



UMASS DONAHUE INSTITUTE

The Fiscal Impact of Mixed-Income Housing Developments on Massachusetts Municipalities

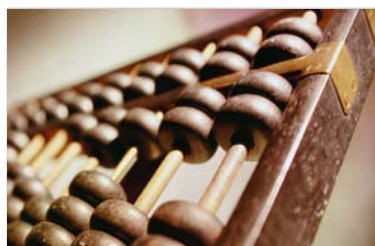
A report for Citizens' Housing and Planning Association

May 2007

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Executive Summary

Municipalities throughout the Commonwealth of Massachusetts are concerned that new residential construction may create demand for public services in excess of the benefits of increased housing opportunities for their residents. In recent years, cities and towns in the state have confronted tight budgets, rising school and municipal expenses, and unpredictable levels of state and federal assistance. New construction raises concerns that the taxes generated by new housing will not offset the demand for services from the housing's occupants.

The University of Massachusetts Donahue Institute (UMDI) prepared this study, on behalf of Citizens' Housing and Planning Association (CHAPA), to determine whether mixed-income developments that have been built in the state did, in fact, place new burdens on their communities. In Massachusetts, mixed-income developments are often developed through the M.G.L. Chapter 40B Comprehensive Permit process. Under Chapter 40B, a developer can override local zoning when the host community lacks a minimum of 10 percent affordable housing as a percentage of the town's housing stock. State approved 40B developments must have a minimum of 25 percent low-income housing (reserved for households earning below 80% of median income) and, typically, nearly three-quarters of housing units in a 40B development are sold at market-rates. The report attempts to add to public understanding of two fundamental questions that often confront new construction in municipalities:

Does the housing development increase net costs to the town?

Does the housing development pay its fair share of town costs over time?

The UMass Donahue Institute conducted the study over the course of nine months and incorporated extensive field work in seven municipalities with mixed-income, homeownership developments. Complete details of the report findings and methodology are included in the full report, *The Fiscal Impact of Mixed-Income Housing Developments on Massachusetts Municipalities*.

The UMass Donahue Institute analysis found:

- The immediate fiscal impact of mixed-income homeownership developments may not be as great as is often assumed. The eight home ownership housing developments in this study did not have any measurable negative impact on public services in their municipalities.
- School costs are rising in cities and towns throughout Massachusetts; however, those increased costs are occurring in communities with declining enrollments as well as increasing enrollments. In short, enrollment is not the most significant factor driving increases in school costs.
- Using the fair share methodology developed for this study, this report demonstrates that mixed-income housing units, including 40B projects, have the same fiscal impact as the vast majority of their neighbors.
- The implications of this study for the state, developers and municipalities are that towns may be able to plan appropriately for development in a manner that ensures that future growth does not have a long-term negative fiscal impact.

The Immediate Fiscal Impact of Mixed-Income Homeownership Developments

The eight housing developments did not have negative marginal fiscal impacts on public services in their municipalities. The report findings are based on the most reliable method of fiscal impact analysis used in the field; the case study approach. Specifically, UMDI found:

- Infrastructure and maintenance costs were paid for by the homeowners not the towns.
- School costs have increased in the case study communities but that increase occurred independently of changes in enrollment (i.e., school costs rose whether the number of students declined or increased).
- Demand for public safety was no higher in the housing developments than in their communities.

The UMass Donahue Institute's findings are significant for two reasons.

1. The report clearly documents that in some, if not many, cases mixed-income, home ownership developments in Massachusetts do not create new burdens for public services in the towns in which their built.
2. The report provides evidence that communities have successfully mitigated many of the potential negative impacts of development during the approvals process.

School Costs are Rising but Enrollment is Not the Principal Cause

The UMass Donahue Institute analyzed statewide patterns in school enrollment, staffing and expenditures from readily available data for the years 1999 and 2004.¹ Our analysis showed that school teaching staff levels and overall expenditures increased independently of changes in enrollment. From 1999 to 2004, school enrollments statewide were essentially flat, with 0.2 percent total growth, while the employment of full time equivalent (FTE) teaching staff increased by eight percent. Despite very limited growth in enrollment, total school expenditures grew by 28.6 percent statewide from 1999 to 2004. During the same period in two of our case study communities, Falmouth and Sandwich's educational expenditures increased 25.6 percent and 32.8 percent, respectively, despite declines in enrollments of 12 and 6 percent. The full report analyzed year-over-year changes in enrollment and educational expenditures in each of the cases study communities. The full analysis shows that, in short, there are clear fiscal pressures on municipalities due to educational costs but there is no evidence that student enrollment growth is the cause of the budgetary problems.

Mixed-Income Developments Have Similar Long-Term Fiscal Impacts as their Neighbors

The UMass Donahue Institute developed an original fiscal impact method for this study in order to answer this key question: How do you measure the impact on municipal expenses of a housing development in the years after it has been built and occupied? Because traditional fiscal impact methods focus on the per capita consumption of public services, they tend to overstate or understate the actual fiscal impact of a home through its life cycle. Typically, the demand for services from any particular home will vary over time based on a number of factors: the age and presence of children, seniors with needs for services, natural disasters or emergencies, as well as, routine maintenance and improvements. Fiscal impacts often correspond to a "life cycle" for a home: a young couple buys a house, raises a family, ages-in-place by themselves, then sells the home to another young couple and the cycle repeats. At different points in the "life" of a development, the occupants of a housing unit may be relatively light users of public services or heavy users.

Residents, at one time or another, contribute to the cost of services – whether health, safety or education – that are enjoyed by their neighbors. And vice versa. Unlike household water bills, for instance, property tax bills are not

¹ The comparisons of school district enrollments, staffing and expenditures in 1999 and 2004 are based on data published by the Massachusetts Department of Education at <http://www.mass.gov/doe>.

calculated by metering usage of town services. Rather, property owners in a town pay different amounts of taxes based on the principle that property tax assessments should be distributed according to the market value of an owner's property.

The fair share methodology developed for this report accounts for the fact that over time, the consumption of services by household will vary. The fair share method measures a household's fiscal impact over time by calculating the difference between the average cost of public services per household (net of state aid and other sources of revenue) and the taxes paid by that property owner. Of the eight developments in seven case study communities analyzed, three produced positive fiscal impacts and five produced negative fiscal impacts.

In this report, the UMass Donahue Institute analyzed complete tax assessor records for five of the seven case study towns in FY2005 and applied the fair share method to all market rate and affordable units in each community. The results of the analysis are shown in the table below. UMDI's analysis reveals that in these five municipalities, most condominiums and many single-family homes paid less than their fair share of town costs. As should be clear from the table, hundreds of market-rate housing units have a similar fiscal impact on their communities as the mixed-income developments analyzed in this study. The full report includes detailed fiscal impact analyses of each of the case study developments and their communities.

Fair Share Analysis of All Homes and Condos in Case Study Communities, FY05

Municipality	Net Municipal Costs Per Housing Unit	Median Tax Payment for Homes and Condos	Homes Below Costs Per Housing Unit	Percent of Homes Below Net Municipal Costs	Condos Below Costs Per Housing Unit	Percent of Condos Below Net Municipal Costs
Brookline	\$3,228	\$3,744	227	5.03%	5,038	59.2%
Falmouth	\$2,433	\$2,006	11,199	62.97%	885	80.9%
Peabody	\$1,835	\$2,588	392	4%	925	44.84%
Sandwich	\$3,318	\$3,042	4,762	58.7%	420	90.51%
Wellesley	\$6,161	\$5,888	4,245	54.49%	356	95.7%

Source: The Towns' Assessors Offices, 2006; UMass Donahue Institute, 2006.

Planning Implications of this Study for State & Municipal Leaders, Developers and Advocates

This report has important planning and policy implications for state and municipal leaders. A key planning implication of this report is that communities have the ability to reasonably and fairly assess the impact of new construction and plan growth to achieve fiscal balance. With a form of analysis like the fair share methodology developed for this report, it is possible for communities to promote the development of residential and commercial construction at market-values that offset the fiscal impact of affordable and workforce housing.

As this study shows, fiscal balance can likely be achieved in many projects. The extension of this point is that proposed projects throughout a community may be able to achieve fiscal balance in the aggregate. An affordable or workforce housing development located in one neighborhood may have a negative fiscal impact that is offset by higher priced market-rate housing development in another neighborhood. A transit-oriented development in the center of town may contain a mix of commercial and residential construction that offsets the fiscal impact of scattered site development in the community. The potential of the fair share method, which deserves further study, is to empower municipalities, the state and developers to better understand the fiscal impact of construction over time and plan for better community outcomes.

Introduction

Communities throughout Massachusetts confront the challenge of increasing housing opportunities for people with low- and moderate-incomes while also ensuring that the residential and commercial development that does occur in towns has, at worst, a neutral impact on the cost of public services. In recent years, the Massachusetts state government has adopted programs and policies intended to encourage resource efficient residential development that reduces the demand for public infrastructure. The state has also enacted legislation designed to reimburse municipalities if low-income residential developments are found to negatively impact municipal costs. Recent efforts to combine smart growth policies with state incentives are grounded in the understanding that the Commonwealth faces an urgent need to develop more affordable housing and the belief that affordable housing is likely to create municipal costs that are not offset by increases in property tax revenue.

The UMass Donahue Institute (UMDI) was engaged by the Citizens' Housing and Planning Association (CHAPA) to prepare an analysis of the historical impact that mixed-income home ownership developments have had on the municipal budgets. Recent surveys have shown that a majority of Massachusetts residents believe that affordable housing will increase municipal costs, especially public school expenses. Recent studies have documented the great fiscal stress that Massachusetts cities and towns confront and the difficult choices that communities have to make to provide services to their residents. The purpose of this study is to further understanding of the impact that mixed-income developments have on municipal costs and to offer a framework for planning future development.

The most common fiscal impact model analyzes the impact of individual housing units through the allocation of municipal costs based on household size and composition. However, unit-based fiscal impact analysis does not accurately depict the context in which affordable housing is developed in Massachusetts. In Massachusetts, the majority of affordable housing is developed through the M.G.L. Chapter 40B Comprehensive Permit process. Under Chapter 40B, a developer can override local zoning when the host community lacks a minimum of 10 percent affordable housing as a percentage of the town's housing stock. State approved 40B developments must have a minimum of 25 percent low-income housing; typically, nearly three-quarters of housing units in a 40B development are sold at market-rates. Therefore, in Massachusetts it is most common for new affordable housing units to be constructed and sold in tandem with housing units that are being sold and taxed at full-market values. Given the predominance of mixed-income developments in Massachusetts, UMDI and CHAPA felt that it would be valuable to see if the conventional wisdom that affordable, owner-occupied housing does not "pay its own way" holds true when the fiscal impact of the full development is evaluated.

The UMass Donahue Institute used a case study approach to analyze the historical fiscal impact of mixed-income homeownership developments constructed in Massachusetts during the past fifteen years. UMDI randomly selected 20 communities out of a possible 100 cities and towns that met our selection criteria (discussed below). From the 20 communities, UMDI collected complete information for eight developments located in seven towns. The field work for the project was conducted over the course of six months and included a mixture of interviews, primary data collection from municipal records and the use of online state databases. The interviews included local school and town officials while the data included school enrollment data by project and household, individual assessor's records, special permit decisions, municipal census records and public safety data. State data included expenditure and revenue data from the Massachusetts Department of Revenue, and educational data from the Massachusetts Department of Education. UMDI attempted to gather a complete set of state and local data for the entire history of each project; however, for the sake of comparison this report focuses on the fiscal impact of the developments for the period from FY2003 to FY2005.

The case study municipalities included in this report range in size from approximately 21,000 residents to 56,000 residents and are located in four of the state's seven *MassBenchmark* regions: the Pioneer Valley, Metro Boston, the Northeast and Cape Cod. The developments, identified in Table 1, were constructed between 1990 and 2003 and include projects approved under the state's Chapter 40B Comprehensive Permit law, inclusionary zoning bylaws, and by special permit. As of June 2006, two of the seven towns in the study had reached the state's 10 percent affordable housing requirement, while the percentage of low-income housing in the remaining five communities ranged from 3.6 percent to 9.8 percent.

The case developments represent a broad range of sizes from small developments with six total units to medium and large-scale developments with up to 86 housing units. The average size of the developments is 33 units with an average of 8 affordable units per project. Half of the developments have a ratio of market rate to affordable units that approximates the 25 percent mandate in Chapter 40B. The development in the Town of Brookline was permitted under the town's inclusionary zoning bylaw and includes 14 percent affordable housing. The housing developments are 100 percent ownership properties and include a mixture of development types. Half of the developments in the analysis are composed of single-family homes. The remaining developments consist of a mixture of town homes, apartment-style and garden-style condominiums. A map with the location of the eight developments is located in Appendix B.

Table 1: Profile of Case Study Mixed-Income Developments

Town	Project	Total Units (Total:SHI*)	Year Built	Total Students	Total Development Population
Brookline	Kendall Crescent	35:5	1999-2001	5	70
Falmouth	Nickey Lane	6:2	1998-99	3	16
Falmouth	Fresh Pond Farms	21:6	2002-04	10	39
Northampton	Pine's Edge	38:6	1992	3	63
Peabody	Stoneybrook	86:22	1990	5	129
Sandwich	Sherwood Forest	36:9	2002	40	125
Wellesley	Edgemoor Circle	12:3	2003	4	27
Wilmington	Buckingham Estates	23:6	1996	23	73

*SHI: Massachusetts Subsidized Housing Inventory

Source: UMass Donahue Institute, 2006.

The UMass Donahue Institute used three separate methods to analyze the fiscal impact of the case study developments. The first two methods are the most common fiscal impact methods used in the field: the per capita multiplier method and the marginal impact method. The per capita multiplier method, popularized by Burchell and Listokin, is the most common. In this method, the fiscal impact of a housing unit is determined by multiplying the cost-per-person of town services by the number of people in the household, less the property taxes paid. The marginal impact method determines the likely impact of housing through a careful evaluation of the capacity of a community to absorb new development (i.e. excess capacity of its roads, schools, parks, library and other facilities). In this report, these techniques were adapted to take into account the fact that this is a historical analysis of impacts: the fiscal impact models incorporate the actual taxes paid per housing unit, annual municipal costs and residents and public school students per household.

The third fiscal impact method is original to this study. The Per Housing Unit or "Fair Share" method determines the fiscal impact of a housing unit by subtracting the average municipal cost per housing unit from the property taxes paid by that home. The purpose behind this method was to evaluate the relative fiscal balance or imbalance of a housing development by comparing similar inputs: taxes paid by housing unit and costs allocated per housing

unit. The traditional per capita multiplier method of analysis distorts the fiscal impact of housing units by allocating costs via a different method than costs are actually apportioned in municipalities. The most obvious example is educational expenditures: under the per capita method a new housing unit containing one public school student would be allocated the per pupil cost of education in the town. If that cost was \$8,500 and the property tax revenue paid by that household was \$4,500 then the house would be said to have a negative fiscal impact of \$4,000. As a matter of fact, municipal costs are not distributed to residents on a fee-for-service basis. Municipal costs are distributed to taxpayers based on two principles: one, costs should be born based on ability to pay (with value of real property a proxy for ability to pay); and two, every taxpayer in the community has an equal stake in the provision of services to their neighbor. The genesis of this method was an interest in analyzing the fiscal balance or imbalance of new housing developments in a manner that allowed comparisons between households and was closely aligned with how communities in Massachusetts actually distribute costs.

The three fiscal impact methodologies used in this report each have benefits as well as some drawbacks. The marginal impact method is generally considered the most accurate method for assessing the practical effect that new developments will have on the capacity of local services. The marginal impact method is less effective in assessing the impact of development over time. In addition, the method can prove impractical as it requires substantial field work and cooperation from local officials. The per capita multiplier method generally creates the highest potential set of costs associated with development. If a community is interested in understanding the range of potential impacts from new construction the per capita method would supply the worst-case scenario for large households. The drawbacks of the per capita multiplier method have been previously reported. As noted above, two key problems with the per capita method is that it does not account for the actual capacity of a municipality to absorb growth and it allocates costs on a fee-for-service basis. The housing unit “fair share” method has three principal virtues: one, it allocates costs at the same unit of analysis in which costs are distributed; two, it allows for comparisons between housing developments and across the community; and three, it allows for analysis of the distribution of municipal costs over time. The principal defect of the method is that it does not account for the capacity of the municipality to absorb growth at the point of occupancy. Ideally, a thorough fiscal impact analysis would incorporate elements from the marginal impact method and the fair share housing unit methodology.

This report begins with a presentation of the case study selection methodology and the data collection process and sources used in the analysis. The report continues with a presentation of the results of each fiscal impact methodology. The fiscal impact of the case developments is then placed in the context of the full spectrum of taxpayers in their communities. The report concludes with a discussion of the planning and development implications of the report findings. The report includes two appendices containing detailed profiles, data and analysis for each development discussed in the study.

Fiscal Impact Methodologies

Fiscal Impact Methodologies

The UMass Donahue Institute utilized three fiscal impact methodologies to evaluate the impact of its eight case study mixed-income developments. The methodologies were chosen to answer two fundamental questions that often confront new construction in municipalities:

Does the housing development increase net costs to the town?

Does the housing development pay its fair share of town costs over time?

Communities are understandably concerned about cost burdens associated with any increase in demand for public services that is uncompensated by predictable and reliable sources of revenue. The two questions differ in that the first question is oriented toward the immediate impact that new construction may have on demand for town resources. The second question is concerned with evaluating whether affordable housing or mixed-income developments are a net burden to the community over time.

The methodologies employed to answer these questions include two of the standard methods of calculating fiscal impact and a new fiscal impact method created for this study. The traditional methods used in this report are the per capita multiplier method and the marginal cost method.² The new method designed for this study is the fair share method, which allocates municipal costs by housing unit. The marginal cost and per capita multiplier methods offer insight into the first question of whether a new development will increase net costs or public service burdens in a community. A 2003 study conducted by the UMass Donahue Institute evaluated the accuracy and relative benefits of each model.³ That study determined that the marginal cost method, though far more labor intensive to implement, provides the best picture of how construction affects municipal costs. While acknowledging the limitations of the per capita multiplier method, this study presents both methodologies to allow the public to compare the results of the most common methods in the field.

