## Chapter 40R School Cost Analysis and Proposed

## Smart Growth School Cost Insurance Supplement

Report and Recommendations for
The Commonwealth Housing Task Force
from

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Northeastern University
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The Commonwealth Housing Task Force

Center for Urban and Regional Policy<br>Northeastern

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The Commonwealth Housing Task Force is an unprecedented coalition of leaders convened by the Boston Foundation that has been meeting regularly since 2002 to address the state's housing crisis. Members include business and civic leaders, affordable housing advocates, the environmental community, organized labor, real estate developers, elected and appointed officials at both the state and local levels, and representatives of higher education. The Task Force is led by four co-chairs: Jerry Rappaport, Jr., President of the New Boston Fund; Bob Smyth, President of Citizens Bank of Massachusetts; Larry DiCara, Partner at the law firm of Nixon, Peabody; and Eleanor White, President of Housing Partners, Inc.

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## Preface

The Commonwealth Housing Task Force (CHTF) is pleased to present its second formal report: Chapter 40R School Cost Analysis and Proposed Smart Growth School Cost Insurance Supplement.

The Task Force was gratified by the passage of the Chapter 40R Smart Growth Zoning and Housing Production legislation in June of 2004. This statute, based upon the first CHTF report issued in October of 2003, Building on our Heritage: A Housing Strategy for Smart Growth and Economic Development, is a significant step toward encouraging communities to zone for multifamily housing and single-family housing on small lots. This will help generate increased production of both market-rate and affordable housing, bring the housing markets into balance, and enable employers to recruit and retain workers to build our State's economy. Regulations to implement Chapter 40R were issued at the end of March, 2005, and many communities are beginning the planning process to implement Chapter 40R.

However, the Task Force was very disappointed-as were local officials-that the provision to hold communities harmless from any financial loss attributable to increased school costs in new Chapter 40R districts (included in the original bill) did not survive the legislative process in 2004. Instead, Chapter 40R as enacted asked that a study be carried out to determine the projected effect of housing construction upon local school costs.

At the request of CHTF, and to assist the Legislature in examining this issue, Ted Carman, Barry Bluestone and Eleanor White analyzed this issue in detail and prepared this report. This study confirms the initial conclusions in the 2003 CHTF Report: school costs represent a significant financial issue for cities and towns related to the construction of single-family homes, less so in the case of multifamily (primarily 1- and 2-bedroom) development. That said, if the CHTF goal of constructing 31,000 new housing units is achieved over the next 10 years, we estimate that full implementation of a school cost "insurance policy" would cost the State only $\$ 35$ million in the tenth year, or less than one percent of the projected school funding budget in that year. This report uses conservative estimates. If communities in fact suffer less financial impact, costs would be even less to the State. In any event, due to the lead time required for housing development, there is no financial impact to the State budget until FY 2007 at the earliest, with only slight impact for the first few years after that.

The Task Force is pleased to learn of the inclusion of the proposed Chapter 40 (Smart Growth School Cost Reimbursement) in the Senate FY2006 budget, which would implement the recommendations in this report, address the school cost issue in a responsible and cost-effective manner, and pave the way for quick and successful implementation of Chapter 40R. We hope that this Report will inform the Legislature's review of Chapter 40S.

# 1. <br> Executive Summary 

The conclusion of this report is that:
As currently enacted, Chapter 40R is unlikely to result in appreciable progress toward the construction of sufficient new housing to moderate the excessive home price inflation that has characterized Massachusetts for over 20 years.

It is the recommendation of this report that:
The provisions of Chapter 70 be amended to provide for a Smart Growth School Cost Insurance Supplement to be paid to communities which pass Chapter 40R Smart Growth Districts.

Providing this supplement to insure communities against increased school costs is expected to substantially increase the number of communities implementing Chapter 40R.

The School Cost Insurance Supplement would cover any net education costs incurred by the community for public school students living in Smart Growth Districts, after taking into consideration increased property tax and excise tax revenues.

This analysis demonstrates that many communities will face significant increases in school costs not covered by increased property and excise taxes if Chapter 40R Smart Growth District zoning results in the development of moderately priced housing in which public school children live.
> - When new single family homes are built in a foundation aid community
> (which constitute 113 out of 351 communities) the community will experience no net costs, because Chapter 70 payments increase to cover any additional enrollment. However, Foundation Aid Communities often will not be able to predict whether they will still be Foundation Aid Communi-
ties when the new students enroll, and therefore cannot be assured of the increased Chapter 70 payments in future years.

- When new single family homes are built in a non-foundation aid community (the remaining 238 communities), the community will experience increased school costs over and above the amount of additional property and excise tax from the new housing, net of the cost of other local services, if the assessment on each new home is $\$ 550,000$ or less and the number of school children per home is a little less than $1.0^{1}$. The net cost to the typical community, based on a modest priced single family home with a $\$ 250,000$ assessment, will average \$5,000 per home per year.
- For typical mixed income multifamily developments, only $43 \%$ of the communities experience net costs - and the average amount for each of them is estimated to be $\$ 320$ per apartment unit.

As a result, there is expected to be substantial resistance to passing Smart Growth Districts in many communities, particularly those that would allow modest single family homes on small lots. Thus, absent change, the ongoing shortage of such housing will continue, as will the escalation of house prices.

This analysis recommends that the Legislature and the Governor amend Chapter 70 to institute a program to provide a Smart Growth School Cost Insurance Supplement for public school students that live in new housing in Smart Growth Districts. The purpose of this recommendation is to change the long term fiscal implications for communities with 40R Districts in order to eliminate the
"can't afford the school costs" rationale for not passing a proposed 40R District.

Because the Smart Growth School Cost Insurance Supplement recommended here takes the form of an insurance policy for local communities, all communities in the State are protected from excess school costs, but the overall cost to the State is estimated to be quite modest.

The Smart Growth School Cost Insurance Supplement recommended here will equal:
■ The cost of educating students living in new housing in Smart Growth Districts;

- Less an amount equal to the sum of:

1. New property and excise taxes in the Smart Growth District times the average education percent of total local spending across the Commonwealth (about 52\%), plus
2. Any increases in other State education funding that is directly a result of these new students.

As stated above, while the potential cost to each community could, theoretically, be substantial (and therefore pose a legitimate barrier to passing a 40R District), the estimated average cost across most communities is likely to be quite modest. This occurs because much of the housing is expected to be more expensive (and therefore to have higher assessed values), and to have fewer school aged children.

If 31,000 new housing units are constructed in Smart Growth Districts over the next 10 years, the following costs are anticipated:

NO State funding outlays until FY 2008

- Additional Costs for Single Family Homes in 2014 \$ 33,700,000
Additional Costs for Multifamily Homes in $2014^{2}$ \$ 1,550,000
$\$ 35,250,000$ in costs in 2014 is estimated to be only $0.8 \%$ of the anticipated Chapter 70 Budget in that year.


## 2. <br> Report

# Background 

Section 367 of the FY 2005 Budget of the Commonwealth states that:

The department of housing and community development, in consultation with the department of education and the department of revenue, shall study the impact on educational systems in cities and towns as a result of adopting smart growth zoning districts described in Chapter 40R.

The Commonwealth Housing Task Force has engaged the Center for Urban and Regional Policy to gather data and provide an analysis for submission to the Department of Housing and Community Development ("DHCD") to provide background and assist it and the other departments in complying with the mandate of Section 367.

The research, analysis, and drafting of this report was carried out by Ted Carman, President of Concord Square Development Company, in conjunction with Professor Barry Bluestone, Director of the Center for Urban and Regional Policy at Northeastern University, and Eleanor White, President of Housing Partners, Inc.

## The Problem

Chapter 40R is a response to rapidly escalating housing prices in the Commonwealth. Home costs have risen to the point where it is difficult for businesses, universities, hospitals and other employers to attract high quality employees to Massachusetts. Both house and apartment prices rose dramatically during the late 1990s. However, since the economic decline that began in 2001, the price inflation experienced by a renter of a multifamily apartment has diverged from the cost of buying a single family home.

In the context of a period in which 160,000 jobs were lost in the Commonwealth, the number of apartments that were built continued to increase each year, rents have stabilized or gone down, and vacancies have
increased to between 5\% and $10 \%$ across the apartment markets. In many regards, this reflects the success of the 40B Zoning Appeal process, which has made possible much higher rates of production since the year 2000. However, it should be noted that this moderation has not been experienced in all Massachusetts communities, where multifamily rents have continued to escalate. And, problems of affordability for many families have continued to worsen.

During the same period, single family home prices have continued to rise, increasing over $90 \%$ in the last five years. In 2004 production finally began to increase, with total housing production for the year anticipated to be in the range of 20,000 units (this number includes multifamily), the highest level since 1989. In the last few months of 2004 realtors began to identify a slowdown in sales and an increase in the inventory of single family homes. This may lead to a reduction in the amount of annual price appreciation.

However, much of the increase of production has been in expensive homes, costing over \$500,000 each. In November, 2004, the Governor said that building affordable and moderate income dwellings, "not McMansions" was critical for Massachusetts ${ }^{3}$.

Although employment has recently begun to increase in Massachusetts, it has not reached the levels of the late 1990s. Thus, when the economy once again heats up, the current improvements in the apartment market and the potential improvement in the single family home sale market are likely to be transitory, and prices will once again be subject to rapid escalations. The housing policy of the Commonwealth must anticipate and encourage a growing economy in order to provide for better lives for its citizens.

In order to keep the forces of supply and demand in balance, housing policy and regulations must allow for a rapid response from the building community when the demand for housing increases - which will inevitably happen when the economy expands. In particular, as the Governor has stated, it needs to encourage the building of "entry level" single family homes - those priced in the $\$ 250,000$ to $\$ 350,000$ range.

In the context of an expanding economy, only the substantial production of entry level, single-family housing costing $\$ 250,000$ to $\$ 350,000$ is likely to keep the inflation of house prices at moderate levels.

This is particularly important in order to increase the attractiveness of Massachusetts to young families. Largely because of high housing costs, the size of the cohort of 20 to 34 year-olds declined by $16 \%$ during the decade of the nineties. The State actually experienced an overall reduction in population in recent years.

## Chapter 40R speaks directly to this objective.

The goal of Chapter 40R is to increase production of housing, both single family and multifamily, in smart growth locations. It provides incentives to communities that pass high density zoning in eligible locations. In order to be eligible for the incentives, multifamily housing must allow densities at 20 units per acre and single family housing zones must allow lot sizes for 8 homes per acre. Once a 40R district is passed, the owner of the land has an as-of-right to build to the allowable densities. The building permit can be obtained expeditiously, with relatively little negotiation and extractions, and will not require the current multi-year process.

Chapter 40R will make it advantageous for communities to take a more pro-active role in determining how their community is to grow in the future. It is expected to have the result of re-directing multifamily production, which might otherwise take place using the provisions of 40B, towards smart growth locations, as determined by the community.

At a density of at least 8 units per acre for singlefamily homes, in place of the typical density of one unit per acre, or one unit on two acres, land costs per housing unit should decline significantly making the production of more affordable housing economically feasible. Further, if a surplus of land so zoned can be achieved, the result of the surplus will also contribute to lower overall land prices. The cost of land often bears a direct relationship to the selling price of a home, typically $20 \%$ to $30 \%$.

Lower land prices can then be, and are expected to be, reflected in lower home prices. A single family home can be profitable when selling at a substantially lower
price. And, the lower the price, the broader and deeper the market for the builder's product, and therefore the lower the overall development risk. Thus, the ability to produce homes and sell them at a profit at a lower cost will make it possible to produce more homes with less risk - thereby increasing the amount of supply in the single family home marketplace and more closely matching the demand for homes with the supply.

However, Chapter 40R, as enacted, does not include provisions to provide financial assistance for school costs in circumstances where new property tax revenues do not cover the costs of educating the public school students in Smart Growth Districts.

As a result, this analysis demonstrates that most communities in the Commonwealth are currently financially penalized if they allow modest-priced single family homes to be built in 40R districts.

The communities affected are the approximately 240 communities in which the actual school spending for education exceeds the Foundation Budget for that community. For the last four years these communities have received no additional Chapter 70 Funds for any new students added to their school systems.

