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The Cost of Community Services Study and
The Cost of Projected Build Out Analysis for the
Six Towns of Martha's Vineyard

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Summary

The Cost of Community Services study and the Cost of Projected Build Out Analysis for the six island towns of Martha's Vineyard was prepared for, and funded by, the Massachusetts Executive Office of Environmental Affairs. The study consists of two parts. The first section is a Cost of Community Services study that analyses the revenue/cost ratios for three land use categories. The second portion of this report is the Cost of Projected Build Out Analysis that estimates the cost of projected residential build out for each town.

A Cost of Community Services study is a tool by which a town can gauge the potential cost/benefit of a particular land use. The purpose of a COCS study provides a simple breakdown of a town's revenues and expenditures for a single fiscal year and to then classify those expenditures and revenues into specific land use categories. The results of the COCS study indicate the aggregate cost of providing community services for a specific land use, per dollar of revenue generated by each type of land use. The three land use categories in this study are Business/Commercial/Industrial, Farm and Open Space, and Residential. For this study the residential category is further divided between year-round and seasonal residences.

The analytical approach used in this study is based on one developed by the American Farmland Trust. The COCS studies conducted by the American Farmland Trust indicate that residential land use incurs more costs to a town than it generates in revenue. The overall results of this study support that conclusion. The average ratio of residential revenue to residential cost on Martha's Vineyard was $1 : $1.18. This means for every one dollar generated in revenue from residential property the towns on average spent $1.18 on community services such as education, government, public safety, health and human services, and other expenses. For every $1 in revenue generated from the Business/Commercial/Industrial land use category, the towns on average spent $0.57 on government, public safety, and other services. For every dollar generated in revenue from Farm and Open Space, the six island towns on average spent $0.49 in services. The two land use categories of Business/Commercial/Industrial and Farm and Open Space generated more in revenue than they demanded in services from the towns.

With the fiscal information provided in the COCS study, the Cost of Projected Build Out Analysis is to estimate the potential costs and revenues for each of the towns if every vacant residential lot were to be developed. The approach used to project the estimated operating and capital expenditures and revenues closely follows that developed by the Commonwealth of Massachusetts Department of Housing and Community Development's "The Growth Impact Handbook: Ways to Preview Your Community's Future." All revenue and expenditure figures for Towns of Aquinnah, Chilmark, Edgartown, Oak Bluffs, Tisbury, and West Tisbury are based on Fiscal Year 1997.

For the purposes of this section, commercial development was not reviewed because virtually all commercially zoned districts within each of the six towns have been built out with the exception of the Airport Business Park. The Airport Business Park operates independently of the towns thus absorbing revenue and costs that would otherwise accrue to a town; therefore, analysis of the Airport Business Park was not applicable for this study.

The final estimated revenue and expenditure calculations for the Cost of Projected Build Out Analysis revealed that residential development would create a negative balance for the towns of Chilmark, Edgartown, and Oak Bluffs. The estimated revenue and expenditure calculations for the three other towns projected that residential development would generate surplus revenue for the towns of Aquinnah, Tisbury, and West Tisbury.

During the past two decades, the Island of Martha's Vineyard experienced significant growth in the areas of development, population, and traffic. If the current rate of development continues, the towns of Edgartown, Oak Bluffs, and Tisbury may reach residential build out capacity at presently allowed zoning densities within the next fifteen years. Even though, the towns of Aquinnah, Chilmark and West Tisbury are not experiencing the same level of pressure for residential development as the three other towns, growth management issues are a serious concern for the entire Island.

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Introduction

Located off the western tip of Cape Cod, the Island of Martha's Vineyard is a popular and historic island resort. Throughout the summer season over one million tourists arrive on Martha's Vineyard and some leave with the intention of relocating or building summer residences on the Island. Since 1980, the increase in year-round population and development has had a tremendous impact on the island of Martha's Vineyard.

Between 1980 and 1997 growth rates have increased dramatically as shown in the Martha's Vineyard Commission's 1998 Data Report. The year-round residential population grew at a rate of 37% from 8,942 in 1980 to 14,248 in 1997. This increase in year-round population has caused a slightly greater increase (39%) in the number of students enrolled in the public schools over the same time period.

