

# **Fiscal Impacts of the Proposed Berwind Project Hopewell Township, New Jersey**

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for the Township of Hopewell

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## **FINAL REPORT**



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## Executive Summary

- This report summarizes the results of the study on fiscal impacts of a residential development project proposed by Berwind Property Group (the Berwind Project). The analysis was conducted by a research team at the University of Pennsylvania between September 2005 and January 2006.
- Hopewell Township has experienced rapid growth. Its population has increased by half in the past fifteen years (from 11,600 to 17,600), and its aggregated assessed property value has grown from \$1.8 billion in 2000 to \$2.4 billion in 2005, a rate of 6 percent each year.
- Between 2000 and 2004, revenues for township municipal purposes remain unchanged after adjusting for inflation. Over the same period, township expenditures have grown at an annual real growth rate of 3 percent. This growth discrepancy indicates moderate fiscal pressure, primarily from hikes in health insurance and contributions to pensions for municipal workers.
- Eighty-eight percent of the township's municipal appropriations are estimated to be spent in the residential sector. Based on past appropriation trends, the 2005 baseline municipal cost is estimated to be \$885 per resident. However, age-restricted development generates less utilization of police services, so the per capita municipal cost is adjusted to \$840.
- The Berwind Project comprises 53 townhouses and 219 condominium units. All units would be developed as age-restricted communities and sold at market rate.
- Two housing size scenarios were developed to capture different market preferences. Scenario A has more small units and Scenario B has more large units.
- Scenario A would generate about 400 additional residents and no additional public school students. It yields an aggregated equalized property value of \$64.7 million. With a total assessed value of \$43.6 million, it would generate \$1.49 million of combined tax revenues to the township, county, school district, and other services.
- Under Scenario A, Hopewell Township would receive about \$179,000 property tax for municipal uses, but it would spend about \$333,000 to serve the Berwind Project. The net fiscal impact is an additional expenditure of \$154,000. In other words, the township has to subsidize \$570 for each unit.

- However, the Berwind Project would generate a surplus for the Hopewell Valley Regional School District. Scenario A would produce about \$851,000 net school tax revenues because the Berwind Project would not demand school services. The net gain is about \$3,130 per unit.
- Scenario B has an emphasis on large units and would generate about 410 additional residents and no additional public school students. It yields an aggregated equalized property value of \$60.7 million. With a total assessed value of \$47 million, it would generate \$1.6 million of combined tax revenues.
- Under Scenario B, Hopewell Township would receive about \$193,000 in additional property taxes for municipal uses. After subtracting the \$344,000 in added municipal costs, the township would subsidize the Berwind Project \$151,000, or approximately \$550 per unit.
- Scenario B would also provide a net financial gain for the Hopewell Valley Regional School District. This scenario would produce about \$917,000 net school tax revenues, or about \$3,370 per unit.
- The township should be cautious in reviewing the proposed Berwind Project. While fiscal impacts are important considerations, the township should also take into account other factors, such as diversity of tax base, traffic impacts, land use compatibility, and provisions for affordable housing.

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# 1. Introduction

In July 2005, Hopewell Township (Mercer County, New Jersey) contacted Dr. Sidney Wong, a member of the faculty of the Department of City and Regional Planning at the University of Pennsylvania (Penn), about conducting a fiscal impact study for the township on various proposed development projects. On September 8, 2005, after a site visit and several conference calls, PennPraxis (a unit within the School of Design at Penn responsible for professional services) submitted a services proposal to the township. On September 12, 2005, the Township Committee passed a resolution to authorize a professional services agreement under which PennPraxis would investigate the fiscal impacts of a development project proposed by the Berwind Property Group (hereafter referred to as the Berwind Project).

To undertake this fiscal impact study, a PennPraxis project team was formed. It consists of two City and Regional Planning faculty members at Penn, a senior vice-president and principal of Econsult Corporation, a lecturer at the University of Texas at Austin, and four City and Regional Planning graduate students at Penn.