113 communities received Foundation Aid in the FY 2005 budget. Given the way that the Legislature and Governor have funded Chapter 70 over the years, these communities will receive additional Chapter 70 Funds for each new school child in the system, in an amount sufficient, when combined with the education portion of local property tax revenues, to provide the community with funds equal to $100 \%$ of the Foundation Budget for each new student.

However, in non-Foundation Aid Communities the property tax revenues generated from modestly priced new homes multiplied by the Education Percent, do not come close to covering the average educational costs associated with the projected number of school aged children living in those homes and attending local public schools. Because Proposition $21 / 2$ limits the increase in local property tax revenues to $2.5 \%$ per year (plus revenues from new growth), if school and /or other costs are increasing faster than this amount, the community feels great financial pressure and is forced to cut other spending or reduce per student spending on existing students. ${ }^{4}$

A further problem is that communities cannot predict with certainty whether or not they will be a Foundation Aid Community three years in the future. For the last five years, annual Chapter 70 payments have succeeded in giving all communities sufficient funds to cover the Foundation Budget for the community. Since all communities start at the Foundation Budget level each year, minor changes in the Municipal Revenue Growth Factor, the number of students in the school and other events out of the control of the community can and do bring communities in and out of need for additional Chapter 70 Aid in order to reach the Foundation Budget (please see later sections of this report for more detailed explanations of these factors).

This study demonstrates that if a community has net school spending only slightly (for instance, less than one tenth of one percent) above the Foundation Budget, that community will currently get zero additional Chapter 70 money for new students. Consequently, when considering whether to allow single family homes in a new Chapter 40R Smart Growth District, most communities that are currently eligible for Foundation Aid will have to consider the fact that three years in the future, when the students begin to enter the school system, they may no longer be eligible for Foundation Aid and will be required to pay all the net costs of new students without additional assistance from the State. The negative financial implications from this are likely to make even Foundation Aid Communities reluctant to pass 40R districts that allow moderately priced single family homes.

Under these circumstances, this analysis concludes that few communities will enact Smart Growth Districts that allow modest priced single family homes.

## The Proposed Solution

It is proposed that the Legislature pass and the Governor sign an amendment to Chapter 70 that would protect communities from net education costs arising from students living in new homes located in 40R Smart Growth Districts. The amount to be paid to the community will be called the "Smart Growth School Cost Insurance Supplement."

If the State makes such a financial commitment to communities, it will remove from local discussion the concerns about net school cost that may be incurred as a result of passing a Smart Growth District. This will make it far more likely that proponents will be able to obtain the two-thirds vote required to pass such a district in a town meeting.

The formula to calculate the Smart Growth School Cost Insurance Supplement is proposed as follows:

1. Annually count the public school students living in new housing in a Chapter 40R Smart Growth District = the Count.
2. Multiply the Count times the average Actual School Spending per pupil for the community. This will yield the Education Cost for the Smart Growth District.
3. Calculate the new (non-education specific) revenues to the community received directly as a result of the New Growth in the District from the Property Tax and Auto Excise Taxes. The Property Taxes will include both residential and commercial tax revenues. This amount will $=$ New Local Revenues.
4. The State will determine an Education Percent each year. The same Education Percent will be used by all communities. The Education Percent will equal the average ratio of Actual School Spending to total Municipal Spending in all non-Foundation Aid Communities in the Commonwealth for the prior year. This will be a non-weighted average, such that the Education Percent for a small community will have the same weight as the Education Percent for a large community in computing the average.
5. The New Local Revenues will be multiplied by the Education Percent. The result will = Local Revenues for Education.
6. Any additional State Aid for education that is received by the community as a direct result of the students living in new housing (new growth) in the Smart Growth District will be determined. This amount will be Additional State Revenues for Education.
7. From the Education Cost will then be subtracted the Local Revenues for Education and the Additional State Revenues for Education. The result will be the Net Smart Growth Education Cost.
8. The Annual State Supplement will equal, and will cover the gap, of any positive amounts of Net Smart Growth Education Cost.

Chapter 70 is the logical section of the General Laws to be amended in order to provide for a Smart Growth School Cost Insurance Supplement. This amendment can be properly seen as an extension of the current provisions of Chapter 70. For Foundation Aid Communities, Chapter 70 provides additional funds for new students. Under this proposal, additional funds would also be provided for new students who live in new housing in Smart Growth Districts. In both cases, the amount paid by the State would be based on the average per student cost of education, and in both cases, the amounts paid by the State would be reduced by property tax revenues from New Growth.
The 40R Supplement is proposed to be calculated annually, based on the actual number of students from the Smart Growth District, and based on the actual, at the time, average Actual School Spending per student. This appears to be the best way to give communities assurance that over a long period of time the community will not suffer financially from allowing the homes to be built.

At the same time, it allows the State to pay only for those net costs that are actually incurred by the community for the students in the Smart Growth Districts, and takes into consideration any new revenues, including commercial and excise tax revenues, that may be received by the community.

The next section of this narrative reviews the approach and a number of the assumptions used in developing the cost formula, as well as in the overall analysis of the Study.

## Methodology of the Analysis

The following paragraphs describe a number of the assumptions and the methodology used in the overall analysis and in developing the proposed formula for the School Cost Insurance Supplement.

## 1. Cost of Education per Student:

A key question that must be answered in an evaluation of the new housing is how to determine the cost of educating the children that are likely to live in the housing. As noted above, this analysis and the proposed formula use the average actual cost of education per student for each separate municipality.
However, this choice should not be construed to reflect unfavorably on the per capita, marginal cost method of determining education costs associated with students from new housing. This is a standard approach that is often used in determining education costs. It identifies the schools in which the children will be educated, evaluates the incremental new costs for adding " $x$ " number of students to those schools, adds up these costs, and then divides by the estimated number of new children that are anticipated to live in the housing.
The per capita, marginal cost method is acknowledged by the authors of this report to be a highly appropriate method to use when doing a cost/ benefit analysis of a proposed new housing development.

In such a case, the question at hand is a narrow one: what impact will this specific housing have on the cost of providing municipal services, including education, to the new residents of this housing? The marginal costs to be absorbed by the community if the housing is built can be estimated and then compared to the new revenues that the community will receive from the property tax, excise tax, and
other revenues that may be the result of new housing units or an increase in population. In many cases such an analysis will, appropriately, result in marginal education costs that are less than the average costs because the number of new students is likely to be small in the context of the total number of students in the system or the specific schools themselves. Because of the small number of new students, the school may not need to hire additional staff and may be able to absorb the new students with only limited additional expenditures.

However, one of the reasons communities resist approving housing developments even when the marginal cost analysis shows that the fiscal implications are neutral or a net positive is that the community expects that if a series of new developments are built, the marginal costs will tend to approach average costs and the cost benefit analysis may eventually turn unfavorable. The community may believe that allowing one development will set a precedent for future developments in such a way that a current approval will make it more difficult to turn down future proposals, even if the cost/benefit analysis at that time were to become unfavorable.

Similarly, this study is looking at the larger, longer term issue because the new zoning being considered by communities under Chapter 40R is likely to result in not just one new housing development, but a series of developments. To be successful in moderating housing price inflation, a substantial amount of land must be zoned for higher density development. The build-out of the zoned land may take some period of years. During the build-out period, other development is likely to take place in the community. Consequently, when the zoning is passed, it will often be impossible to accurately estimate the number of new units that will be built, the timing of those units, and the capacity of the schools to absorb the new students at the time when the housing is built. Thus, it will be impossible, in advance, to do an accurate per capita estimate of new school costs for the students that may come to live in the Smart Growth District.

This problem is further compounded for the community because Chapter 40R districts must allow housing to be built as-of-right. Once it is
passed, and when the market justifies the construction of new housing, the housing will be built, regardless of the impacts at that time on the school system.

In constructing a formula for determining the amount of the Smart Growth School Cost Insurance Supplement, it is important that the formula be easy to understand, be relatively simple to administer, and be as fully workable in year 10 or year 17 as it is in years 1 and 2. It must give town meeting voters and city councilmen the confidence that over the long run the School Supplement will be sufficient to cover the costs of educating the students that live in the new housing.

In addition, while it is possible to do a marginal cost analysis on new students entering a school system over the next few years, a similar analysis 10 years out would be of doubtful relevance and meaning. The cost analysis and the formula must work over multiple decades, not just for a few years.

As a result, the analysis developed in this study uses throughout the average cost of education per student as the basis for the evaluation of costs and as the basis of the formula for the Smart Growth School Cost Insurance Supplement. Average costs are shown separately for each community.

It bears stating again that this analytical technique should not be construed as being in conflict with the standard per capita approach for doing cost/benefit analyses for individual housing developments. Instead it should be understood as a way to accurately assess education costs for students from multiple housing developments that may be built over an extended period of time, each potentially under significantly different circumstances.

## 2. Required Local Contribution:

As noted above, the formula and the analysis are structured to be similar to Chapter 70 in its overall design and concept.
Chapter 70 stipulates that a "Required Local Contribution" towards the payment of education costs be calculated each year based on the assessed value of all property in the community including

New Growth. Similarly, the proposed Smart Growth School Cost Insurance Supplement takes into consideration the assessed value of all property, both residential and commercial, which is newly constructed or substantially rehabilitated in a 40R Smart Growth District. In both cases, it is assumed that the community should dedicate a portion (the Education Percent) of the property tax revenues from the new growth to pay for education costs.

For the School Cost Insurance Supplement, the formula proposes that, in addition to property tax receipts, a portion of the Vehicle Excise Tax revenue associated with new growth also be devoted to education costs. This will reduce the amount of funds required to be paid by the State for the School Cost Insurance Supplement.

## 3. The Education Percent:

The Education Percent is used to allocate local revenues into either education or non-education costs. It is proposed that the Education Percent used for calculating the Smart Growth School Cost Insurance Supplement be the same for all communities across the State. The reasoning for this recommendation is as follows:

Communities across the Commonwealth have substantially varied percentages of their revenues going to education and non-education costs. A variety of reasons lead to these disparities. The amount of commercial tax base is one factor; the amount of Chapter 70 aid is another, and historic anomalies (i.e. the levels in 1993 when the Chapter 70 Formulas were devised) is a third.

For instance, a community with a high commercial tax base in comparison to its residential base will have a lower Education Percent than a community with little commercial development. Yet if a new home is built in each community, the types of costs that will be incurred, both for education and for non-education services, are likely to be similar. Consequently, it does not make the best sense to continue historic or locational anomalies in the School Cost Insurance Supplement formula.

The question at hand is: to what extent will new housing in the Smart Growth District, over many years,
add to the non-education costs in the community? The amount of money set aside (not committed to the Education Costs) in the community needs to be sufficient, over the long haul, to cover the non-education costs that will be incurred by the community.

New housing built in different communities is likely to have similar long term costs associated with its construction. Therefore, using the statewide average for school and non-school costs is believed to be the most relevant and appropriate percentage and the one with the most fairness across communities.

In FY 2002, the average Education Percent in all nonFoundation Aid Communities across the State was $52.7 \%$. Using this figure means that for each dollar of property tax or auto excise tax revenue from the Smart Growth District, roughly 53 cents will be used for education, and 47 cents will be used for noneducation costs.

## 4. The Analysis:

Part 3 is an explanation and several charts showing the results of a spreadsheet that calculates the fiscal impact of adding one additional single family home in a theoretical community under a variety of scenarios. This analysis assumes that from year to year the number of school children remains the same (except for the new home), that there is no new growth, and that the tax rate is the same from year to year. The objective of this analysis is to show the impact of adding the one new house in the community at different levels of actual school costs in relation to the Foundation Budget, and with different numbers of school aged children per home. It also provides a variety of inflation scenarios. This report does not include the spreadsheet, which is available on request from Ted Carman at Concord Square Development Company, Inc. (carman@concordsqdev.com / 617-482-1997).

Part 4 shows the results of a series of spreadsheets that calculate the net financial impact of building one new apartment or one new single family home in each of the 243 community school districts in Massachusetts that are not part of a regional school district. The spreadsheets are included as Appendix
A. These analyses are based on the proposed formula for calculating the School Cost Insurance Supplement. They show how many communities have net costs, and they calculate the average amount of the costs for those communities that have costs. The spreadsheets were used to prepare a sensitivity analysis based on a range of assumptions. Data was prepared showing (a) the percent of communities having costs, and (b) the average amount of those costs. The data was developed using five different levels of assessed values and four different numbers of School Aged Children per apartment or single family home. The results are then shown in graph format. Near each graph is the data on which the graph is based.