According to the Martha's Vineyard School Superintendency Union, public school enrollment from kindergarten through the twelfth grade grew from 1,490 students in 1981 to 2,451 students in 1997. The increase in student enrollment has caused overcrowding at all of the public elementary schools and at the regional high school. As a result, during the 1990's, the towns of Chilmark, Edgartown, Oak Bluffs, and West Tisbury built new elementary schools while the Martha's Vineyard Regional High School expanded its school building

The increase in population and rapid rate of development has had a tremendous impact on the island as a whole but the strain on town infrastructure and the limited capacity to handle such growth is more evident within the towns of Edgartown, Oak Bluffs, and Tisbury. As the three towns are approaching residential build out within the next fifteen years, issues such as sanitation, ground water quality, and transportation have already posed serious problems for each of the towns.

Methodology and Assumptions

The methodology used to perform the Cost of Community Services study for the six island towns of Aquinnah, Chilmark, Edgartown, Oak Bluffs, Tisbury, and West Tisbury is that described by the American Farmland Trust. The purpose of the COCS study is to provide a "current snapshot of revenues and expenditures on a land use basis, measured by the demand for services."[1] For the purposes of this report the three land use categories are Business/Commercial/Industrial, Farm and Open Space, and Residential. The fiscal year chosen for this report is 1997. The following are the five basic steps to conduct a Cost of Community Services study.

Step One: Define Land Use Categories

The three land use categories are Business/Commercial/Industrial, Farm and Open Space, and Residential. They are defined as follows:

Residential:

Property used for dwelling units, rental housing, and accessory lands up to six acres.

Business/Commercial/Industrial:

Property used for business purposes and property used to create commercial products and utilities.

Farm and Open Space:

Open Space;
Forest under Chapter 61;
Agriculture under 61A;
Recreational lands under Chapter 61B;
Farm buildings and structures;
Residential vacant land;
Residential parcels over six acres.

The Massachusetts Department of Revenue Assessment/Classification Report for Fiscal Year 1997 (also referred to as LA-4 Form sheet) provides the town's assessed property value by class and land use breakdowns. The assessed value for each category was then adjusted according to the criteria for the individual land use categories mentioned above. Calculations for the proportion of the total assessed value of the land use categories were determined. The final "Assessment Ratios" or "Fall Back Ratios" were used when it was not clear which land use category should be allocated particular revenues and expenditures. Some expenditure and revenue items, such as excise tax, were related to only Business/Commercial/Industrial and Residential categories. In that case, the Fall Back Ratio was based on the portion of the total assessed value for those two land use categories. Assessment breakdowns are provided for each town in Appendices I-A, II-A, III-A, IV-A, V-A, and VI-A.

Step Two: Data Collection

All relevant financial data had to be collected and reviewed. For this study, the Annual Town Reports for Fiscal Year 1997 for each of the towns were the primary documents used to get such data. The Annual Town Reports contain all year-end reports by town departments and town operating budget breakdowns of expenditures and revenues. Information gathered from tax lists, accountant's ledgers, assessor's books, and department reports were also used in this study. The Department of Revenue provided 1997 Tax Recapitulation Reports as well as the Assessment/Classification Reports for Fiscal Year 1997. The United States Census and the Martha's Vineyard Commission's 1998 Data Report provided useful demographic information. Information was also gathered by contacting individual town boards and town departments.

Steps Three and Four: Revenue and Expenditure Allocations

The revenues generated were organized into the following categories: Property Tax, Local Receipts, State Aid, Special Revenue, and Other Receipts. All town revenues were then allocated to one of the three land use categories. Town expenditures were grouped into the following categories: General Government, Public Safety, Public Works, Education, and Human Services. Expenditures were also allocated according to a specific land use category. Revenues and Expenditures that could not be specifically allocated to a particular land use were allocated based on the Fall Back Ratio.

In general, each of the town's revenues was classified by what type of land generated the funds. For example, building permits were allocated to the property from which they were collected.