The Fair Share Principle

Traditional fiscal impact methods do not satisfactorily answer the question of whether a given housing development is paying its fair share of municipal costs. There are two significant deficiencies in these fiscal impact methods when applied to developments over time. First, the marginal cost approach cannot readily be applied to housing units in the years after initial occupancy. After a development is built and occupied, housing units become part of the municipal service base that is being analyzed and are functionally indistinguishable from the impact of other housing units in the town. Second, the per capita multiplier fiscal impact method explicitly allocates the net cost of public education on a fee-for-service basis. In effect, families are assigned a fiscal impact equivalent to the full tuition cost of educating their children, despite the fact that in practice those costs are distributed across taxpayers. This would be similar in concept to evaluating the fiscal impact of a resident based on the cost of providing fire protection or other services in a given year. Towns do not send a full bill to

² The standard source for further information on fiscal impact methods is Burchell and Listokin's *The Fiscal Impact Handbook*, Center for Urban and Regional Policy, Rutgers University (1978) or *The New Practitioner's Guide to Fiscal Impact Analysis* by Robert W. Burchell, David Listokin and William R. Dolphin, Center for Urban and Regional Policy, Rutgers University (1985).

³ Nakosteen, Robert and James Palma, *The Fiscal Impact of New Housing Development in Massachusetts: A Critical Analysis*, UMass Donahue Institute, 2003.

households every time a fire truck or policeman responds to an emergency nor do they charge parents tuition for educating their children. Property tax bills allocate a share of town costs to every property owner in the community. Landlords correspondingly pass these costs on to tenants, whether commercial or residential. In Massachusetts, municipal budgets are set with projections of anticipated state and federal aid and a legally established limit on increases in total property taxes, which is an outgrowth of Proposition 2 ½.

Property tax bills are expressive of the principle that municipalities operate as commonwealths, sharing the benefits and responsibilities of self-government and provision for the general welfare. Residents vote, either directly or through their representatives, for the level of services which they wish or need. Residents, at one time or another, contribute to the cost of services – whether health, safety or education – that are enjoyed by their neighbors. And vice versa. Unlike household water bills, for instance, general revenue raised through property tax bills are not calculated by metering usage of town services. Rather, property owners in a town pay different amounts of taxes based on the principle that property tax assessments should be distributed according to the market value of an owner's property.

The fair share methodology for analyzing the fiscal impact of housing accounts for the fact that over time, the consumption of services by household will vary. A household's fiscal impact over time can be reasonably expressed as the difference between the average cost of public services per household (net of state aid and other sources of revenue) and the taxes paid by a property owner. As will be further explained below, that is the methodology presented in this report to determine the net impact of the case study developments from year to year.

The remainder of this section briefly reviews the three fiscal impact methodologies deployed in this study.

Marginal Cost Impact Method

The marginal cost analysis is used to determine the impact of new construction on the capacity of existing town infrastructure and services. The method relies heavily on local information and includes several inputs. First, UMDI analyzed development-specific data including: the number of residents per unit, total students, and responsibility for infrastructure development and maintenance (through, for example, condominium or neighborhood association fees). Infrastructure costs were ascertained through a review of the special permit or comprehensive permit decisions from the local zoning boards of appeal and through interviews with public works officials. Next, UMDI assessed data relating to schools in the community where a development is located. The following inputs were considered in this category: enrollment by development, trends in total enrollment and classroom capacity, and budgetary and staffing information. Finally, UMDI assessed marginal public safety costs through an examination of demand for police, EMS or fire services by development. The analysis compared the average number of public safety calls per housing unit in the town with the average calls per unit in the development. The purpose was to rule out or account for extraordinary demands for services.

The development's impact on municipal services (excluding education) was determined by examining the manner in which the infrastructure connecting the homes to streets, water and sewerage were financed and how ongoing maintenance of infrastructure is funded. The impact on public safety services was assessed by comparing the utilization of police, fire and EMS services in the development to the average use of services town-wide. In addition, interviews were conducted with public safety and public works officials to determine if there were additional known impacts. The impact of the development on public schools was determined through interviews with school officials (typically the superintendent or business manager), data documenting the number of students, and district-wide data showing trends in budgeting, staffing and enrollment. School officials would identify enrollment and classroom capacity issues while the budgeting and total enrollment data would be used to assess if enrollment pressures, per se, can be clearly identified as the principal contributor to school costs. In the

school cost analysis, UMDI did not identify students with extraordinary costs including special education or transportation assistance.

Per Capita Multiplier Method

The per capita multiplier method determines the fiscal impact of new construction by multiplying the average costs per person in a community by the number of persons in a household. In this study, UMDI determined the number of adults and public school students per household through data collected in the case communities. The municipal expenditures and revenues were obtained from the Department of Revenue, Division of Local Services Municipal Data Bank. The revenues and expenditures included in the model (shown in Appendix B) are actual figures reported by the towns. The total general fund expenditures included costs paid by commercial and industrial property owners, and through state and federal aid. In order to properly reflect the costs that are actually born by residential property-owners, a net expenditures figure was calculated by subtracting non-residential revenue from total expenditures. The total net expenditures for the town were then divided by the U.S. Census estimate of the town's residential population to derive per capita expenditures. The per capita expenditure was then multiplied by the number of residents per household, with that total cost reduced by the taxes paid by the housing unit. The result is the net impact of the housing unit, excluding educational expenses. The aggregate impact of the mixed-income developments was calculated by summing the individual impact of each affordable and market-rate housing unit.

In the per capita multiplier method, the impact of educational expenditures are separated from general municipal expenditures, with per pupil costs allocated to households based on the number of public school students living in each unit. In most fiscal impact analyses, school costs are calculated for housing units that have yet to be built or occupied. In those studies, it is common to estimate the number of students in a household based on the number of bedrooms and the average number of children per bedroom in a town or region. In this study, we calculate the per pupil costs in the mixed-income developments based on public school department records of actual school enrollment from each housing unit in development. Per pupil expenditures are calculated by taking the actual reported school expenditures from the town and subtracting state education aid, with the resulting net total educational expenditure divided by the total public school enrollment to derive a net cost per pupil. Next, the per pupil expenditure is multiplied by the number of students in the housing development. That figure is added to the general fund impact described above to arrive at the total fiscal impact of the housing development.

Fair Share Method

The fair share method determines the fiscal impact of new construction by calculating the average cost of public services per housing unit and subtracting the property taxes paid from that figure. In the fair share method, the cost of public schools is included with other municipal services instead of being allocated to households based on the number of pupils in each unit. Net public expenditures per housing unit are calculated in a manner similar to the per capita multiplier method. The total municipal expenditures from the general fund are adjusted to subtract services paid through state and federal aid or commercial and industrial taxes. As noted, this has the effect of accounting for the actual cross-subsidy that residential taxpayers receive from nonresidential sources. Net expenses per housing unit are calculated by dividing total net expenditures for the town by the U.S. Census Bureau's estimate of housing units in that calendar year. The fiscal impact of each housing unit is determined by subtracting property taxes paid from the average cost of public services per housing unit. The development's total fiscal impact is determined by summing the impact of each individual unit.

Fiscal Impact Analysis Results

This section provides a summary of the UMass Donahue Institute's fiscal impact analysis of eight mixed-income developments located in seven communities in Massachusetts. A detailed presentation of the results for each town is located in Appendix A of this report. The results are presented for each of the fiscal impact methodologies utilized. In general, the analysis did not reveal significant marginal impacts associated with any of the developments. The per capita multiplier and fair share methods showed that in four of the towns the developments had a net negative fiscal impact and in three of the towns the developments had a net positive impact. As a rule, the fair share method showed a significantly smaller impact – typically less than \$1,000 per unit – than the per capita multiplier method. The results of each method are described, in turn, below.

Marginal Cost Impact Results

In general, the eight case study projects did not have measurable marginal impacts on public services in their municipalities. There were no discernable public safety and general municipal service impacts from the developments. UMDI received complete public safety data for all fire, police and emergency service calls to the housing developments in six out of the seven communities in FY2005. In each case, the number of service calls to the developments fell below the average number of calls per housing unit in the overall community. With respect to public works, the cost for developing all roads, connections to the towns' waterworks and sewerage systems were all born by the developers. Interviews with public works officials in most of the towns confirmed the written record available in the special permit decisions that the developments could not create a net burden on the communities. For each development, the cost of ongoing roadway clearance and maintenance is carried by the homeowners. In most cases, maintenance costs are covered through condominium or homeowners association fees. In one case, the development roadways have not been accepted by the town as public ways and any future improvements are legally the responsibility of the homeowners. In interviews, public works and planning officials from the towns noted that the special permits approved by the town were negotiated to ensure that there would not be a significant increase in marginal costs to the town.

UMDI did not find clear evidence of marginal impact on public school costs in the case study communities, though it is difficult to rule out any possible impact. In four of the seven towns, the school districts experienced declining enrollments from 2001 to 2005. The two Cape Cod communities, Falmouth and Sandwich, noted that there was excess capacity in their classrooms despite the fact that educational expenses were increasing overall. Local school officials were typically unable to isolate the impact on classrooms of enrollments from the case study developments.

To supplement local data obtained from the interviews, the UMass Donahue Institute chose to analyze statewide patterns in school enrollment, staffing and expenditures from readily available data for the years 1999 and 2004.⁴ Our analysis showed that school teaching staff levels and overall expenditures increased independently of changes in enrollment. From 1999 to 2004, school enrollments statewide were essentially flat, with 0.2 percent total growth, while the employment of full time equivalent (FTE) teaching staff increased by eight percent. Despite very limited growth in enrollment, total school expenditures grew by 28.6 percent statewide from 1999 to 2004. Between 1999 and 2004, Falmouth and Sandwich's educational expenditures increased 25.6 percent and 32.8 percent, respectively, despite declines in enrollments of 12 and 6 percent. In short, there are clear fiscal pressures

⁴ The comparisons of school district enrollments, staffing and expenditures in 1999 and 2004 is based on data published by the Massachusetts Department of Education at <http://www.mass.gov/doe>.

on municipalities due to educational costs but there is no evidence that student enrollment growth is the cause of the budgetary problems.

Per Capita Multiplier Results

The per capita multiplier method produced mixed results, with four of the municipalities experiencing a net negative fiscal impact from their developments and three towns experienced a net positive fiscal impact. Table 2 summarizes the fiscal impact of the developments in FY2005. Overall, there was a broad range of fiscal impacts from a negative impact of \$171,161 in Sandwich to a positive impact of \$187,327 in Peabody. The primary factor that affected whether a development had a positive or negative impact was the presence and number of students. In turn, the number of families with children in the developments was affected by size of the housing units. A complete presentation of the individual results for each development can be found in Appendix A. In this section, the results from a few towns will be highlighted to illustrate key findings.

Table 2: Fiscal Impact of Mixed-Income Developments in FY05: Per Capita Multiplier Method

Town	Project	Total Tax Revenue	Total Costs	Net Revenue (Loss)
Brookline	Kendall Crescent	\$148,359	\$86,047	\$62,312
Falmouth	Nickey Road	\$9,765	\$32,028	(\$22,263)
Falmouth	Fresh Pond Farms	\$31,857	\$98,384	(\$66,527)
Northampton	Pine's Edge	\$77,472	\$31,480	\$45,992
Peabody	Stoney Brook	\$218,460	\$31,133	\$187,327
Sandwich	Sherwood Forest	\$85,292	\$256,453	(\$171,161)
Wellesley	Edgemoor Circle	\$43,646	\$53,467	(\$9,821)
Wilmington	Buckingham Estates	\$72,580	\$148,115	(\$75,535)

Source: UMass Donahue Institute, 2006.

The Sherwood Forest development in Sandwich and the Stoney Brook development in Peabody illustrate the impact that the presence of students can have on fiscal impacts using the per capita multiplier method. In FY2005, Sherwood Forest consisted of 36 single-family homes with 125 total residents and 40 students enrolled in the Sandwich Public Schools. In FY2005, the homes in Sherwood Forest paid an average of \$2,369 in property taxes per household, while the net per pupil expenditure was \$4,586 and per capita municipal costs were \$584. The 40 public school students generated a total of \$183,437 in educational expenses against only \$85,292 in property taxes. In Peabody in FY2005, the Stoney Brook development in the City of Peabody consisted of 86 condominiums with 129 total residents and 5 students in the Peabody Public Schools. In that year, the 86 housing units paid an average of \$2,540 in property taxes against per capita municipal expenses of \$32 and per pupil costs of \$5,404.⁵ The total educational costs generated by Stoney Brook were \$27,022 compared to total property tax revenues of \$218,460. The unit mix for the developments was likely to have contributed to the presence or absence of families with children. In Sherwood Forest the houses all have three bedrooms, while the Stoney Brook development consists entirely of two-bedroom units.

⁵ The revenue and expenditure figures for the City of Peabody in FY2005 are from the Department of Revenue Municipal Data Bank and from the City of Peabody web site. In FY2005, Peabody received a total of \$119 million in revenue against \$115 million in expenses. Over 21 percent of Peabody's revenue comes from state aid and 37.6 percent of property taxes are paid by commercial and industrial property owners. The net result of nonresidential revenue sources is that the per capita municipal costs exclusive of school costs are very low.

Another significant factor determining the per capita fiscal impact of the developments is the mix of market rate and affordable units. Two of the three communities that showed net positive results using the per capita multiplier method included developments with ratios of affordable to market-rate units below 25 percent. Northampton's Pine's Edge development included 16 percent affordable housing while 14 percent of homes in Brookline's Kendall Crescent development were affordable. The exception, as noted above, is Peabody's Stoney Brook development, in which 22 of the development's 86 housing units are permanently affordable. Table 3 illustrates the significant contribution that market-rate units can make to the overall fiscal impact of a project. In FY 2005, the five affordable housing units in Brookline's Kendall Crescent development had a net negative fiscal impact of \$6,575. That negative balance was more than offset by the \$68,886 in surplus revenue generated by the development's 30 market rate condominiums.

Table 3: CHAPA-UMDI Fiscal Impact Model: Per Capita Multiplier Method

Brookline – Kendall Crescent	Subtotal Municipal Costs	Subtotal Educational Costs	Total Costs	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	\$43,726	\$42,321	\$86,047	\$148,359	\$62,312
<i>FY05 Market-rate Units</i>	\$38,729	\$33,857	\$72,586	\$141,472	\$68,886
<i>FY05 Affordable Units</i>	\$4,997	\$8,464	\$13,462	\$6,887	(\$6,575)

Source: UMass Donahue Institute, 2006.

Fair Share Method Results

The fair share method produced substantially different results than the per capita multiplier method. The same set of towns had positive and negative impacts: Brookline, Northampton and Peabody produced positive fiscal impacts; Falmouth, Sandwich, Wellesley and Wilmington produced negative fiscal impacts. However, as Table 4 illustrates, the range of fiscal impacts generated using the fair share method is far narrower than that of the per capita multiplier method. In fact, in seven out of eight developments the fiscal impact per housing unit ranged from a low of a \$949 negative impact in Sandwich to a high of a \$1,010 positive impact in Brookline. The sole exception was in Wellesley where the Edgemoor Circle development had an average negative fiscal impact per unit of \$2,524.

Table 4: Fair Share Method Fiscal Impact of Case Study Developments, FY05

Town	Project	Total Property Tax Revenue	Total Development Cost	Net Revenue (Loss)
Brookline	Kendall Crescent	\$148,359	\$112,997	\$35,362
Falmouth	Nickey Road	\$9,765	\$14,596	(\$4,831)
Falmouth	Fresh Pond Farms	\$31,857	\$51,085	(\$19,228)
Northampton	Pine's Edge	\$77,472	\$65,255	\$12,217
Peabody	Stoney Brook	\$218,460	\$157,814	\$60,646
Sandwich	Sherwood Forest	\$85,292	\$119,457	(\$34,165)
Wellesley	Edgemoor Circle	\$43,646	\$73,931	(\$30,285)
Wilmington	Buckingham Estates	\$72,580	\$78,404	(\$5,824)

Source: UMass Donahue Institute, 2006.

The consequence of spreading municipal costs evenly across taxpayers is to increase the share of expenses for some households and decrease it for others. Municipal costs increased for households that did not have children and, in this method, had to assume a portion of education costs. The fiscal impact of homes with children decreased because they did not have to carry 100 percent of the cost of educating their children. In general, it should be noted that in no case did the two methodologies change a negative fiscal impact into a positive or neutral impact. The results are consistent with one another with the noted exception that the fair share method produced results that are closer to the manner in which costs are actually distributed in Massachusetts municipalities. As will be further explored in the next section, the fair share methodology offers unique insight into the cumulative fiscal impact that a development is most likely to produce over time.

The results of the fair share method are illustrated in Tables 5 and 6. The Brick Kiln Road development on Nickey Lane in Falmouth produced a net negative fiscal impact of \$4,830 in FY2005. The homes had an average negative impact of \$805, though the market-rate units had a net negative impact of \$361 per home and two affordable units had an average negative impact of \$1,693. The Stoneybrook condominiums in Peabody had an aggregate positive impact of \$60,646 in FY2005 with an average surplus per household of \$705. As may be seen from the tables, in both cases the market-rate homes were partially offsetting the negative fiscal impact of the affordable housing units. In fact, in four out of the eight developments the market-rate homes provided net surplus revenues to offset part or all of the negative fiscal impact of the affordable housing units.

Table 5: CHAPA-UMDI Fiscal Impact Model: Fair Share Method

	Total Housing Units	Net Cost Per Unit	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
Falmouth -- Brick Kiln Road					
FY2005 Total Impact	6	\$2,433	\$14,596	\$9,765	(\$4,830)
<i>FY05 Market-rate Units</i>	4	\$2,433	\$9,730	\$8,286	(\$1,444)
<i>FY05 Affordable Units</i>	2	\$2,433	\$4,865	\$1,479	(\$3,386)

Source: UMass Donahue Institute, 2006.

Table 6: CHAPA-UMDI Fiscal Impact Model: Fair Share Method

	Total Housing Units	Net Cost Per Unit	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
Peabody -- Stoneybrook					
FY2005 Total Impact	86	\$1,835	\$157,814	\$218,460	\$60,646
<i>FY05 Market-rate Units</i>	64	\$1,835	\$117,443	\$186,557	\$69,114
<i>FY05 Affordable Units</i>	22	\$1,835	\$40,371	\$31,903	(\$8,468)

Source: UMass Donahue Institute, 2006.

In the fair share method, the primary factor that determines whether a housing development has a positive or negative impact is the value of the market-rate units compared to the average price of residential real estate in the municipality. If the value of the market-rate units is substantially below the average assessed value of homes in the community, it is unlikely that those units would generate sufficient surplus revenue to offset the impact of the affordable units. The Brick Kiln Road development in Falmouth is a good example of a project in which the

market-rate units were not valuable enough to offset the negative impact of the affordable housing units. Other project-specific factors that affect the fiscal impact of developments are the total number of units in the development and the ratio of affordable housing to market-rate units. A relatively high number of market-rate units with a net surplus in revenues could offset the impact of the affordable housing units.

