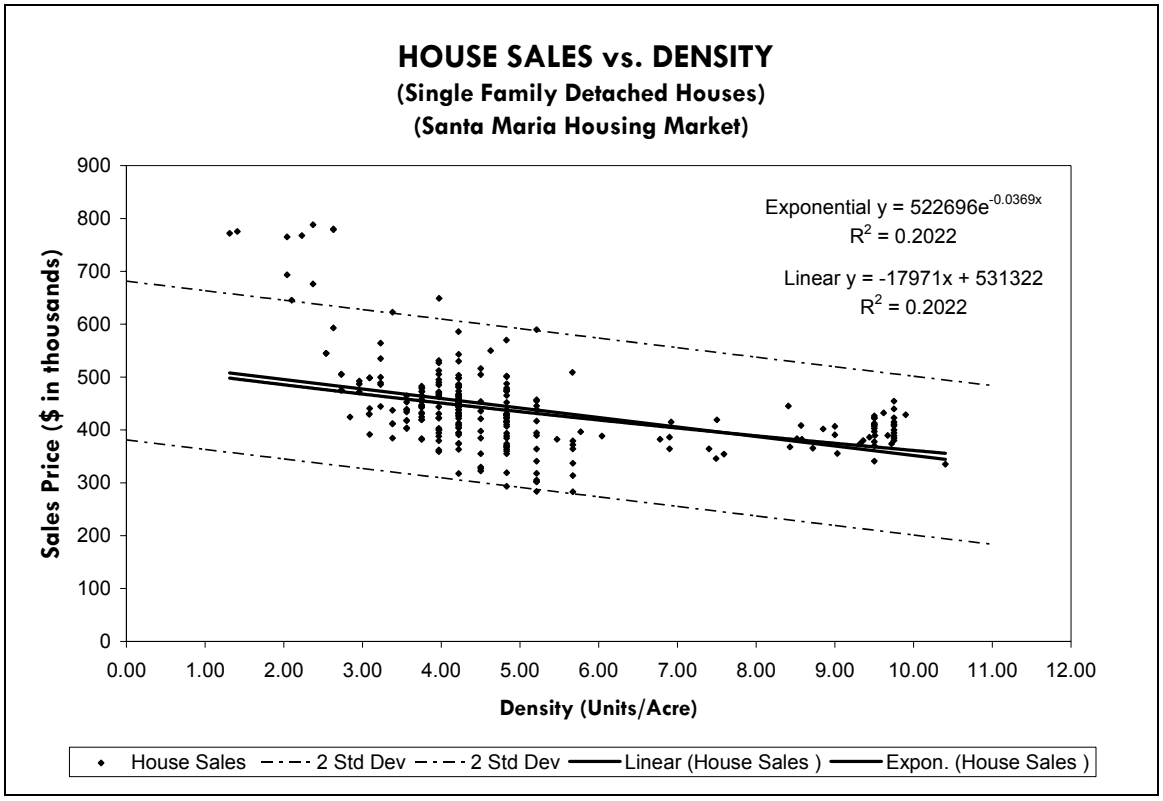


Figure C.7

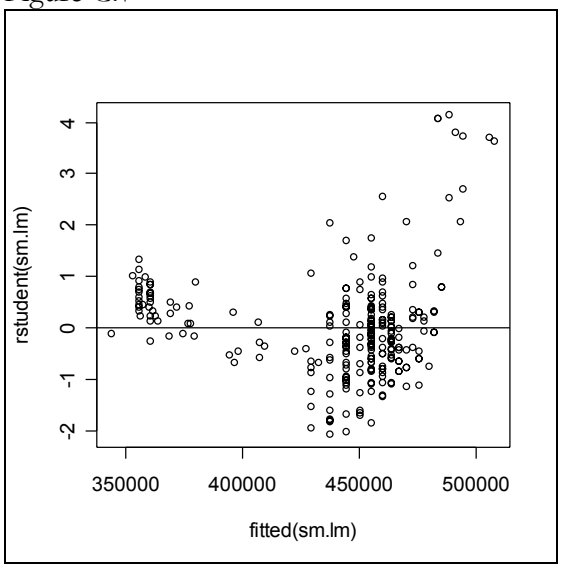


Figure C.7 indicates some heteroskedasticity in the data.

Figure C.8

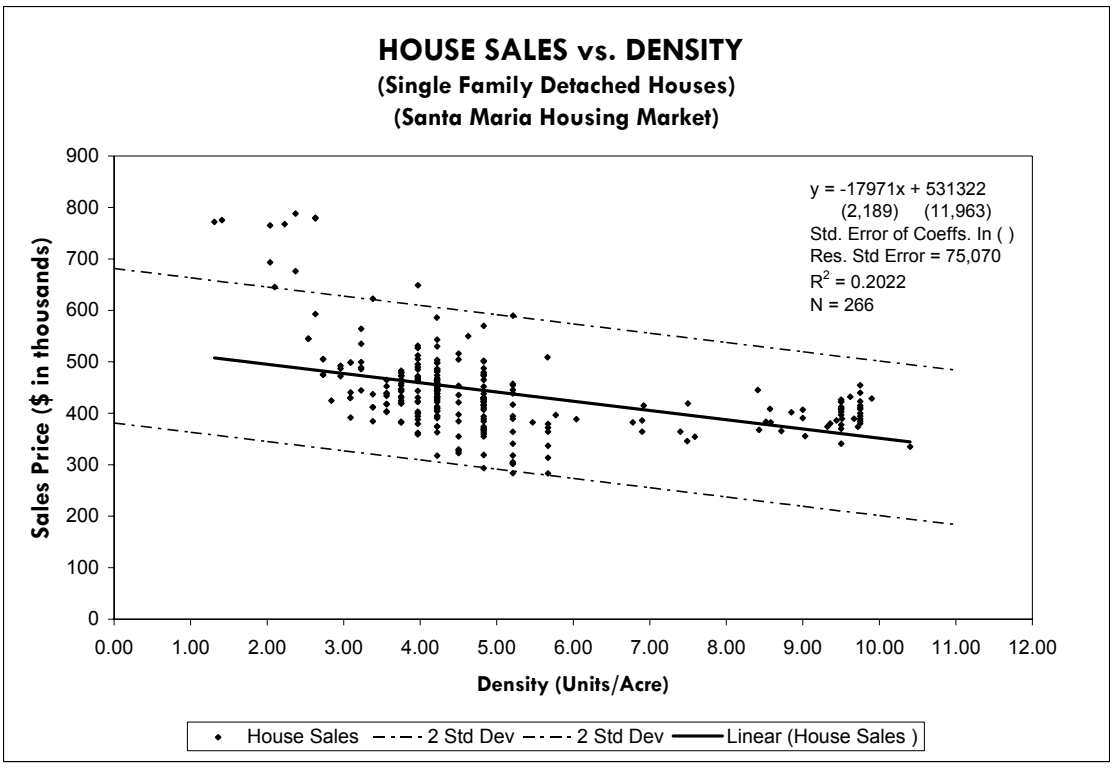
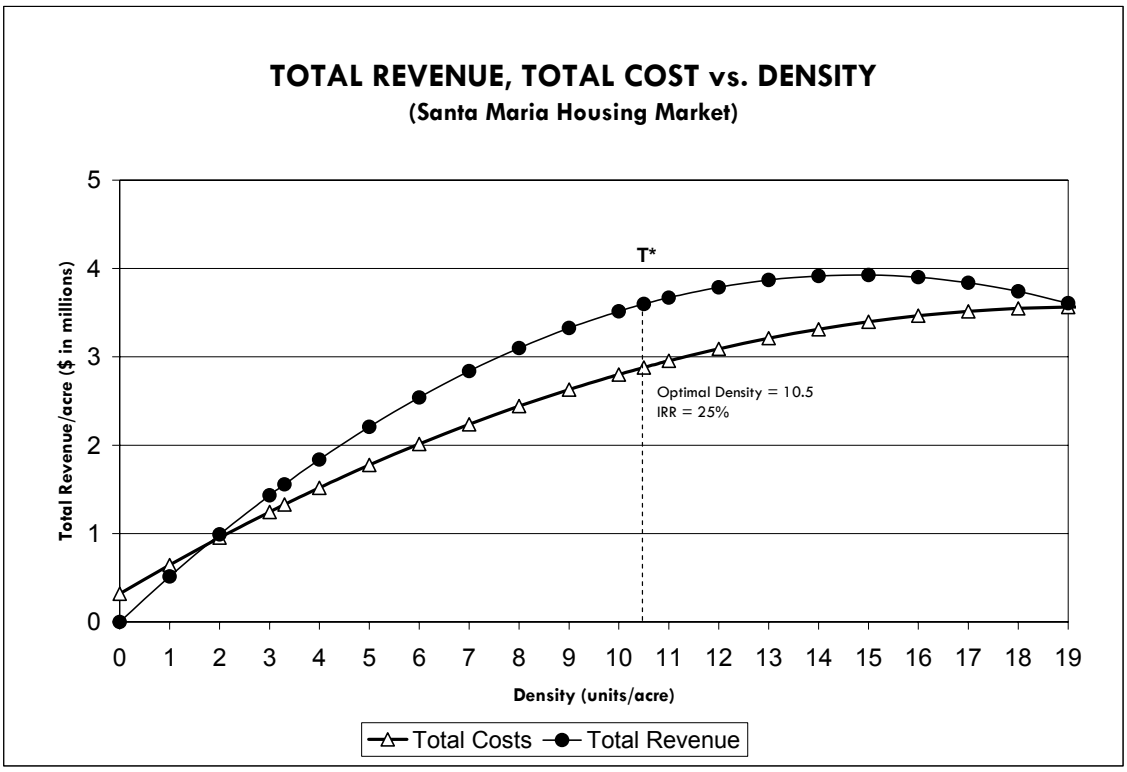