State aid for school costs went to the residential year-round category. At times allocating general revenues proved difficult because it was not clear which land use generated the funds. In those instances the Fall Back Ratio was used. For detailed breakdown of revenues refer to the Appendices for the individual towns

Town expenditures were broken down based upon which type of land demanded the services. Allocating town expenditures required more discussion with town officials because the towns' budget expenses did not always lend themselves to a land use basis. The Fall Back Ratio was used frequently for the categories of General Government, Public Safety, and Public Works. Education and Human Services expenditures were primarily allocated to the Residential Year-Round category. For individual town breakdowns of expenditures refer to the Appendices at the end of this report.

Step Five: Data Analysis

Step five involved analyzing the data and calculating the town expenditures/revenues ratios by three land use categories. The Residential land use category was further divided by year-round and seasonal residence. A detailed analysis is provided in the individual town appendices.

For the purpose of conducting this study, certain assumptions were made. The criteria for designating unprotected residential vacant land and residential land in excess of six acres as Farm and Open Space was based on the assumption that the designated land will remain as open space permanently and does not consider the strong possibility of this land being developed. It is important to point out that this assumption could be misleading because the designated land is privately owned residential land and not protected open space. Furthermore, the allocation of revenues and expenditures according to the Fall Back Ratio was determined after adjustments had been made according to the criteria for the land use categories. This process ultimately affected the final revenue/cost ratios.

The towns' assessor books were used to distinguish the revenues and expenditures of year-round residents versus seasonal residents based on the following criteria: if a property tax bill was sent to an address located on the Island of Martha's Vineyard, the property was assumed to be year-round. If the property tax bill was sent off island, the property was considered a seasonal residence. Determining the accuracy of this method is difficult. There is no guarantee that a seasonal property is not occupied year-round even though the property owner's taxes were sent off Island. It is important to keep this information in mind when reviewing the seasonal residents versus the year-round residents revenue/cost ratio calculations.

Town Reports

After determining the Fall Back Ratio percentages, allocating expenditures and revenues to a specific land use is still sometimes a cumbersome task, even though the purpose of the Fall Back Ratio is to provide a simple method of allocating expenditures and revenues to a particular land use category when town records are not available. When conducting a COCS study, the American Farmland Trust strongly advises that the Fall Back Ratio should not be used frequently. It is evident that the frequent use of the Fall Back Ratio can affect the overall expenditure and revenue budget breakdowns. For example, the amount of budget allocations for

Farm and Open Space is striking. But in order to avoid using the Fall Back Ratio, detailed town records would have to be available. Since the majority of town boards and town departments do not keep records on the basis of land use, the Fall Back Ratio was implemented repeatedly.

Revenue from local receipts such as building permits and shellfish licenses were apportioned by land use as much as possible; however, permits and licenses from other departments sometimes were not listed by land use so the Fall Back Ratio had to be used for the sections of permits and licenses. Again, state aid for schools was allocated to the residential year-round category because it is the residential sector that is demanding the service. Other money from state grants or highway construction was allocated according to the Fall Back Ratio. Revenue from lottery proceeds was allocated to the Residential category. A detailed revenue breakdown is provided in the Appendices located at the end of this report.

Expenditures such as Education and Human Services were primarily allocated to the residential land use category. The Board of Registrars and Election Committee expenditures were also allocated to residential year-round land use category. Other expenditures from town boards and town departments were not as straightforward to allocate as education. Some departments had difficulty when asked to breakdown their department budget according to land use. With the exception of some departments in both Edgartown and Oak Bluffs, the majority of budgets for departments and boards listed under the sections of General Government, Public Safety, and Public Works were broken down according to land use by implementing the Fall Back Ratio. A detailed expenditure breakdown is provided at the end of this report.

Some costs and revenues were omitted from this report. Edgartown, for example, has a Water Department that provides services to a small portion of the town. The majority of Edgartown residents rely on private wells for water. Edgartown's revenues and expenditures from temporary loans were also excluded from this study. The budgets for the Oak Bluffs Water District and Tisbury Water Works District were also omitted from this study.

Findings

The Cost of Community Services Study for the towns of Aquinnah, Chilmark, Edgartown, Oak Bluffs, Tisbury, and West Tisbury conclude that residential development is the least cost effective land use category. With the exception of Tisbury, the residential land use category in Table 1-B shows a budget deficit for each of the towns. The land use categories of Farm and Open Space and Business/Commercial/Industrial generated revenue in excess of expenditures and helped to offset the cost of services required by the residential sector.