The primary components of the study include:

- An analysis of the Berwind Project as they were proposed.
- A study of the fiscal structure of Hopewell Township.
- A case study on local municipal services.
- An estimation of the population and services needs of the Berwind Project.
- A projection of the fiscal impacts of the Berwind Project.

A draft report was submitted to the Township on November 28, 2005. Subsequently, the draft report was circulated to concerned parties for their comments. This final report has been amended to address these comments in accordance to a working meeting on January 12, 2006, the “responses to comments” on January 17, 2006, and additional inputs from the client.

This report presents the findings of the fiscal impact study. Section 2 of the report examines the fiscal setting of Hopewell Township, including demographic characteristics, economic conditions, employment, and housing. Section 3 outlines the historical and current level of real estate values, property tax base, and property taxes levied. Section 4 analyzes the

township's revenues and appropriations in the period of 2000 to 2005. Section 5 examines enrollment trends and school revenues.

Section 6 discusses the applications of fiscal impact analysis, the methodology and assumptions used in this study, and the determination of per capita municipal costs in the township. It also provides crucial data and calculations that the Township may use in assessing future projects.

Section 7 examines the scope and magnitude of the Berwind Project. It develops two scenarios to reflect two housing-size possibilities. Section 8 discusses the anticipated added population and services needs of the project. Section 9 presents the fiscal impacts to the township, the school district, and other service providers.

The final section on the report consists of a list of references and a number of appendices that provide detailed information, data analysis, and technical explanations of the procedures used in the study.

## 2. Overview of Hopewell Township

This section will outline the demographic, socio-economic, and housing trends of Hopewell Township, New Jersey. The township is a small municipality with approximately 58.1 square miles of land area, located in northwestern Mercer County in central New Jersey. Hopewell Township borders Ewing Township, Lawrence Township and Princeton Township to the south; Hunterdon County and Somerset County to the north and east; and the Delaware River to the west. Pennington and Hopewell Boroughs are independent municipalities located within the boundaries of Hopewell Township. Proximity to Trenton and Princeton as well as Interstate 95 and Route 1 makes the township especially accessible. As a result, many commuters from the New York-Philadelphia corridor find the township an attractive and convenient home base.

The township has maintained a rural and small-town character despite its proximity to nearby urban centers. The majority of the northern and central part of the township is zoned as either “Valley Resource Conservation” or “Mountain Resource Conservation.” In 2005, its average gross population density is about 301 persons per square mile. This density is equivalent to approximately 1 person per 2 acres or 1 house per 6 acres. In contrast, Mercer County is about five times more densely settled. Historically, residential dwellings have been scattered across Hopewell Township and clustered in the two boroughs. The township’s major node of activities is around Pennington Borough where there is a concentration of commercial, retail, community and educational facilities.

Because of recent developments such as *Brandon Farms* and the sprawling Merrill Lynch campus, the southeastern part of the township is becoming increasingly suburban. Areas zoned for residential uses are clustered in the southeast and east portions of the township, as well as along the Delaware River. “Research Office” and “Office Park” zones are concentrated around a spine running from the south-central part of the township toward the northeastern corner.

### 2.1. Demographic Characteristics

The population of Hopewell Township is estimated to be approaching 17,600 at the end of 2005. Table 1 depicts the population trends between 1990 and 2005 (as estimated in April). The township has seen a population increase in the latter half of the 1990s after decades of

limited growth. In 1990, there were 11,590 people in the township. The population grew by almost 39 percent between 1990 and 2000 to 16,105.<sup>1</sup> In the same period, the township's household population had expanded 37 percent from 11,108 to 15,224, or at an annual rate of about 3.2 percent. Hopewell Township currently accounts for about 5 percent of Mercer County's population as compared to about 3 percent in the previous three decades. In 2000, 5,498 households and 4,431 families lived in the township. The average family size was 3.11, while the average household size was 2.77.