Figure C.8 shows the regression of density on sales with a linear fit of the data and corresponding error. The error lines represent two standard deviations of the linear fit of the data ($75,070).

5. Derivation of Total Revenue/Acre

The regression equation from Figure C.8 above (y=--17,971*x + 531,322) is multiplied by the density to obtain total revenue/acre as a function of density ($y = -17{,}971*x^2 + 531{,}322*x$). Figure C.9 shows total revenue alongside total costs below.

Figure C.9



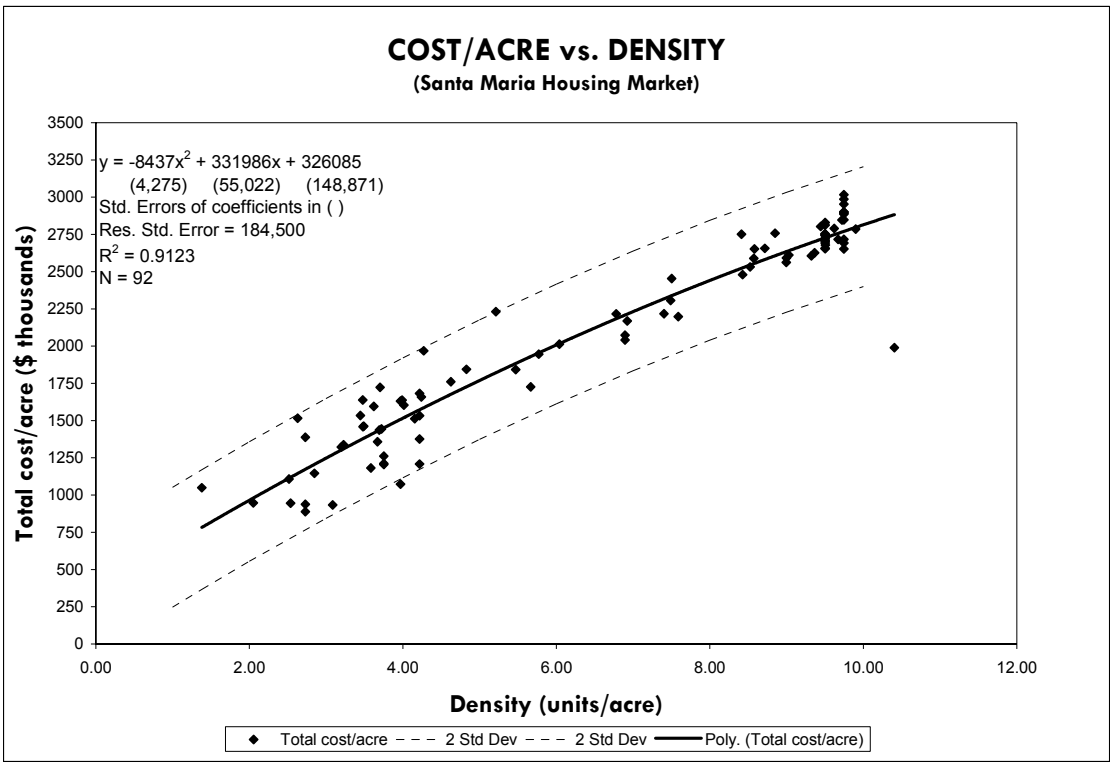
6. Derivation of Total Cost/Acre

The cost/acre at various densities was calculated by aggregating all the above costs into a per unit cost. The per unit cost was then multiplied by the density to arrive at a cost/acre. The cost/acre was then plotted against density to demonstrate the relationship between costs/acre at a range of densities and is shown above in Figure C.9. Figure C.10 below shows the original data used to derive the cost function as well as two standard deviations. This was calculated by regressing density on an array of developer costs (described below). The resulting regression equation was best fit by a polynomial equation: $y = -8593.7*x^2 + 334108*x + 319946$, P-value[157] = 5.04 E-15, $R^2 = 0.9126$. The standard error of the regression equation was $200,845.

A polynomial regression was used for the data because it provided the best fit of the data. The R^2 was higher than that of a linear, power, logarithmic, or exponential regression function.

Figure C.10

[157] α=0.05



Array of Developer Costs

Land Costs: Values were obtained for undeveloped land zoned for agriculture inside the urban growth boundary of Santa Maria with no direct sewer or water hook up on the parcel. Comparative sales indicate that this type of land in the Santa Maria Valley area is selling for $170,000/acre (Matt Stapleton et al, Probuilt Homes, personal communication, December 2004).