Ratios were calculated to establish a dollar-to-dollar relationship. For example, in Aquinnah for every dollar raised from residential revenues, the town spent $1.20 in services. In the Commercial category, the town of Aquinnah spent $0.63 for every dollar raised in revenue and for Farm and Open Space the town spent $0.65 for services for every one dollar generated in revenue. The pattern, as demonstrated in Table 1-A, was the same for the five other towns.

Table 1-A				
Summary of Revenues and Expenditures by Land Use Category				
Fiscal Year 1997				
Town of Aquinnah	**Revenues**	**Expenditures**	**Balance**	**Ratio**
Residential	$2,508,518.18	$2,686,381.43	($177,863.25)	$1:$1.20
Bus / Comm / Indstrl	$38,456.74	$19,188.18	$19,268.56	$1:$0.63
Farm / Open Space	$940,999.02	$469,516.06	$471,482.96	$1:$0.65
TOTALS	**$3,487,973.94**	**$3,175,085.67**	**$312,888.27**	
Town of Chilmark	**Revenues**	**Expenditures**	**Balance**	**Ratio**
Residential	$2,550,937.28	$2,686,381.43	($135,444.15)	$1:$1.16
Bus / Comm / Indstrl	$39,127.14	$19,188.18	$19,938.96	$1:$0.54
Farm / Open Space	$897,909.83	$469,516.06	$428,393.77	$1:$0.57
TOTALS	**$3,487,974.25**	**$3,175,085.67**	**$312,888.58**	
Town of Edgartown	**Revenues**	**Expenditures**	**Balance**	**Ratio**
Residential	$10,454,899.12	$13,507,160.89	($3,052,261.77)	$1:$1.13
Bus / Comm / Indstrl	$1,916,596.06	$1,596,098.87	$320,497.19	$1:$0.73
Farm / Open Space	$1,744,277.17	$1,037,218.78	$707,058.39	$1:$0.52
TOTALS	**$14,114,562.16**	**$16,134,930.05**	**($2,020,367.89)**	
Town of Oak Bluffs	**Revenues**	**Expenditures**	**Balance**	**Ratio**
Residential	$9,782,894.05	$10,110,285.49	($327,391.44)	$1:$1.11
Bus / Comm / Indstrl	$1,117,362.93	$732,351.15	$385,011.78	$1:$0.70
Farm / Open Space	$925,301.42	$352,152.63	$573,148.79	$1:$0.41
TOTALS	**$11,825,558.40**	**$11,194,789.27**	**$630,769.13**	
Town of Tisbury	**Revenues**	**Expenditures**	**Balance**	**Ratio**
Residential	$9,252,972.94	$9,031,497.37	$221,475.57	$1:$1.13
Bus / Comm / Indstrl	$1,639,798.61	$713,824.86	$925,973.75	$1:$0.51
Farm / Open Space	$901,522.45	$398,570.56	$502,951.89	$1:$0.51
TOTALS	**$11,794,294.00**	**$10,143,892.79**	**$1,650,401.21**	
Town of West Tisbury	**Revenues**	**Expenditures**	**Balance**	**Ratio**
Residential	$5,246,201.84	$6,656,767.75	($1,410,565.91)	$1:$1.34
Bus / Comm / Indstrl	$210,296.98	$61,510.54	$148,786.44	$1:$0.31
Farm / Open Space	$2,283,891.82	$636,609.92	$1,647,281.90	$1:$0.29
TOTALS	**$7,740,390.64**	**$7,354,888.21**	**$385,502.43**	

The average revenue/cost ratio for year-round residents on Martha's Vineyard was $1 : $2.11 as opposed to the revenue/cost ratio for seasonal residents on Martha's Vineyard which was $1 : $0.61. The Town of Edgartown, for example, spent $1.83 in services for every dollar generated in revenue by year-round residents. Edgartown also spent $0.72 in community services for each dollar generated in revenue by seasonal residents. The findings for each of the towns' revenue /cost ratios indicate that seasonal residents, as a land use, are significantly less costly than year-round residence. A similar pattern for the five other towns was demonstrated in Table 1-B and the residential land use summaries located in the Appendix section of this report. .