Part 5 shows the results of bringing this information together in order to project the cost to the State for the Smart Growth School Cost Insurance Supplement over a 10 year period. It works from estimates of the number of housing units to be built in 40R Smart Growth Districts over this period. It then estimates the cost for the State to make the School Cost Insurance Supplements based on a range of specific assumptions. Units built in Foundation Aid Communities are excluded because ongoing Chapter 70 payments are expected to cover any potential costs in these districts. A range of assessed values are used, reflecting the expectation that housing of different values will be built in different locations. However, a single estimate of the number of school aged children is used for each of the multifamily and the single family calculations.

The estimate used for the multifamily units is .129 school aged children per unit. This figure was derived from Census Data in a report from the Donahue Institute of the University of Massachusetts prepared for the Citizens Housing and Planning Association (CHAPA) in 2003. It was assumed that in a typical multifamily housing development of 100 units, 42 would be one bedroom units, 50 would be two bedroom units, and 8 three bedroom units. The appropriate number of school aged children for each sized unit, based on the Census Data, was averaged to result in the .129 figure (See "Building on our Heritage, A Housing Strategy for Smart Growth and Economic Development" page 12 of Exhibit 1 for additional detail).

This figure is supported by empirical counts of typical apartment communities in Massachusetts. For instance, a March, 2005 analysis of the number of children attending public schools in Malden who live in 7 different multifamily housing developments almost exactly matches the estimate used in this study. The seven developments have 2,115 units, and 279 students live in those units, for an average of .13 per unit.

The estimate used for the single family housing of .95 school aged children per home is based on a census data analysis prepared by the Center for Urban and Regional Policy of Northeastern University and from data from the Donahue Institute in the report described above (which showed .966 SAC per home). The CURP census data estimates that the number of school aged children in single family 3 and 4 bedroom homes where the families are recent movers will be approximately 1.0 children per home. This has been reduced to .95 in order account for the fact that a number of children will attend private school or for other reasons will not be in the local school system. The figure of .95 SAC per single family home is also supported by empirical studies carried out in Massachusetts.

It is expected and acknowledged that various properties will have different numbers of school aged children. However the figures of .129 for multifamily and .95 for single family housing are considered reasonable estimates of the averages over the many properties that are expected to be built in Chapter 40R Smart Growth Districts.

Part 6 is the proposed Statutory Language for the Smart Growth School Cost Insurance Supplement.
Part 7 is a memorandum that outlines how Chapter 70 works in Massachusetts.

The Appendix shows the results of the community by community analysis of net school costs for the 243 communities in Massachusetts that are not part of a regional school system.

## 3.

## New Home Impact Analysis

This analysis has been prepared to model the financial situation facing a local community with regard to having one (or more) additional housing units added to its tax base. The new housing will bring not only new tax revenues, but also some number of new students (School Aged Children, or "SAC") that must be educated in the public schools.

The analysis develops a school budget and a calculation of Required Local Contribution and Chapter 70 Aid for a base year \#1. It then carries out two parallel calculations, showing the same information for the next year (a) with no new housing, and (b) with the addition of one (or more) new housing units. At the end, a calculation is made of the surplus or deficit that is incurred by the community as a result of the additional new housing unit.
The analysis is performed simultaneously on seven different sheets which are not included in this report. (Please contact Ted Carman at carman@concordsqdev. com for a copy of the calculations). It is set up so that different assumptions can be inserted for each Simulation. The assumptions that can be altered are (a) the ratio (\%) of Actual School Spending to the Foundation Budget, and (b) rates of inflation for Property Values, for increases in Actual School Spending, the Foundation Budget, and in the amounts of Minimum Aid. Because there are seven simulations for which the calculations occur simultaneously, the assumptions can be varied on each of the seven, making it possible to graph the results, and understand the changes that take place with different assumptions.

The key element in the calculations is the ratio of the Actual School Spending to the Foundation Budget. If these are the same, there appears to be no net cost to the local community from an additional housing unit. However, if the Actual School Spending to Foundation Budget equals $100.5 \%$ or more, then the community will incur a substantial net cost unless the house has a high assessment and the number of School Aged Children is assumed to be low.

The first example is the tab called "Base Condition". It is set up to show a situation where the Actual School Spending exactly equals the Foundation Budget, and there are no changes in inflation from Year 1 to Year 2. The subsequent 6 Simulations have varying inputs, to show the different results.

There are two sets of Inputs shown below. The first are a series of values that remain the same across all seven of the Simulations. The second set of Inputs allows different values to be applied to each of the seven Simulations. Following the second set of Inputs is a summary of the results from each of the Examples. Key information is then graphed.
In designing the analysis, it was decided to have the initial tax rate and the initial Education Percentage be the same across all the Simulations. To the extent that the Actual School Spending to Foundation Budget ratio exceeds $100 \%$, the assessed value is calculated at a higher amount in order to provide tax revenues sufficient to cover the full costs in Year 1. The results show that the Tax Base must increase as the ratio of Actual School Spending is higher. This is, in fact, what typically happens in communities. To the extent they have a tax base with a higher assessed value, the community is able to afford a larger education budget in comparison to the Foundation Budget.

## Variables - same for all Simulations

| Tax Rate per thousand, year 1 | 15 |
| :--- | :---: |
| Education Percent | $52.0 \%$ |
| Chapter 70 Payment, year 1, per student | 3,100 |
| Foundation Budget per Student Year 1 | 6,700 |
| Number of Students, Year 1 | 200 |
| Number of New Homes | 1 |
| Assessed Value of New Home | 250,000 |
| Avg Children per new home | 0.95 |

## Inputs Specific to each of the Seven Simulations:

|  | Actual Spending <br> as \% F.B. | Assessed <br> Value | Inflation for Year 2 <br> School <br> Costs | Found <br> Budget | Chapter 70 <br> Minimum Aid |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Base Condition | $100.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Simulation \# 2 | $100.0 \%$ | $2.5 \%$ | $2.5 \%$ | $2.5 \%$ | $2.5 \%$ |
| Simulation \# 3 | $100.2 \%$ | $2.5 \%$ | $2.5 \%$ | $2.5 \%$ | $2.5 \%$ |
| Simulation \# 4 | $101.0 \%$ | $3.0 \%$ | $2.0 \%$ | $2.0 \%$ | $3.0 \%$ |
| Simulation \# 5 | $105.0 \%$ | $4.0 \%$ | $2.5 \%$ | $2.5 \%$ | $2.5 \%$ |
| Simulation \# 6 | $125.0 \%$ | $6.0 \%$ | $2.5 \%$ | $2.5 \%$ | $2.5 \%$ |
| Simulation \# 7 | $150.0 \%$ | $7.0 \%$ |  | $2.5 \%$ | $2.5 \%$ |

(These inputs calculate out to the results shown just below)

Results:

|  | Assessed <br> Value | Surplus/ <br> (Deficit) | Chapter 70 <br> Foundation Aid | Year 2 <br> Actual Spending | Found <br> Budget | Year 2 <br> Tax Rate |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Base Condition | $92,307,692$ | 0 | 4,415 | 6,700 | 6,700 | 15.00 |
| Simulation \# 2 | $92,307,692$ | 0 | 4,500 | 6,868 | 6,868 | 15.00 |
| Simulation \# 3 | $92,651,282$ | $(2,760)$ | 1,753 | 6,881 | 6,868 | 15.00 |
| Simulation \# 4 | $94,025,641$ | $(4,593)$ | 0 | 6,970 | 6,901 | 14.93 |
| Simulation \# 5 | $100,897,436$ | $(4,855)$ | 0 | 7,211 | 6,868 | 14.78 |
| Simulation \# 6 | $135,256,410$ | $(6,196)$ | 0 | 8,584 | 6,868 | 14.50 |
| Simulation \# 7 | $178,205,128$ | $(7,845)$ | 0 | 10,301 | 6,868 | 14.37 |

These results then are used as the basis for Chart 1.
An additional set of calculations was carried out that resulted in Chart 2.

CHART 1
Net Cost of One New Home with . 95 SAC
Actual Spending as a Percent of Foundation Budget 2.5\% Inflation - \$250,000 Value


CHART 2
Deficit for \# School Aged Children per Home $\$ 250,000$ Assessed Value Actual Spending $=110 \%$ of $\mathrm{F} . \mathrm{B}$


# 4. <br> Net Education Cost Analysis 

## Community by Community Analysis

The immediately following pages provide a summary of the results of calculations of the net education cost for 243 communities from the construction of one single family home or one multifamily apartment under a range of assumptions regarding assessed value and number of school aged children. The calculations themselves (using one set of variables) are contained in Appendix A. Immediately following the list of assumptions below are two sections titled "Sensitivity Analysis" - one for single family homes and one for multifamily apartments. These sections show the results from using a range of different assumptions. They demonstrate the extent to which the results are sensitive to changes in the assumptions. The following notes apply both to the data in the sensitivity charts as well as to the spreadsheets in Appendix A.

## It is assumed:

1. That "Foundation Aid Communities" will receive additional funding from Chapter 70 equal to the difference between (a) the increase from the town's property tax and excise tax revenues from the home or apartment times that community's Education Percent and (b) the cost to educate the pupil(s) who live in the house or apartment and attend the local public schools.
2. That non-Foundation Aid Communities receive no increase from Chapter 70 when enrollment increases.
3. That the cost for each new pupil is equal to the actual average spending per pupil in the community. See the Report (Section 2) for more detail on this assumption.
4. All data is for FY 2002. The Actual Spending per pupil is from the Department of Education Web Site. The balance of the data is from an extensive spreadsheet prepared by the State's Department of Administration and Finance.
5. The Education Percent is the percentage of total local expenditures allocated to be spent on education under this proposal. The figure used, $52.7 \%$, is the FY 2002 average across all communities in the State that are not in a regional school system. See the Report (Section 2) for a detailed discussion of the rational for using this figure as the most appropriate basis for the Education Percent.
6. The amount in the "Net Impact" column equals the actual education spending per home or apartment, less the Education Percentage times the sum of the property and excise taxes generated by the home or apartment. This amount is the same as the amount of the proposed Smart Growth School Cost Insurance Supplement. It can also be used as a proxy for the net cost to the community for the construction of a housing unit that has the stated characteristics of assessed value and number of School Aged Children.
7. The communities for which the calculations are performed do not include those belonging to regional school systems, of which many are Foundation Aid Communities. This accounts for the fact that there are only 23 Foundation Aid Communities in this list. There were 113 Foundation Aid Communities across the Commonwealth in FY 2005.
8. Auto excise tax receipts are estimated based on a tax rate of $\$ 25$ / thousand (by statute, the same in every community), an average initial vehicle purchase price of $\$ 25,000$, and an average age of the vehicle of three years (which means the tax is on $40 \%$ of the initial value). Based on the State-wide formula, this results in an average excise tax of: $\$ 25$ times $\$ 25,000$ divided by 1,000 , times $40 \%=\$ 250$. The average car sold in the US has a price of approximately $\$ 23,000$. However, this figure does not include the purchase of SUVs. $\$ 25,000$ was used for the average cost of the vehicles owned by residents of the Smart Growth Districts. It is higher to reflect the fact that the housing will be newer and therefore more expensive, that average incomes will be higher than in the community as a whole, and to reflect some proportion of more expensive SUVs.
9. The results of the analysis are summarized at the end of the list of communities. The key information includes (a) the number of non-Foundation Aid Communities that have net costs, (b) the percentage that number bears to the total number of non-Foundation Aid Communities, and (c) the average net cost per housing unit that will be incurred by the communities that have costs. To make clear: this average cost is not the average for all the non-Foundation Aid Communities; it is the average for only those communities that have costs.
10. The spreadsheet is set up so that the entire set of calculations will change as each of the "Input Amounts" is changed. That has made it possible to prepare a sensitivity analysis that provides results for multiple sets of inputs. The results are then presented in charts that show results based on various assessed values and alternative estimates of school aged children per home.
11. The tables of values following this set of notes sets forth the results of the sensitivity analysis. These values are then used to prepare two charts for each of the single family home and multifamily apartment situations. The first chart shows the average net education cost per home. The second shows the percent of communties that have costs - in both cases, of those that have costs. The results in these tables are also used in calculating the 10 year cost to the State for the School Cost Insurance Supplement.
12. It will be noted that in some cases average net costs per housing unit do not go down as assessed values go up. The reason for this is that a few communities have quite high net costs in relation to other communities, typically because they have low tax rates (due to a high level of commercial properties) combined with high per student education costs. As the proportion of communities with net costs goes down as the result of higher assessments, these outlier communities become a larger percentage of the whole, raising education costs.