Site Development Costs: Interviews of developers indicated that to bring water, sewer, and roads to a 5000 sq ft lot in a subdivision that is easily accessible, would cost approximately $39,000/unit (Ridgeway, Stapleton, Bermant). The site development costs are allowed to fluctuate depending on the size of the lots (density) in the subdivision with the assumption that with smaller lot sizes the per lot development costs decrease as economies of scale establish themselves. The analysis uses a trend that for every doubling of density, there is a subsequent 49% reduction in the per lot site development costs (Stapleton et al).

Construction Costs: Direct construction costs (labor and materials) as per J. Bermant, (personal communication and corresponding cost spreadsheet, November 11, 2004) were assumed to be $75/sq ft.. The square foot size of the house was multiplied this price ($75/sq. ft.) to arrive at a total construction cost per house.

Impact Fees: An Impact fee of $11,356/unit was used and was obtained from the Santa Barbara County Planning and Development 'building and permit' section of the website (SBC P&D)

Financing Costs: Financing costs are the returns demanded by the bank and private investors on lent money. Bank financing costs are generally 75% of total project costs, while investor financing costs are generally 25% or less depending on how much the developer contributes

to the total costs. These cost can vary with the inherent risk of the development project (i.e. investors will require greater returns for riskier investments) as well as the time horizon of the loan.

This analysis calculates bank financing costs using 1% above the prime interest rate (7%) as the costs incurred by developers for money borrowed from a lending agency. The time horizon for borrowed money was assumed to be 24 months which corresponds to interest accruing on 60% of the borrowed money[158]. Therefore, bank financing costs are calculated to be 7% of 60% of 75% of project costs.

Investor financing costs, also called the internal rate of return (IRR), is the percent return on lent money demanded by private investors. This analysis uses the industry standard of a 25% return on lent money as the IRR[159]. IRR is calculated as 25% of 25% of project costs, and is treated as a fixed cost. In actuality IRR is not a fixed cost, but is rather is a percentage of net revenue – this usually amounts to be 25% of lent money.

Commission/Closing Costs: When a developer sells homes he/she pays real estate agents and other brokerage fees to finalize the sale. These are determined to be 3% of total revenue.

Developer Overhead: The developer overhead is considered the payment the developer makes to himself, his employees and to cover overhead. The industry standard for the area is 2-3% of the total revenue from the development project (Bermant et al).

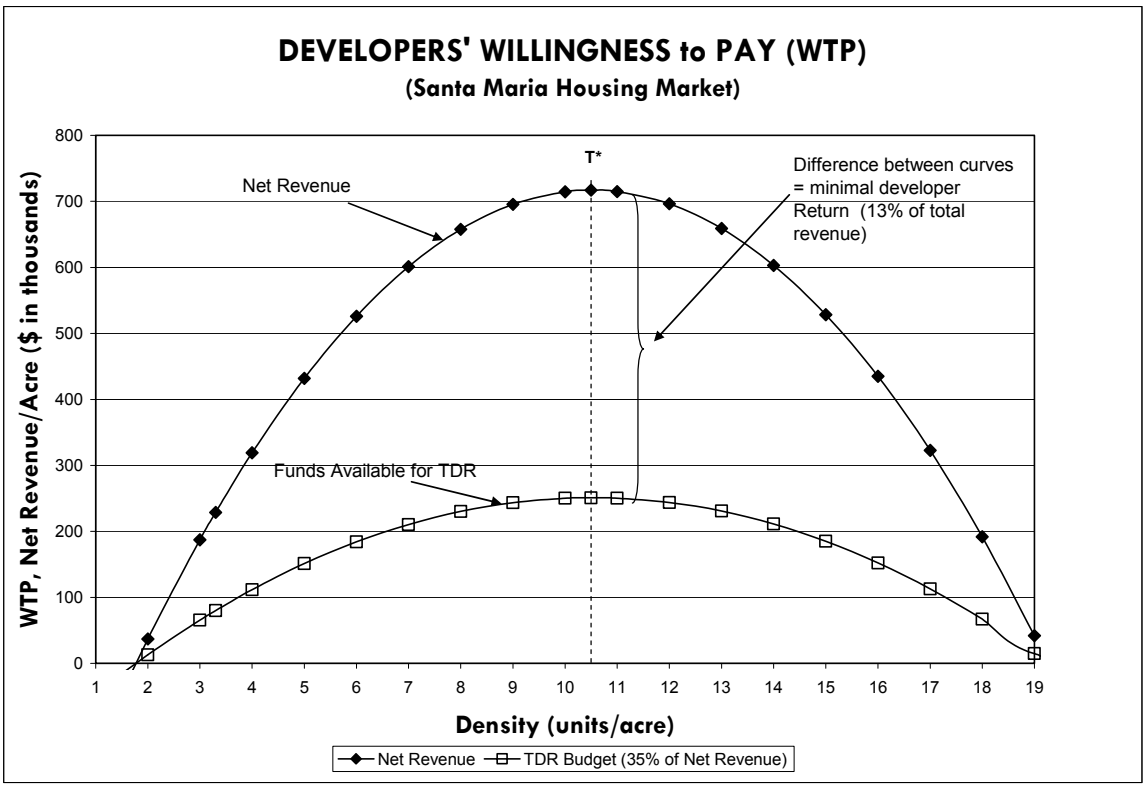
Permit/Entitlement, Legal, Design, Marketing, Insurance, and Property Tax Costs: These costs are combined into a single 'Other Costs' category for the purposes of the analysis. These costs will vary depending on the complexity of the development and the length of time it takes to start construction. For the purposes of this analysis, they were aggregated to 13% of total revenue.

7. Determining Net Revenue

Net revenue/acre is equal to total revenue/acre less total cost/acre. This represents the theoretical maximum amount a developer is willing to pay for increasing density. This is obtained in this analysis by subtracting the total revenue estimate from the total cost estimate at a range of densities. Graphically, this is shown as the gap between the curves in Figure C.9. This elucidates the developers' optimal density (i.e. where net revenue is maximized, T* in Figure C.11). Figure C.11 shows the net revenue through the range of densities as well as the willingness to pay.

Figure C.11

[158] Campanella, Bermant Development Corp. Personal interview. 3/1/05.
[159] Campanella, Bermant Development Corp. Personal interview. 3/1/05.



8. Determining Willingness to Pay (TDR Budget)

Developers are not willing to spend all the net revenue for increasing density; rather they will spend some fraction of this total. A development must make an expected return (profit or developer return) for the developer before money can be spent on TDRs. This developer return is typically an expected percent of total revenue the developer estimates to make on the project. Industry standard is 13-15% of total revenue. For this analysis, 13% of total revenue is used[160].

Using developer return of 13% of total revenue and subtracting this from net revenue, a TDR budget is obtained. This TDR budget was calculated as a percent of net revenue through the range of densities to arrive at an accurate estimate of a developer's net revenue that could be spent on TDR. Table C.2 below shows that developers are willing to spend 25-39% of their net revenue to increase density in this analysis. This table is graphically shown in Figure B.11 above.

Table C.2

Density	Net Revenue	TDR Budget=Net Rev - dev return	TDR budget as %of net rev
4	$318,873	$79,965	25%
5	$431,692	$144,738	34%
6	$525,755	$195,428	37%
7	$601,064	$232,037	39%

[160] Campanella, Bermant Development Corp. Personal interview 3/1/05.