The Kendall Crescent project in the Town of Brookline illustrates the importance of all three factors. Kendall Crescent consists of 30 market-rate housing units and 5 affordable housing units. In FY2005, the market-rate units paid an average of \$4,716 in property taxes, compared to a median residential property tax payment in Brookline of \$3,744. In FY2005, the affordable housing units at Kendall Crescent paid an average of \$1,377 in property taxes. Overall, the Kendall Crescent development had a positive fiscal impact because the value of the market-rate units was high enough – compared to the prevailing value of homes in Brookline – to generate surplus revenues and there were a sufficient number of market-rate units to offset the negative fiscal impact of the affordable units.

The Mixed-Income Developments in the Context of Their Communities

The fair share method of fiscal impact analysis can help municipalities understand the public costs of new construction over time. It can also be used to compare the impact of new housing units to existing homeowners in the community. In the fair share method, the net cost of public services is distributed to each housing unit in the community. The fiscal impact of the housing unit is calculated by finding the difference between annual property taxes paid and municipal costs per housing unit.⁶ Though this report has focused on the fiscal impact of new construction in the seven case communities, in concept all of the homes in a community could be analyzed to determine if they are net contributors to the town's tax base or have a negative fiscal impact. In this section, the UMass Donahue Institute seeks to place the mixed-income developments in this analysis in the context of residential taxpayers in their communities.

UMDI obtained complete lists of all assessed residential properties in five of the seven communities for FY2005. The assessor's data was organized to display the distribution of property assessments and taxes paid in the municipalities. UMDI found the average and median tax payments for each community and compared the tax payments to the calculation of municipal costs per housing unit. As noted in the previous section, the fiscal impact for seven out of the eight developments fell within a range from \$1,000 below the revenue neutral or "break-even" point and \$1,000 above the break-even point. In this section, UMDI calculated the number of housing units that fell within the range of \$1,000 below and \$1,000 above the municipality's median tax payment. The results of this analysis are displayed in Tables 9, 10 and 11 below.

In Table 7, the average and median tax payments for each municipality are compared to the average tax payments for the developments. As can be seen, the average tax payment for the towns is higher than the median tax payment, reflecting the fact that in every town, highly-valued (and taxed) properties skew the average tax payments upward. The towns of Brookline and Wellesley have some very high-priced homes and, as can be seen, there is a substantial gap between the average and median taxes paid in those town. In half of the cases, the average taxes paid for the market-rate units was close to or higher than the median tax payment for the town. Developments that had substantially negative fiscal impacts in the previous section, such as Fresh Pond Farms in Falmouth or Sherwood Forest in Sandwich, show a wide gap between the average tax payments of their market-rate units and the median tax payment for the town.

⁶ Each housing unit in a multi-unit rental apartment building is assumed to contribute a portion of the building's property taxes as well as an equal share of demand for public services.

Table 7: Average Tax Payments for Case Study Developments and Municipalities, FY05

Town	Project	Average Tax Payments				Median Tax Payment
		Total Development	Market-rate Units	Subsidized Units	Town Overall	Town Overall
Brookline	Kendall Crescent	\$4,239	\$4,716	\$1,377	\$7,648	\$3,744
Falmouth	Nickey Road	\$1,628	\$2,072	\$740	\$2,480	\$2,006
Falmouth	Fresh Pond Farms	\$1,180	\$1,379	\$707	\$2,480	\$2,006
Northampton	Pine's Edge	\$2,039	\$2,110	\$1,659	\$2,805	Not Available
Peabody	Stoney Brook	\$2,540	\$2,915	\$1,450	\$2,855	\$2,588
Sandwich	Sherwood Forest	\$2,369	\$2,592	\$1,700	\$3,290	\$3,042
Wellesley	Edgemoor Circle	\$3,637	\$5,756	\$1,117	\$7,328	\$5,888
Wilmington	Buckingham Estates	\$3,156	\$3,622	\$1,833	\$3,162	Not Available

Source: UMass Donahue Institute, 2006

UMDI's analysis of assessor's records shows that a very high percentage of condominiums in the case study towns have a negative fiscal impact. Table 8, below, presents the net municipal cost per housing unit calculated for each town in the previous section. The median tax payment for all residential properties is shown, along with the number of single-family homes and condominiums with tax payments below the revenue neutral break-even point for the town. As can be seen from the table, the majority of condominiums in four out of the five towns have a negative fiscal impact on their towns' municipal budget. In three of the towns, the majority of single family homes have a negative fiscal impact on their town budgets. As should be clear from the table, hundreds of market-rate housing units have a similar fiscal impact on their communities. The mixed-income developments in this study are far from unique.

Table 8: Distribution of Tax Payments for Single-Family Homes and Condominiums, FY05

Municipality	Net Municipal Costs Per Housing Unit	Median Tax Payment for Homes and Condos	Homes Below Costs Per Housing Unit	Percent of Homes Below Net Municipal Costs	Condos Below Costs Per Housing Unit	Percent of Condos Below Net Municipal Costs
Brookline	\$3,228	\$3,744	227	5.03%	5,038	59.2%
Falmouth	\$2,433	\$2,006	11,199	62.97%	885	80.9%
Peabody	\$1,835	\$2,588	392	4%	925	44.84%
Sandwich	\$3,318	\$3,042	4,762	58.7%	420	90.51%
Wellesley	\$6,161	\$5,888	4,245	54.49%	356	95.7%

Source: The Towns' Assessors Offices, 2006; UMass Donahue Institute, 2006.

As noted above, the mixed-income developments in this study had a fiscal impact ranging from approximately \$1,000 above or below the average municipal cost per housing unit in their town. Table 9 shows the distribution of taxpayers in the case study communities within \$1,000 above and below the median residential tax payment. In most communities, the median tax payment was close enough to the net municipal cost per housing unit to provide a reasonable proxy. As may be seen from the table, in three out of the five towns between 70 and 78 percent of the homes were clustered within \$1,000 of the median tax payment. The exceptions, Brookline and Wellesley, have a wider range of property values in their communities including many highly valuable properties.

Table 9: Distribution of Taxpayers within \$1,000 of the Median Tax Payment, FY05

Municipality	Average Surplus or (Deficit) Per Property in the Developments	Number of Properties within \$1,000 Under Median	Percent of Properties within \$1,000 Under Median	Number of Properties within \$1,000 Over Median	Percent of Properties within \$1,000 Over Median
Brookline	\$1,010	2,987	20.8%	2,022	14.09%
Falmouth	(\$805)	9,054	47.37%	5,000	26.16%
Falmouth	(\$916)	9,054	47.37%	5,000	26.16%
Peabody	\$705	5,751	41%	5,273	37.6%
Sandwich	(\$949)	3,853	44.55%	2,270	26.25%
Wellesley	(\$2,524)	1,513	19%	808	10%

Source: The Towns' Assessors Offices, 2006; UMass Donahue Institute, 2006.

Three significant observations may be readily drawn from analyzing the tables above. First, the data reinforces the conclusion that the mixed-income developments analyzed in this report are quite similar in fiscal impact to many if not most of their neighbors in their towns. Apart from the contribution that state aid or commercial and industrial revenue make to a town's fiscal balance – and that can be very significant – it is clear that it is commonplace for some residents to cross-subsidize the public expenses of other residents through the differences in their respective property values. In every community there are highly valuable residential properties that, in effect, underwrite the municipal costs of their market-rate or affordable home-owning neighbors.

The second observation is that condominiums, in large measure, do not cover their share of municipal costs whether one is speaking of a market-rate or affordable housing unit. In Wellesley, for example, the median value of a condominium is so far below the average assessed value of properties in the town that it is virtually impossible for a condominium to pay its full share of municipal costs. In FY2005, the median value of a single-family home in Wellesley was \$698,000 compared to a median assessed value for condominiums of \$519,000. At an assessed value of \$533,000 per unit, the market-rate condominiums in Edgemoor Circle were above the median value of condominiums in the Town of Wellesley. Despite that fact that the market-rate units were more valuable than most condominiums in Wellesley, the homes still had a negative fiscal impact of \$1,684 per unit.

The third observation, which will be explored further in the conclusion, is that hundreds – if not thousands – of taxpayers own homes within a narrow range of assessed values above and below the median that functionally balance out each other's fiscal impacts. Seemingly minor differences in market values between housing units can result, in the aggregate, in significant net contributions to a town's budget. How a town negotiates the unit-mix of market-rate units in new mixed-income properties may have an important influence on a project's long-term fiscal impact.

Key Conclusions

The purpose of this study was to add to public understanding of the fiscal impact of the most common form of affordable housing currently being constructed in Massachusetts, mixed-income developments. In so doing, the report investigated eight developments that have already been constructed to assess their impact using three methods: the marginal cost, per capita multiplier, and fair share methods. The fair share method is an original method developed for this study to compare the distribution of residential property taxes to the average cost of municipal services per housing unit. As will be further explored below, this method has potentially significant planning implications for the state, housing advocates and municipalities.

The Fiscal Impacts Analyses

The marginal cost analysis did not find any identifiable impacts from the eight developments in the study. The primary reason that the developments did not have an impact on non-educational services is that the projects were approved subject to the requirement that the principal infrastructure associated with the housing units be built and maintained privately. In these cases, the municipalities apparently were successful in mitigating the impact of the new homes and monitoring compliance with the special permit requirements.

The marginal school impacts were harder to measure. An analysis of state and community trends in school enrollment, budgeting and staffing showed that the case communities were under significant financial pressure due to increased costs and staffing needs. However, the increases in educational costs and staffing occurred regardless of whether student enrollments grew or declined. This data in combination with interviews with school officials led to the conclusion that the developments had little or no marginal impact on school costs.

The per capita multiplier and fair share methods both found that the five developments in Falmouth, Sandwich, Wellesley and Wilmington had negative fiscal impacts on their municipal budgets. The developments in Brookline, Northampton and Peabody had positive fiscal impacts on their communities. The key determinant of whether a development had a negative or positive impact using the per capita multiplier method was the presence of school children. That is an inherent feature of a method that allocates 100 percent of school costs net of state aid to housing units with children on a per pupil basis. In fact, educational costs are distributed equally across all taxpayers in a municipality. That is one major reason why the marginal impact case study approach to fiscal impact analysis is considered preferable to the per capita multiplier method.

With the fair share method, the key determinants of whether a development had a net positive or negative impact were the number of market-rate units and the extent that the value of the market-rate units fell below the median assessed-value of residential properties in the town. If a property consisted of relatively few market-rate units that were well below the median-value of homes in the town, it was not possible for the development as a whole to break-even from the perspective of municipal costs. Falmouth's Fresh Pond Farms development is an excellent example of a project that, given its mix of unit prices and the prevailing municipal costs in the town, cannot break-even. In contrast, Brookline's Kendall Crescent project has a large number of market-rate units that pay nearly \$1,000 in property taxes above the median tax payment for the town. In FY2005, that development contributed over \$60,000 more in property taxes to the community than it cost in municipal services.

State Aid and Nonresidential Revenue

The study was not designed to evaluate the differences that increased state aid or commercial and industrial property tax revenue could make to the fiscal impact of residential properties. The communities in the study ranged widely from towns with small commercial and industrial tax bases and minimal state aid to communities with reasonably robust nonresidential revenues. Wellesley is a good example of a community with a modest amount of state aid and a small commercial and industrial tax base: 15 percent of total revenues in FY2005. In contrast, the City of Peabody received 42 percent of its FY2005 revenue from state aid and commercial and industrial property taxes. It is likely that towns like Wellesley that rely heavily on residential property taxes for the preponderance of their annual revenue are more likely to have negative fiscal impacts from residential developments.

State programs, like that codified in M.G.L. Chapter 40S, may be helpful in easing that burden. However, the implications of the fair share method are that it is possible for communities to plan development to be revenue neutral. With additional research, it may be possible to refine fiscal impact tools and techniques to combine the

historic benefits of M.G.L. Chapter 40B with flexible programs like Chapter 40R and 40S to create positive fiscal impacts in municipalities. Commercial and light-industrial revenues in mixed-income, mixed-use developments may, in fact, be critical to ensure a balance between municipal impacts and annual revenues.

Planning Implications of the Study

This report has two potentially significant implications for the state, municipal officials and the development community. The first key point derives directly from our study of the historical experience of the seven towns with their housing developments. Though there can be no doubt that the communities confront substantial fiscal pressures, it does not appear that those fiscal problems can be attributed to their special permit and 40B developments. In fact, this report found evidence that communities are doing a good job negotiating with developers to mitigate the fiscal impact of new development.

The second key implication is that communities have the ability to reasonably and fairly assess the impact of new construction and plan growth to achieve fiscal balance. The marginal cost impact method remains the best method for understanding the direct impact that new construction is likely to have at occupancy. State data from the Massachusetts Department of Education shows that overall school enrollments in the state are flat, though some towns are experiencing growth and others have declining enrollments. A reliable analysis of school and municipal infrastructure capacity can only be undertaken at a local level, with careful consideration of variations in capacity by school grade or the location of proposed development. Existing state programs like Chapter 40S may be very useful in mitigating the negative fiscal impact of development where it is determined to occur.

Beyond the marginal impact of new construction, this report has shown that all housing in a community – market rate or affordable – is distributed along a range of positive or negative fiscal impacts depending upon the market value of the property and the average cost of services in the community. It is undoubtedly true that thousands of homes in cities and towns throughout Massachusetts do not pay their fair share of municipal service costs. The budgetary gap that is created by lower valued homes is filled by higher valued residential properties, state aid, and commercial and industrial property tax revenues. With a form of analysis like the fair share methodology developed for this report, it is possible for communities to promote the development of residential and commercial construction at market-values that offset the fiscal impact of affordable and workforce housing.

The fiscal potential of mixed-income developments is that the market-rate units within a project can contribute sufficient property tax revenue to offset the negative impact of affordable housing units. As this study shows, fiscal balance can likely be achieved in many projects. The extension of this point is that proposed projects throughout a community may be able to achieve fiscal balance in the aggregate. An affordable or workforce housing development located in one neighborhood may have a negative fiscal impact that is offset by luxury housing in another neighborhood. A transit-oriented development in the center of town may contain a mix of commercial and residential construction that offsets the fiscal impact of scattered site development in the community. The potential of the fair share method, which deserves further study, is to empower the municipalities, the state and developers to better understand the fiscal impact of construction over time and plan for better community outcomes.

Appendix A

Case Study Municipalities and Development Profiles

Town of Brookline, Massachusetts

The Town of Brookline is a suburban residential community adjacent to the City of Boston and located in the Greater Boston region (as defined by *MassBenchmarks*). Brookline is home to over 56,000 residents and has nearly 6,000 students enrolled in its public schools. According to the Massachusetts Department of Housing and Community Development's Subsidized Housing Inventory (June 2006), eight percent of Brookline's U.S. Census 2000 housing stock of 26,224 housing units were certified as affordable under current state guidelines.

Kendall Crescent

UMDI analyzed the Kendall Crescent mixed-income housing project located at Cypress and Franklin Streets in Brookline. The project's approval was the culmination of a four-year planning process, with final approval in 1999. The project was approved for development by the Town of Brookline with a special permit and, with 35 total units, was subject to the Town's inclusionary zoning bylaw. The inclusionary zoning bylaw mandates that developers constructing six or more units either include a mix of affordable and moderate income units in the development or provide a cash payment to be used by the town for that purpose. Kendall Crescent was the first Brookline project to include affordable units under this bylaw.⁷ At Kendall Crescent, 5 of the 35 housing units are deemed affordable under terms of the bylaw (14 percent of the total). Four of the 5 affordable units are designated for 80% AMI residents and 1 unit is designated for a resident at 100% AMI.

Kendall Crescent was constructed between 1999 and 2001. The affordable units were sold between 2000 and 2002, with sales prices ranging from \$99,000 to \$156,063 and consisted of 2 one-bedroom and 3 two-bedroom units. The market rate units' sales prices ranged from \$234,500 for a one-bedroom/one-bathroom unit to \$670,000 for a four-bedroom/three and a half bathroom unit. In 2005, assessed values for the affordable units ranged between \$114,200 and \$169,900 and the assessed values for market-rate units were between \$264,200 and \$662,900. In FY05, Kendall Crescent had a population of 70 residents, 5 of whom were students in the Public Schools of Brookline.

The total property tax revenue generated by the Kendall Crescent development in FY05 was \$148,359 with an average tax bill of \$4,239. The tax contribution of the affordable units was \$6,887 and the market rate units contributed \$141,472. The average tax bill of the market-rate units was \$4,716 with the average for the affordable units at \$1,377. By comparison, the average tax bill in the Town of Brookline in FY2005 was \$7,648 and the median residential tax payment in Brookline was \$3,744.

Project History

The Kendall Street property initially housed the town's Department of Public Works garage. With the decision to move the town garage functions to the new Municipal Service Center on Hammond Street, the Town of Brookline issued a Request for Redevelopment Proposals in the spring of 1997⁸. The total redevelopment site also included

⁷ "There By Good Fortune," Boston Globe, January 6, 2002

⁸ Decision of Brookline Zoning Board of Appeals, May 1999.

the historic Kendall Town Barn and the former Sewall School which were to be redeveloped in addition to the garage. The Brookline-based company Parencorp was designated in 1998 to develop the site and was chosen by a neighborhood/town committee that helped shape and steer the project and make recommendations to the Board of Selectmen.⁹

As a result of the redevelopment, the former town garage was razed, the Barn was renovated for commercial/retail use and the Sewall School was renovated into 17 residential condominium units. In addition, 14 units were constructed in 12 townhouses on Crescent Street and another four-unit residence was built on Franklin Street.

Analysis of Fiscal Impact

UMDI analyzed the fiscal impact of the Kendall Crescent development using three methodologies: the marginal cost method, the per capita multiplier method, and a fair share method that allocated net expenses equally to all housing units in the community. The results of the analysis are presented below.

Marginal Cost Method

UMDI could not identify any significant initial or ongoing costs associated with maintaining this development. As a condition of the special permit, the developer was required to work with the Town to improve two intersections affected by the development, to provide parking spaces to accommodate the development, and to contribute \$15,000 for landscaping costs and for the construction of a playground adjacent to the development.¹⁰ After repeated requests to the Brookline Police Department for public safety data, UMDI determined that it was not feasible to obtain this data. Our analysis of comparable projects in the case study communities did not show any development with public safety demands above the average for the municipalities in which they reside.

The Kendall Crescent development did not have any clear marginal impact on the school system. In FY2005, Kendall Crescent contributed five students to the Brookline Public Schools from its 35 housing units. As part of its analysis, UMDI tracked changes in enrollment year over year and compared it to changes in the town's total education budget. Conceptually, if enrollment was the primary driver of educational costs (as opposed to, for example, salary increases, fringe benefits or energy costs) there should be some correspondence between changes in annual budgets and enrollment. As shown in Table 10, the Brookline Public School budget increased every year from FY2001 to FY2005 but school enrollments declined or grew slightly from year to year. While there is clearly, in general, a relationship between enrollment and school expenditures, there is no clear evidence of marginal impacts from net increases in housing units in Brookline during the period under analysis.