## Single Family

CHART 3
Net Education Cost per Home with varying Assessed Values and School Aged Children / Unit

$\square$

$\square$$\quad$| 0.8 |
| :--- |
| 0.9 |

## Annual Smart Growth School Cost Insurance Supplement

| Assessed <br> Value | \# SAC (School Age Children) per House |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 0.6 | 0.8 | 0.95 | 1.2 |
| 250,000 | 2,713 | 4,304 | 5,497 | 7,486 |
| 350,000 | 1,988 | 3,579 | 4,773 | 6,762 |
| 450,000 | 1,565 | 2,855 | 4,049 | 6,037 |
| 550,000 | 1,489 | 2,277 | 3,325 | 5,313 |
| 650,000 | 1,785 | 2,002 | 2,759 | 4,589 |
| 750,000 | 2,236 | 1,965 | 2,448 | 3,865 |

CHART 4
Percent of Communities with Net Costs with varying Assessed Values and School Aged Children / Unit


Percent of Communities Requiring a School Cost Insurance Supplement

| Assessed <br> Value | \# SAC (School Age Children) per House |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | 0.6 | 0.8 | 0.95 | 1.2 |
| 250,000 | $100 \%$ | $100 \%$ | $100 \%$ | $100 \%$ |
| 350,000 | $100 \%$ | $100 \%$ | $100 \%$ | $100 \%$ |
| 450,000 | $84 \%$ | $100 \%$ | $100 \%$ | $100 \%$ |
| 550,000 | $57 \%$ | $94 \%$ | $100 \%$ | $100 \%$ |
| 650,000 | $32 \%$ | $77 \%$ | $95 \%$ | $100 \%$ |
| 750,000 | $20 \%$ | $57 \%$ | $81 \%$ | $100 \%$ |

## Multifamily

## CHART 5

Net Education Cost per Home with varying Assessed Values and School Aged Children / Unit



Annual Smart Growth School Cost Insurance Supplement

| Assessed <br> Value | \# SAC (School Age Children) per Apartment |  |  |  |
| :--- | :---: | :---: | :---: | ---: |
|  | 0.08 | 0.129 | 0.20 | 0.26 |
| 100,000 | 267 | 298 | 709 | 1,186 |
| 115,000 | 349 | 321 | 600 | 1,078 |
| 150,000 | 388 | 477 | 486 | 824 |
| 200,000 | 384 | 602 | 546 | 638 |
| 250,000 | 282 | 695 | 782 | 622 |
| 300,000 | 241 | 650 | 699 | 922 |

CHART 6
Percent of Communities with Net Costs with varying Assessed Values and School Aged Children / Unit


Percent of Communities Requiring a School Cost Insurance Supplement

| Assessed <br> Value | \#SAC (School Age Children) per Apartment |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | 0.08 | 0.129 | 0.20 | 0.26 |
| 100,000 | $15 \%$ | $63 \%$ | $100 \%$ | $100 \%$ |
| 115,000 | $9 \%$ | $43 \%$ | $100 \%$ | $100 \%$ |
| 150,000 | $6 \%$ | $18 \%$ | $78 \%$ | $100 \%$ |
| 200,000 | $4 \%$ | $9 \%$ | $36 \%$ | $79 \%$ |
| 250,000 | $4 \%$ | $6 \%$ | $17 \%$ | $49 \%$ |
| 300,000 | $3 \%$ | $5 \%$ | $14 \%$ | $23 \%$ |

## 5. <br> Ten Year Cost Estimate

## Smart Growth School Cost Insurance Supplement

This section provides the results from calculations of the projected cost to the State over 10 years for providing Smart Growth School Cost Insurance Supplements to all communities that pass 40R Districts. It is anticipated that the first payments will be made in Fiscal Year 2008.

The purpose of the Smart Growth School Cost Insurance Supplement is to ensure that communities do not incur additional school costs in excess of property tax and excise tax revenues available for education.

The charts below contain the data used for the calculations. They represent a best estimate of the average across many communities with many different types
of developments. Each property type (single family and multifamily) has its costs estimated for four separate levels of assessed value of the property. This takes into consideration the fact that housing of varying costs is expected to be built in 40R Districts. Less expensive housing, with lower assessed values, will require larger amounts of the School Cost Insurance Supplement.

The data is based on an analysis of the 220 communities that are both non-Foundation Aid Communities and that do not belong to regional school systems. The analysis for both single family homes and multifamily apartments follows these cost estimates.

| Projected Time Line <br> Initial Payments of Smart Growth School Cost Supplements |  |  |
| :---: | :---: | :---: |
| Year | Month |  |
| 2004 | June | Chapter 40R passed by Legislature and signed by Governor. |
| 2005 | March | Regulations Issued for effect. |
|  | April | First Communities begin developing 40R Districts. |
|  | May | School Cost Program in Senate and/or House Legislation. |
|  | June | Governor signs bill for Smart Growth School Cost Insurance Supplements. |
|  | July | First applications for 40R Districts from Communities submitted to DHCD. |
|  | Sept. | DHCD approves first round of 40R Districts. |
|  | Oct. - Nov. | First 40R districts passed by town meeting or city council vote. |
| 2006 | April | First construction of 40R developments underway. |
| 2007 | Jan. - April | First housing units completed in 40R Districts; tenants move in. Students begin attending public schools. |
|  | July | Fiscal Year 2008 Begins |
|  | Sept. | First Students counted for Smart Growth School Cost Insurance Supplements Initial funds sent to eligible communities. |

## Estimate of the number of units to be built in Smart Growth Zoning Districts

FROM THE CHTF REPORT OF OCTOBER 30, 2003

| FY | Years | Single Family | Multi-Family | Total |
| :---: | :---: | :---: | :---: | :---: |
| 2005 | 1 | 0 | 0 | 0 |
| 2006 | 2 | 0 | 0 | 0 |
| 2007 | 3 | 600 | 1,000 | 1,600 |
| 2008 | 4 | 1,200 | 1,500 | 2,700 |
| 2009 | 5 | 1,358 | 2,851 | 4,209 |
| 2010 | 6 | 1,426 | 2,994 | 4,420 |
| 2011 | 7 | 1,497 | 3,143 | 4,640 |
| 2012 | 8 | 1,572 | 3,301 | 4,873 |
| 2013 | 9 | 1,650 | 3,466 | 5,116 |
| 2014 | 10 | 1,733 | 21,036 | 32,939 |
|  |  |  |  |  |

As the preceding time line demonstrates, it does not appear likely that any funds will be needed for Smart Growth School Cost Insurance Supplement until Fiscal Year 2008. Consequently, in calculating anticipated costs the production figures shown above are advanced by one year.

Foundation Aid Communities do not require School Cost Insurance Supplements because Chapter 70 provides additional educational funds for incremental new students. Only non-Foundation Aid Communities will require School Cost Insurance Supplements.

It is assumed that the housing built in Smart Growth Districts will be distributed between Foundation Aid Communities and non-Foundation Aid Communities in the same ratio that they each bear to the total number of communities in the State. Consequently, the number of units for which School Cost Insurance Supplements will be paid must be adjusted downward to reflect the percentage of Foundation Aid Communities.

The sensitivity analysis in the prior section was carried out using a variety of assumptions. As the assessed values go up, the average net costs to communities typically (but not always) go down, and the number of communities that have net costs go down. Similarly, as the number of School Aged Children per unit increases, the costs to the community will also increase. The sensitivity analysis, which is based on
various assumptions, permits a bracketing of probable costs to communities under different circumstances.

This analysis provides cost estimates to the State for the Smart Growth School Cost Insurance Supplement using a variety of assumptions for assessed values.

The number of School Aged Children per unit has been held constant across the estimates because it is believed that the number of children per unit will not vary appreciably as the assessed value of the units change. In actual practice, there will be a range of values, depending on the community, the type of design, the number of three bedroom units, etc. For the purpose of this analysis, it has been assumed that there will be .95 School Aged Children per single family home, and . 129 School Aged Children per multifamily home. See the Report in Section 2 for a more detailed explanation of the basis for these estimates.

In FY 2005 there were 113 Foundation Aid Communities ( $32 \%$ ). There were 238 nonfoundation Aid Communities (68\%).

The results of the 10 year cost estimates for single family homes and multifamily apartments are found on the next set of pages. In each case four separate levels of assessed value are used. Associated with each assessed value, pursuant to the relevant data table, is a specific average cost for each community with net
costs, as well as the percentage of communities that would bear these costs. The calculation is carried out by multiplying the number of housing units in each year times the average School Cost Insurance Supplement per unit, times the number of communities requiring the Supplement, times the percent of communities that are non-Foundation Aid Communities, times a percentage for each level of assessed value. The results are then totaled for each year.

For the single family homes, it is assumed that $25 \%$ will fall into each of the assessed value categories.

For multifamily homes, it is assumed that $50 \%$ will fall into the assessed value category of $\$ 115,000$. This is the average assessed value for nine specific mixed income properties owned by a prominent Massachusetts developer. It is assumed that the balance of the multifamily units will be split as shown, reflecting more expensive apartment construction and condominium construction.

Once the totals for each year are calculated, the amounts are adjusted for inflation.

## Single Family Cost Estimate

## Base Data:

| Avg Assessed Value of House: | 250,000 | 350,000 | 450,000 | 550,000 |
| :--- | :---: | :---: | :---: | :---: |
| Avg SAC / House: | 0.95 | 0.95 | 0.95 | 0.95 |
| Avg Supplement / House: | 5,497 | 4,773 | 4,049 | 3,325 |
| Percent Communities requiring payments: | $100.0 \%$ | $100.0 \%$ | $100.0 \%$ | $100.0 \%$ |
| Percent non-Foundation Aid Communities | $67.8 \%$ | $67.8 \%$ | $67.8 \%$ | $67.8 \%$ |
| Percent per category | $25.0 \%$ | $25.0 \%$ | $25.0 \%$ | $25.0 \%$ |

## Estimated Costs:

| FY | Years | Total <br> Single Family |  |  |  |  | Annual Added Cost |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Avg Assessed Value of House: |  |  | 250,000 | 350,000 | 450,000 | 550,000 |  |
| 2005 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 4 | 600 | 559,097 | 485,459 | 411,788 | 338,140 | 1,794,484 |
| 2009 | 5 | 1,200 | 1,118,193 | 970,918 | 823,576 | 676,280 | 3,588,967 |
| 2010 | 6 | 1,358 | 1,265,422 | 1,098,755 | 932,013 | 765,324 | 4,061,514 |
| 2011 | 7 | 1,426 | 1,328,786 | 1,153,774 | 978,682 | 803,647 | 4,264,889 |
| 2012 | 8 | 1,497 | 1,394,946 | 1,211,220 | 1,027,410 | 843,660 | 4,477,236 |
| 2013 | 9 | 1,572 | 1,464,833 | 1,271,903 | 1,078,884 | 885,927 | 4,701,547 |
| 2014 | 10 | 1,650 | 1,537,516 | 1,335,012 | 1,132,416 | 929,886 | 4,934,830 |
| 9,303 |  |  |  |  |  |  | \$27,823,467 |
| Inflation Adjusted at 3\% per year |  |  |  |  |  |  | \$33,702,252 |

Multifamily Cost Estimate
Base Data:

| Avg Assessed Value of Unit: | 115,000 | 150,000 | 250,000 | 300,000 |
| :--- | :---: | :---: | :---: | :---: |
| Avg SAC / Unit: | 0.129 | 0.129 | 0.129 | 0.129 |
| Avg Supplement / Unit: | 321 | 477 | 730 | 894 |
| Percent of Communities requiring payments: | $43.0 \%$ | $18.0 \%$ | $8.0 \%$ | $5.0 \%$ |
| Percent non-Foundation Aid Communities | $67.8 \%$ | $67.8 \%$ | $67.8 \%$ | $67.8 \%$ |
| Percent per category | $50.0 \%$ | $20.0 \%$ | $20.0 \%$ | $10.0 \%$ |