8	$657,619	$254,563	39%
9	$695,419	$263,007	38%
10	$714,464	$257,368	36%
10.5	$716,954	$249,269	35%

9. Error Analysis

The standard errors associated with the total revenue/acre and total costs/acre were used to derive an error analysis through a high and low estimate of the developers' TDR budget. The standard error of the total revenue was $75,074; the standard error of the cost was $200,845. The standard errors were multiplied by two to represent two standard deviations of the regression equations. These standard errors were applied to the revenue/acre and cost/acre functions to obtain a high and low estimate for both total revenue and total cost.

Figure C.12 shows these high and low estimates; Figure C.13 shows the corresponding developers' high and low net revenue estimates. Figure C.14 shows the high and low TDR budget based on a percentage of net revenue, which was calculated by finding 13% of the high and low total revenue estimates. The high estimate predicts developers would build to an optimal density of 18 units/acre and be willing to spend $819,325/acre for these 18 additional units per acre. This high estimate goes beyond the single family detached housing type that the data to which the data is limited. Therefore, this high estimate must be analyzed with a critical eye. The low estimate predicts developers would build to an optimal density of 3 units/acre and be willing to spend $82,416/acre. The observed difference between the high and low estimate speaks to the degree of uncertainty in this analysis due to the original linear fit of the sales data only explaining 20% of the data and underestimating revenues at the low and high densities.

Figure C.12

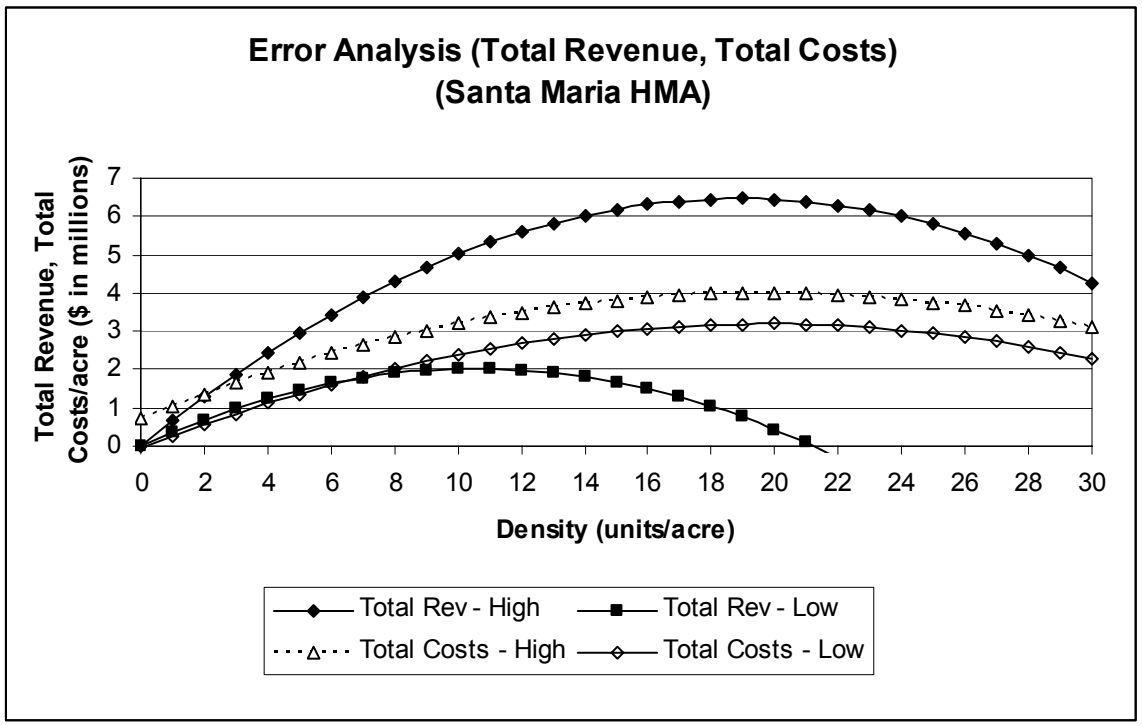


Figure C.13

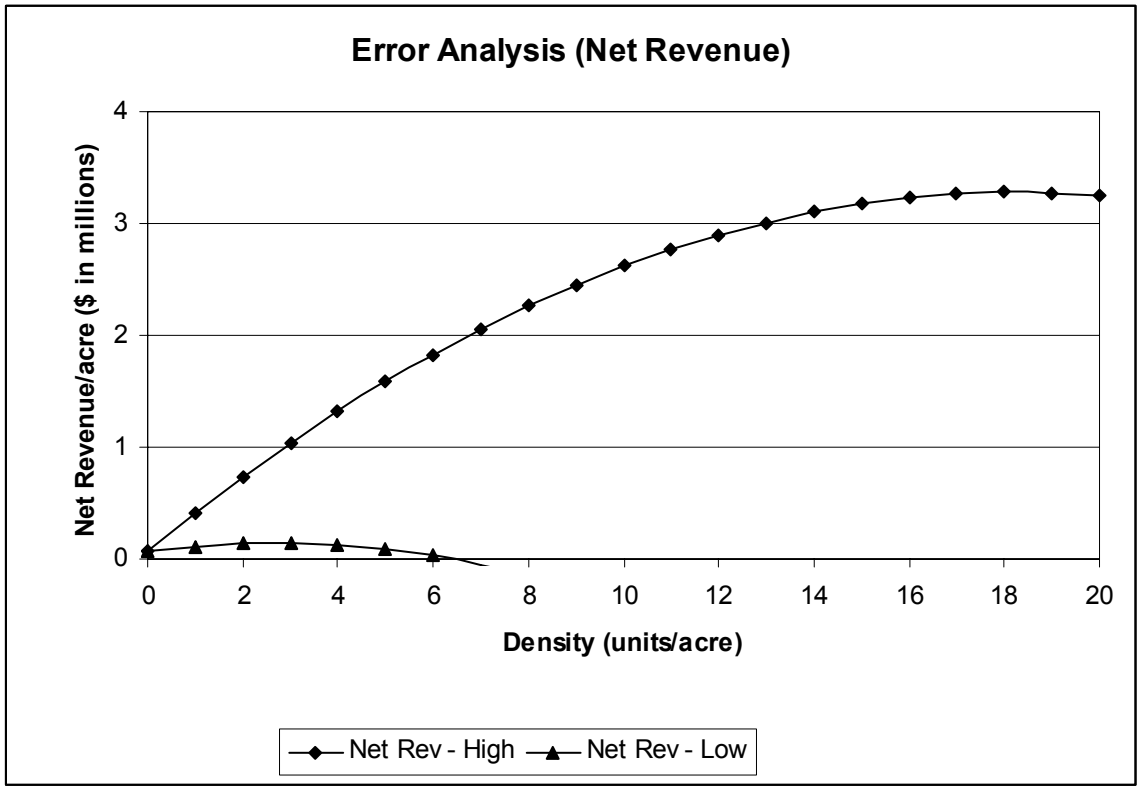
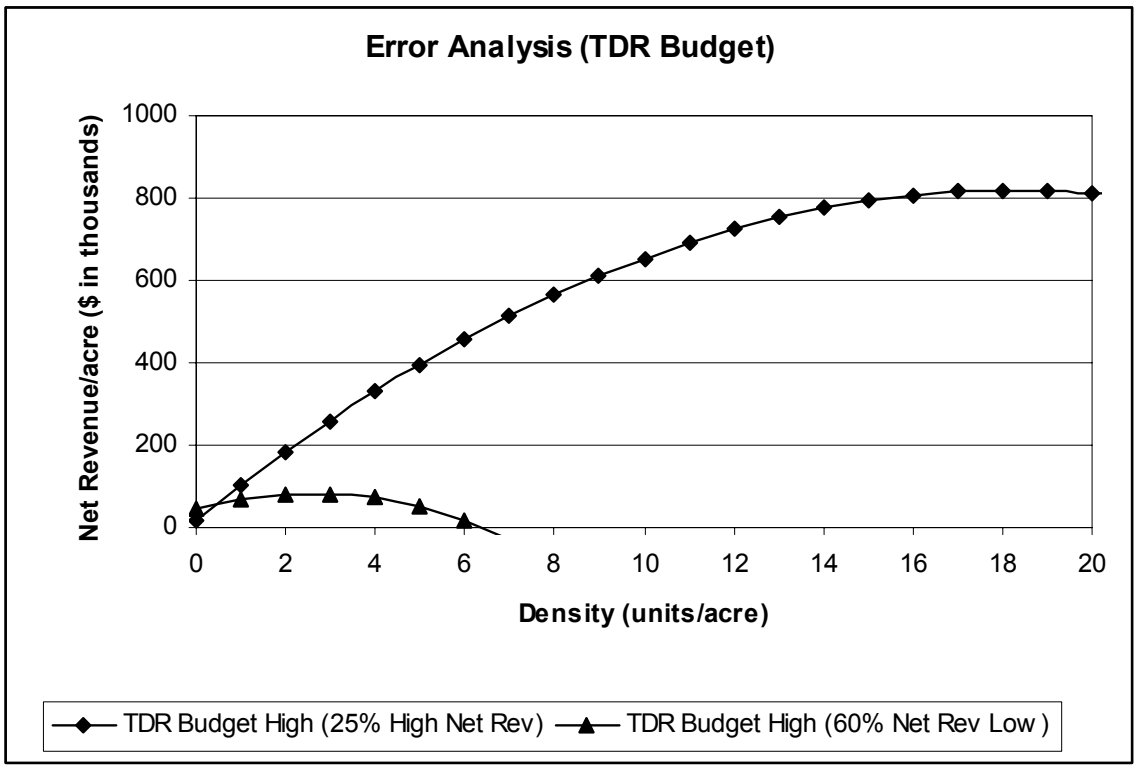