Table 1-B					
Revenue/Cost Ratios by Land Use Category					
	Business/				
	Commercial/	Farm/		Residential	Residential
	Industrial	Open Space	Residential	Year-Round	Seasonal
Aquinnah	$1:$0.63	$1:$0.65	$1:$1.20	$1:$2.47	$1:$0.75
Chilmark	$1:$0.54	$1:$0.57	$1:$1.16	$1:$2.76	$1:$0.67
Edgartown	$1:$0.73	$1:$0.52	$1:$1.13	$1:$1.83	$1:$0.72
Oak Bluffs	$1:$0.70	$1:$0.41	$1:$1.11	$1:$1.81	$1:$0.63
Tisbury	$1:$0.51	$1:$0.51	$1:$1.13	$1:$1.67	$1:$0.56
West Tisbury	$1:$0.31	$1:$0.29	$1:$1.34	$1:$2.11	$1:$0.35
Average Ratio	**$1:$0.57**	**$1:$0.49**	**$1:$1.18**	**$1:$2.11**	**$1:$0.61**

Table 1-C			
Revenue/Cost Ratios by Land Use Category			
COCS Studies Conducted by the American Farmland Trust			
	Business/		
	Commercial/	Farm/	
	Industrial	Open Space	Residential
Hebron, Massachusetts	$1:$0.42	$1:$0.36	$1:$1.06
Agawam, Massachusetts	$1:$0.44	$1:$0.31	$1:$1.05
Deerfield, Massachusetts	$1:$0.38	$1:$0.29	$1:$1.16
Gill, Massachusetts	$1:$0.43	$1:$0.38	$1:$1.15
Beekman, New York	$1:$0.18	$1:$0.48	$1:$1.12
North East, New York	$1:$0.36	$1:$0.21	$1:$1.36
Average Ratio	**$1:$0.36**	**$1:$0.34**	**$1:$1.15**

Discussion

Maintaining a favorable balance of land use types is critical to the fiscal well being of any community, particularly those subject to intense or increasing development pressures. Information on the costs and benefits of different land uses can help communities make well-informed policy and land use decisions. The Cost of Community Services study indicates the relative impact of different land uses on the revenues and expenses generated by the town. The findings of this Cost of Community Services study are consistent with other COCS studies conducted by the American Farmland Trust which concludes that "although residential development increases the local tax base, it does not pay for itself."[2]

In six Cost of Community Services studies conducted by the American Farmland Trust, the average ratio of residential revenue to residential cost was $1 : $1.15 and ranged from $1 : $1.05 to $1 : $1.36. For the Island of Martha's Vineyard, all six towns fell within the residential revenue to residential cost range. In the land use categories of Business/Commercial/Industrial and Farm and Open Space, the Revenue/Cost Ratios on Martha's Vineyard were slightly higher than the ratios found in the COCS studies conducted by the American Farmland Trust. Table 1-

B and Table 1-C summarize the findings of the COCS study conducted by the Martha's Vineyard Commission and the COCS studies conducted by the American Farmland Trust.

Limitations

It is important to emphasize that there are limitations to a Cost of Community Services study. First, the financial information for each of the towns is analyzed for just one year. The costs and revenues change from year to year so there is no long-term analysis. Anticipated capital costs and deferred maintenance of town facilities may not appear in the accounts of the studied year – in this case Fiscal Year 1997. More importantly, the towns do not always keep budget records according to land use classifications. As a result, the Fall Back Ratio had to be used repeatedly.

The assumptions regarding the criteria for the Farm and Open Space land use category can be misleading. Designating unprotected residential vacant land and privately owned residential land as Farm and Open Space is assuming that this land will remain as permanently protected open space, which it is not. Additionally, adjustments to establish the Fall Back Ratio were based on the criteria from the total assessed value of the three land use categories. The assessed value for residential property that fell within the criteria was removed from the Residential category and was then placed in the category of Farm and Open Space. This step affected the determination of the Fall Back Ratio calculations that were then used repeatedly to determine the final revenue/cost ratios for each of the towns.