## Estimated Costs:

| FY | Years | Number <br> of Units |  |  |  |  | Annual <br> Supplement |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Avg Assessed Value of Unit: |  | 115,000 | 150,000 | 250,000 | 300,000 |  |  |
| 2005 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 4 | 1000 | 46,796 | 11,644 | 7,920 | 3,031 | 69,391 |
| 2009 | 5 | 1500 | 70,195 | 17,466 | 11,880 | 4,546 | 104,086 |
| 2010 | 6 | 2851 | 133,417 | 33,196 | 22,579 | 8,641 | 197,833 |
| 2011 | 7 | 2994 | 140,109 | 34,861 | 23,712 | 9,075 | 207,756 |
| 2012 | 8 | 3143 | 147,081 | 36,596 | 24,892 | 9,526 | 218,096 |
| 2013 | 9 | 3301 | 154,475 | 38,436 | 26,143 | 10,005 | 229,059 |
| 2014 | 10 | 3466 | 162,197 | 40,357 | 27,450 | 10,505 | 240,509 |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Inflation Adjusted at 3\% per year: |  |  |  |  |  |  |  |

## Summary

## Tenth Year Annual Cost Proposed Smart Growth School Cost Insurance Supplement

| Single Family: | $\$$ | $33,702,252$ |
| :--- | ---: | ---: |
| Multifamily: | $\$$ | $1,542,596$ |
| Total | $\$$ | $35,244,848$ |
| $\quad$ Compared to an Inflation Adjusted Chapter 70 Budget in 2014 | $\$ 4,370,990,166$ |  |
| School Cost Insurance Supplement, as percent: | $0.81 \%$ |  |
| Assumed Inflation Rate: | $3.0 \%$ |  |

# 6. <br> Smart Growth School Cost Insurance Supplemental Education Aid - Proposed Legislation 

Section 1. The following section shall be added as Section 16 of Chapter 70 of the General Laws.

Section 16. (a): The payment of Smart Growth School Cost Insurance Supplemental Education Aid as defined herein in any fiscal year shall be subject to appropriation. Notwithstanding the foregoing, the General Court hereby finds and acknowledges that any future failure to fully fund Smart Growth School Cost Insurance Supplemental Education Aid pursuant to this Section 16 for each city and town that would be entitled to such aid will discourage cities and towns from the voluntary adoption and voluntary continuation of smart growth zoning districts pursuant to Chapter 40R and will thereby defeat the purpose of Chapter 40R, which is to alleviate the housing supply crisis in the Commonwealth. The General Court hereby finds that while municipalities which receive Foundation Aid are fully reimbursed by the Commonwealth for increased costs resulting from increases in the number of students, other municipalities do not receive aid to offset the increased education costs resulting from increases in student population, and have therefore often acted to restrict the development of housing stock that might increase student populations without a commensurate increase in local tax revenues, such as the housing encouraged by Chapter 40R. The General Court has since the year 2000 ensured that all communities have received at least the amount of funds in the Foundation Budget to pay for education expenses. It is the intent of this section to extend this commitment to communities that pass Chapter 40R districts by providing that, with regard to eligible students from Smart Growth Districts, there will be funds available to those communities sufficient to allow them to maintain the current level of education funding per student without passing a local override vote.
(b) Definitions:

Additional Chapter 70 Aid: An amount equal to the actual increase in Chapter 70 aid payments that is directly attributable to the Eligible Students in the school district.

Average Actual School Spending Per Student: Shall equal the actual, average amount expended per pupil in a municipality, or in a school district for which the municipality shares the costs, as the case may be, for the immediately preceding fiscal year, as determined by the Department of Education.

Education Percent: The average percentage across all non-Foundation Aid Communities in the Commonwealth that total education expenditures bear to total municipal expenditures as certified as of the end of the preceding fiscal year by the Department of Education. This calculation shall be made by summing the education percentages in each such community and then dividing by the number of communities.

Eligible Students: Those children living in New Smart Growth Development that attend local public or charter schools in kindergarten through 12th grade.

Foundation Aid: Shall have the meaning provided in Chapter 70.

Local Smart Growth Revenues for Education: Shall equal the Education Percent times the sum of Local Smart Growth Property Tax Revenues plus Local Smart Growth Excise Tax Revenues, each for the preceding fiscal year.

Local Smart Growth Excise Tax Revenues: Shall equal the total excise taxes for the subject year on vehicles garaged at New Smart Growth Development.

Local Smart Growth Property Tax Revenues: Shall be calculated separately for each municipality and shall equal the local levy rate times the amount of assessed valuation due to New Smart Growth Development as certified by the commissioner of the department of revenue pursuant to subsection (f) of Section 21C of chapter 59 of the general laws.

New Smart Growth Development: Any new residential or commercial development subject to the payment of local property taxes that occurs in a Smart Growth Zoning District after the passage of said district by the community, including the substantial renovation or redevelopment of existing properties.

Smart Growth Zoning District: A zoning overlay district enacted by a local community under the provisions of Chapter 40R after approval by the Department of Housing and Community Development, and which remains eligible for the incentives provided by Chapter 40R.
Total Education Cost for Eligible Students: Shall be equal to the product of (i) the total number of Eligible Students in a municipality at the end of the prior fiscal year, times (ii) Average Actual School Spending Per Student. Such calculation shall first be made separately for each school district attended by Eligible Students, and the results of such calculations shall then be summed.
(c) Smart Growth Education Cost Insurance Supplemental Education Aid: Notwithstanding any general or special law to the contrary, for each fiscal year commencing with Fiscal Year 2007, any city or town that does not receive Foundation Aid from the Commonwealth and that has established one or more Smart Growth Zoning Districts pursuant to the provisions of Chapter 40R of the general laws, shall receive Smart Growth Education Cost Insurance Supplemental Education Aid from the Commonwealth pursuant to this Section. Smart Growth Education Cost Insurance Supplemental Education Aid shall be calculated separately for each municipality and shall be equal to the positive difference, if any, between (i) Total Education Cost for Eligible Students, and (ii) the sum of Local Smart Growth Revenues for Education and Additional Chapter 70 Aid.

# 7. <br> <br> Memorandum on Chapter 70 

 <br> <br> Memorandum on Chapter 70}

To: Interested Parties
From: Ted Carman, The Center for Urban and Regional Policy, and the Commonwealth Housing Task Force.
Date: Revised January 17, 2005
Subject: Chapter 70 and State Funding for Schools (K-12)

This memo is to provide a summary of how Chapter 70, State Funding for $\mathrm{K}-12$ school costs, works in practice in Massachusetts. It is based on information gathered in meetings with Bob Ross and Catharine Hornby of the Senate Ways and Means Committee and with Brian Wheelan of the Governor's Policy Office. The meetings were in November and December, 2004.

Chapter 70 was substantially reformed in 1993, as a result of pressure from three separate sources: (a) response to lawsuits demanding fairness in educational funding (McDuffy vs. Robertson, which the State lost), (b) concern by the business community, and (c) strong political leadership, particularly from Senator Birmingham and Representative Mark Roosevelt.

A broad coalition organized around the belief that the school funding issue was not just one of fairness and equal opportunity, but also that long term economic development in the State could be harmed without improved across-the-board educational quality.

It can be difficult to understand Chapter 70 because after the original legislation was passed in 1993, subsequent changes and funding specifics have been provided in the annual budgets, many of which would contain a phrase to the effect of: "Notwithstanding anything to the contrary in Chapter 70, the Legislature moves to $\qquad$ .".

Funding for Chapter 70 is included in Section 3 of the State Budget, which annually contains a list of all the cities and towns in the Commonwealth and the amounts to be received for the year under Chapter 70 . Section 3 also contains, to the extent necessary, a description of changes in the underlying legislation that are required to result in the funding specifics set forth in the list.

Since the passage of Chapter 70 the State has provided substantial increases in educational funding, such that expenditures have grown from $\$ 1.3$ billion in FY 93 to 3.2 billion in FY 05 (an increase of $246 \%$ over that period).

The original goal of Chapter 70 was to ensure that each school district in the State would receive an amount of funding sufficient to provide a base standard of education. To calculate that amount, the concept of the "Foundation Budget" was developed. Each year a Foundation Budget for each community is calculated.

The Foundation Budget is based on the prior year's enrollment (on October 1). Nineteen categories of costs are taken into consideration including teacher salaries, health staff salaries, custodial salaries, athletics, maintenance, principal salaries, etc. Every year, each category is allocated an amount per student. These amounts remain the
same across the State, except for salaries, which may be adjusted up (but not down) for high cost of living areas by a Wage Adjustment Factor. Cost amounts are also calculated for Special Education Students (both in school and out-of-school). Additional amounts are calculated into the Foundation Budget to provide supplemental funds for the education of students who are defined as low income by reason of eligibility for the subsidized lunch program.

The Foundation Budget each year changes as a function of the enrollment from the prior year, and is also adjusted for inflation.

As a result of the formulas, the Foundation Budget per student ranged from $\$ 6,440$ to $\$ 12,284$ in FY 05 , with variations primarily coming from the proportion of low income students, and to a lesser extent, from high cost of living (wage) areas. Vocational Districts have the highest Foundation Budgets per student.

This has resulted in Massachusetts ranking first among all 50 States in the country for spending more per pupil in high-poverty districts. It spends approximately $\$ 1,600$ more per pupil in high-poverty districts than in other districts - the best of any State in the country - and a remarkable accomplishment.

Chapter 70 provides for each community to have access to education funds sufficient to pay for the Foundation Budget. There are two basic sources of these funds:

1. The Required Local Contribution, primarily from property tax revenues, and

## 2. Chapter 70 Aid

Chapter 70 aid has several components. The most important is an amount that is required to bridge the gap between the amount of the Foundation Budget and the Required Local Contribution. Another major factor is "Minimum Aid", as described below.

When Chapter 70 was initially passed, it was determined that a community should normally maintain its education spending as an even share of its budget. The absolute amounts would grow per year as the tax base grew, with the percentage of revenues devoted to education remaining constant. Thus, the Required Local Contribution was, and continues to be, based on the historical percentage of local revenues devoted to education in 1992 (hereafter, the "Education Percentage"). This has led to substantial discrepancies in Required Local Contributions between communities that otherwise are quite similar. Such discrepancies lead to a perception across the State that there is a lack of overall equity in the formulas. In August, 2004 the Senate passed an amendment to Chapter 70 that seeks to reduce these inequities / discrepancies. This amendment has not been taken up by the House.

The Required Local Contribution each year equals the amount contributed in the prior year, increased by the amount of the Municipal Revenue Growth Factor ("MRGF"). The MRGF equals the $21 / 2 \%$ growth allowed by Proposition $2^{1 / 2}$, plus the amount of New Growth in the community. New Growth equals the assessed value of new construction of homes, apartments, office and commercial buildings - any new construction that adds to the overall community tax base. The percentage that the assessed value of the New Growth bears to the prior year's tax base equals the New Growth Percentage, to which is added $21 / 2 \%$. Historically since the early nineties, communities have had MRGF equal to $4 \%$ to $5 \%$ in most years.

As a result, the Required Local Contribution for education expenditures would increase by the amount of the MRGF, or 4\% to 5\% per year. Historically, the Required Local Contribution equals the amount paid in 1992 compounded annually by the MRGF.

Each year, the Required Local Contribution, plus the amount of the Chapter 70 payment, equals Net School Spending. This is the amount the community is required to spend on education in the specified year. However, there is nothing to prevent the community from spending additional amounts. Consequently, in many communities Actual School Spending exceeds Net School Spending. It should further be noted that Net School Spending may exceed the Foundation Budget.

Chapter 70 funding works in conjunction with the effect of Proposition $2^{1 / 2}$ on the property tax levy in each community. Proposition $2^{1 / 2}$ mandates that the overall tax levy from a municipality's property tax base cannot grow by more than $2.5 \%$ per year. As noted above, growth in revenues include both the $2.5 \%$ increase, plus revenues from New Growth.

The State Constitution requires that property tax assessments be maintained at $100 \%$ of current market value. Thus, to the extent property values in a community are inflating at faster than $2.5 \%$ per year (which has been the experience in most communities since the mid-nineties), the property tax rate will decline. The result is that for historical reasons Proposition $21 / 2$ often acts to lock in different tax rates in otherwise similar communities.