Table 10: Change in Education Budget and Enrollment from Previous Year

	Education Budget	Enrollment
2001	6.89%	0.65%
2002	13.04%	-1.13%
2003	4.20%	1.41%
2004	2.14%	-0.36%
2005	6.31%	-0.63%

Source: Town of Brookline, MA Public Schools; MA DOR, Division of Local Services, 2006; UMass Donahue Institute, 2006.

In fact, a brief review of student enrollment, teacher employment and expenditures in 1999 and 2004 suggests that staffing patterns and expenditures have risen independently of enrollment across the Commonwealth. As may be

⁹ "Think Tank Plans For Future," Boston Globe, May 10, 1998

¹⁰ Zoning Board of Appeals Decision, 020007, 8/8/02

seen in Tables 11 and 12, full-time equivalent (FTE) employment of teachers statewide and in Brookline rose by at least eight percent from 1999 to 2004 despite the fact that student enrollment did not appreciably change. There are a few likely explanations for increased staffing levels and educational expenditures, perhaps the most likely being costs associated with the state's increased commitment to education reform. Irrespective of the cause, there appears to be a significant disconnect between enrollment levels and the serious financial burdens that many communities face as they finance public education in their towns.

Table 11: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Statewide

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	955,592	957,511	1,919	0.2%
Total FTE	68,256	73,700	5,444	8.0%
Total Expenditures	\$6,395,235,205	\$8,225,714,988	\$1,830,479,783	28.6%
Total Salaries	\$3,081,654,861	\$3,960,071,176	\$878,416,315	28.5%
Ratio of Enrollment to FTE	14.0	13.0		
Ratio of Salaries to Expenditures	0.48	0.48		

Source: Department of Education, 2006.

Table 12: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Brookline

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	5,996	6,015	19	0.3%
Total FTE	465	506	42	9.0%
Total Expenditures	\$51,339,801	\$66,807,958	\$15,468,157	30.1%
Total Salaries	\$22,810,722	\$30,895,135	\$8,084,413	35.4%
Ratio of Enrollment to FTE	12.9	11.9		
Ratio of Salaries to Expenditures	0.44	0.46		

Source: Department of Education, 2006.

Per Capita Multiplier Method

As noted, the per capita multiplier fiscal impact method analyzes the municipal impact of housing developments based on a per person allocation of net general fund expenditures. By definition, with the per capita method, the number of persons living in a development is the greatest single factor that affects the size of the fiscal impact. This is particularly true of the number of public school students living in a development. Students are allocated the full net per pupil cost of education. As shown in Table 13, at Kendall Crescent the 70 residents and 5 students generate \$86,047 in annual costs to the town while contributing \$148,359 in total property taxes. Overall, Kendall Crescent had a net positive impact on Brookline in FY2005 of \$62,312. It should be noted that the unit-mix of the development limited the total number of students likely to live in Kendall Crescent. Twelve of the 35 units in the development, or approximately 34%, are one bedroom units and not large enough to accommodate a family.

Table 13: Kendall Crescent Fiscal Impact Model: Per Capita Multiplier Method

Brookline -- Kendall Crescent	Municipal Costs	Educational Costs	Development Net Revenue (Loss)		
	Subtotal Municipal Costs	Subtotal Educational Costs	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	\$43,726	\$42,321	\$86,047	\$148,359	\$62,312
<i>FY05 Market-rate Units</i>	\$38,729	\$33,857	\$72,586	\$141,472	\$68,886
<i>FY05 Affordable Units</i>	\$4,997	\$8,464	\$13,462	\$6,887	(\$6,575)
FY2004 Total Impact	\$58,291	\$54,846	\$113,137	\$143,999	\$30,862
FY2003 Total Impact	\$36,653	\$59,819	\$96,472	\$127,172	\$30,700

Source: UMass Donahue Institute, 2006.

Fair Share Method

As noted, the Fair Share Method of fiscal impact analysis allocates municipal expenditures equally to each housing unit in town based on the proposition that every household has an equal stake, either as a resident, current or future consumer of town services, in the provision of town services. As shown in Table 14, under the Fair Share Method Kendall Crescent generated \$112,997 in total costs while contributing \$148,359 in property taxes. Overall, Kendall Crescent had a net positive impact on the Town of Brookline of \$35,362 in FY2005. Kendall Crescent had the highest surplus or net revenue under both the Per Capita Multiplier Method and the Fair Share Method of all developments in this analysis.

Table 14: Kendall Crescent Fiscal Impact Model: Fair Share Method

Brookline -- Kendall Crescent	Total Housing Units	Net Cost Per Unit	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	35	\$3,228	\$112,997	\$148,359	\$35,362
<i>FY05 Market-rate Units</i>	30	\$3,228	\$96,854	\$141,472	\$44,618
<i>FY05 Affordable Units</i>	5	\$3,228	\$16,142	\$6,887	(\$9,255)
FY2004 Total Impact	35	\$3,633	\$127,150	\$143,999	\$16,849
FY2003 Total Impact	31	\$3,106	\$96,283	\$127,172	\$30,889

Source: UMass Donahue Institute, 2006.

The three components that affect a development's fiscal balance under the Fair Share Method are the town's level of expenditures net of state aid, the market value of housing units (high values mean higher tax payments), and the number of affordable units (lower values mean lower tax payments). In the case of Kendall Crescent, the project is situated in a town with very high real estate values and has modest percentage of affordable housing units compared to a Chapter 40B Comprehensive Permit project. Given those conditions, it was unsurprising that Kendall Crescent performed very well in this analysis compared to other towns and developments.

The Fair Share Method Applied to the Municipality

The Fair Share Method apportions all general fund expenditures in a municipality to housing units after subtracting all non-residential revenues that contribute to general town costs. In effect, municipal impacts are

measured at the residential taxpaying unit: the household.¹¹ In fact, communities apportion town costs to households according to the current market-value of real estate: it is an axiom that some property-taxpayers contribute more money toward municipal costs than others. The Fair Share Method may be used, as in this study, to compare the tax-payments of affordable housing units relative to the average net municipal cost per household. In principal, any other housing unit in the community can be analyzed using the same method.

UMDI analyzed the distribution of all residential tax-payments in the Town of Brookline in FY2005 using the Fair Share Method. In FY2005, the net municipal cost per housing unit was \$3,228 and the median tax payment for single-family homes and condominiums was \$3,744. At Kendall Crescent, the average surplus per unit was \$1,010. Overall, 2,987 housing units (20.8%) were within \$1,000 below the median tax-payment while only 2,022 housing units (14.09%) were within \$1,000 over the median payment. The distribution of residential property tax payments reflects the high assessed values of the single-family properties in Brookline. Interestingly, thousands of market-rate housing units – mostly condominiums – contribute property tax payments below the Fair Share cost allocation for Brookline.

¹¹ The Fair Share Method distributes costs by housing unit. Residential taxes are paid by assessed parcel, which consist of single-family homes and condominiums, apartment buildings composed of multiple housing units, and vacant parcels. Apartment buildings that include multiple households also have higher assessed values, reflecting their greater size and market-value.

Town of Falmouth, Massachusetts

The Town of Falmouth, located on Cape Cod in Barnstable County, is a thriving vacation destination with a total year-round population of 33,806 residents that swells to over 100,000 residents during the summer¹². The town has become a popular destination for retirees. With the aging of the town's overall population, Falmouth's public school enrollment has slowly declined over the past six years. Between 2000 and 2005, Falmouth Public School enrollment declined 11 percent, from just over 4,800 students in 2000 to 4,257 students in 2005. According to the Massachusetts Department of Housing and Community Development, 5.2 percent of Falmouth's U.S. Census housing stock of 14,440 year-round housing units were affordable by state standards in 2006 (June 2006 DHCD Subsidized Housing Inventory). Given Falmouth's robust real estate market during the period under review in this analysis, it is unsurprising that Falmouth has several pending and completed Chapter 40B Comprehensive Permit projects. This analysis includes two projects in the Town of Falmouth: Fresh Pond Farms and Nickey Lane. Each project will be discussed in turn below.

Fresh Pond Farms Development

As of August 2006, 21 of the 27 housing units approved for development by the Town of Falmouth in the Fresh Pond Farms development were completed. The single-family detached homes were sold between 2002 and 2005, and are located in a subdivision on Fresh Pond Farm Road in Falmouth. Six of the twenty-one existing homes in the development are designated as affordable and had original sales prices ranging from \$97,500 to \$104,900. The market-rate homes sold for prices between \$262,000 and \$360,000. Of the six remaining parcels that are permitted for development, two units are classified as affordable housing. In FY2005, Fresh Pond Farms had 39 residents, 10 of whom were students enrolled in the Falmouth Public Schools.

In FY2005, the total property tax revenue generated by the Fresh Pond Farms development was \$31,857 with an average tax bill of \$1,180. The property tax revenue includes property taxes on 6 undeveloped parcels; therefore the average tax payment is lower than it would be if the project was fully built out. Affordable housing units contributed \$5,653 toward that total while the market rate units contributed \$26,204 of the total. The average tax bill of the market-rate units was \$1,379 and the average tax bill for the affordable units was \$707. By comparison, the average tax payment in the Town of Falmouth in FY2005 was \$2,480 and the median residential tax payment was \$2,006.

Project History

On July 10, 2001, the Falmouth Zoning Board of Appeals granted a Comprehensive Permit for the development of 27 housing units to be located on lots of 15,000 square feet each. This Comprehensive Permit was one of the initial permits granted under the New England Fund. In the course of construction, the Board of Appeals has revisited details of the project, including encroachment problems with the first two homes that were built. The Board mandated that the developer identify a construction manager to oversee the development.¹³ As of FY2005, six parcels of the original 27 unit development remain undeveloped. Two of these parcels are classified as affordable.

Analysis of Fiscal Impact

UMDI analyzed the fiscal impact of the Fresh Pond Farms development using three methodologies: the marginal cost method, the per capita multiplier method, and a fair share method that allocated net expenses equally to all housing units in the community. The results of the analysis are presented below.

¹²Falmouth Chamber of Commerce, <http://www.falmouthchamber.com/more/relocation.php>, 2002

¹³Zoning Board of Appeals Decision, 27-03, 4/9/03

Marginal Cost Method

UMDI did not find any increased marginal costs associated with the development of Fresh Pond Farms. The principal inputs into the analysis were data and interviews with the Falmouth Public Schools, the Public Safety Department and the development terms described in the Zoning Board of Appeals decision. According to the Falmouth Public Schools, the town has experienced declining school enrollment for several years. The schools have excess classroom capacity in many grades, with the high school having significant excess capacity. Table 15, shown below, confirms significant year-to-year declines in enrollment, while also showing overall increases in school expenditures (without adjusting for inflation). While there clearly are cost pressures on Falmouth Public Schools, there is no discernable link between cost-levels year-to-year and marginal changes in enrollment levels, as would be associated with the Fresh Pond Farms development. As a result, the Fresh Pond Farms development was not found to contribute any marginal education costs to the town budget.

Table 15: Change in Education Budget and Enrollment from Previous Year

	Education Budget	Enrollment
2001	19.75%	0.15%
2002	5.71%	-2.65%
2003	4.11%	-2.49%
2004	1.61%	-2.93%
2005	3.69%	-4.21%

Source: Town of Falmouth, MA Public Schools; MA DOR, Division of Local Services, 2006; UMass Donahue Institute, 2006.

A brief review of student enrollment, teacher employment and expenditures in 1999 and 2004 suggests that staffing patterns and expenditures have risen independently of enrollment across the Commonwealth. As may be seen in Tables 16 and 17, full-time equivalent (FTE) employment of teachers statewide and in Falmouth rose appreciably from 1999 to 2004 despite almost no increase in enrollments statewide and a decline in enrollment in Falmouth. There are a few likely explanations for increased staffing levels and educational expenditures; perhaps the most likely being costs associated with the state's increased commitment to education reform. Irrespective of the cause, Falmouth is a perfect example of a community in which there is no apparent relationship between the significant and measurable burden of school costs on the community and marginal impact of changes in enrollment.

Table 16: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Statewide

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	955,592	957,511	1,919	0.2%
Total FTE	68,256	73,700	5,444	8.0%
Total Expenditures	\$6,395,235,205	\$8,225,714,988	\$1,830,479,783	28.6%
Total Salaries	\$3,081,654,861	\$3,960,071,176	\$878,416,315	28.5%
Ratio of Enrollment to FTE	14.0	13.0		
Ratio of Salaries to Expenditures	0.48	0.48		

Source: Department of Education, 2006.

Table 17: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Falmouth

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	5,006	4,406	-600	-12.0%
Total FTE	302	357	55	18.2%
Total Expenditures	\$30,101,073	\$37,813,168	\$7,712,095	25.6%
Total Salaries	\$15,354,043	\$19,491,070	\$4,137,027	26.9%
Ratio of Enrollment to FTE	16.6	12.3		
Ratio of Salaries to Expenditures	0.51	0.52		

Source: Department of Education, 2006.

The public safety and public works information gathered from the Town of Falmouth similarly confirm that the development has not had a discernable impact on the Falmouth's annual expenditures. Based on data acquired from the Falmouth Police Department, UMDI ruled out the possibility of any excess demands on public safety costs caused by this development.¹⁴ Fresh Pond Farms did not require any calls for assistance from either the Fire Department or the Police Department in FY2005. The Zoning Board of Appeals decision mandates that the following aspects of the development "shall remain forever private": maintenance of all roadways and parking areas, storm-water management, snow plowing, landscaping, trash removal and street lighting.¹⁵ Fresh Pond Farms was responsible for the construction of public works infrastructure associated with the development of the homes and the neighborhood association required under the ZBA decision is responsible for all future maintenance. This conclusion is not terribly surprising given the fact that "40B" projects are often negotiated by towns to minimize the fiscal impact of projects. This analysis confirms that the impact was, as best we can determine, negligible.

Per Capita Multiplier Method

The per capita multiplier fiscal impact method analyzes the municipal impact of housing developments based on the per person allocation of net general fund expenditures. The per capita method, by definition, ensures that the single greatest factor that affects the fiscal balance of developments is the number of residents. This is particularly true of school costs associated with the project. In effect, the per capita method charges households tuition for the net cost of educating each child. As shown in Table 18, under the per capita method Fresh Pond Farms experienced a net loss of over \$66,000 in FY2005. The ten students living in Fresh Pond Farms during FY2005 were the largest contributor to the project's fiscal imbalance. Without accounting for the value of affordable and market-rate homes, each household would need to contribute over \$3,000 in annual property taxes for the project to balance out under this method.

¹⁴ Falmouth Police Department Data, Acquired 8/16/06

¹⁵ Zoning Board of Appeals Decision, 27-03, 4/9/03

Table 18: Fresh Pond Farms Fiscal Impact Model: Per Capita Multiplier Method

Falmouth -- Fresh Pond Farms	Municipal Costs	Educational Costs	Development Net Revenue (Loss)		
	Subtotal Municipal Costs	Subtotal Educational Costs	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	\$22,792	\$75,592	\$98,384	\$31,857	(\$66,527)
<i>FY05 Market-rate Units</i>	\$15,779	\$45,355	\$61,134	\$26,204	(\$34,930)
<i>FY05 Affordable Units</i>	\$7,013	\$30,237	\$37,250	\$5,653	(\$31,597)
FY2004 Total Impact	\$15,802	\$41,994	\$57,796	\$26,289	(\$31,507)

Source: UMass Donahue Institute, 2006.

Fair Share Method

The Fair Share Method of fiscal impact analysis allocates municipal expenditures equally to each housing unit in town based on the proposition that every household has an equal stake, either as a resident, current or future consumer of town services, in the provision of town services. As shown in Table 19, Fresh Pond Farms experienced a net loss using the “Fair Share” method, but the loss was substantially less than the using the per capita tuition method. The net “fair share” cost allocated to each housing unit in Falmouth in FY2005 was \$2,433; the average tax bill for the homes in Fresh Pond Farms was \$1,385. If the remaining parcels in Fresh Pond Farms are developed at a similar sales price, the assessed values of the new homes will not be sufficient to put the development into fiscal balance using the Fair Share Method.

Table 19: Fresh Pond Farms Fiscal Impact Model: Fair Share Method

Falmouth -- Fresh Pond Farms	Total Housing Units	Net Cost Per Unit	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	21	\$2,433	\$51,085	\$31,857	(\$19,228)
<i>FY05 Market-rate Units</i>	15	\$2,433	\$36,489	\$26,204	(\$10,285)
<i>FY05 Affordable Units</i>	6	\$2,433	\$14,596	\$5,653	(\$8,943)
FY2004 Total Impact	11	\$2,492	\$27,412	\$26,289	(\$1,123)

Source: UMass Donahue Institute, 2006.

The Nickey Lane Development

The Nickey Lane development in Falmouth consists of six single-family homes, two of which are designated as affordable. The homes, which were completed and occupied in 2001, include five three-bedroom homes and one four-bedroom home. In FY2005, the affordable homes had assessed values of \$117,600 and \$136,100. The market-rate homes had assessed values between \$366,200 and \$458,200. The total property tax revenue generated by the Nickey Lane development in FY2005 was \$9,765 with an average tax bill of \$1,628. The total property tax contribution of the affordable units was \$1,479 and the market rate units contributed a total of \$8,286. The average tax bill of the market-rate units was \$2,072 with the average for the affordable units at \$740. The average tax bill in Falmouth for FY2005 was \$2,480 and the median tax bill was \$2,006. In FY2005, the Nickey Lane development included 16 residents, with three students in the Falmouth Public Schools.

Project History

In 1998, the Falmouth Zoning Board of Appeals ruled unanimously to grant a Chapter 40B Comprehensive Permit to John L. Druley to develop six single-family homes on 4.2 acres of land in Falmouth off of Brick Kiln Road. At the time the permit was granted, the Town of Falmouth fell under the 10 percent minimum standard for housing affordability, with 3.85% of its housing stock deemed affordable under state guidelines. The Falmouth ZBA declared at the time that there would be minimal traffic or public safety impacts from the development.¹⁶

Analysis of Fiscal Impact

UMDI analyzed the fiscal impact of the Nickey Lane homeownership development using three methodologies: the marginal cost method, the per capita multiplier method, and a fair share method that allocated net expenses equally to all housing units in the community. The results of the analysis are presented below.

Marginal Cost Method

UMDI did not find any increased marginal costs associated with the Nickey Road development. The principal inputs into the analysis were data and interviews with the Falmouth Public Schools, the Public Safety Department and the development terms described in the Zoning Board of Appeals decision. According to the Falmouth Public Schools, the town has experienced declining school enrollment for several years. The schools have excess classroom capacity in many grades, with the high school having significant excess capacity. As shown previously in Table 15, Falmouth has experienced significant year-over-year declines in enrollment, while also experiencing overall increases in school expenditures (without adjusting for inflation). While there clearly are cost pressures on Falmouth Public Schools, there is no discernable link between cost-levels year-to-year and marginal changes in enrollment levels, as would be associated with the Fresh Pond Farms development. As a result, the Nickey Road development was not found to contribute any marginal education costs to the town budget.