The accuracy of the seasonal and year-round residential percentages can also be questioned. There is no mechanism to keep precise track of this information. The revenue/cost ratios indicate that seasonal residences are less costly than year-round residences can be primarily attributed to the fact that seasonal residents do not incur educational costs or many human services cost to the towns. More importantly, seasonal and year-round residences are taxed the same rate; therefore, seasonal residence are entitled to the same services as year-round residence. It would be fiscally imprudent to view seasonal residence as a benefit to the towns particularly as the year-round population of Martha's Vineyard continues to increase. Since much of this increase has resulted from seasonal residents who eventually decide to reside on the island permanently.

The Cost of Community Services study only provides monetary cost information regarding the impact of various types of land use. The COCS study does not consider the non-monetary cost issues such as visual impact and town character. Examining the fiscal benefits and detriments of various land use categories is important but examining, for example, the visual impact of those land uses is equally as important. Monetary cost issues should not be the only criteria when reviewing a particular development particularly as the population of Martha's Vineyard continues to increase there will be continued pressure to develop the remaining vacant land and unprotected open space. Decisions degrading aesthetics can be just as damaging to a town as wasteful budget spending.

Conclusion

The Cost of Community Services study for the six island towns of Martha's Vineyard indicate that residential development incur more costs to a town than it generates in revenue. The average residential revenue/cost ratio for Martha's Vineyard was $1 : $1.18. The towns on

average spent $1.18 on services such as education, government, and public safety for every one dollar generated in revenue from residential property. The COCS study also revealed that the land use categories of Business/Commercial/ Industrial and Farm and Open Space generated more revenue than they demanded in services from the towns.

A Cost of Community Services study is an analysis to examine the fiscal cost/benefit of specific land uses. A COCS study cannot determine the fiscal impacts of a particular development. Nor can it predict the impact of future decisions that are made by town boards regarding land use development. A COCS study is one approach to analyzing land use. A Cost of Community Services study is a simple tool for towns to use as a starting point when discussing issues of growth management and the long term visioning for their town.

Introduction

In order to assist cities and towns to address the issues of growth management, the Department of Housing and Community Development (DHCD) published "The Growth Impact Handbook: Ways to Preview Your Community's Future". This handbook provides municipalities with the tools to estimate operating and capital costs as well as revenue from certain types of development. Fiscal impact projections are one technique to allow towns to examine the potential positive and negative fiscal impacts of future development. Keep in mind that physical costs are not the only criteria to base decisions on a particular development. Quality of life issues ranging from community character, maintaining an economically diverse population, and water quality are just a few areas of concern.

Methodology and Assumptions

The methodology used to project the towns' capital and operating costs and revenues closely follows that described in the DHCD's "The Growth Impact Handbook". Within the handbook, there are several formulas for projecting operating and capital costs as well as revenues for the projected number of houses that could be built in each town. Section Three of this document provides the projected number of vacant residential lots in each of the six towns.

Step One: Estimate annual cost for new school population

Using the number of vacant residential lots in each of the towns, the first step was to estimate the annual cost for the new school population. To determine this the number of vacant residential lots under each residential zoning district were totaled together. Once the total number of houses was determined, the DHCD handbook multipliers were used for projecting the general population and school population according to the various types of houses such as single-family homes and apartment complexes. For the purpose of this study, the category of single-family homes with a mixed number of bedrooms was chosen for the towns of Aquinnah, Chilmark, Edgartown, Oak Bluffs, Tisbury, and West Tisbury. For single-family homes with mixed number bedrooms the multiplier for people per house was 3.3065 and the multiplier for school age children per house was 0.7119. It is important to point out that the multipliers are assuming the occupants of the houses to be built will be year round residents. For example,

Projected number of new single family homes X 3.3065 = Estimated number of new residents
Projected number of new single family homes X 0.7119 = Estimated number of new students

Step Two: Estimate annual payments for a new elementary school

After determining the projected general population and the school population for each town, the next step involved estimating the annual payments for a new elementary school. The DHCD 's estimated cost of construction per square foot ($147.00 per square foot) and the recommended number of square feet per student (115 square feet per student) was used to determine the annual payments for the new elementary schools for all of the towns on Martha's Vineyard. This portion of the study assumed that each town already owned the property site so land acquisition costs were not factored, and the financing cost was assumed to be eight percent over twenty years.