Error Analysis (Net Revenue)
Net Revenue/acre ($ in millions)
0
1
2
3
4
0
2
4
6
8
10
12
14
16
18
20
Density (units/acre)
Net Rev - High
Net Rev - Low

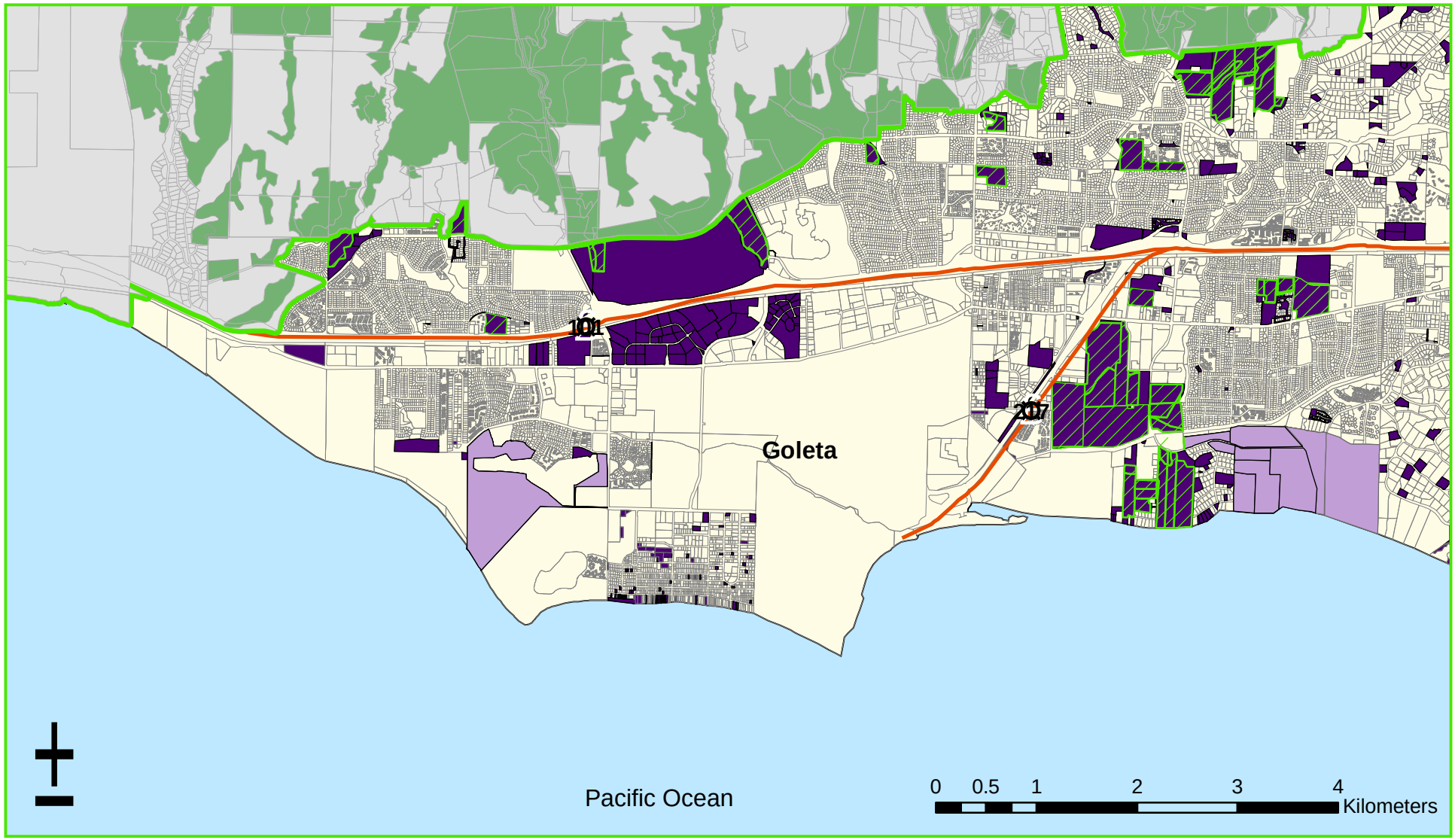
Figure C.14


Error Analysis (TDR Budget)
Net Revenue/acre ($ in thousands)
0
200
400
600
800
1000
0
2
4
6
8
10
12
14
16
18
20
Density (units/acre)
TDR Budget High (25% High Net Rev)
TDR Budget High (60% Net Rev Low)

Appendix D. Maps of Housing Market Areas

Map 1. Bishop Ranch Initial Conceptual Plan: Residential Layout and Total Acreage.
Source: Urban McClellan Consulting. For the Lawrin Company.