**Table 1 Population in Hopewell Township**

	1990	2000	2005*
Total Population	11,590	16,105	17,500
Growth from Previous Period	697	4,515	1,395
Annual Percent Growth	0.6	3.3	1.7
Population Density (Persons per Square Mile)	199.5	277.2	301.2
Household Population	11,108	15,224	16,620
Growth from Previous Period	346	4,116	1,396
Annual Percent Growth	0.3	3.2	1.8
Number of Households	3,924	5,498	6,023
Average Household Size	2.83	2.77	2.76
Population in Group Quarters	482	881	880

Population figures are as of April 1990, 2000, and 2005.

\* See Appendix 1 for the estimation of the 2005 township population.

Sources: Summary Tape File 1 of the 1990 Census and Summary File 1 of the 2000 Census.

Almost three-quarters of the township's households are traditional family households with married couples. Single-parent families comprised about 9 percent of all households throughout the 1990s. Table 2 shows a moderate growth of non-family households and single-person households.

<sup>1</sup> Total population includes persons living in group quarters and institutional facilities. In 1990, about 461 persons were in correctional facilities and the amount increased to about 847 in 2000.

**Table 2 Household Types in Hopewell Township**

Households by Type	1990		2000	
	Number	Percent	Number	Percent
Total Households	3,924	100.0	5,498	100.0
Family Households				
Married-couple Families	2,888	73.6	3,938	71.6
Other Family, Male Householder	105	2.7	115	2.1
Other Family, Female Householder	247	6.3	376	6.8
<i>Subtotal</i>	3,240	82.6	4,429	80.6
Non-family Households				
Householder Living Alone	543	13.8	878	16.0
Householder 65 years and over	212	5.4	355	6.5
All Non-family Households	684	17.4	1,069	19.4

Sources: Summary Tape File 1 of the 1990 Census and Summary File 1 of the 2000 Census.

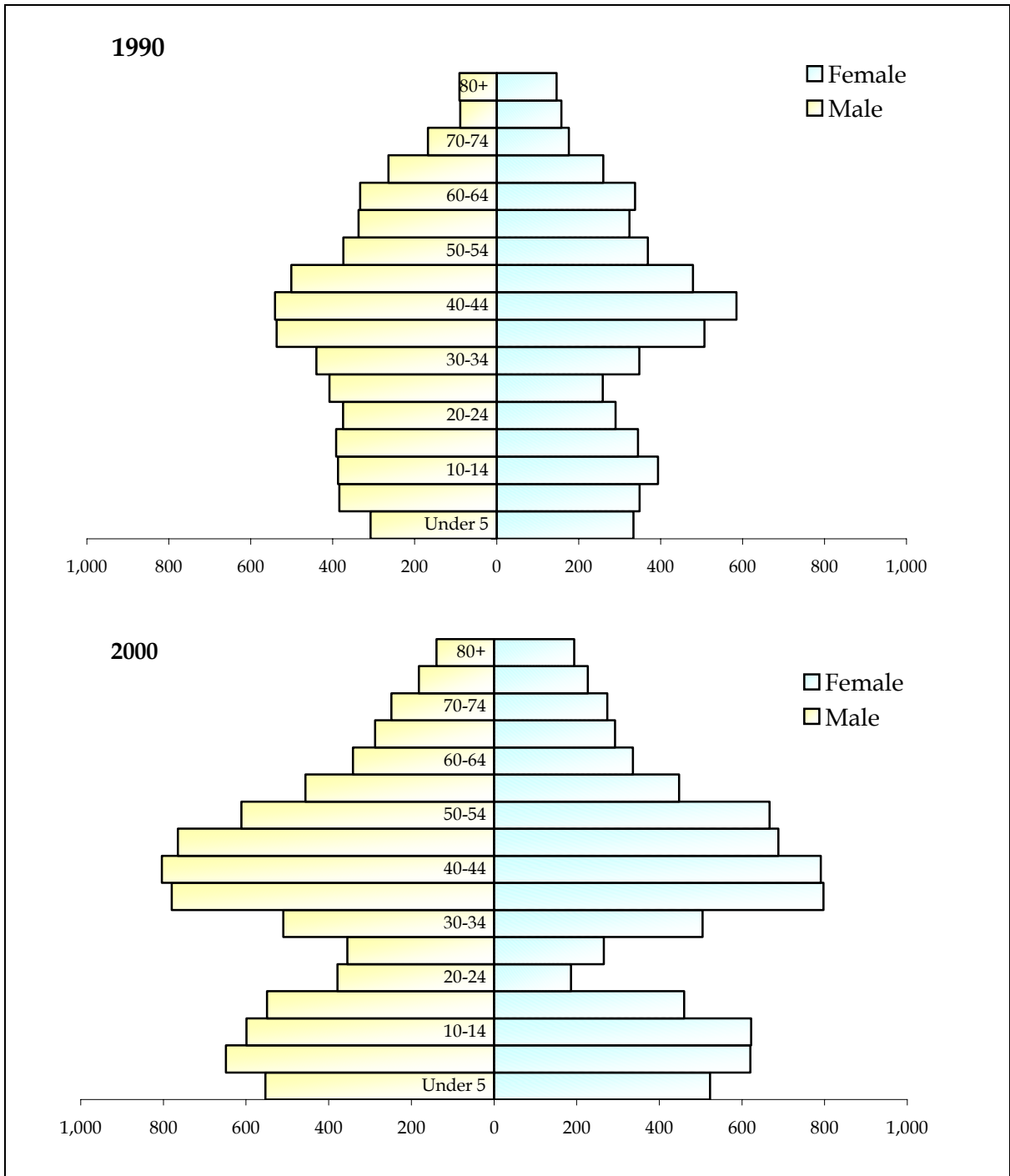
As of 2000, 88.3 percent of Hopewell Township's population was White, 6 percent was African American, and 4 percent was Asian.<sup>2</sup> Small percentages of the population were Native American, Pacific Islander, from other races, or of two or more races, and only 2.5 percent of the population was Hispanic or Latino of any race.