In Tables 16 and 17, changes in teacher employment, enrollment and expenditures were compared in Falmouth and statewide. As discussed, between 1999 and 2004 staffing patterns and expenditures have risen independently of enrollment across the Commonwealth. FTE employment of teachers statewide and in Falmouth rose appreciably from 1999 to 2004 despite almost no increase in enrollments statewide and a decline in enrollment in Falmouth. As noted above, Falmouth is a community in which there is no apparent relationship between the significant and measurable burden of school costs on the community and marginal impact of changes in enrollment.

Nickey Lane is a private way constructed by the developer and maintained through a neighborhood association. Following the conclusion of the Falmouth Zoning Board of Appeals decision, there is no evidence that the development has an adverse impact on traffic in the neighborhood. Based on data acquired from the Falmouth Police Department, UMDI ruled out the possibility of any excess demands on public safety costs caused by this development.¹⁷ The Nickey Lane development did require any calls for assistance from either the Falmouth Police Department or Fire Department in FY2005.

Per Capita Multiplier Method

Using the Per Capita Multiplier method of analysis, the Nickey Lane development had a net negative fiscal impact on the Town of Falmouth of \$22,263 in FY2005. The negative fiscal impact of the development is due entirely to a combination of the small size of the project, the presence of students (charged \$7,559 in tuition per pupil), and the low overall assessed value of the market rate and affordable units. In FY2005, the development consisted of 16 residents and nearly 20% of those residents were school-aged children. In contrast, if the development had not had any school-age children there would have been a total of \$9,351 in municipal costs associated with the Nickey Lane development and a total of \$9,765 in property taxes.

¹⁶ Falmouth Zoning Board of Appeals Decision, 60-98, 5/15/98

¹⁷ Falmouth Police Department Data, Acquired 8/16/06

Table 20: Nickey Lane Fiscal Impact Model: Per Capita Multiplier Method

Falmouth -- Brick Kiln Road	Municipal Costs	Educational Costs	Development Net Revenue (Loss)		
	Subtotal Municipal Costs	Subtotal Educational Costs	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	\$9,351	\$22,678	\$32,028	\$9,765	(\$22,263)
<i>FY05 Market-rate Units</i>	\$5,844	\$15,118	\$20,963	\$8,286	(\$12,676)
<i>FY05 Affordable Units</i>	\$3,507	\$7,559	\$11,066	\$1,479	(\$9,587)
FY2004 Total Impact	\$8,849	\$20,997	\$29,846	\$9,773	(\$20,073)
FY2003 Total Impact	\$8,038	\$19,114	\$27,152	\$9,665	(\$17,486)
FY2002 Total Impact	\$6,374	\$17,701	\$24,074	\$9,387	(\$14,687)
FY2001 Total Impact	\$5,431	\$16,223	\$21,655	\$8,917	(\$12,738)
FY2000 Total Impact	\$4,825	\$15,826	\$20,651	\$2,933	(\$17,719)

Source: UMass Donahue Institute, 2006.

Fair Share Method

The Fair Share method distributes net municipal expenditures equally to all housing units in the Town of Falmouth. The distribution of municipal costs at, in essence, the unit of the taxpaying household narrows the gap between revenues and expenditures by assigning impacts in a manner more closely analogous to how actual costs are distributed in practice. Using the Fair Share method, the homes at Nickey Lane had a total net negative fiscal impact of \$4,830 in FY2005. Individually, the market-rate homes were on average \$361 below their break-even point, while the affordable-homes were \$1,693 below their break-even point.

Table 21: Nickey Lane Fiscal Impact Model: Fair Share Method

Falmouth -- Brick Kiln Road	Total Housing Units	Net Cost Per Unit	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	6	\$2,433	\$14,596	\$9,765	(\$4,830)
<i>FY05 Market-rate Units</i>	4	\$2,433	\$9,730	\$8,286	(\$1,444)
<i>FY05 Affordable Units</i>	2	\$2,433	\$4,865	\$1,479	(\$3,386)
FY2004 Total Impact	6	\$2,492	\$14,952	\$9,773	(\$5,179)
FY2003 Total Impact	6	\$2,328	\$13,966	\$9,665	(\$4,301)
FY2002 Total Impact	6	\$2,081	\$12,488	\$9,387	(\$3,101)
FY2001 Total Impact	6	\$1,954	\$11,726	\$8,917	(\$2,810)
FY2000 Total Impact	1	\$1,967	\$1,967	\$2,933	\$966

Source: UMass Donahue Institute, 2006.

The Fair Share Method Applied to the Municipality

The Fair Share Method apportions all general fund expenditures in a municipality to housing units after subtracting all non-residential revenues that contribute to general town costs. In effect, municipal impacts are measured at the residential taxpaying unit: the household.¹⁸ In fact, communities apportion town costs to households according to the current market-value of real estate: it is an axiom that some property-taxpayers

¹⁸ The Fair Share Method distributes costs by housing unit. Residential taxes are paid by assessed parcel, which consist of single-family homes and condominiums, apartment buildings composed of multiple housing units, and vacant parcels. Apartment buildings that include multiple households also have higher assessed values, reflecting their greater size and market-value.

contribute more money toward municipal costs than others. The Fair Share Method may be used, as in this study, to compare the tax-payments of affordable housing units relative to the average net municipal cost per household. In principal, any other housing unit in the community can be analyzed using the same method.

UMDI analyzed the distribution of all residential tax-payments in the Town of Falmouth in FY2005 using the Fair Share Method. In FY2005, the net municipal cost per housing unit was \$2,433 and the median tax payment for single-family homes and condominiums was \$2,006. At Fresh Pond Farms and Nickey Road, the average deficit per unit was \$916 and \$805, respectively. Overall, in Falmouth 9,054 housing units (47.37%) were within \$1,000 below the median tax-payment while 5,000 housing units (26.16%) were within \$1,000 over the median payment. Though the Fair Share method shows that the mixed-income developments at Fresh Pond Farms and Nicky Road in Falmouth are cross-subsidized by other taxpayers in the community; in fact, these 40B developments are not unique when compared to other market-rate taxpayers in Falmouth. If one looks at the distribution of residential tax-payments in Falmouth by the value of the payments, it may be seen that a few highly valuable properties in Falmouth effectively cross-subsidize hundreds of their neighbors.

City of Northampton, Massachusetts

Located approximately one hundred miles west of the state capitol, in the Pioneer Valley, the City of Northampton is a lively and diverse community that had 28,930 residents and 2,990 students enrolled in the Northampton Public Schools in FY2005. Northampton has the highest percentage of affordable housing units in Hampshire County, with 11.8 Percent of its U.S. Census 2000 housing stock of 12,282 housing units certified as affordable by the Massachusetts Department of Housing and Community Development in June 2006.

Pine's Edge Development

The Pine's Edge development is the oldest project in this analysis and the project farthest from Metropolitan Boston. Built in the early 1990's, Pine's Edge consists of 38 condominiums with six of those units designated as permanently affordable housing. In FY2005, there were 63 residents in the development with three students attending the Northampton Public Schools. According to the Northampton Public Schools, Pine's Edge has been home to as many as 12 public school students (1993) and as few as 3 students (2002 to 2005). In FY2005, market-rate units ranged in assessed value from \$169,600 to \$172,900 and the affordable units were assessed between \$119,200 and \$149,000.

In 2005, the Pine's Edge development generated a total of \$77,473 in property tax revenue, with an average tax bill of \$2,039. The affordable housing units contributed \$9,956 to the total while the market-rate units contributed \$67,516. The average tax bill of the market-rate units was \$2,110 with the average for the affordable units at \$1,659. By comparison, the average residential tax payment in the City of Northampton was \$2,805 in FY2005.

Project History

Pine's Edge was developed by Pines Edge Associates with support from the City of Northampton and funding granted by the Massachusetts Housing Partnership (MHP). The MHP supported the project specifically to provide opportunities to low-income first-time homebuyers. The Massachusetts Housing Partnership provided reduced rate mortgages to those buyers. In addition to financing through MHP, the developers were awarded a \$300,000 CDAG grant to finance the infrastructure of the development. In January 1989, the Northampton Zoning Board of Appeals granted a comprehensive permit for the Pines Edge Development, ruling that the project was "consistent with local needs."¹⁹ Sales of the Pine's Edge condominium units began in 1992.

As originally approved, Pine's Edge was to include eight affordable housing units (targeted for incomes at 80 percent of Area Median Income or below) and five units of moderate income housing (targeted for incomes between 80 and 100 percent of AMI). At present, only six of the eight affordable housing units remain affordable. The moderate income housing units did not have any deed restrictions and have sold at prevailing market-rates.

Analysis of Fiscal Impact

UMDI analyzed the fiscal impact of Pine's Edge using three methodologies: the marginal cost method, the per capita multiplier method, and a fair share method that allocated net expenses equally to all housing units in the community. The results of the analysis are presented below.

Marginal Cost Method

UMDI determined the marginal impact of Pine's Edge through analysis of data from the Northampton Public Schools, Department of Public Works and Public Safety and interviews with municipal officials. As noted, Pine's

¹⁹ Ibid, p. 1.

Edge had a range of students from a low of 3 students in recent years to a high of 12 students at project occupancy. Over the past 12 years, most of the students at Pine's Edge have graduated through the school system. During the period under analysis for this report (2001 to 2005), there was no discernable impact on the Northampton Public Schools from Pine's Edge. Given the age of the project, it was not possible to determine whether the project had a measurable impact on classroom resources at the point of occupancy. In general, marginal changes in enrollment are not the strongest contributor to educational costs. As shown in Table 22, year-to-year changes in Northampton Public School enrollments do not neatly correspond to changes in the annual education budget. While there is clearly a connection between educational costs and enrollment, if marginal changes in enrollment had a fiscal impact analogous to assigned per-pupil expenditures, the change in the annual budget would more closely track changes in enrollment. The data in the following table indicates that there is no discernible connection between aggregate school enrollment and education costs in Northampton.

Table 22: Change in Education Budget and Enrollment from Previous Year

	Education Budget	Enrollment
2001	7.65%	-2.01%
2002	1.28%	1.63%
2003	7.69%	-0.17%
2004	-4.94%	2.02%
2005	0.92%	0.40%

Source: Town of Northampton, MA Public Schools; MA DOR, Division of Local Services, 2006; UMass Donahue Institute, 2006.

Tables 23 and 24 reinforce the conclusion that cost pressures in Northampton and statewide have risen for reasons apart from changes in enrollment. Statewide, total enrollment grew negligibly between 1999 and 2004 while educational costs grew over 28 percent. In Northampton, total enrollment and full-time equivalent instructional employment both declined from 1999 to 2004 while educational costs grew nearly 20 percent.

Table 23: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Statewide

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	955,592	957,511	1,919	0.2%
Total FTE	68,256	73,700	5,444	8.0%
Total Expenditures	\$6,395,235,205	\$8,225,714,988	\$1,830,479,783	28.6%
Total Salaries	\$3,081,654,861	\$3,960,071,176	\$878,416,315	28.5%
Ratio of Enrollment to FTE	14.0	13.0		
Ratio of Salaries to Expenditures	0.48	0.48		

Source: Department of Education, 2006.

Table 24: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Northampton

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	3,166	2,970	-196	-6.2%
Total FTE	249	207	-42	-16.7%
Total Expenditures	\$19,866,129	\$23,740,163	\$3,874,034	19.5%
Total Salaries	\$8,692,273	\$10,752,602	\$2,060,329	23.7%
Ratio of Enrollment to FTE	12.7	14.3		
Ratio of Salaries to Expenditures	0.44	0.45		

Source: Department of Education, 2006.

Pine's Edge does not place significant or unusual burdens on Northampton's Public Safety or Public Works Departments. Based on data acquired from the Town of Northampton, UMDI ruled out the possibility of any excess demands on public safety costs caused by this development.²⁰ In FY05, the town of Northampton generated 29,060 public safety calls. When distributed across the 12,599 housing units in town, the result is an average of 2.31 calls per unit. In contrast, the 38 units in the Pine's Edge Development generated 11 calls resulting in an average of .29 calls per unit during the same period. According to UMDI interviews, the Department of Public Works has not needed to provide many services to Pine's Edge Drive. As a condition of the permit for the complex, the developers paid for the installation of water and wastewater service to the street, upgraded services for the adjoining Cooke Avenue, and installed and upgraded storm-water control systems. The developers were responsible for maintaining Pine's Edge Drive, including winter plowing, until it became a town-accepted street.²¹

Per Capita Multiplier Method

The per capita multiplier fiscal impact method analyzes the municipal impact of housing developments based on the per person allocation of net general fund expenditures. The per capita method, by definition, ensures that the single greatest factor that affects the fiscal balance of developments is the number of residents. This is particularly true of school costs associated with the project. In effect, the per capita method charges households tuition for the net cost of educating each child. Using the per capita multiplier method, the Pine's Edge development experienced net positive revenue of \$45,992 in FY2005. Both the market-rate units and the affordable housing units were net positive contributors to the City of Northampton in FY2005. As noted, the relatively low number of school age children in the development (three students) substantially affects the low-level of total municipal costs attributed to the development.

²⁰ Town of Northampton Data, Acquired 4/28/06 and 4/12/06

²¹ Decision of Northampton Zoning Board of Appeals, January 1989

Table 25: Pine's Edge Fiscal Impact Model: Per Capita Multiplier Method

Northampton -- Pines Edge	Municipal Costs	Educational Costs	Development Net Revenue (Loss)		
	Subtotal Municipal Costs	Subtotal Educational Costs	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	\$18,122	\$13,358	\$31,480	\$77,472	\$45,992
<i>FY05 Market-rate Units</i>	\$14,095	\$13,358	\$27,453	\$67,516	\$40,063
<i>FY05 Affordable Units</i>	\$4,027	\$0	\$4,027	\$9,956	\$5,929
FY2004 Total Impact	\$17,339	\$13,749	\$31,087	\$60,641	\$29,554
FY2003 Total Impact	\$26,634	\$14,216	\$40,850	\$66,467	\$25,617
FY2002 Total Impact	\$19,770	\$11,956	\$31,726	\$65,684	\$33,958
FY2001 Total Impact	\$12,571	\$15,951	\$28,522	\$64,323	\$35,801
FY2000 Total Impact	\$26,775	\$25,170	\$51,946	\$56,759	\$4,813

Source: UMass Donahue Institute, 2006.

Fair Share Method

The Fair Share Method of fiscal impact analysis allocates municipal expenditures equally to each housing unit in town based on the proposition that every household has an equal stake, either as a resident, current or future consumer of town services, in the provision of town services. As shown in Table 26, the Pine's Edge development had an aggregate positive fiscal impact on Northampton in FY2005 of \$12,217. The net positive contribution to the City of Northampton was due to a cross-subsidy from the market-rate units to the affordable units, which by themselves had a negative fiscal impact of \$347. The affordable housing units were net negative \$58 per unit and the market-rate units were net positive contributors \$393 per unit.

Table 26: Pine's Edge Fiscal Impact Model: Fair Share Method

Northampton -- Pines Edge	Total Housing Units	Net Cost Per Unit	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	38	\$1,717	\$65,255	\$77,472	\$12,217
<i>FY05 Market-rate Units</i>	32	\$1,717	\$54,951	\$67,516	\$12,565
<i>FY05 Affordable Units</i>	6	\$1,717	\$10,303	\$9,956	(\$347)
FY2004 Total Impact	38	\$1,716	\$65,224	\$60,641	(\$4,583)
FY2003 Total Impact	38	\$2,003	\$76,126	\$66,467	(\$9,659)
FY2002 Total Impact	38	\$1,571	\$59,714	\$65,684	\$5,970
FY2001 Total Impact	38	\$1,330	\$50,537	\$64,323	\$13,786
FY2000 Total Impact	38	\$2,307	\$87,665	\$56,759	(\$30,906)

Source: UMass Donahue Institute, 2006.

The Fair Share Method Applied to the Municipality

UMDI was unable to compare the distribution of tax-payments in the City of Northampton to the Fair Share cost per housing unit. A complete set of assessor's data for FY2005 was unavailable from the City of Northampton.

City of Peabody, Massachusetts

The City of Peabody is located in northeastern Massachusetts in Essex County. Along with Brookline, the City of Peabody is the largest case study municipality included in this report. Peabody is a diverse community and an important regional center of employment on the north shore located 17 miles north of Boston.²² In 2005, the City of Peabody was home to 50,370 residents with 6,630 students in Peabody Public Schools. According to the Massachusetts Department of Housing and Community Development, 10.3 percent of Peabody's U.S. Census 2000 housing stock of 18,838 housing units was certified as affordable in June 2006.

Stoneybrook Development

Stoneybrook is a multi-building condominium development consisting of 86 condominium townhouses located on Boulderbrook Drive in Peabody. In FY2005, Stoneybrook had a population of 129 residents with 5 pupils in the Peabody Public Schools. Stoneybrook was developed in the early 1990s, with units sold between 1990 and 1992. Twenty-two of the 86 condominiums are affordable units and were sold at initial prices ranging from \$78,500 to \$119,900 with the market rate units selling for prices between \$119,900 and \$156,900. In FY2005, the affordable units had assessed values from \$120,200 to \$177,100 depending upon the size of the units and the improvements. The assessed values of the market-rate units range from \$280,000 to \$299,800.

The total property tax revenue generated by the Stoneybrook development in FY2005 was \$218,461 with an average tax bill for all units of \$2,540. The total property tax contribution of the affordable units was \$31,903 with the market rate units contributing \$186,557. The average tax bill of the market-rate units was \$2,915 with the average for the affordable units at \$1,450. By comparison, the average tax bill in Peabody in FY2005 was \$2,855 with a median residential tax bill of \$2,588.

Project History

The Stoneybrook Condominium complex was constructed in the late 1980s as a 40B Comprehensive Permit negotiated project eligible for state financing through the Massachusetts Housing Finance Agency. According to a report in *The Boston Globe*, the state had dedicated a total of \$1.7 million in mortgage subsidies to Stoneybrook as of 1993. Stoneybrook was built under the state's Homeownership Opportunity Program.²³ City of Peabody's 40B Comprehensive Permit documents and records of decision for this project were unavailable from Peabody Office of Community Development and Planning.

Analysis of Fiscal Impact

UMDI analyzed the fiscal impact of the Stoneybrook development using three methodologies: the marginal cost method, the per capita multiplier method, and a fair share method that allocated net expenses equally to all housing units in the community. The results of the analysis are presented below.