Estimated number of new pupils X 115 sq. ft. per pupil = Estimated square footage of new school
Estimated square footage of new school X $147.00 per square foot = Cost of construction

Step Three: Estimate annual costs for various municipal services

The third step involved estimating the annual costs of municipal services. The municipal services were broken down into four categories: General Government, Public Safety, Public Works, and Human Services. The Fiscal Year 1997 expenditures listed for each category in the COCS study for each town were used. The average cost per resident was determined by dividing the 1997 year-round population by the total expenditures for that category. The average cost per resident was multiplied by the estimated number of new residents which was determined by multiplying the projected number of new single family homes by the recommended average total person per house multiplier. The total estimated annual costs for each category were added together to total the municipal operating and capital costs.

Category Expenditures for Fiscal Year 1997 / Town Year-Round Population = Average cost per resident
Estimated number of new single family homes X 3.3065 multiplier = Estimated number of new residents
Average cost per resident X Estimated number of new residents = Estimated Category Cost

Step Four: Estimate Annual Revenue

The fourth step involved a similar process as step three but instead of projecting costs, step four projected the annual town revenue from new growth. Again, the Fiscal Year 1997 revenues were used. The average amount of revenue generated per resident was determined by dividing the 1997 year-round population by the total revenue. The average amount of revenue generated by each year-round resident was then multiplied by the estimated number of new residents.

Annual Revenue for Fiscal Year 1997 / Town Year-Round Population = Estimated annual revenue per resident
Estimated number of new single family homes X 3.3065 multiplier = Estimated number of new residents
Annual revenue per resident X Estimated number of new residents = Estimated annual revenue from new growth

Step Five: Cost and Revenue Balance Sheet

The fifth step simply involved determining the cost/revenue balance sheet. After estimating the total cost and total revenue from new growth, the projected amount of revenue was subtracted from the projected amount of expenditure.

Findings

Under the current residential zoning districts for the towns of Aquinnah, Chilmark, Edgartown, Oak Bluffs, Tisbury, and West Tisbury, Section Three of this report breaks down the calculations for previously built-on and vacant lots. Section Three also provides calculations for potential lots that could be built on if, for example, a landowner decided to further subdivide his land, if allowed by present day zoning and subdivision regulations. For the purposes of projecting the fiscal impact of residential build out for each of the towns, the total vacant lots of each residential zoning district within the towns were used. The calculations for the total vacant lots remaining for each town are as follows: in Aquinnah 514 total vacant lots, in Chilmark 832 total vacant lots, in Edgartown 2,051 total vacant lots, in Oak Bluffs 1,280 vacant lots, in Tisbury 652

vacant lots, and West Tisbury 1,028 vacant lots.

The total residential vacant lot figures were used to estimate capital and operating costs and revenues for each of the towns. The final estimated revenue and expenditure calculations revealed that residential development in Chilmark, Edgartown, and Oak Bluffs would create a deficit for the towns. The projected revenue amount from residential development for the three remaining towns was greater than the projected operating and capital costs as demonstrated in Table 2-A through Table 2-E.

Discussion

As stated before, maintaining a favorable balance of land uses is critical to the fiscal well being of any community, particularly those subject to intense development pressures. Using the residential build out figures, the Growth Impact Handbook breaks down the potential operating and capital costs as well as the potential revenue to be generated by residential development for the six towns of Martha's Vineyard. The fiscal impact of commercial development was not analyzed because virtually all commercially zoned districts within each town are almost built out.

Limitations

It is important to point out the limitations of this study. First, the breakdowns of previously built-on and vacant lots by residential zoning district may not reflect a true comparison because the towns do not have uniform zoning. Second, the format used in The Growth Impact Handbook assumes that the projected number of houses will be built in one year. This format does not allow for the gradual phasing in of a development project, not to mention that in 1999, five of the island towns voted to enact a two-year single-family building permit cap.