In 2000, the township had a large middle age population and a relative shortage of residents in their twenties. About two-thirds of the population was older than 25 and residents who were older than 65 accounted for approximately 12 percent of the population. The median age of Hopewell's residents was 39.1 in 2000, as compared to 35.3 for the nation. However, the age gap was larger in 1990 when the median age was 38.7 and 32.9, respectively. The primary reason that aging slowed down in the 1990s was the in-migration of middle age families into newly developed residential developments. Figure 1 shows a very different age distribution of the township between 1990 and 2000. The township's population will start rapidly aging if future development is limited to age-restricted projects.

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<sup>2</sup> The percentage that is White would be higher if non-household population was excluded.

**Figure 1 1990 and 2000 Age Structure of Hopewell Township**



The population includes predominantly young males living in correctional facilities (e.g. 775 males in 2000).  
 Sources: Summary Tape File 1 of the 1990 Census, Summary File 1 of the 2000 Census.

## 2.2. Income, Poverty, and Employment

Hopewell is an affluent community. Only 1 percent of the total population and 0.9 percent of families live below the poverty line, compared to more than 12 percent nationally. The 1999 median income for households was \$93,640 while the national median household income was slightly less than \$42,000. Furthermore, only 2 percent of students in the Hopewell Valley Regional School District participate in free or reduced lunch programs, as compared to the New Jersey state average of 27 percent.<sup>3</sup> In 2000 of the 12,310 people who were aged 16 years or older, 7,746 (63 percent) were in the workforce. This high labor participation rate shows an economically active population. The township also has an extremely low unemployment rate of 2.1 percent.

Recent completion of large-scale office and research parks has made the township a significant employment center in the Trenton-Princeton region. The top four employers are Merrill Lynch (6,000 employees), Bristol-Meyers Squibb (1,800 employees), Janssen (1,200 employees), and Trap Rock Industries (100 employees).<sup>4</sup> The Delaware Valley Regional Planning Commission estimated the 2005 township's employment as 9,500, which is about 2,000 jobs more than the township's total number of resident workers. However, despite the sizeable job surplus, it appears that a substantial amount of residents commute outside the township; approximately 1,500 (22 percent) of the township's 7,000 commuters traveled more than 45 minutes to their work places.