Marginal Cost Method

UMDI analyzed the marginal impact of the Stoneybrook development based on available data and interviews with municipal officials from the Peabody Public Schools, Public Safety and Public Works Departments. Overall, UMDI did not find any negative marginal impact from the development. In FY2005, Stoneybrook contributed five students to Peabody Public Schools out of a total school population of 6,630 students. The school department was unaware of any significant demand for services from the development. As shown in Table 27, there is no clear marginal relationship between the year-to-year change in marginal costs in Peabody and annual changes in enrollment. Year-to-year changes in Peabody's school budget are no doubt affected, in the aggregate, by

²² City of Peabody Community Profile, MA Department of Housing and Community Development, 2006.

²³ "Four Condo Sales in Peabody Bypassed Income Guidelines," *The Boston Globe*, March 22, 1998.

fluctuations in enrollment but there is no clear connection between students in the Stoneybrook condominiums and school costs.

Table 27: Change in Education Budget and Enrollment from Previous Year

	Education Budget	Enrollment
2002	-0.83%	1.10%
2003	1.06%	-1.09%
2004	1.19%	-0.26%
2005	-2.69%	0.08%

Source: Town of Peabody, MA Public Schools; MA DOR, Division of Local Services, 2006; UMass Donahue Institute, 2006.

Table 28: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Statewide

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	955,592	957,511	1,919	0.2%
Total FTE	68,256	73,700	5,444	8.0%
Total Expenditures	\$6,395,235,205	\$8,225,714,988	\$1,830,479,783	28.6%
Total Salaries	\$3,081,654,861	\$3,960,071,176	\$878,416,315	28.5%
Ratio of Enrollment to FTE	14.0	13.0		
Ratio of Salaries to Expenditures	0.48	0.48		

Source: Department of Education, 2006.

Table 29: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Peabody

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	7,073	6,659	-414	-5.9%
Total FTE	428	483	55	12.8%
Total Expenditures	\$39,619,627	\$50,254,995	\$10,635,368	26.8%
Total Salaries	\$18,399,277	\$25,615,613	\$7,216,336	39.2%
Ratio of Enrollment to FTE	16.5	13.8		
Ratio of Salaries to Expenditures	0.46	0.51		

Source: Department of Education, 2006.

A brief review of student enrollment, teacher employment and expenditures in 1999 and 2004 suggests that staffing patterns and expenditures have risen independently of enrollment across the Commonwealth. As may be seen in Tables 28 and 29, full-time equivalent (FTE) employment of teachers statewide and in Peabody grew substantially from 1999 to 2004 despite a negligible increase in enrollments statewide and a decline in enrollment in Peabody. There are a few likely explanations for increased staffing levels and educational expenditures; perhaps the most likely being costs associated with the state's increased commitment to education reform.

Irrespective of the cause, the data demonstrates that marginal changes in enrollment are not the principal driver of changes in educational costs.

Interviews with public officials and reported data from the City of Peabody do not show any marginal impact from the Stoneybrook development. The Peabody Police Department does not make an excessive amount of police, fire or EMS calls to Stoneybrook.²⁴ The City of Peabody generated 29,300 public safety calls during the 2005 calendar year. This results in an average of 1.44 calls per unit once the calls are distributed across the 20,401 units in town. The 86 units in the Stoneybrook Development generated 16 calls for an average of .19 calls per unit in FY2005. Although the comparison is not exact because of the discrepancy between the fiscal and calendar years, we do not believe that this discrepancy significantly changes the analysis. According to an official with the Peabody Public Works Department, the permit for Stoneybrook was negotiated to ensure that it would not have significant public works impacts on the city. The development's roads and infrastructure were financed by the developer and the infrastructure is maintained privately through association fees.²⁵

Per Capita Multiplier Method

The per capita multiplier fiscal impact method analyzes the municipal impact of housing developments based on the per person allocation of net general fund expenditures. The per capita method, by definition, ensures that the single greatest factor that affects the fiscal balance of developments is the number of residents. This is particularly true of school costs associated with the project. In effect, the per capita method charges households tuition for the net cost of educating each child. In FY2005, the Stoneybrook development had a significant net positive impact on the City of Peabody. Overall, Stoneybrook contributed \$187,327 in property taxes above its expenses with \$9,329 of that amount from the affordable housing units and \$177,997 from the market-rate units. The net positive impact was largely due to the absence of significant numbers of children in the development. The subsidized units have a significantly lower positive impact than the market-rate units because four of Stoneybrook's five public school students live in the affordable units.

Table 30: Stoneybrook Fiscal Impact Model: Per Capita Multiplier Method

Peabody -- Stoneybrook	Municipal Costs	Educational Costs	Development Net Revenue (Loss)		
	Subtotal Municipal Costs	Subtotal Educational Costs	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	\$4,111	\$27,022	\$31,133	\$218,460	\$187,327
<i>FY05 Market-rate Units</i>	\$3,155	\$5,404	\$8,560	\$186,557	\$177,997
<i>FY05 Affordable Units</i>	\$956	\$21,618	\$22,574	\$31,903	\$9,329
FY2004 Total Impact	\$18,975	\$23,086	\$42,060	\$171,421	\$129,361
FY2003 Total Impact	\$12,681	\$21,617	\$34,298	\$151,447	\$117,149
FY2002 Total Impact	\$864	\$17,532	\$18,395	\$130,226	\$111,831
FY2001 Total Impact	(\$7,798)	\$13,422	\$5,624	\$120,757	\$115,133
FY2000 Total Impact	\$4,174	\$13,841	\$18,015	\$118,330	\$100,315

Source: UMass Donahue Institute, 2006.

Fair Share Method

The Fair Share Method of fiscal impact analysis allocates municipal expenditures equally to each housing unit in town based on the proposition that every household has an equal stake, either as a resident, current or future consumer of town services, in the provision of town services. Under the Fair Share method of analysis, the

²⁴ Peabody Police Department

²⁵ Peabody Department of Public Works, Site visit 7/13/06

Stoneybrook development has net surplus revenue of \$60,646, or \$705 per unit. The market-rate units contributed a surplus of \$69,114 in property tax payments and effectively cross-subsidized the affordable housing units, that had a net deficit of \$8,468. The surplus revenue from the Stoneybrook development grew substantially from FY2004 to FY2005 due to increases in the property tax rate in FY2005 and a significant increase in the assessed value of the properties in FY2003.

Table 31: Stoneybrook Fiscal Impact Model: Fair Share Method

Peabody -- Stoneybrook	Total Housing Units	Net Cost Per Unit	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	86	\$1,835	\$157,814	\$218,460	\$60,646
<i>FY05 Market-rate Units</i>	64	\$1,835	\$117,443	\$186,557	\$69,114
<i>FY05 Affordable Units</i>	22	\$1,835	\$40,371	\$31,903	(\$8,468)
FY2004 Total Impact	86	\$1,886	\$162,222	\$171,421	\$9,199
FY2003 Total Impact	86	\$1,709	\$146,991	\$151,447	\$4,456
FY2002 Total Impact	86	\$1,540	\$132,459	\$130,226	(\$2,233)
FY2001 Total Impact	86	\$1,411	\$121,316	\$120,757	(\$559)
FY2000 Total Impact	86	\$1,711	\$147,149	\$118,330	(\$28,819)

Source: UMass Donahue Institute, 2006.

The Fair Share Method Applied to the Municipality

The Fair Share Method apportions all general fund expenditures in a municipality to housing units after subtracting all non-residential revenues that contribute to general town costs. In effect, municipal impacts are measured at the residential taxpaying unit: the household.²⁶ In fact, communities apportion town costs to households according to the current market-value of real estate: it is an axiom that some property-taxpayers contribute more money toward municipal costs than others. The Fair Share Method may be used, as in this study, to compare the tax-payments of affordable housing units relative to the average net municipal cost per household. In principal, any other housing unit in the community can be analyzed using the same method.

UMDI analyzed the distribution of all residential tax-payments in the City of Peabody in FY2005 using the Fair Share Method. In FY2005, the net municipal cost per housing unit was \$1,835 and the median tax payment for single-family homes and condominiums was \$2,588. At Stoneybrook, the average surplus per unit was \$705. Overall, in Peabody 5,751 housing units (41%) were within \$1,000 below the median tax-payment while 5,273 housing units (37.6%) were within \$1,000 over the median payment. In general, the range of tax payments in Peabody was not as great as in other communities in this study. The key implication of the analysis is that the Stoneybrook 40B development is analogous in its fiscal impact to most other housing units in Peabody.

²⁶ The Fair Share Method distributes costs by housing unit. Residential taxes are paid by assessed parcel, which consist of single-family homes and condominiums, apartment buildings composed of multiple housing units, and vacant parcels. Apartment buildings that include multiple households also have higher assessed values, reflecting their greater size and market-value.

Town of Sandwich, Massachusetts

Town of Sandwich is a historic Cape Cod community popular with tourists and known for its beautiful coast, shops and historic buildings. Sandwich is home to a year-round population of just over 20,826 residents in 2005; in the summertime Sandwich's population doubles to more than 40,000 people. According to the Massachusetts Department of Housing and Community Development, 3.6 percent of the town's year-round U.S. Census 2000 housing stock of 7,574 housing units were certified as affordable housing (June 2006).

Sherwood Forest Development

The Sherwood Forest development consists of 36 single-family homes developed off of Quaker Meeting House Road as a subdivision and sold in 1997 and 1998. Nine of the 36 homes in Sherwood Forest are designated as permanently affordable. All of the homes have three bedrooms and two-thirds of the homes have two full baths, with the remaining one-third having one full and one half bath. In FY2005, Sherwood Forest had a population of 125 residents, 40 of whom were students in Sandwich Public Schools. The original sales prices for the homes were from \$111,900 to \$160,000 for the market-rate units and \$80,500 for the affordable housing units. In FY2005, the assessed values of the affordable homes ranged from \$189,700 to \$219,000. The property assessments for the market rate homes were from \$276,700 and \$352,600.

In FY2005, the homes of Sherwood Forest generated total property tax revenue of \$85,292 with an average tax bill of \$2,369. The property tax contribution of the affordable units was \$15,304 and the market rate units added \$69,988. The market-rate average tax bill was \$2,592 and the average for the affordable units was \$1,700. By comparison, the average property tax bill in the Town of Sandwich in FY2005 was \$3,290 and the median residential property tax payment was \$3,042.

Project History

Sherwood Forest was granted a 40B Comprehensive Permit by the Town of Sandwich in November 1995. The G-P Affordable Home Corporation was licensed to develop 36 single-family residential homes. Nine of the homes would qualify as affordable with a maximum selling price of \$80,500 to first-time home buyers whose incomes did not exceed \$34,900. The 27 market units were to range in price from an estimated \$104,900 to \$134,900, subject to market conditions.²⁷

The project was designed to be two separate clusters of 19 and 17 lots each with a distinct access and egress for each lot separated by open space. The average lot size including open space and excluding roads is 28,000 square feet which was compatible with the two residential developments abutting this site.²⁸ The permit decision required that a resale covenant on the affordable units would be imposed in perpetuity. The permit also stipulated that the developer had to create a homeowners' association to assume responsibility for maintenance of roads and open space.²⁹

Analysis of Fiscal Impact

UMDI analyzed the fiscal impact of the Sherwood Forest development using three methodologies: the marginal cost method, the per capita multiplier method, and a fair share method that allocated net expenses equally to all housing units in the community. The results of the analysis are presented below.

²⁷ Decision of Sandwich Zoning Board of Appeals, November 1995

²⁸ Decision of Sandwich Zoning Board of Appeals, November 1995

²⁹ Decision of Sandwich Zoning Board of Appeals, November 1995

Marginal Cost Method

UMDI determined the marginal fiscal impact of the Sherwood Forest development through a combination of interviews with public officials and data analysis. Despite the presence of 40 public school students and 125 total residents in Sherwood Forest, UMDI did not find any evidence of discernible marginal costs associated with the development. In an interview with UMDI, an official from the Sandwich Superintendent of School's office noted that the town of Sandwich has experienced declining enrollment over the past several years. According to MA Department of Education data, school enrollment in Sandwich increased by 292 pupils from the 1997-1998 school year to the 2001-2002 school year and declined by 148 students from 2001-2002 to the 2005-2006 school year. As shown in Table 32, year-to-year changes in enrollment do not show any easy correspondence between marginal changes in enrollment and educational costs in Sandwich. The following table shows that, though there are clear cost pressures on the Sandwich Public Schools, there is no clear correspondence between those costs and enrollments.

Table 32: Change in Education Budget and Enrollment from Previous Year

	Education Budget	Enrollment
2002	7.61%	0.79%
2003	4.78%	1.76%
2004	2.14%	-0.55%
2005	1.49%	-2.19%

Source: Town of Sandwich, MA Public Schools; MA DOR, Division of Local Services, 2006; UMass Donahue Institute, 2006.

In fact, on Cape Cod and in many Massachusetts communities, there are counter-trends of declining school enrollments that offset potential marginal impact of students in newly constructed housing. A brief review of student enrollment, teacher employment and expenditures in 1999 and 2004 suggests that staffing patterns and expenditures have risen independently of enrollment across the Commonwealth. As may be seen in Tables 33 and 34, full-time equivalent (FTE) employment of teachers statewide and in Sandwich grew substantially from 1999 to 2004 despite a negligible increase in enrollments statewide and a decline in enrollment in Sandwich. It is beyond the scope of this analysis to determine the cause of educational cost increases in the case study communities; however, it is clear from the data that enrollment is not the principal driver of marginal cost increases.

Table 33: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Statewide

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	955,592	957,511	1,919	0.2%
Total FTE	68,256	73,700	5,444	8.0%
Total Expenditures	\$6,395,235,205	\$8,225,714,988	\$1,830,479,783	28.6%
Total Salaries	\$3,081,654,861	\$3,960,071,176	\$878,416,315	28.5%
Ratio of Enrollment to FTE	14.0	13.0		
Ratio of Salaries to Expenditures	0.48	0.48		

Source: Department of Education, 2006.

Table 34: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Sandwich

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	4,408	4,144	-264	-6.0%
Total FTE	241	280	39	16.3%
Total Expenditures	\$20,214,183	\$26,834,707	\$6,620,524	32.8%
Total Salaries	\$10,758,025	\$13,769,418	\$3,011,393	28.0%
Ratio of Enrollment to FTE	18.3	14.8		
Ratio of Salaries to Expenditures	0.53	0.51		

Source: Department of Education, 2006.

UMDI evaluated the marginal impact of Sherwood Forest on Sandwich's public safety and public works expenditures through a brief review of public safety data and an interview with Town of Sandwich officials. Data from the Sandwich Police Department enabled UMDI to rule out the possibility of any excess demands on public safety costs caused by this development.³⁰ The Town of Sandwich generated 12,031 public safety calls in the 2005 calendar year, constituting an average of 1.30 calls across the 9,273 units in town. The 36 units in Sherwood Forest Development, in contrast, generated 14 calls for an average of .39 calls per unit. According to the Town of Sandwich, the developers of Sherwood Forest paid for all of the road and infrastructure costs of building Sherwood Forest. When the roads became town-accepted, the town assumed cost for plowing the roads. The cost of clearing these roads did not represent a burden to the town beyond normal expenditures.³¹

Per Capita Multiplier Method

The per capita multiplier fiscal impact method analyzes the municipal impact of housing developments based on the per person allocation of net general fund expenditures. The per capita method, by definition, ensures that the single greatest factor that affects the fiscal balance of developments is the number of residents. This is particularly true of school costs associated with the project. In effect, the per capita method charges households tuition for the net cost of educating each child. Due to the considerable number of children in the Sherwood Forest development, the net negative fiscal impact under the tuition method is considerable: over \$171,161 for FY2005. The Sherwood Forest development has 40 pupils in 36 units, a ratio greater than any of the other case study developments. In addition to the substantial student population, there were over 125 residents in the development (3.5 residents per home). Charging each student and each resident on a fee-for-service basis for municipal and educational costs is the primary driver for the significant net fiscal loss and is inevitable in any middle-class housing development with a high number of students. To balance out the negative fiscal impact under the per capita multiplier method, each household in Sherwood Forest would have had to pay \$4,884 more in property taxes in FY2005.

³⁰ Sandwich Police Department Data, Acquired 7/17/06 and 7/18/06

³¹ Town of Sandwich Data, Acquired 7/18/06

Table 35: Sherwood Forest Fiscal Impact Model: Per Capita Multiplier Method

Sandwich -- Sherwood Forest	Municipal Costs	Educational Costs	Development Net Revenue (Loss)		
	Subtotal Municipal Costs	Subtotal Educational Costs	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	\$73,016	\$183,437	\$256,453	\$85,292	(\$171,161)
<i>FY05 Market-rate Units</i>	\$49,651	\$100,891	\$150,541	\$69,988	(\$80,553)
<i>FY05 Affordable Units</i>	\$23,365	\$82,547	\$105,912	\$15,304	(\$90,608)
FY2004 Total Impact	\$79,213	\$156,954	\$236,167	\$77,927	(\$158,240)
FY2003 Total Impact	\$64,234	\$149,683	\$213,917	\$75,325	(\$138,592)
FY2002 Total Impact	\$42,682	\$140,964	\$183,645	\$72,566	(\$111,079)

Source: UMass Donahue Institute, 2006.

Fair Share Method

The Fair Share Method of fiscal impact analysis allocates municipal expenditures equally to each housing unit in town based on the proposition that every household has an equal stake in the provision of town services and fiscal impacts should be assessed at the unit of analysis that most closely conforms to the manner in which taxes are actually assessed. Under the Fair Share method, Sherwood Forest had a net negative fiscal impact of \$34,165 in FY2005. To balance the negative fiscal impact in FY2005, the 36 homes in Sherwood Forest would have to each contribute an additional property tax payment of \$949.

Table 36: Sherwood Forest Fiscal Impact Model: Fair Share Method

Sandwich -- Sherwood Forest	Total Housing Units	Net Cost Per Unit	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	36	\$3,318	\$119,457	\$85,292	(\$34,165)
<i>FY05 Market-rate Units</i>	27	\$3,318	\$89,593	\$69,988	(\$19,605)
<i>FY05 Affordable Units</i>	9	\$3,318	\$29,864	\$15,304	(\$14,560)
FY2004 Total Impact	36	\$3,435	\$123,660	\$77,927	(\$45,733)
FY2003 Total Impact	36	\$3,191	\$114,880	\$75,325	(\$39,555)
FY2002 Total Impact	36	\$2,725	\$98,083	\$72,566	(\$25,517)

Source: UMass Donahue Institute, 2006.

The Fair Share Method Applied to the Municipality

The Fair Share Method apportions all general fund expenditures in a municipality to housing units after subtracting all non-residential revenues that contribute to general town costs. In effect, municipal impacts are measured at the residential taxpaying unit: the household.³² In fact, communities apportion town costs to households according to the current market-value of real estate: it is an axiom that some property-taxpayers contribute more money toward municipal costs than others. The Fair Share Method may be used, as in this study, to compare the tax-payments of affordable housing units relative to the average net municipal cost per household. In principal, any other housing unit in the community can be analyzed using the same method.