Third, the projected general population and school population figures were based on regional multipliers of the entire Northeastern United States instead of local multipliers representing Martha's Vineyard. The projected general population figures are assumed to be year-round residents. This analysis does not take into account the significance of year-round residents versus seasonal residents; however, this is not to suggest that towns view seasonal homes as a source of revenue. When projecting school costs, it is assumed that the towns already owned the property for the new elementary school site. Also, the estimated construction cost of $147.00 per square foot is out dated. These factors should be kept in mind because the calculations used to project the fiscal impact of residential development may not be completely representative of the island towns.

The Cost of Projected Build Out Analysis does not consider other implications of residential development than those of physical cost. Town character, scenic roadsides, and other issues involving quality of life need to be given the same consideration. The issue of cost should not be the only criteria when reviewing the overall benefits and detriments of a project.

Conclusion

Like the Cost of Community Services Study, the Cost of Projected Build Out Analysis is a useful tool to allow towns to begin to understand the impact of growth and plan accordingly. The

format in this analysis cannot determine the fiscal impact of a particular residential development. This is one technique to analyze the potential fiscal impact of residential development. The Cost of Projected Build Out Analysis is a simple tool for the towns to use when discussing issues of growth management and long term visioning for their community.

Table 2-A	
Aquinnah Residential Projected Build Out Analysis	
Estimate Annual Cost for New School Population	
Estimated number of new single family home / mixed bedrooms	514
Average school age child multiplier per home	0.7119
Estimated number of new children	366
Student percentage expected to attend private/parochial school	7%
Estimated number of new pupils to attend public schools	340
DOE integrated average per pupil cost for Aquinnah	$8,393.00
Estimated Annual Cost for New School Population	$2,853,620.00
Estimate Annual Payments for New Elementary School	
Land Acquisition Costs (If the Town owns the land)	$0.00
Estimated Cost of Construction Per Square Foot	$147
Recommended Square Footage per Pupil	115
Recommended Square Footage	39,100
Cost of Construction	$5,747,700
Town's share of Capital Costs ($5,747,700 X 58%)	$3,333,666
Estimated Annual Financing Costs @ 8% over 20 years	
($3,333,666 X 0.102)	$340,034
Estimate Annual Costs for Various Municipal Services	
General Government Expenditures for Fiscal Year 1997	$370,405.04
Aquinnah Year-Round Population	350
Average Cost per Resident	$1,058.30
Average Total Persons Per House Multiplier	3.3065
Estimated Number of New Residents	1,700
Estimated New General Government Costs	$1,798,624.43
Public Safety Expenditures for Fiscal Year 1997	$287,140.71
Aquinnah Year-Round Population	350
Average Cost per Resident	$820.40
Average Total Person Per House Multiplier	3.3065
Estimated Number of New Residents	1,700
Estimated New Public Safety Costs	$1,394,306.88
Public Works Expenditures for Fiscal Year 1997	$62,885.17
Aquinnah Year-Round Population	350
Average Cost per Resident	$179.67
Average Total Person Per House Multiplier	3.3065
Estimated Number of New Residents	1,700
Estimated New Public Works Costs	$305,359.78
Human Services Expenditures for Fiscal Year 1997	$84,890.11
Aquinnah Year-Round Population	350
Average Cost per Resident	$242.54
Average Total Person Per House Multiplier	3.3065
Estimated Number of New Residents	1,700
Estimated New Human Services Costs	$412,212.06

Table 2-A continued	
Estimate Annual Municipal Operating and Capital Costs	
Estimated Annual Cost for New School Population	$2,853,620.00
Estimated Annual Capital Cost for New School	$340,034
Estimated New General Government Costs	$1,798,624.43
Estimated New Public Safety Costs	$1,394,306.88
Estimated New Public Works Costs	$305,359.78
Estimated New Human Services Costs	$412,212.06
Total Estimated Annual Municipal Operating and Capital Costs	$7,104,157.10
Estimate Annual Revenue	
Total Annual Revenue	$1,472,717.78
Aquinnah Year-Round Population	350
Projected Population with New Growth	2,050
Estimated Annual Revenue Per Capita	$4,207.77
Projected Annual Revenue from New Growth	$7,153,209.00
Costs and Revenues Balance Sheet	
Estimated Annual Municipal Operating / Capital Costs for New Growth	$7,104,157.10
Projected Annual Revenue from New Growth	$7,153,209.00
Municipal Revenue/Cost Balance From New Growth	$49,051.90