## 2.3. Housing and Real Estate Development

In 2000, the total housing stock in Hopewell Township was 5,629 units. Of these, 131 were vacant; 92.9 percent of all occupied units were owner-occupied. Almost 89 percent of all dwelling units in the township were single-family detached houses. Half of the dwelling units were built prior to 1969. There was a period of increased housing starts between 1995 and 2000, as 21 percent of all dwelling units were built in those years.

Between 1990 and 2000, the township added approximately 1,560 units. This was a 38 increase from the 4,070 units in 1990. The majority of the increase came from *Brandon Farms*, a development of about 1,300 units. During the 1990s, the vacancy rate dropped from 3.6

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<sup>3</sup> Great Schools web site - [http://www.greatschools.net/cgi-bin/nj/district\\_profile/239](http://www.greatschools.net/cgi-bin/nj/district_profile/239).

<sup>4</sup> Hopewell Township website - <http://www.hopewelltp.org>.

percent to 2.3 percent, reflecting an extremely strong demand for housing despite a substantial increase in housing supply. It also indicated residential development pressure resulting from the rapid increase of employment in the township. As a result, home prices increased substantially. In 2000, the census reported a high median home value of \$252,600, as compared to the New Jersey median value of \$170,800.

Between 2000 and mid 2005, Hopewell Township added about 520 dwelling units, including 322 single-family detached units, 124 townhouses, and 69 age-restricted units. Most single-family detached units were built in small subdivisions. All townhouses were built in *Hopewell Grant*, and all age-restricted units were built in *Wellington Manor*.

There are currently nine individual housing developments under construction in or around Hopewell Township. The primary builders are Beazer Homes and Toll Brothers. Beazer markets mid-range properties, while Toll Brothers targets the high end of the market. For units without age-restriction, sales prices range from \$360,000 to \$609,000 for townhouses, and \$635,000 to \$923,000 for single-family units. Sales prices for units with age restrictions range from \$290,000 to \$428,000. Appendix 2 presents detailed information on these projects.

Several residential projects are halfway or under construction in Hopewell Township. Upon completion, the township will add 300 units in the near future: 110 townhouse units in *Hopewell Grant*, 40 age-restricted single-family dwellings in *Wellington Manor*, and 150 affordable rental units (with age restriction) in *Hopewell Garden*. Appendix 3 reports the prevailing rent and asking price for rental units and condominiums. Currently, the only rental project is *Hopewell Garden*.

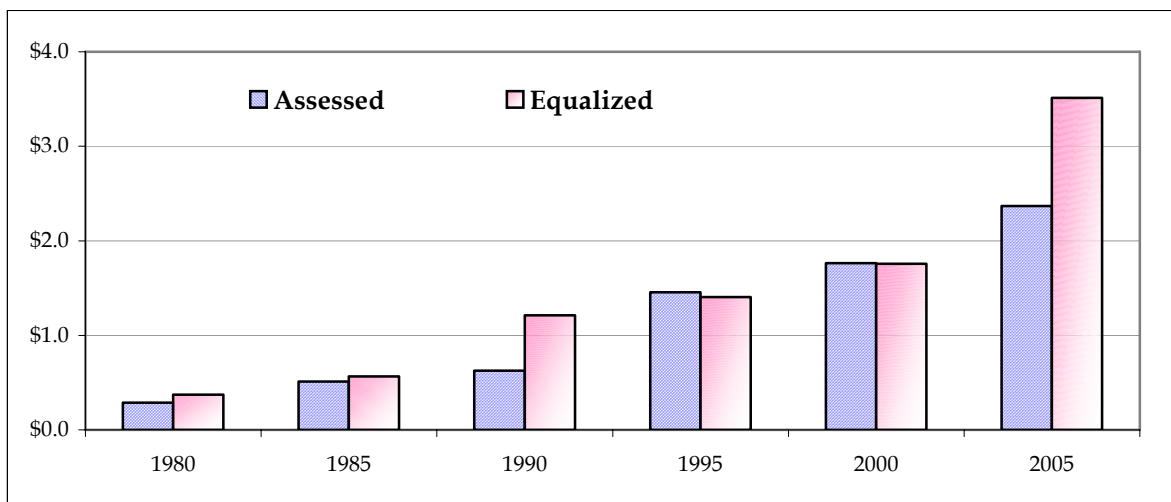
### 3. Ratable Base in Hopewell Township