³² The Fair Share Method distributes costs by housing unit. Residential taxes are paid by assessed parcel, which consist of single-family homes and condominiums, apartment buildings composed of multiple housing units, and vacant parcels. Apartment buildings that include multiple households also have higher assessed values, reflecting their greater size and market-value.

UMDI analyzed the distribution of all residential tax-payments in the Town of Sandwich in FY2005 using the Fair Share Method. In FY2005, the net municipal cost per housing unit was \$3,318 and the median tax payment for single-family homes and condominiums was \$3,042. In Sherwood Forest, the average deficit per unit was \$949. Overall, in Sandwich, 3,853 housing units (44.55%) were within \$1,000 below the median tax-payment while 2,270 housing units (26.25%) were within \$1,000 over the median payment. The distribution of taxpayers in Sandwich reflects the very high assessed values of a relative handful of properties in the town. As may be seen from the data, the homes in Sherwood Forest are very similar in fiscal impact to the great majority of homes in the Town of Sandwich.

Town of Wellesley, Massachusetts

The Town of Wellesley is a prosperous residential suburban town located 13 miles west of Boston. Wellesley is notable for its attractive parks and downtown and is home to Wellesley College, Babson College and Massachusetts Bay Community College.³³ In 2005, the Town of Wellesley had a population of 26,515 residents with 4,396 students in the Wellesley Public Schools. According to the Massachusetts Department of Housing and Community Development, 4.7 percent of Wellesley's U.S. Census 2000 year-round housing stock of 8,789 housing units were certified as affordable units as of June 2006.

Edgemoor Circle Development

The Edgemoor Circle development consists of 12 condominiums units. The mix of units in the development includes three two-story buildings, each of which contains four three-bedroom units. Three of the four condominiums in each building have a floor area of 2,070 square feet including a full basement and one-car garage. The fourth unit in each building has a floor area of 2,020 square feet, including a full basement and a one-car garage. Three of the 2,070 square foot units are designated as affordable housing.³⁴ In 2005, there were 27 residents in the development, with four students in the Wellesley Public Schools.

In FY2005, Edgemoor Circle generated \$43,646 in total property tax revenue with an average tax bill of \$3,637. The tax contribution of the affordable units was \$3,352 and the market rate units paid a total of \$40,295. The average tax bill for the market-rate units was \$4,477 and the average property tax bill for the affordable units was \$1,117. By comparison, the average property tax bill in the Town of Wellesley in FY2005 was \$7,328 and the median residential tax bill was \$5,888.

Project History

In July of 2002, the Wellesley Zoning Board of Appeals voted to grant a Comprehensive Permit to the Burt Development Company to build a 12 unit complex that included three affordable housing units. The affordable units were to be sold to first-time home buyers earning no more than 80% of the annual median income for residents of the Boston Primary Metropolitan Statistical Area. Deed riders containing restrictions on the sale of these units were filed on record at the Norfolk Registry of Deeds. The remaining nine units were to be sold at the market rate. The permit agreement further stipulated that 70% of the affordable units (2 units) would be offered first to Wellesley households or those households with Wellesley ties, which met the definition of "low and moderate income" households.³⁵

The town of Wellesley held its first affordable-housing lottery in 2003 to award the three affordable units in the Edgemoor Circle development. The affordable units sold for \$135,000, and although the winners were not identified by name, officials said one person was a School Department employee and another was a police officer.³⁶ The market-rate units sold between 2003 and 2005 for \$540,000 to \$575,000.

Analysis of Fiscal Impact

UMDI analyzed the fiscal impact of the Edgemoor Circle development using three methodologies: the marginal cost method, the per capita multiplier method, and a fair share method that allocated net expenses equally to all housing units in the community. The results of the analysis are presented below.

³³ Town of Wellesley website, 2006.

³⁴ Decision of Wellesley Zoning Board of Appeals, July 2002

³⁵ Decision of Wellesley Zoning Board of Appeals, July 2002

³⁶ "After Years, 'Anti-Snob' Housing Set To Go State Ok's Loan For 52 Units Of Mixed-Income Town Houses," The Boston Globe, October 23, 2003

Marginal Cost Method

UMDI analyzed the Marginal Fiscal Impact of the Edgemoor Circle development through a combination of interviews and data analysis. Interviews with the Wellesley Public Schools and school enrollment data do not show any particular marginal impact of the four students at Edgemoor Circle. However, Wellesley, unlike the other towns in this analysis, has both significant budgetary as well as enrollment pressures in its public schools. As shown in Tables 37 and 38, Wellesley is confronting similar year-to-year increases in school costs and total enrollment. Unfortunately, the available data does not indicate whether the pupils at Edgemoor Circle are net new students to the community or had been previously enrolled in Wellesley from other addresses prior to moving to Edgemoor Circle. It is unclear that the children in Edgemoor Circle represent a significant marginal impact for the town's schools, though that cannot be ruled out.

Table 37: Change in Education Budget and Enrollment from Previous Year

	Education Budget	Enrollment
2002	6.50%	2.92%
2003	7.67%	5.05%
2004	1.46%	4.24%
2005	6.22%	3.39%

Source: Town of Wellesley, MA Public Schools; MA DOR, Division of Local Services, 2006; UMass Donahue Institute, 2006.

A brief review of student enrollment, teacher employment and expenditures in 1999 and 2004 suggests that staffing patterns and expenditures have risen independently of enrollment across the Commonwealth. As may be seen in Table 38 and 39, full-time equivalent (FTE) employment of teachers statewide and in Wellesley grew substantially from 1999 to 2004 while the state experienced a negligible increase in enrollments statewide and enrollment grew robustly in Wellesley. The differences between rate of increase of enrollments, employment and expenditures statewide suggest that other factors are at work in determining the marginal school cost increases. It is beyond the scope of this analysis to determine the cause of educational cost increases in the case study communities; however, it is clear from the data across the case communities that enrollment is not the principal driver of marginal cost increases. Given the enrollment growth in Wellesley, it is possible that it is a special case.

Table 38: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Statewide

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	955,592	957,511	1,919	0.2%
Total FTE	68,256	73,700	5,444	8.0%
Total Expenditures	\$6,395,235,205	\$8,225,714,988	\$1,830,479,783	28.6%
Total Salaries	\$3,081,654,861	\$3,960,071,176	\$878,416,315	28.5%
Ratio of Enrollment to FTE	14.0	13.0		
Ratio of Salaries to Expenditures	0.48	0.48		

Source: Department of Education, 2006.

Table 39: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Wellesley

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	3,655	4,229	574	15.7%
Total FTE	272	306	35	12.7%
Total Expenditures	\$29,826,976	\$41,448,972	\$11,621,996	39.0%
Total Salaries	\$14,391,209	\$19,450,605	\$5,059,396	35.2%
Ratio of Enrollment to FTE	13.5	13.8		
Ratio of Salaries to Expenditures	0.48	0.47		

Source: Department of Education, 2006.

The marginal impact of the Edgemoor Circle development on public safety and public works is far clearer. Data from the Wellesley Police Department indicates that the Edgemoor Circle development does not place any excess demands on public safety in the town of Wellesley.³⁷ In FY2005, the Town of Wellesley generated 23,789 public safety calls, resulting in an average of 2.60 calls across the 9,159 units in town. The 12 units in the Townhouses at Edgemoor Circle generated 2 calls during the same period. This is an average of .17 calls per unit. An official at the Wellesley Public Works Department could not cite any significant initial or ongoing costs associated with maintaining this development. Maintenance costs for the short private way connecting Edgemoor Circle to main roads are covered through association fees.³⁸

Per Capita Multiplier Method

The per capita multiplier fiscal impact method analyzes the municipal impact of housing developments based on the per person allocation of net general fund expenditures. The per capita method, by definition, ensures that the single greatest factor that affects the fiscal balance of developments is the number of residents. This is particularly true of school costs associated with the project. In effect, the per capita method charges households tuition for the net cost of educating each child. For FY2005, the Townhouses at Edgemoor Circle reported a net loss of \$9,821 using the per capita multiplier method of analysis. The development had four students and 27 residents overall. The net cost of public school tuition in Wellesley in FY2005 was \$8,381 per pupil or a total of \$33,524 for the four students in Edgemoor Circle.

³⁷ Wellesley Police Department Data, Acquired 7/11/06

³⁸ Wellesley Public Works Department, 7/6/06

Table 40: Edgemoor Circle Fiscal Impact Model: Per Capita Multiplier Method

Wellesley -- Edgemoor Circle	Municipal Costs	Educational Costs	Development Net Revenue (Loss)		
	Subtotal Municipal Costs	Subtotal Educational Costs	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	\$19,943	\$33,524	\$53,467	\$43,646	(\$9,821)
<i>FY05 Market-rate Units</i>	\$13,295	\$16,762	\$30,057	\$40,295	\$10,237
<i>FY05 Affordable Units</i>	\$6,648	\$16,762	\$23,410	\$3,352	(\$20,058)
FY2004 Total Impact	\$13,447	\$0	\$13,447	\$23,138	\$9,691

Source: UMass Donahue Institute, 2006.

Fair Share Method

The Fair Share Method of fiscal impact analysis allocates municipal expenditures equally to each housing unit in town based on the proposition that every household has an equal stake in the provision of town services and fiscal impacts should be assessed at the unit of analysis that most closely conforms to the manner in which cost burdens (taxes) are actually assessed. Using this method of analysis, the Edgemoor Circle development had a net negative fiscal impact in FY2005 of \$30,285. The relatively high fiscal impact is attributable to the fact that, in contrast with the per capita method, total municipal expenditures were allocated to a smaller base (9,159 housing units) than under the per capita method (26,515 residents and 4,396 students). Given that the median residential tax payment in Wellesley in FY2005 was \$5,888, it is predictable that a development with lower than average assessed market-rate values would have a negative fiscal impact.

Table 41: Edgemoor Circle Fiscal Impact Model: Fair Share Method

Wellesley -- Edgemoor Circle	Total Housing Units	Net Cost Per Unit	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	12	\$6,161	\$73,931	\$43,646	(\$30,285)
<i>FY05 Market-rate Units</i>	9	\$6,161	\$55,448	\$40,295	(\$15,153)
<i>FY05 Affordable Units</i>	3	\$6,161	\$18,483	\$3,352	(\$15,131)
FY2004 Total Impact	12	\$6,005	\$72,059	\$23,138	(\$48,922)

Source: UMass Donahue Institute, 2006.

The Fair Share Method Applied to the Municipality

The Fair Share Method apportions all general fund expenditures in a municipality to housing units after subtracting all non-residential revenues that contribute to general town costs. In effect, municipal impacts are measured at the residential taxpaying unit: the household.³⁹ In fact, communities apportion town costs to households according to the current market-value of real estate: it is an axiom that some property-taxpayers contribute more money toward municipal costs than others. The Fair Share Method may be used, as in this study, to compare the tax-payments of affordable housing units relative to the average net municipal cost per household. In principal, any other housing unit in the community can be analyzed using the same method.

UMDI analyzed the distribution of all residential tax-payments in the Town of Wellesley in FY2005 using the Fair Share Method. In FY2005, the net municipal cost per housing unit was \$6,161 and the median tax payment

³⁹ The Fair Share Method distributes costs by housing unit. Residential taxes are paid by assessed parcel, which consist of single-family homes and condominiums, apartment buildings composed of multiple housing units, and vacant parcels. Apartment buildings that include multiple households also have higher assessed values, reflecting their greater size and market-value.

for single-family homes and condominiums was \$5,888. At Edgemoor Circle, the average Fair Share deficit per unit was \$2,524. Overall, in Wellesley 1,513 housing units (19%) were within \$1,000 below the median tax payment. All of the housing units below the median tax payment have a net negative fiscal impact using the Fair Share Method. The Town of Wellesley balances its expenditures due to the high value of many single-family homes in the community. The high value of some homes is reflected in the gap between the median residential tax payment in Wellesley of \$5,888 versus the average tax payment of \$7,328. The essential analytical point of the analysis is that the mixed-income development of Edgemoor Circle has a very similar fiscal impact on the Town of Wellesley as almost all other condominium developments in the town and many other single-family homes.

Town of Wilmington, Massachusetts

The town of Wilmington is a major suburban industrial town located 15 miles north of Boston in Middlesex County.⁴⁰ In 2005, Wilmington was home to 21,568 residents with 3,835 students in its public schools. According to the Massachusetts Department of Housing and Community Development, nearly 10 percent of Wilmington's U.S. Census 2000 housing stock of 7,141 housing units was certified as affordable in June 2006.

Buckingham Estates Development

Overview of Project

The Buckingham Estates development consists of a total of 23 single-family homes, including six homes designated as permanently affordable under enforceable deed restrictions. In FY2005, the affordable homes were assessed for \$179,679 to \$209,600 and the market rate homes had an assessed range of \$373,100 and \$436,800. Five of the 23 homes have four-bedrooms with the remainder consisting of three-bedroom homes. In FY2005, a total of 73 residents lived in Buckingham Estates including 23 children attending the Wilmington Public Schools.

Project History

The Wilmington Zoning Board of Appeals approved the development of the Buckingham Estates project in 1994 under a Chapter 40B Comprehensive Permit application designating a minimum of 25 percent under development as permanently affordable. The Buckingham Estates homes were initially sold from 1994 to 1996. The affordable homes sold for \$94,500 and the market-rate homes sold for \$171,500 to \$192,910. In FY2005, the homes at Buckingham Estates generated a total of \$72,580 in property tax payments for an average property tax bill of \$3,156 per home. The 17 market-rate homes contributed \$61,582 to the total while the six affordable homes paid a total of \$10,998 in property taxes. By comparison, the average tax payment in the Town of Wilmington in FY2005 was \$3,162.

Analysis of Fiscal Impact

UMDI analyzed the fiscal impact of the Buckingham Estates development using three methodologies: the marginal cost method, the per capita multiplier method, and a fair share method that allocated net expenses equally to all housing units in the community. The results of the analysis are presented below.

Marginal Cost Method

UMDI analyzed the marginal fiscal impact of the Buckingham Estates development through a combination of interviews with local officials and data analysis. As shown in Table 42, Wilmington has experienced a modest increase in school enrollment since 2001, with increases in 2001 and 2003 balanced by relatively flat enrollments in the remaining years. While total school enrollment in Wilmington has not changed significantly during the period under analysis, overall educational expenditures have increased substantially. The data indicates that the primary factors that are driving educational cost increases are not based on marginal changes in enrollment. It is most likely that the increased costs are due to cost pressures such as increases in wage or fringe benefits, energy costs, state and federal requirements or state aid.

⁴⁰ Wilmington Community Profile, MA Department of Housing and Community Development, 2006.

Table 42: Change in Education Budget and Enrollment from Previous Year

	Education Budget	Enrollment
2001	52.29%	3.55%
2002	7.57%	0.22%
2003	4.29%	2.64%
2004	4.33%	-0.50%
2005	1.99%	1.13%

Source: Town of Wilmington, MA Public Schools; MA DOR, Division of Local Services, 2006; UMass Donahue Institute, 2006.

A brief review of student enrollment, teacher employment and expenditures in 1999 and 2004 reinforces the conclusion that staffing patterns and expenditures have risen independently of enrollment across the Commonwealth. As may be seen in Tables 43 and 44, full-time equivalent (FTE) employment of teachers statewide and in Wilmington grew substantially from 1999 to 2004 while the state experienced a negligible increase in enrollments statewide and enrollment grew at a far slower rate than employment in Wilmington. The stark difference between the rates of increase of enrollments, employment and expenditures statewide and in Wilmington suggests that other factors are at work (other than enrollment) in determining the marginal school cost increases. It is beyond the scope of this analysis to determine the cause of educational cost increases in the case study communities; however, it is clear from the data across the case communities that enrollment is not the principal driver of marginal cost increases.

Table 43: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Statewide

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	955,592	957,511	1,919	0.2%
Total FTE	68,256	73,700	5,444	8.0%
Total Expenditures	\$6,395,235,205	\$8,225,714,988	\$1,830,479,783	28.6%
Total Salaries	\$3,081,654,861	\$3,960,071,176	\$878,416,315	28.5%
Ratio of Enrollment to FTE	14.0	13.0		
Ratio of Salaries to Expenditures	0.48	0.48		

Source: Department of Education, 2006.

Table 44: Comparison of Spending, Enrollment and Employment in 1999 and 2004, Wilmington

Category	Education Finance Data		Change from 1999-2004	
	1999	2004	Number	Percent
Total Enrollment	3,631	3,834	203	5.6%
Total FTE	217	285	68	31.2%
Total Expenditures	\$20,965,230	\$28,535,538	\$7,570,308	36.1%
Total Salaries	\$10,308,582	\$13,721,929	\$3,413,347	33.1%
Ratio of Enrollment to FTE	16.7	13.4		
Ratio of Salaries to Expenditures	0.49	0.48		

Source: Department of Education, 2006.

Through data acquired from the Wilmington Police Department, UMDI determined that there were not any excess demands on public safety costs caused by this development.⁴¹ The Town of Wilmington has 7,423 housing units and generated 32,957 public safety calls in the 2005 calendar year. This results in an average of 4.44 calls per unit in town. In contrast, the Buckingham Estates development has 23 units and generated 15 calls for an average of .65 calls per unit. According to the Town of Wilmington Planning Department, the developer of Buckingham Estates paid for the construction of the roads and infrastructure for the subdivision. As of December 2006, the Town of Wilmington had not accepted the road in the subdivision as public ways; the Town provides basic road plowing and emergency services to the homes but the homeowners are responsible for all costs associated with maintenance and infrastructure improvements.⁴²

Per Capita Multiplier Method

The per capita multiplier fiscal impact method analyzes the municipal impact of housing developments based on the per person allocation of net general fund expenditures. The per capita method, by definition, ensures that the single greatest factor that affects the fiscal balance of developments is the number of residents. This is particularly true of school costs associated with the project. With 23 students in the Wilmington Public Schools and net tuition per pupil in FY2005 of \$6,235 the Buckingham Estates development had total educational costs of \$143,397. In FY2005, Buckingham Estates generated \$72,580 in property tax payments; the net loss from Buckingham Estates using the per capita multiplier method was \$75,535 in FY2005. On average, each home at Buckingham Estates would have had to pay an additional \$3,284 in taxes for the development to balance its costs in FY2005.