South Coast (Goleta) Potential Receiving Sites



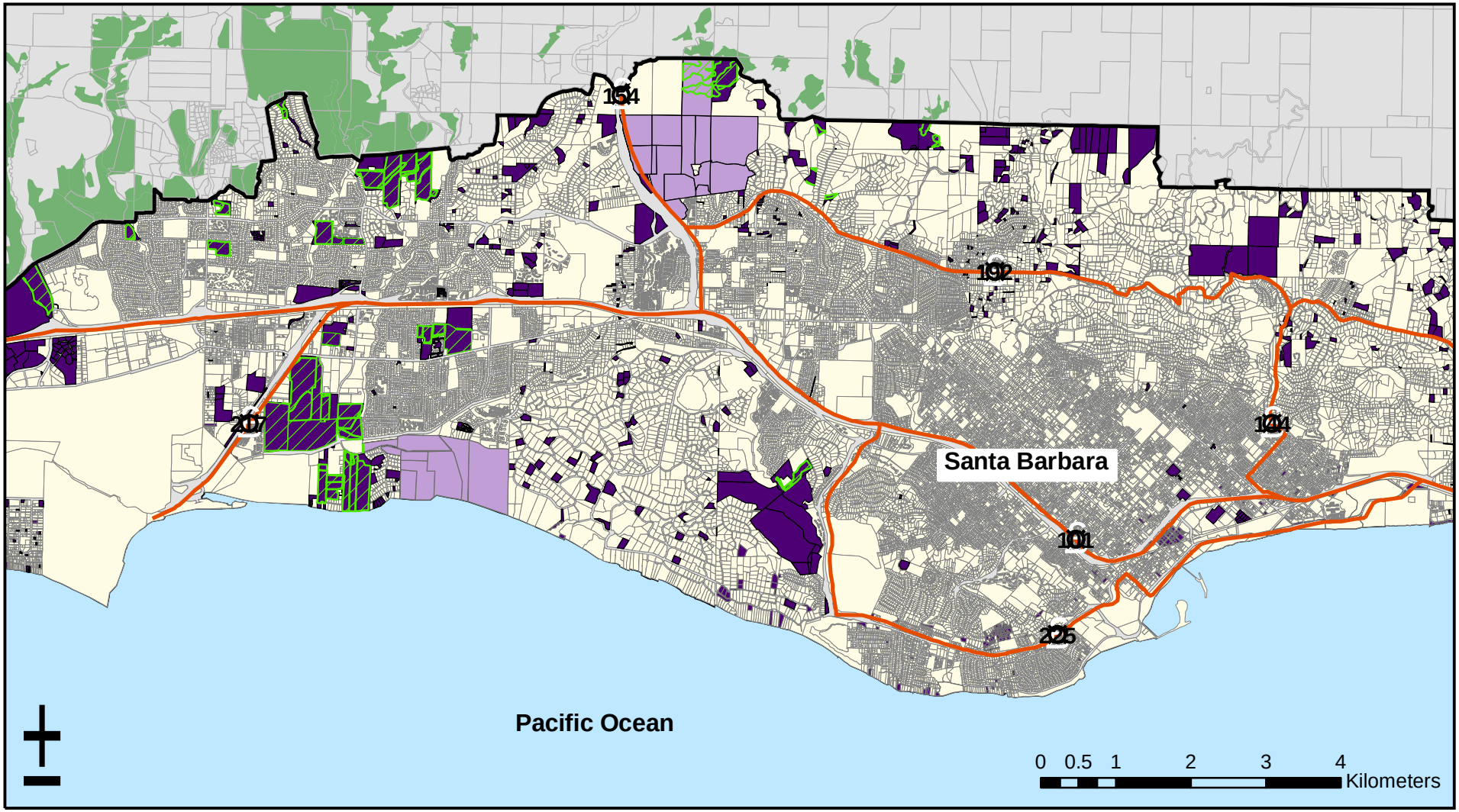
Legend

- Potential Receiving Sites
- Top Three Agricultural Designation Sites
- Environmentally Sensitive Receiving Sites
- Urban Growth Boundary
- Major Roads

the Bren School
TRANSFER OF DEVELOPMENT RIGHTS
group project

Source:
Santa Barbara County (2003)
Santa Barbara Tax Assessor (2003)
FMMP (2002)
Produced by: TDR Group Project
Date: 4/2/05
Figure 1

South Coast (Santa Barbara) Potential Receiving Sites



Legend

- Potential Receiving Sites
- Top Three Agricultural Designation Sites
- Environmentally Sensitive Receiving Sites
- Major Roads
- Urban Growth Boundary

the Bren School
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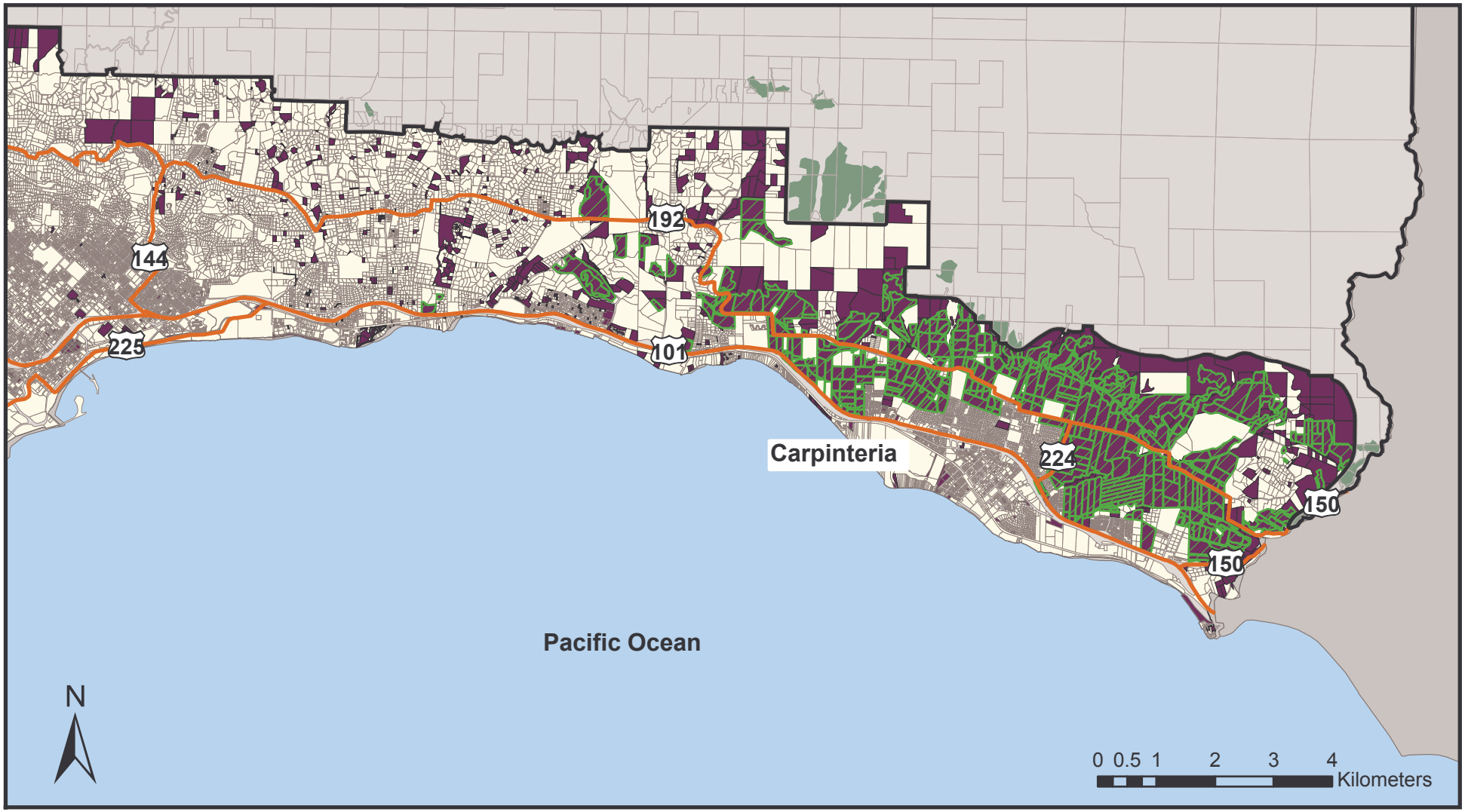
group project