The bind for the community comes when its underlying costs are increasing faster than $2.5 \%$, but revenue growth is held to only $2.5 \%$. For instance, in the absence of New Growth, if school costs increase at 4\%, and even if Chapter 70 Aid increases by an equal amount, the School District will be short funds, because it will get an increase of only $2.5 \%$ from property tax revenues (even if the assessed values went up by $4 \%$ or $5 \%$ ). Thus it will have a deficit in education funds, even if no additional housing units are added. This, of course, is a result of Proposition $2^{1 / 2}$, not Chapter 70 .

Actual School Spending in 1992 in many of the more wealthy communities already exceeded the Foundation Budget. In order to ensure that all communities received some Chapter 70 funding, the concept of Minimum Aid was included in the legislation. Minimum Aid was a minimum amount per pupil that was given to each community, regardless of need. Thus, even the well-off communities had a significant stake in the Chapter 70 Budget through the Minimum Aid payment. Over the years, the amount of Minimum Aid each year has varied with the level of State tax revenue.

Since the initial shortfalls between Actual School Spending and the Foundation Budgets were substantial in many communities, Chapter 70 was intentionally designed to phase in over 7 years. Thus, in the early years after Chapter 70 was passed the funds appropriated by the Legislature did not fill the entire gap between the Required Local Contribution and the Foundation Budget in all communities. During the decade of the 90 s, in many communities Actual School Spending and Net School Spending did not equal the Foundation Budget. The communities that fell into this category in each year require Foundation Aid, and are often described as "Foundation Aid Communities."

The funding goal of the Legislature in those years was to annually increase the Chapter 70 funding amounts so that the Chapter 70 Aid would be sufficient to meet the entire gap between the calculated Foundation Budget and the local municipality's contribution to school spending based on its assessments, its historical tax effort, and school spending Education Percentage. From FY 1993 through FY 2002 the amounts of aid went up by $6.7 \%$ to $13.2 \%$ per year, with six of the years being over $10 \%$, and the three other years averaging $8 \%$. Total funding grew to $\$ 3,258,000,000$ for FY03.

During the 90 s more and more communities reached the point where the Chapter 70 funds plus the Required Local Contribution equaled the Foundation Budget. By Fiscal Year 2000 all communities had Actual School Spending that equaled or exceeded the Foundation Budget. From that point on, the only communities that would be designated as Foundation Aid Communities would be those communities where the next year's calculated

Net School Spending (i.e. the Required Local Contribution plus Chapter 70 amounts) would not equal the next year's Foundation Budget. To the extent there were shortfalls, the shortfalls would tend to be limited in size.

Consequently, over time the amount of Chapter 70 Aid received by most communities became not a function of the gap between the Foundation Budget and the Required Local Contribution, but instead an amount equal to the amount they received in the prior year, plus any increases in the Minimum Aid amount. In all but a few districts, this amount was more than sufficient to keep spending at the Foundation Level.

Having most communities bring their Actual School Spending up to the Foundation Budget levels happened just before State Revenues were dramatically reduced because of the economic recession in Massachusetts, which included not only the loss of 160,000 jobs, but also the evaporation of State tax receipts for capital gains and corporate profits. As the State revenues went down, the funding appropriated for Chapter 70 also went down, as follows:

| FiscalYear | State Revenues (in billions) | Chapter 70 Funding | Net Change in Ch. 70 Funds |
| :---: | :---: | :---: | :---: |
| 2001 | $\$ 16.7$ | $\$ 3.0$ | $6.7 \%$ |
| 2002 | $\$ 14.3$ | $\$ 3.2$ | $7.4 \%$ |
| 2003 | $\$ 15.0$ | $\$ 3.3$ | $1.4 \%$ |
| 2004 | $\$ 16.0$ | $\$ 3.1$ | $(4.5 \%)$ |
| 2005 | $\$ 16.2$ | $\$ 3.3$ | $1.1 \%$ |
|  | (Anticipated) |  |  |

In FY 2004, when Chapter 70 Funds were cut overall by 4.5\%, the cuts fell entirely on those communities that had Actual School Spending in excess of their Foundation Budgets. All communities were maintained at least at the level of the Foundation Budgets. Non-Foundation Aid Communities, in general, had their Chapter 70 funds cut by $20 \%$. Needless to say, this caused great financial distress and strain in those communities.

The increase in funding for FY 05 was approximately $\$ 185,000,000$, all of which consisted of providing Foundation Aid to those communities that had Net School Spending at less than their Foundation Budget. No increases in Minimum Aid were provided to school districts - all of whom, however, received the same amounts of Chapter 70 funding as in the prior year (unlike the cuts experienced in FY 04).

Once a community has Net School Spending that exceeds the Foundation Budget, it will not get additional Chapter 70 funding in future years as a result of increases in enrollment. In other words, if the current average Chapter 70 Funding for a community is $\$ 3,500$ per student and there are 1,000 students, the Chapter 70 Aid would be $\$ 3,500,000$. The next year, if there were 1001 students, the Chapter 70 Aid would continue to be $\$ 3,500,000$, PLUS any increase in the Minimum Aid amount. The Minimum Aid amount is based on enrollment, so it would be increased - but the amounts of the increase have never exceeded $\$ 175$ per student, and have been \$0 since 2003.

This leads to the consideration of the issue of how Chapter 70 Funding for a specific local community will change if there is the addition of one (or ten or one hundred) new home(s) in the community. Census data and actual counts in subdivisions indicate that a new single family home will have, on average, from .75 to 1.1 school aged child per home.

An Excel Spreadsheet has been prepared to quantify the situation for a specific community. It has been set up to develop a calculation of a surplus or a deficit based on one (or more) new housing units being built in the community. The basic calculation sets up an analysis of tax receipts and school operations in a base or current year, showing the Foundation Budget, the Actual School Spending, the tax rate, the communities total assessed value, the Require Local Contribution, and the amount of Chapter 70 Aid that is received. It then shows a calculation for Year 2 assuming that no new housing is built, and a parallel calculation showing the figures if one (or more) new houses are built. To clarify the issues, the analysis has been prepared on the assumption that there was no New Growth in the community except for the new housing that either is or is not built.

The Spreadsheet has been set up with seven different calculations going on simultaneously. Each has multiple variables that can be inputted from a summary sheet. The output is then graphed to show what happens under varying circumstances.

The results from the Spreadsheet are shown in Section 3.
This analysis can be summarized as follows:

1. If Net School Spending in a municipality is equal to or less than the Foundation Budget, then increased Foundation Aid will cover the additional costs of a new student (there will be a one year lag before the payments catch up).
2. In FY 05, 113 Districts had Net School Spending equal to the Foundation Budget. That means that 238 communities had Actual School Spending that exceeded their Foundation Budgets.
3. If Actual School Spending is only marginally higher than the Foundation Budget (such as less than half of one percent), then the community will have a financial deficit on each house equal to the Actual School Spending per student, less the Education Percent times the tax revenue from the house, less the increase in the Chapter 70 Minimum Aid (if any, and historically less than $\$ 200$ per house).
4. Breakeven for a $\$ 250,000$ house is between .2 and .3 School Aged Children per house.

## Endnotes

${ }^{1}$ It should be noted that these calculations were based on average actual education costs per student, and don't necessarily reflect the marginal costs associated with a relatively small number of new students in a school system that would result from a modest sized new housing development.
${ }^{2}$ These estimates have been adjusted for inflation at $3 \%$.
${ }^{3}$ Boston Globe, 11/18/04
${ }^{4}$ Note that this conclusion is based on a significant number of new students being added to the school system, such that the typical per capita fiscal analysis that determines marginal costs is not applicable. For more discussion on this point, see the detailed explanation in Section 2 of this narrative.

Single Family Homes
Community by Community Analysis
Chapter 40 R School Cost Analysis
Appendix A：Community by Community Analysis of School Costs

| For this iteration： | Input Amounts |
| :--- | :---: |
| Assessed Value per new house： | $\$ 350,000$ |
| Vehicles per home | 1.9 |
| Average Excise Tax Per Vehicle | $\$ 250.00$ |
| Number of School Aged Children per new house： | 0.95 |
| Percent of Property Tax for Eduction／per analysis： | $52.7 \%$ |


| Property Tax | Excise | Actual | Foundation | $\begin{array}{c}\text { Actual } \\ \text { Spending }\end{array}$ |
| :--- | :--- | :--- | :--- | :--- |



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 Foundation

Yes／No City／Town | ABINGTON |
| :--- |
| ACTON |
| ACUSHNET |
| AGAWAM |
| AMESBURY |
| AMHERST |
| ANDOVER | ANDOVER录录 ATTLEBORO AUBURN AVON第

[^0]BEDFORD BELCHERTOWN BELLINGHAM BELMONT BERKLEY
 U BILLERICA
Appendix A: Community by Community Analysis of School Costs - Single Family Homes