Table 45: Buckingham Estates Fiscal Impact Model: Per Capita Multiplier Method

Wilmington -- Buckingham Estates	Municipal Costs	Educational Costs	Development Net Revenue (Loss)		
	Subtotal Municipal Costs	Subtotal Educational Costs	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	\$4,718	\$143,397	\$148,115	\$72,580	(\$75,535)
<i>FY05 Market-rate Units</i>	\$3,619	\$118,459	\$122,078	\$61,582	(\$60,496)
<i>FY05 Affordable Units</i>	\$1,099	\$24,939	\$26,037	\$10,998	(\$15,039)
FY2004 Total Impact	\$834	\$117,326	\$118,161	\$68,309	(\$49,851)

Source: UMass Donahue Institute, 2006.

⁴¹ Wilmington Police Department Data, Acquired 7/26/06

⁴² Interview with Town of Wilmington Planning Department, December 12, 2006.

Fair Share Method

The Fair Share Method of fiscal impact analysis allocates municipal expenditures equally to each housing unit in town based on the proposition that every household has an equal stake in the provision of town services and fiscal impacts should be assessed at the unit of analysis that most closely conforms to the manner in which cost burdens (taxes) are actually assessed. Using the Fair Share method of analysis, the development has a substantially lower net loss of \$5,823 in FY2005. For the development to break-even, each home would need to pay an additional \$253 in property taxes.

Table 46: Buckingham Estates Fiscal Impact Model: Fair Share Method

Wilmington -- Buckingham Estates	Total Housing Units	Net Cost Per Unit	Total Cost	Total Property Tax Revenue	Net Revenue (Loss)
FY2005 Total Impact	23	\$3,409	\$78,404	\$72,580	(\$5,823)
<i>FY05 Market-rate Units</i>	17	\$3,409	\$57,951	\$61,582	\$3,632
<i>FY05 Affordable Units</i>	6	\$3,409	\$20,453	\$10,998	(\$9,455)
FY2004 Total Impact	23	\$3,208	\$73,790	\$68,309	(\$5,481)

Source: UMass Donahue Institute, 2006.

The Fair Share Method Applied to the Municipality

Unlike five of the seven communities in this analysis, UMDI was unable to analyze the full range of taxpayers in Wilmington. The assessor's data for FY2005 was unavailable directly from the town and limited resources prevented the purchase of the data from a private data provider.

Appendix B

Description of the Case Study Developments

The core findings of this study are based on an analysis of eight mixed-income developments located in seven towns across the Commonwealth. The case study municipalities range in size from approximately 21,000 residents to 56,000 residents and are located in four of the state's seven *MassBenchmark* regions: the Pioneer Valley, Metro Boston, the Northeast and Cape Cod. The developments, identified in Table 47, were constructed between 1990 and 2003 and include projects approved under the state's Chapter 40B Comprehensive Permit law, inclusionary zoning bylaws, and by special permit. As of June 2006, two of the seven towns in the study had reached the state's 10 percent affordable housing requirement, while the percentage of low-income housing in the remaining five communities ranged from 3.6 percent to 9.8 percent.

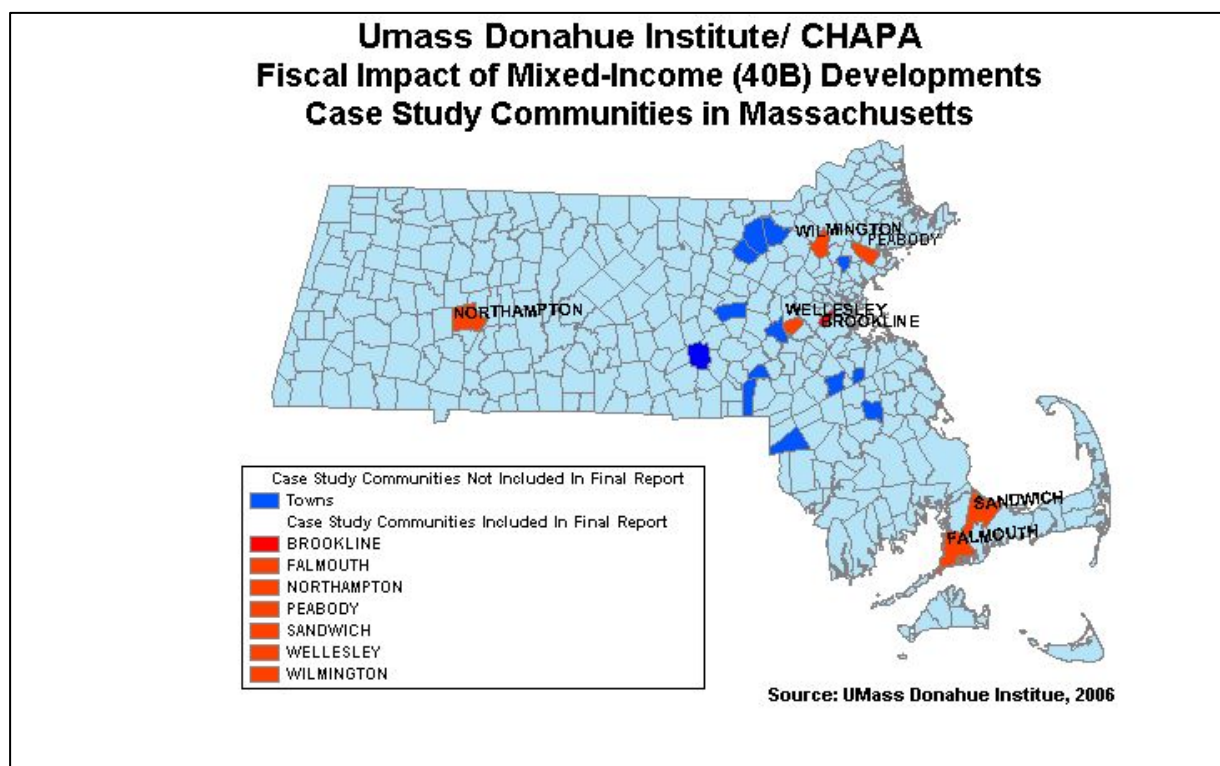
The case developments represent a broad range of sizes from small developments with six total units to medium and large-scale developments with up to 86 housing units. The average size of the developments is 33 units with an average of 8 affordable units per project. Half of the developments have a ratio of market rate to affordable units that approximates the 25 percent mandate in Chapter 40B. The development in the Town of Brookline was permitted under the town's inclusionary zoning bylaw and includes 14 percent affordable housing. The housing developments are 100 percent ownership properties and include a mixture of development types. Half of the developments in the analysis are composed of single-family homes. The remaining developments consist of a mixture of town homes, apartment-style and garden-style condominiums. A map with the location of the eight developments is located on the following page.

Table 47: Profile of Case Study Mixed-Income Developments

Town	Project	Total Units (Total:SHI*)	Year Built	Total Students	Total Development Population
Brookline	Kendall Crescent	35:5	1999-2001	5	70
Falmouth	Nickey Lane	6:2	1998-99	3	16
Falmouth	Fresh Pond Farms	21:6	2002-04	10	39
Northampton	Pine's Edge	38:6	1992	3	63
Peabody	Stoneybrook	86:22	1990	5	129
Sandwich	Sherwood Forest	36:9	2002	40	125
Wellesley	Edgemoor Circle	12:3	2003	4	27
Wilmington	Buckingham Estates	23:6	1996	23	73

*SHI: Massachusetts Subsidized Housing Inventory

Source: UMass Donahue Institute, 2006.

Figure 1: Distribution of Mixed-Income Case Study Developments

Case Selection Methodology

The UMass Donahue Institute developed case study selection criteria designed to ensure transparent and meaningful results that reflect the diversity of the homeownership projects and communities throughout the Commonwealth. Four criteria were used to eliminate municipalities that fell beyond the scope of our study. First, the set of cities or towns to be analyzed was limited by those communities that had mixed-income homeownership developments. UMDI worked with the Massachusetts Department of Housing and Development (DHCD) and CHAPA to develop a comprehensive list of completed Chapter 40B and other mixed-income developments in the state.

Secondly, cities and towns belonging to regional school districts were excluded from the final selection list. Communities that are part of regional school districts apportion expenditures between district communities according to formulas that differ from district to district and have been altered over time. UMDI would be unable to calculate the educational costs of housing developments in a manner that would allow for consistent analysis of expenditures over time.

The third selection criterion was to eliminate those towns that obtained a majority of their education funding through state aid. Communities with very high-levels of education aid are unlikely to provide a fair basis for estimating housing development impacts. UMDI defined “a majority of funding” as being more than two-thirds of all school expenditures. The final list of case study communities did not include any towns that receive

foundation aid. Foundation Budgets are calculated to ensure that all districts have adequate and equitable education spending levels.

The fourth selection criterion was to eliminate communities that were very large (60,000 or more residents) and very small (fewer than 5,000 residents). Large municipalities presented a challenge to isolate any measurable, marginal impact on town budgets. Very small municipalities were also excluded from the study as the impact of one development could be excessive due to the small number of existing homes and citizens. Many small towns are members of regional school districts and had already been eliminated due to that criterion.

After the four selection criteria were applied, 100 municipalities remained from which to select our case studies. Of these 100 cities and towns, 20 municipalities were randomly selected for the final town list. This selection process was performed by listing the towns in alphabetical order by name and choosing every fifth name. This resulted in a list of 20 towns that were reasonably distributed across the Commonwealth and include fast growing regions in which mixed-income developments often are challenged based-on presumed fiscal impacts.

In order to properly attribute household costs by housing unit in the case study communities, the data needed to be collected from multiple municipal and school departments in each town. In the course of this study, we encountered several factors that reduced the final case study list from 20 towns to 7 towns. These factors included: unavailable or incomplete data sets, unresponsive town or school officials, and the refusal of some town or school departments to participate. In general, the most difficult data to obtain was school records for each housing unit in the development. Many school departments were reluctant to identify the number of public school students per housing unit per year and school grade. The communities included in this report were very helpful in identifying our data needs and providing additional information that could offer a context for evaluating our results.

Data Collection

UMDI collected primary and secondary data for this report from May to October 2006. Broadly speaking, the data can be divided into two categories: secondary municipal data available from the Commonwealth and primary data gathered directly from the communities through field visits.

Municipal Data from State and Federal Databases

Municipal data available for state and federal sources was used to supplement data gathered through field work in the case study towns. This data was collected from three sources: the Municipal Data Bank,⁴³ which is housed in the Division of Local Services at the Massachusetts Department of Revenue; the U.S. Census Bureau, and the Massachusetts Department of Education. U.S. Census Bureau data was collected for each community to provide a profile of the community and a means of allocating expenditures per housing unit and per resident. Massachusetts Department of Education data was collected for each case study school district including aggregate enrollment by grade, staffing levels by year and detailed budgetary information.

The Municipal Data Bank provides public access to a wide variety of municipal data including the distribution of taxable property, property tax rates, levy limits, and annual expenditures and revenues. This analysis focused on local general fund revenues and expenditures, as these are the annual costs allocated through local appropriation and supported by property taxes. The municipal general fund revenues and expenditures are self-reported by community and include all sources and uses of revenue reported at the close of the fiscal year, excluding

⁴³ <http://www.dls.state.ma.us/mdm.htm>

enterprise funds.⁴⁴ According to the Municipal Data Bank, the general fund revenues and expenditures reported each year by cities and towns is the most reliable means of tracking actual taxation and spending by communities over time. The data allows for isolating educational expenditures and property tax revenues, as well as estimating educational aid and the distribution of property taxes by property type (residential, commercial or industrial).

Table 48: Secondary Data Sources

MA Division of Local Services	▪ Municipal Actual Expenditures and Revenues FY2000-FY2005 ▪ State Aid ▪ Property Tax Rates by Class ▪ Parcel Counts by Class and Usage Code ▪ Property Values, Taxable and Tax Exempt ▪ Population Data, Counts and Estimates
U.S. Census	▪ Town Population ▪ Number of Households ▪ Number & Percentage of Vacant and Seasonal Housing ▪ Building Permits
MA Department of Education	▪ Annual School Enrollment by District ▪ Staffing Levels & Salaries By District ▪ Annual Educational Expenditures by District

There are two important notes regarding the state data presented in this report. First, the general fund revenue and expenditure spreadsheets provided by the state do not identify the specific amount of state education aid or property tax revenue derived from residential property. Education aid is reported in the broad category state aid. Similarly, residential property tax revenue is reported within the category total [local] taxes, which includes commercial and industrial property taxes and excise taxes. To calculate the amount of state education aid received by each community, the state aid figure reported by the Municipal Data Bank was apportioned by the percentage of state aid received in the announced Cherry Sheet Aid for the fiscal year. The residential portion of property tax revenue received by the town was based on the town's levy limit and the proportion of property tax revenues derived from residential property.

Field Work

Extensive field work in each of the case study communities was essential to document the impacts of the profiled projects. UMDI gathered data from each town's assessor's office, school department, planning department and town clerk. In most cases, additional data or insights were obtained from the public safety departments and local departments of public works. The purpose of local interviews and data collection was to obtain a complete record of the mixed-income development in question, including: population, number of public school students, date of occupancy, assessed values by year, taxes paid by year, verification of affordable units, public safety usage, public works impacts, and mitigations and agreements documented in the special permit record of decision. The interviews with school officials were primarily designed to ensure understanding of local school trends not readily observable in published data.

UMDI gathered complete public school enrollment data for each housing unit in the study and interviewed school officials to determine enrollment pressures, budgetary issues and other factors that they felt were pertinent to the study. A complete history of assessments, property transfers and ownership were obtained from town assessor's offices for each property. In addition, a full record of assessments for all residential property was collected for

⁴⁴ Local expenditures and revenues are reported annually to the state in Schedule A, which includes revenue received, state and federal aid and transfers. The Schedule A expenditures exclude enterprise funds, trusts and capital expenditures and may vary considerably between communities based on how expenditures are organized locally.

five of the seven towns for 2005 fiscal year. Public safety data documented service calls (of any type) to the housing units in the development and, in most cases, the total calls in the town. The public safety data was used to rule out any excessive demand for public safety services in the case study developments. The adult population of each unit was determined through compilation of municipal census records available by year at the town clerk's office. The total household population was estimated by adding the census records to the school enrollment counts. The special permit records of decision, available from the zoning board of appeals in each community, document conditions of approval.

In general, the student population in each development was the most difficult piece of data to obtain from our case study municipalities. School districts varied in their ability to provide this data. Districts were unable to meet our request for a variety of different reasons, including: deficiencies in school databases, lack of resources to comply with the request, and a general reluctance by a number of school systems to participate.

Two considerations should be noted with respect to housing unit populations derived from the town censuses. First, household data was sporadically missing from town census records for households in some years if the occupants failed to return their census form. To limit under-counting of residents in these developments, we consulted the assessor's office property records for each year that data was missing. UMDI assigned a value to the missing population data based on the number of owners listed on the property card. Second, state law prevents children under the age of 17 from being counted in the town census. UMDI was able to account for the K-12 student population numbers from the data collected from the school district. Children younger than school-age, however, were not systematically counted in this study. While this means that there may be a slight undercount of the total population, it is unlikely that the pre-school age children would have a significant fiscal impact on the community.

Table 49: Data Collected in the Field

Town Planner	Special Permit Decision
	▪ Date of application and decision ▪ The mix of building types in the development ▪ Designation of income levels to qualify for housing ▪ Mitigation requirements and responsibility for public works
Town Assessor	Property Cards by Unit
	▪ Address and date of occupancy ▪ Unit designation as market or affordable ▪ Number of bedrooms and size of unit ▪ Initial sale price and sale prices over time ▪ Assessed values by year
Town Clerk	Town Census Data by Housing Unit per Year
Public Works	Public Works Associated with the Development
	▪ Capital investments associated with the development (roads, sewerage) ▪ Ongoing maintenance for roads or snow removal
Public Safety	Total Public Safety Calls for the town and the development in FY2005
Superintendent's Office	School Enrollment by Housing Unit per Year

Sources

The UMass Donahue Institute collected data from a variety of online sources and through field visits and interviews with seven cities and towns in Massachusetts. Information was collected from the following towns:

Town of Brookline
 Town of Falmouth
 City of Northampton
 City of Peabody
 Town of Sandwich
 Town of Wellesley
 Town of Wilmington

The data from these municipalities included:

Town Planner	Special Permit Decision
	▪ Date of application and decision ▪ The mix of building types in the development ▪ Designation of income levels to qualify for housing ▪ Mitigation requirements and responsibility for public works
Town Assessor	Property Cards by Unit
	▪ Address and date of occupancy ▪ Unit designation as market or affordable ▪ Number of bedrooms and size of unit ▪ Initial sale price and sale prices over time ▪ Assessed values by year
Town Clerk	Town Census Data by Housing Unit per Year
Public Works	Public Works Associated with the Development
	▪ Capital investments associated with the development (roads, sewerage) ▪ Ongoing maintenance for roads or snow removal
Public Safety	Total Public Safety Calls for the town and the development in FY2005
Superintendent's Office	School Enrollment by Housing Unit per Year

In addition, the UMass Donahue Institute collected data from the Commonwealth of Massachusetts, Department of Revenue, Division of Local Services, Municipal Data Bank; the Massachusetts Department of Education; and the U.S. Census Bureau.

The data from state and federal sources included:

MA Division of Local Services	▪ Municipal Actual Expenditures and Revenues FY2000-FY2005 ▪ State Aid ▪ Property Tax Rates by Class ▪ Parcel Counts by Class and Usage Code ▪ Property Values, Taxable and Tax Exempt ▪ Population Data, Counts and Estimates
U.S. Census	▪ Town Population ▪ Number of Households ▪ Number & Percentage of Vacant and Seasonal Housing ▪ Building Permits
MA Department of Education	▪ Annual School Enrollment by District ▪ Staffing Levels & Salaries By District ▪ Annual Educational Expenditures by District

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Acknowledgements

The authors of this report would like to thank a number of people without whom this report could never have been completed. First and foremost, we would like to thank the school and municipal staff of the following cities and towns: Town of Brookline, Town of Falmouth, City of Northampton, City of Peabody, Town of Sandwich, Town of Wellesley, and Town of Wilmington. The town employees in each of our case study communities were helpful, friendly and conscientious – we are extremely grateful. At the Massachusetts Department of Revenue, Lisa Juskiewicz was quite helpful in explaining the potential uses and drawbacks of a variety of data sets currently available from the state.

The authors wish to thank a number of busy professionals for their time and sharing their considerable experience with us: Professor Barry Bluestone, Bonnie Heudorfer, Judi Barrett, Keri-Nicole Dillman, John Connery, Ann Verrilli and Professor Robert Nakosteen. During the course of this study, a number of people at the UMass Donahue Institute have assisted in the process of research and preliminary analysis; in particular we would like to thank: James Palma, Joseph Wyman and Wenwen Zhang. The advice and support of Economic and Public Policy Research Director Mike Goodman was invaluable throughout the project. CHAPA Executive Director Aaron Gornstein and Program Manager Melissa Quirk were a pleasure to work with. Again, thanks.