Source:
Santa Barbara County (2003)
Santa Barbara Tax Assessor (2003)
FMMP (2002)
Produced by: TDR Group Project
Date: 4/6/05
Figure 2

South Coast (Montecito& Carpinteria) Potential Receiving Sites



Legend

- Potential Receiving Sites
- Top Three Agricultural Designation sites
- Urban Growth Boundary
- Major Roads

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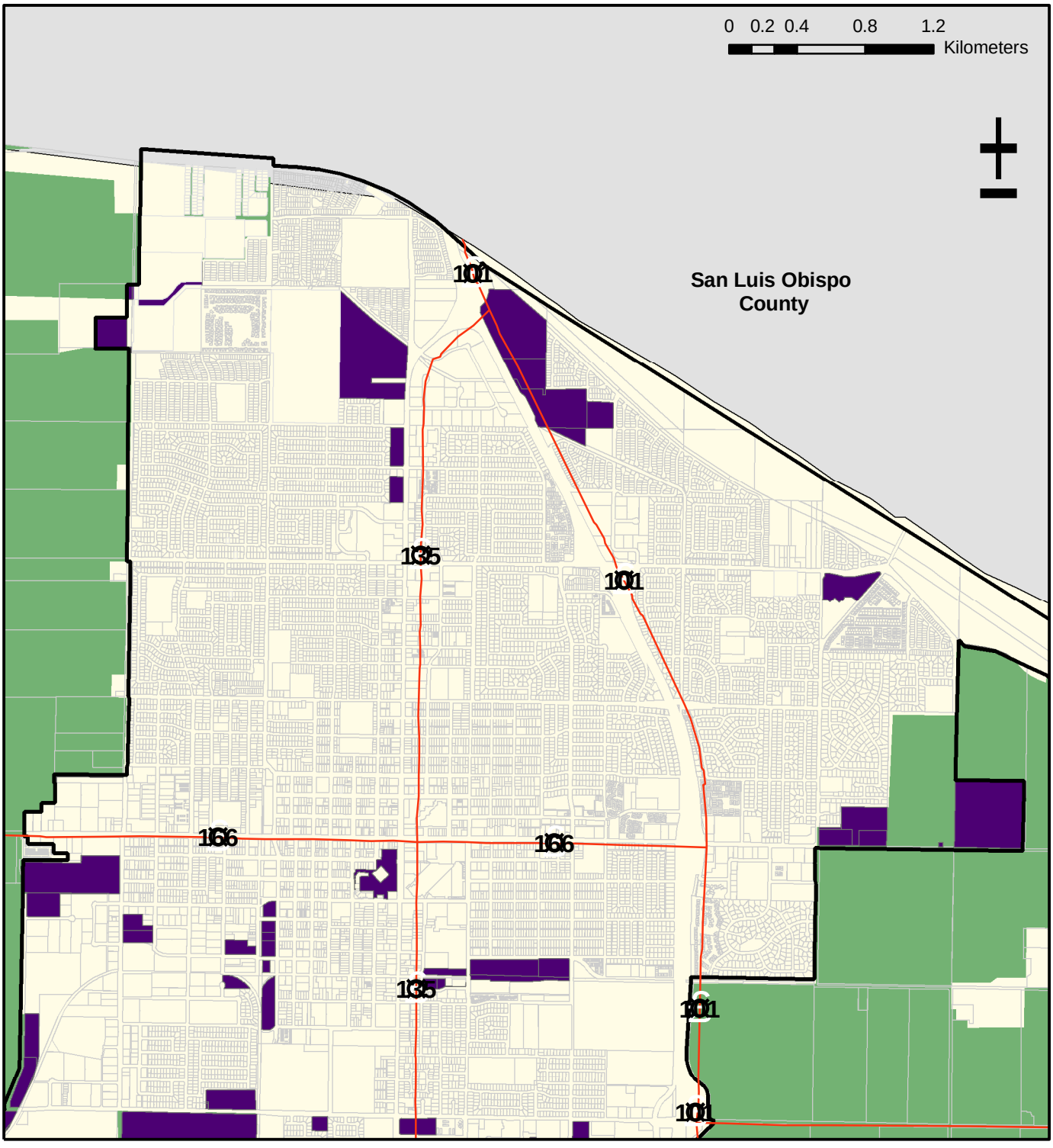
group project

Source:
Santa Barbara County (2003)
Santa Barbara Tax Assessor (2003)
FMMP (2002)
Produced by: TDR Group Project
Date: 4/2/05
Figure 3

Potential Receiving Sites in Santa Maria HMA: Nothern Portion of Santa Maria City