| City/Town Foundation <br> Yes/No |  | Tax Rate | Tax@ Assessed 450,000 | Property Tax Amount for Education | Excise <br> Tax for Education | Actual Spending per pupil | Foundation Spending per pupil | Actual Spending per house | Amount of Foundation Aid | Net Impact | Those with Net Costs |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BOURNE | n | 1.29\% | 4,505 | 2,374 | 250 | 7,505 | 6,354 | 7,130 | 0 | $(4,506)$ | $(4,506)$ |
| BOXBOROUGH | n | 1.55\% | 5,415 | 2,853 | 250 | 6,780 | 6,411 | 6,441 | 0 | $(3,337)$ | $(3,337)$ |
| BOXFORD | n | 1.25\% | 4,389 | 2,313 | 250 | 7,340 | 6,027 | 6,973 | 0 | $(4,410)$ | $(4,410)$ |
| BOYLSTON | n | 1.30\% | 4,564 | 2,405 | 250 | 6,686 | 6,178 | 6,352 | 0 | $(3,696)$ | $(3,696)$ |
| BRAINTREE | n | 1.24\% | 4,344 | 2,289 | 250 | 7,614 | 6,515 | 7,233 | 0 | $(4,694)$ | $(4,694)$ |
| BREWSTER | n | 1.07\% | 3,742 | 1,972 | 250 | 9,768 | 6,064 | 9,280 | 0 | $(7,058)$ | $(7,058)$ |
| BRIMFIELD | n | 1.65\% | 5,765 | 3,038 | 250 | 8,288 | 6,083 | 7,874 | 0 | $(4,585)$ | $(4,585)$ |
| BROCKTON | n | 1.39\% | 4,869 | 2,566 | 250 | 8,373 | 7,607 | 7,954 | 0 | $(5,138)$ | $(5,138)$ |
| BROOKFIELD | n | 1.95\% | 6,832 | 3,600 | 250 | 9,005 | 6,340 | 8,555 | 0 | $(4,704)$ | $(4,704)$ |
| BROOKLINE | n | 1.29\% | 4,515 | 2,379 | 250 | 10,268 | 6,661 | 9,755 | 0 | $(7,125)$ | $(7,125)$ |
| BURLINGTON | n | 0.91\% | 3,185 | 1,678 | 250 | 8,051 | 6,572 | 7,648 | 0 | $(5,720)$ | $(5,720)$ |
| CAMBRIDGE | n | 0.72\% | 2,527 | 1,332 | 250 | 14,084 | 7,471 | 13,380 | 0 | $(11,798)$ | $(11,798)$ |
| CANTON | n | 1.22\% | 4,284 | 2,258 | 250 | 8,015 | 6,537 | 7,614 | 0 | $(5,106)$ | $(5,106)$ |
| CARLISLE | n | 1.58\% | 5,523 | 2,911 | 250 | 8,877 | 6,262 | 8,433 | 0 | $(5,272)$ | $(5,272)$ |
| CARVER | n | 1.87\% | 6,556 | 3,455 | 250 | 6,760 | 6,590 | 6,422 | 0 | $(2,717)$ | $(2,717)$ |
| CHATHAM | n | 0.69\% | 2,429 | 1,280 | 250 | 10,030 | 6,353 | 9,529 | 0 | $(7,998)$ | $(7,998)$ |
| CHELMSFORD | n | 1.58\% | 5,544 | 2,922 | 250 | 7,246 | 6,632 | 6,884 | 0 | $(3,712)$ | $(3,712)$ |
| CHELSEA | n | 1.45\% | 5,082 | 2,678 | 250 | 8,518 | 8,358 | 8,092 | 0 | $(5,164)$ | $(5,164)$ |
| CHICOPEE | n | 1.63\% | 5,695 | 3,001 | 250 | 7,214 | 7,237 | 6,853 | 0 | $(3,602)$ | $(3,602)$ |
| CLARKSBURG | y | 1.29\% | 4,498 | 2,370 | 250 | 7,666 | 6,214 | 7,283 | 3,282 | 0 | 0 |
| CLINTON | n | 1.62\% | 5,670 | 2,988 | 250 | 7,511 | 6,843 | 7,135 | 0 | $(3,897)$ | $(3,897)$ |
| COHASSET | n | 1.15\% | 4,018 | 2,117 | 250 | 8,347 | 6,352 | 7,930 | 0 | $(5,562)$ | $(5,562)$ |
| CONCORD | n | 0.98\% | 3,441 | 1,813 | 250 | 9,640 | 6,393 | 9,158 | 0 | $(7,095)$ | $(7,095)$ |
| CONWAY | n | 1.64\% | 5,740 | 3,025 | 250 | 10,281 | 5,920 | 9,767 | 0 | $(6,492)$ | $(6,492)$ |
| DANVERS | n | 1.29\% | 4,522 | 2,383 | 250 | 7,189 | 6,512 | 6,830 | 0 | $(4,196)$ | $(4,196)$ |
| DARTMOUTH | n | 1.06\% | 3,693 | 1,946 | 250 | 6,435 | 6,181 | 6,113 | 0 | $(3,917)$ | $(3,917)$ |
| DEDHAM | n | 1.34\% | 4,680 | 2,466 | 250 | 8,524 | 6,586 | 8,098 | 0 | $(5,381)$ | $(5,381)$ |
| DEERFIELD | n | 1.19\% | 4,148 | 2,186 | 250 | 7,835 | 6,076 | 7,443 | 0 | $(5,007)$ | $(5,007)$ |
| DOUGLAS | n | 1.44\% | 5,047 | 2,660 | 250 | 6,809 | 6,299 | 6,469 | 0 | $(3,558)$ | $(3,558)$ |
| DOVER | n | 0.98\% | 3,430 | 1,808 | 250 | 8,603 | 6,145 | 8,173 | 0 | $(6,115)$ | $(6,115)$ |
| DRACUT | n | 1.52\% | 5,317 | 2,802 | 250 | 6,407 | 6,521 | 6,087 | 0 | $(3,035)$ | $(3,035)$ |
| DUXBURY | n | 1.24\% | 4,347 | 2,291 | 250 | 7,145 | 6,354 | 6,788 | 0 | $(4,247)$ | $(4,247)$ |
| EAST BRIDGEWATER | n | 1.58\% | 5,513 | 2,905 | 250 | 6,105 | 6,167 | 5,800 | 0 | $(2,644)$ | $(2,644)$ |
| EASTHAM | n | 0.92\% | 3,220 | 1,697 | 250 | 11,471 | 6,239 | 10,897 | 0 | $(8,950)$ | $(8,950)$ |
| EASTHAMPTON | n | 1.66\% | 5,793 | 3,053 | 250 | 7,835 | 6,642 | 7,443 | 0 | $(4,140)$ | $(4,140)$ |
| EAST LONGMEADOW | n | 1.90\% | 6,654 | 3,506 | 250 | 6,958 | 6,248 | 6,610 | 0 | $(2,853)$ | $(2,853)$ |
| EASTON | n | 1.49\% | 5,208 | 2,745 | 250 | 5,952 | 6,112 | 5,654 | 0 | $(2,659)$ | $(2,659)$ |
| EDGARTOWN | n | 0.40\% | 1,400 | 738 | 250 | 13,135 | 6,095 | 12,478 | 0 | $(11,490)$ | $(11,490)$ |


| City/Town F | Foundation Yes/No | Tax Rate | Tax@ Assessed 450,000 | Property Tax Amount for Education | Excise <br> Tax for Education | Actual Spending per pupil | Foundation <br> Spending <br> per pupil | Actual Spending per house | Amount of Foundation Aid | $\begin{aligned} & \text { Net } \\ & \text { Impact } \end{aligned}$ | Those with Net Costs |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| LAWRENCE | y | 1.55\% | 5,439 | 2,866 | 250 | 7,644 | 8,077 | 7,262 | 4,556 | 0 | 0 |
| LEE | n | 1.55\% | 5,425 | 2,859 | 250 | 9,348 | 7,031 | 8,881 | 0 | $(5,771)$ | $(5,771)$ |
| LEICESTER | n | 1.38\% | 4,834 | 2,547 | 250 | 6,633 | 6,488 | 6,301 | 0 | $(3,504)$ | $(3,504)$ |
| LENOX | n | 1.20\% | 4,200 | 2,213 | 250 | 10,288 | 6,203 | 9,774 | 0 | $(7,310)$ | $(7,310)$ |
| LEOMINSTER | y | 1.41\% | 4,928 | 2,597 | 250 | 7,040 | 6,823 | 6,688 | 3,635 | 0 | 0 |
| LEVERETT | n | 2.06\% | 7,207 | 3,798 | 250 | 8,780 | 6,095 | 8,341 | 0 | $(4,293)$ | $(4,293)$ |
| LEXINGTON | n | 1.13\% | 3,948 | 2,081 | 250 | 9,482 | 6,617 | 9,008 | 0 | $(6,677)$ | $(6,677)$ |
| LINCOLN | n | 0.99\% | 3,469 | 1,828 | 250 | 12,084 | 6,420 | 11,480 | 0 | $(9,402)$ | $(9,402)$ |
| LITTLETON | n | 1.32\% | 4,624 | 2,437 | 250 | 7,872 | 6,616 | 7,478 | 0 | $(4,791)$ | $(4,791)$ |
| LONGMEADOW | n | 2.02\% | 7,053 | 3,717 | 250 | 7,532 | 6,118 | 7,155 | 0 | $(3,188)$ | $(3,188)$ |
| LOWELL | n | 1.37\% | 4,785 | 2,521 | 250 | 8,375 | 7,877 | 7,956 | 0 | $(5,184)$ | $(5,184)$ |
| LUDLOW | n | 1.79\% | 6,265 | 3,302 | 250 | 6,653 | 6,388 | 6,320 | 0 | $(2,768)$ | $(2,768)$ |
| LUNENBURG | n | 1.56\% | 5,460 | 2,877 | 250 | 7,047 | 6,136 | 6,695 | 0 | $(3,567)$ | $(3,567)$ |
| LYNN | y | 1.50\% | 5,247 | 2,765 | 250 | 7,811 | 8,083 | 7,420 | 4,663 | 0 | 0 |
| LYNNFIELD | n | 1.20\% | 4,200 | 2,213 | 250 | 7,388 | 6,355 | 7,019 | 0 | $(4,555)$ | $(4,555)$ |
| MALDEN | n | 1.35\% | 4,739 | 2,497 | 250 | 8,742 | 7,159 | 8,305 | 0 | $(5,557)$ | $(5,557)$ |
| MANSFIELD | n | 1.55\% | 5,408 | 2,850 | 250 | 6,186 | 6,500 | 5,877 | 0 | $(2,777)$ | $(2,777)$ |
| MARBLEHEAD | n | 0.95\% | 3,325 | 1,752 | 250 | 8,094 | 6,406 | 7,689 | 0 | $(5,687)$ | $(5,687)$ |
| MARION | n | 1.33\% | 4,641 | 2,446 | 250 | 8,265 | 6,055 | 7,852 | 0 | $(5,156)$ | $(5,156)$ |
| MARLBOROUGH | n | 1.48\% | 5,163 | 2,721 | 250 | 8,118 | 6,947 | 7,712 | 0 | $(4,741)$ | $(4,741)$ |
| MARSHFIELD | n | 1.27\% | 4,449 | 2,344 | 250 | 6,456 | 6,452 | 6,133 | 0 | $(3,539)$ | $(3,539)$ |
| MASHPEE | n | 0.89\% | 3,115 | 1,642 | 250 | 7,014 | 6,303 | 6,663 | 0 | $(4,771)$ | $(4,771)$ |
| MATTAPOISETT | n | 1.58\% | 5,544 | 2,922 | 250 | 7,502 | 6,026 | 7,127 | 0 | $(3,955)$ | $(3,955)$ |
| MAYNARD | n | 1.77\% | 6,192 | 3,263 | 250 | 8,274 | 6,787 | 7,860 | 0 | $(4,347)$ | $(4,347)$ |
| MEDFIELD | n | 1.49\% | 5,219 | 2,750 | 250 | 6,114 | 6,412 | 5,808 | 0 | $(2,808)$ | $(2,808)$ |
| MEDFORD | n | 1.29\% | 4,498 | 2,370 | 250 | 9,440 | 7,029 | 8,968 | 0 | $(6,347)$ | $(6,347)$ |
| MEDWAY | n | 1.58\% | 5,527 | 2,912 | 250 | 6,436 | 6,325 | 6,114 | 0 | $(2,951)$ | $(2,951)$ |
| MELROSE | n | 1.30\% | 4,554 | 2,400 | 250 | 7,467 | 6,403 | 7,094 | 0 | $(4,444)$ | $(4,444)$ |
| METHUEN | n | 1.44\% | 5,033 | 2,652 | 250 | 6,718 | 6,724 | 6,382 | 0 | $(3,479)$ | $(3,479)$ |
| MIDDLEBOROUGH | H | 1.48\% | 5,166 | 2,722 | 250 | 6,159 | 6,375 | 5,851 | 0 | $(2,878)$ | $(2,878)$ |
| MIDDLETON | n | 1.21\% | 4,246 | 2,237 | 250 | 7,270 | 6,220 | 6,907 | 0 | $(4,419)$ | $(4,419)$ |
| MILFORD | n | 1.43\% | 4,998 | 2,634 | 250 | 7,570 | 6,765 | 7,192 | 0 | $(4,307)$ | $(4,307)$ |
| MILLBURY | n | 1.92\% | 6,706 | 3,534 | 250 | 6,875 | 6,342 | 6,531 | 0 | $(2,747)$ | $(2,747)$ |
| MILLIS | n | 1.51\% | 5,299 | 2,793 | 250 | 6,805 | 6,430 | 6,465 | 0 | $(3,422)$ | $(3,422)$ |
| MILTON | n | 1.69\% | 5,905 | 3,112 | 250 | 7,449 | 6,410 | 7,077 | 0 | $(3,715)$ | $(3,715)$ |
| MONSON | n | 1.78\% | 6,223 | 3,280 | 250 | 6,566 | 6,276 | 6,238 | 0 | $(2,708)$ | $(2,708)$ |
| NAHANT | y | 0.94\% | 3,287 | 1,732 | 250 | 9,554 | 6,321 | 9,076 | 4,022 | 0 | 0 |
| NANTUCKET | n | 0.42\% | 1,474 | 777 | 250 | 15,350 | 6,217 | 14,583 | 0 | $(13,556)$ | $(13,556)$ |
| NATICK | n | 1.26\% | 4,417 | 2,328 | 250 | 8,088 | 6,508 | 7,684 | 0 | $(5,106)$ | $(5,106)$ |

City／Town
Foundation
Yes／No
줃


$\frac{\text { NEEDHAM }}{\text { NEW BEDFORD }}$
NEWTON
NORTH ADAMS


NORTHBOROUGH
NORTHBRIDGE
佱
NORTON
0
0
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2
2
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PROVINCETOWN RANDOLPH READING RICHMOND第

Appendix A: Community by Community Analysis of School Costs - Single Family Homes


[^1] SCITUATE $\qquad$ SHERBORN
SHREWSBURY
SHUTESBURY SOUTHBOROUGH SOUTHBRIDGE SOUTH HADLEY STONEHAM STOUGHTON $\stackrel{8}{2}$ SUTTON SWANSEA TEWKSBURY
TISBURY

TYNGSBOROUGH UXBRIDGE
POLE
Number of Foundation Communities
Number of non-Foundation Communities
Number of non-Foundation Communities
Number of non-Foundation Communities that incur Net Costs:
Percent of non-Foundation Communities that incur net costs:
Percent of non-Foundation Communities that incur net costs:
Average Cost per Community / House (of those with costs):
The proposed School Cost Insurance Supplement will equal the amounts shown in the last column, titled: Those with Net Costs.
Appendix A: Community by Community Analysis of School Costs

## Multifamily Apartments

Community by Community Analysis

> | For this iteration: | Input Amounts |
| :--- | :---: |
| Assessed Value per new multifamily unit: | $\$ 115,000$ |
| Number of School Aged Children per new unit | .13 |
| Number of vehicles per apartment | 1.2 |
| Excise Tax per vehicle: | $\$ 250.00$ |
| Percent of Property Tax for Eduction / per analysis: | $52.7 \%$ |

| City/Town | Foundation Yes/No | Tax Rate |  | Property Tax Amount for Education | Excise Tax for Education | Actual Spending per pupil | Foundation Spending per pupil | Actual Spending per house | Amount of Foundation Aid | Net Impact | Those with Net Costs |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ABINGTON | n | 1.65\% | 1,893 | 998 | 158 | 6,382 | 6,197 | 823 | 0 | 332 | 0 |
| ACTON | n | 1.51\% | 1,738 | 916 | 158 | 6,481 | 6,319 | 836 | 0 | 238 | 0 |
| ACUSHNET | y | 1.53\% | 1,764 | 930 | 158 | 5,802 | 6,225 | 748 | (127) | 0 | 0 |
| AGAWAM | n | 1.51\% | 1,738 | 916 | 158 | 7,057 | 6,339 | 910 | 0 | 163 | 0 |
| AMESBURY | n | 1.76\% | 2,029 | 1,069 | 158 | 7,176 | 6,638 | 926 | 0 | 301 | 0 |
| AMHERST | n | 1.90\% | 2,185 | 1,151 | 158 | 10,548 | 6,597 | 1,361 | 0 | (51) | (51) |
| ANDOVER | n | 1.41\% | 1,625 | 856 | 158 | 8,220 | 6,435 | 1,060 | 0 | (46) | (46) |
| ARLINGTON | n | 1.39\% | 1,593 | 839 | 158 | 7,870 | 6,526 | 1,015 | 0 | (18) | (18) |
| ASHLAND | n | 1.68\% | 1,931 | 1,018 | 158 | 7,394 | 6,413 | 954 | 0 | 222 | 0 |
| ATTLEBORO | n | 1.30\% | 1,495 | 788 | 158 | 6,679 | 6,550 | 862 | 0 | 84 | 0 |
| AUBURN | n | 1.31\% | 1,504 | 793 | 158 | 6,898 | 6,287 | 890 | 0 | 61 | 0 |
| AVON | n | 1.21\% | 1,388 | 732 | 158 | 7,522 | 6,400 | 970 | 0 | (81) | (81) |
| AYER | n | 0.99\% | 1,133 | 597 | 158 | 8,861 | 7,015 | 1,143 | 0 | (388) | (388) |
| BARNSTABLE | y | 0.93\% | 1,065 | 561 | 158 | 7,482 | 6,579 | 965 | 287 | 0 | 0 |
| BEDFORD | n | 1.06\% | 1,224 | 645 | 158 | 9,304 | 6,631 | 1,200 | 0 | (397) | (397) |
| BELCHERTOWN | n | 1.89\% | 2,174 | 1,145 | 158 | 6,960 | 6,191 | 898 | 0 | 406 | 0 |
| BELLINGHAM | n | 1.22\% | 1,404 | 740 | 158 | 7,247 | 6,444 | 935 | 0 | (37) | (37) |
| BELMONT | n | 1.12\% | 1,287 | 678 | 158 | 7,397 | 6,460 | 954 | 0 | (118) | (118) |
| BERKLEY | y | 1.20\% | 1,385 | 730 | 158 | 6,116 | 6,313 | 789 | 85 | 0 | 0 |
| BERLIN | n | 1.50\% | 1,722 | 907 | 158 | 8,261 | 6,328 | 1,066 | 0 | (0) | (0) |
| BEVERLY | n | 1.25\% | 1,440 | 759 | 158 | 7,500 | 6,658 | 968 | 0 | (51) | (51) |
| BILLERICA | n | 1.24\% | 1,429 | 753 | 158 | 7,055 | 6,655 | 910 | 0 | 1 | 0 |
| BOSTON | n | 1.10\% | 1,266 | 667 | 158 | 9,847 | 8,319 | 1,270 | 0 | (445) | (445) |

Appendix A：Community by Community Analysis of School Costs－Multifamily Apartments
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EDGARTOWN
Appendix A：Community by Community Analysis of School Costs－Multifamily Apartments


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[^2] GREENFIELD HADLEY HALIFAX HANOVER HARVARD HARWICH HAVERHILL HINGHAM HOLBROOK HOLLAND皆 HOPEDALE Z HULL | IPSWICH |
| :--- |
| KINGSTON |
| LAKEVILLE |



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Foundation
Yes/No
Tax@
Assessed
450,000
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Property Tax
Amount for
Education
Excise
Tax for
Education
Actual
Spending
per pupil

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LANESBOROUGH
LAWRENCE
LEE
LENOXTER
LEOMINSTER
LEXINGTON
LITTLETON
LOWELL
LUDLOW

LYNNFIELD
MALDEN
MARBLEHEAD
MARION

MASHPEE
MATTAPOISETT
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 Millbury
City/Town
Appendix A: Community by Community Analysis of School Costs - Multifamily Apartments

|  Foundation <br> City/Town Yes/No |  | Tax Rate |  | Property Tax Amount for Education | Excise <br> Tax for Education | Actual Spending per pupil | Foundation Spending per pupil | Actual Spending per house | Amount of Foundation Aid | Net Impact | Those with Net Costs |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NANTUCKET | n | 0.42\% | 484 | 255 | 158 | 15,350 | 6,217 | 1,980 | 0 | $(1,567)$ | $(1,567)$ |
| NATICK | n | 1.26\% | 1,451 | 765 | 158 | 8,088 | 6,508 | 1,043 | 0 | (120) | (120) |
| NEEDHAM | n | 1.06\% | 1,217 | 641 | 158 | 8,434 | 6,522 | 1,088 | 0 | (289) | (289) |
| NEW BEDFORD | n | 1.54\% | 1,772 | 934 | 158 | 7,747 | 7,617 | 999 | 0 | 93 | 0 |
| NEWBURYPORT | n | 1.31\% | 1,508 | 795 | 158 | 8,754 | 6,449 | 1,129 | 0 | (177) | (177) |
| NEWTON | n | 0.99\% | 1,143 | 602 | 158 | 10,140 | 6,626 | 1,308 | 0 | (548) | (548) |
| NORFOLK | n | 1.43\% | 1,647 | 868 | 158 | 6,925 | 6,238 | 893 | 0 | 133 | 0 |
| NORTH ADAMS | n | 1.43\% | 1,648 | 868 | 158 | 7,157 | 7,213 | 923 | 0 | 103 | 0 |
| NORTHAMPTON | n | 1.59\% | 1,830 | 964 | 158 | 7,505 | 6,516 | 968 | 0 | 154 | 0 |
| NORTH ANDOVER | n | 1.27\% | 1,456 | 767 | 158 | 7,062 | 6,382 | 911 | 0 | 14 | 0 |
| NORTH ATTLEBOROU |  | 1.19\% | 1,363 | 718 | 158 | 6,458 | 6,116 | 833 | 0 | 43 | 0 |
| NORTHBOROUGH | n | 1.66\% | 1,907 | 1,005 | 158 | 6,605 | 6,080 | 852 | 0 | 311 | 0 |
| NORTHBRIDGE | n | 1.28\% | 1,471 | 775 | 158 | 6,974 | 6,524 | 900 | 0 | 34 | 0 |
| NORTH BROOKFIELD | n | 1.29\% | 1,488 | 784 | 158 | 7,402 | 6,606 | 955 | 0 | (13) | (13) |
| NORTH READING | n | 1.25\% | 1,432 | 755 | 158 | 6,484 | 6,394 | 836 | 0 | 76 | 0 |
| NORTON | n | 1.59\% | 1,824 | 961 | 158 | 5,831 | 6,454 | 752 | 0 | 367 | 0 |
| NORWELL | n | 1.62\% | 1,858 | 979 | 158 | 7,540 | 6,401 | 973 | 0 | 165 | 0 |
| NORWOOD | n | 1.31\% | 1,502 | 792 | 158 | 7,246 | 6,397 | 935 | 0 | 15 | 0 |
| OAK BLUFFS | n | 0.70\% | 810 | 427 | 158 | 10,364 | 6,234 | 1,337 | 0 | (752) | (752) |
| ORANGE | n | 1.88\% | 2,159 | 1,138 | 158 | 7,253 | 7,216 | 936 | 0 | 360 | 0 |
| ORLEANS | n | 0.54\% | 616 | 325 | 158 | 12,804 | 6,185 | 1,652 | 0 | $(1,169)$ | $(1,169)$ |
| OXFORD | n | 1.46\% | 1,679 | 885 | 158 | 7,244 | 6,478 | 934 | 0 | 108 | 0 |
| PALMER | n | 1.80\% | 2,069 | 1,090 | 158 | 6,298 | 6,549 | 812 | 0 | 436 | 0 |
| PEABODY | n | 0.89\% | 1,028 | 542 | 158 | 7,442 | 6,809 | 960 | 0 | (260) | (260) |
| PELHAM | n | 2.00\% | 2,297 | 1,210 | 158 | 8,631 | 5,921 | 1,113 | 0 | 255 | 0 |
| PEMBROKE | n | 1.31\% | 1,509 | 795 | 158 | 6,366 | 6,256 | 821 | 0 | 132 | 0 |
| PETERSHAM | n | 1.40\% | 1,612 | 850 | 158 | 9,255 | 6,163 | 1,194 | 0 | (186) | (186) |
| PITTSFIELD | n | 1.92\% | 2,207 | 1,163 | 158 | 8,079 | 7,059 | 1,042 | 0 | 279 | 0 |
| PLAINVILLE | n | 1.72\% | 1,981 | 1,044 | 158 | 6,609 | 6,187 | 853 | 0 | 350 | 0 |
| PLYMOUTH | n | 1.43\% | 1,640 | 864 | 158 | 7,157 | 6,885 | 923 | 0 | 99 | 0 |
| PLYMPTON | n | 1.36\% | 1,569 | 827 | 158 | 7,176 | 5,984 | 926 | 0 | 59 | 0 |
| PROVINCETOWN | n | 0.63\% | 725 | 382 | 158 | 15,511 | 6,818 | 2,001 | 0 | $(1,461)$ | $(1,461)$ |
| QUINCY | n | 1.32\% | 1,512 | 797 | 158 | 7,388 | 7,268 | 953 | 0 | 2 | 0 |
| RANDOLPH | n | 1.28\% | 1,475 | 778 | 158 | 7,179 | 7,020 | 926 | 0 | 10 | 0 |
| READING | n | 1.22\% | 1,408 | 742 | 158 | 6,645 | 6,428 | 857 | 0 | 43 | 0 |
| REVERE | n | 1.29\% | 1,482 | 781 | 158 | 7,989 | 7,579 | 1,031 | 0 | (91) | (91) |
| RICHMOND | n | 1.09\% | 1,258 | 663 | 158 | 9,891 | 6,198 | 1,276 | 0 | (455) | (455) |
| ROCHESTER | n | 1.38\% | 1,590 | 838 | 158 | 6,892 | 6,088 | 889 | 0 | 107 | 0 |


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SIITUATE

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SHERBORN SHUTESBURY
SOMERVILLE
SOUTHBOROUGH
空号花品 SUDBURY
 SWAMPSCOTT SWANSEA TAUNTON Z TISBURY TRURO
Appendix A: Community by Community Analysis of School Costs - Multifamily Apartments




[^0]:    BARNSTABLE

[^1]:    SAUGUS

[^2]:    ERVING

    | ERVING |
    | :--- |
    | EVERETT |
    | FAIRHAVEN |

    FALL RIVER
    FALMOUKH
    FLORIDA
    FOXBOROUGH
    FRAMINGHAM
    FRANKLIN
    FREETOWN GEORGETOWN

    GLOUCESTER Z GRANBY