Legend

- Highways
- Potential Receiving Sites
- Urban Growth Boundary
- Farmland

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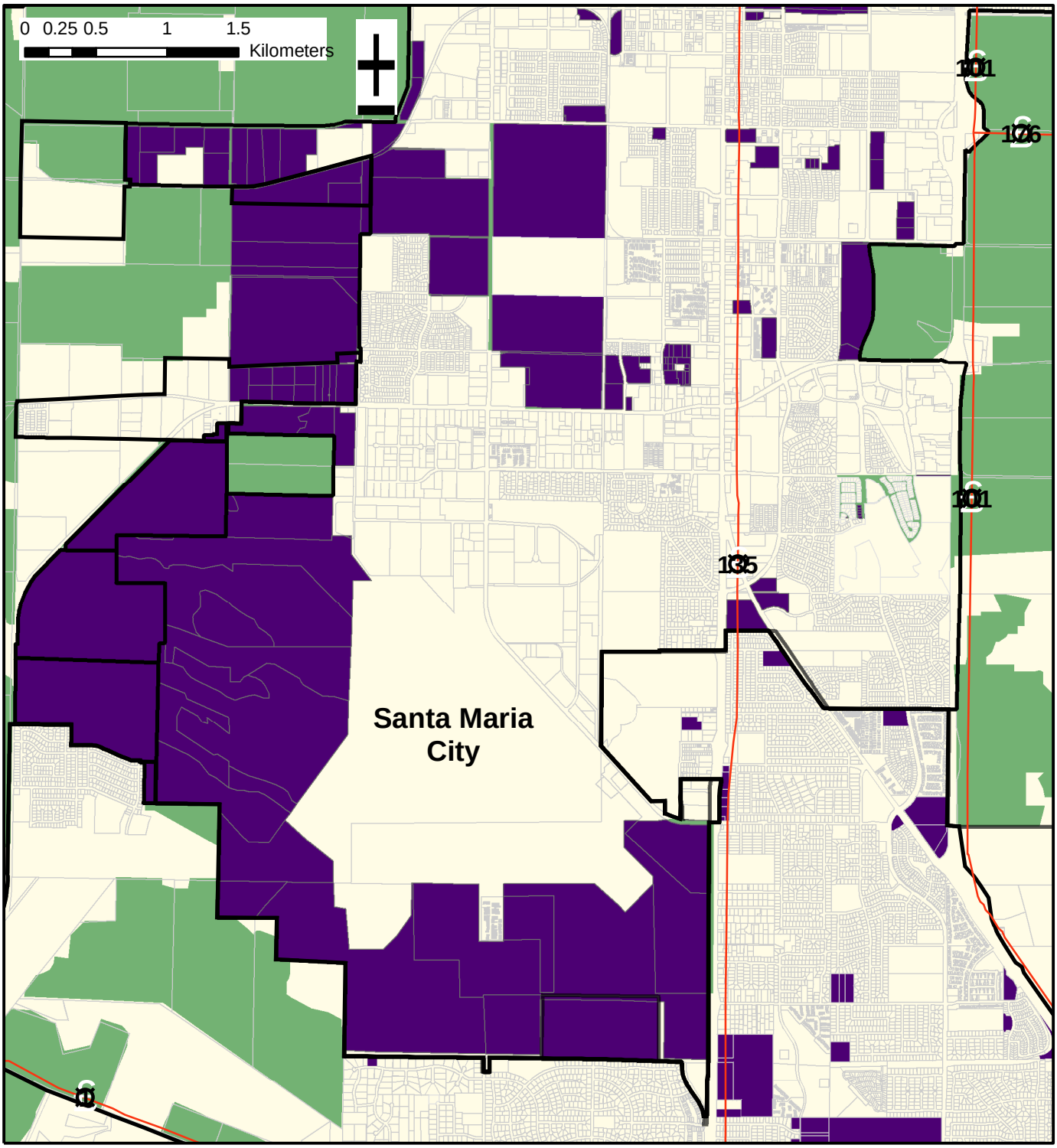
Sources:
S.B. Co. Planning (2003)
S.B. Co. Tax Assessor (2003)
FMMP (2002)
Map By: TDR Group Project
Date: 4/2/05
Figure 4

Potential Receiving Sites in Santa Maria HMA: Southern Portion of Santa Maria City



Legend

- Highways
- Potential Receiving Sites
- Urban Growth Boundary
- Farmland
- urban_polys

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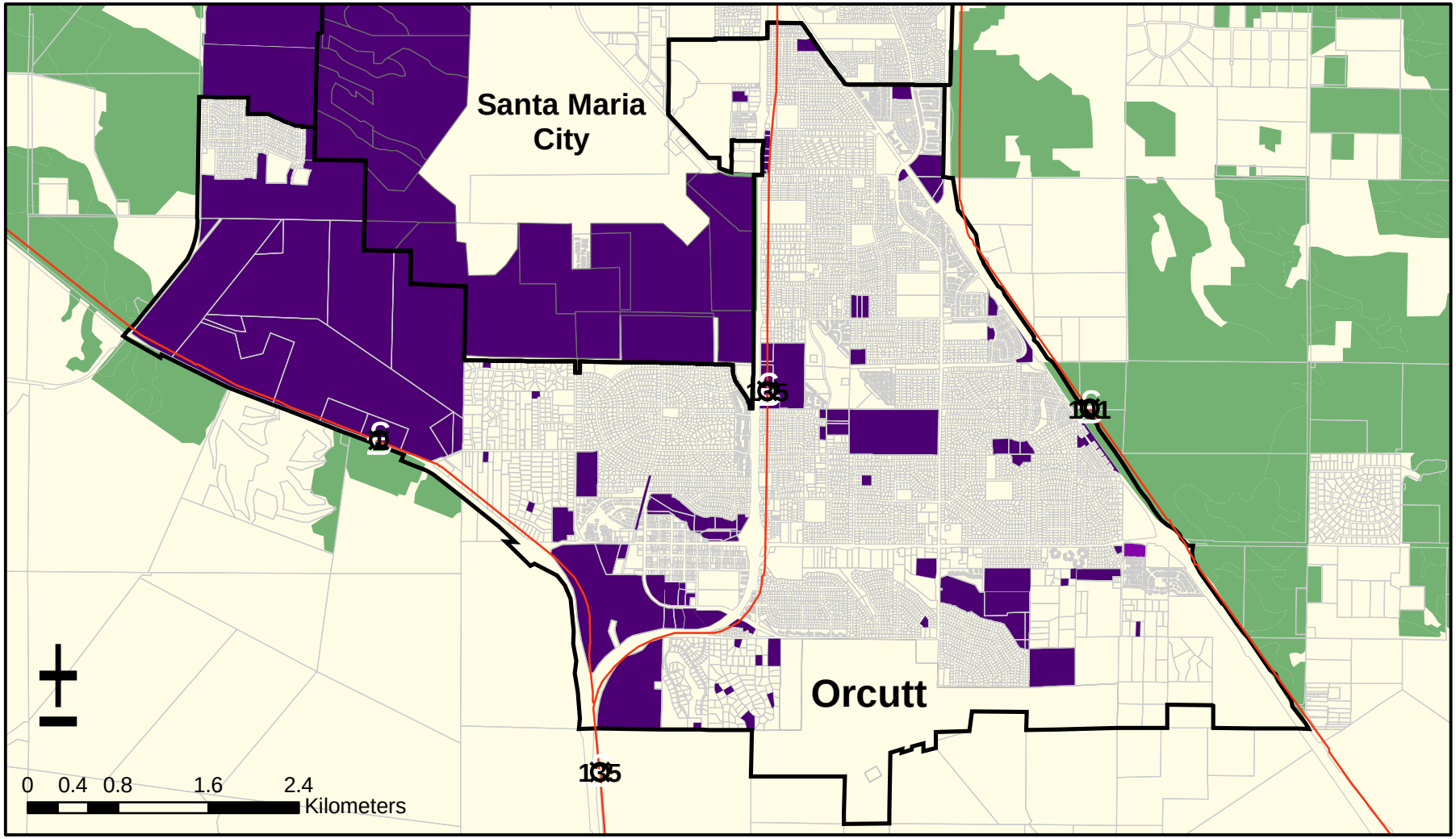
Sources:
S.B. Co. Planning (2003)
S.B. Co. Tax Assessor (2003)
FMMP (2002)
Map By: TDR Group Project
Date: 4/2/05
Figure 5

Potential Receiving Sites - Santa Maria HMA: Orcutt



Legend

- Santa Barbara Highways
- Urban Growth Boundary
- Farmland
- Potential Receiving Sites

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Source:
Santa Barbara County (2003)
Santa Barbara Tax Assessor (2003)
FMMP (2002)
Produced by: TDR Group Project
Date: 4/2/05
Figure 6