Property taxes are the most important source of a municipality's locally generated revenue. Property taxes are even more crucial for local school districts. In 2004, 57 percent of the revenues of Hopewell Township came from property taxes. In the same year, property taxes accounted for 86 percent of the total revenues of Hopewell Valley Regional School District. Therefore, an examination of the property tax base is warranted.

#### 3.1. Real Property Values

The real estate values of Hopewell Township have experienced steady growth in the past twenty-five years (Figure 2). The equalized property value (or the market value) has increased from \$371 million to \$3.5 billion between 1980 and 2005, at an annual average growth rate of 9.4 percent. The growth between 2000 and 2005 is particularly staggering. The equalized value has increased from \$1.8 billion to \$3.5 billion, or at an average rate of 15 percent each year. During this period, nearly 400 new housing parcels came online, which comprised roughly one-third of the increase in value. The largest increase in equalized values came from the major expansion of corporate office parks. This expansion entailed 15 new commercial parcels which comprised a net increase in equalized value of over \$500 million.

**Figure 2 Hopewell Township Total Valuation**



Figures are in current billion dollars without inflation adjustment.

Sources: Hopewell Township Tax Assessor Office and Mercer County *Abstract of Ratables*.

Table 3 shows that between 2000 and 2005, the assessed property value has increased at an annual rate of 6 percent (from \$1.8 billion to \$2.4 billion). Sixty-two percent of the \$606 million net increase in assessed value was attributed to commercial and industrial development. In 2004, the highest valued properties were Merrill Lynch (\$304 million assessed valuation), Bristol-Myers Squibb (\$147 million), Janssen Pharmaceutical (\$45 million), and Townsend (\$27 million).

**Table 3 Net Assessed Value per Property Classification**

Class	2000	2001	2002	2003	2004	2005
Vacant Land	\$93.8	\$77.3	\$51.5	\$61.6	\$60.5	\$59.8
Residential	\$1,301.3	\$1,358.1	\$1,419.2	\$1,448.6	\$1,489.1	\$1,548.5
Farm (Regular)	\$109.2	\$109.0	\$114.1	\$120.0	\$122.8	\$128.7
Farm (Qualified)	\$6.5	\$6.5	\$6.7	\$6.4	\$6.2	\$6.0
Commercial	\$79.1	\$148.9	\$325.1	\$379.2	\$379.8	\$382.6
Industrial	\$166.4	\$192.9	\$201.6	\$227.6	\$249.2	\$236.0
Apartment	\$4.0	\$4.0	\$4.0	\$4.0	\$4.0	\$4.1
Total	\$1,760.2	\$1,896.6	\$2,122.2	\$2,247.3	\$2,311.6	\$2,365.6

Figures are in current million dollars without inflation adjustment.

Sources: Hopewell Township Tax Assessor Office, *Table of Aggregates* (for indicated years).

Commercial and industrial properties have the highest tax ratable value per parcel. In 2005, the average parcels of industrial and commercial land were assessed at \$8.4 million and \$2.5 million respectively, while the average residential parcel was assessed at \$270,000. Furthermore, between 2000 and 2005 the average taxable value of commercial parcels increased by nearly \$2 million (not adjusted for inflation). However, residential parcels require larger amounts of services per parcel than their non-residential counterparts do.

Currently, the township is undertaking a reassessment because the overall assessed value has dropped to about 60 percent of the true market value. This ratio, also called the equalization ratio, has fallen consistently in the past five years (Table 4).

**Table 4 Changes in the Equalization Ratio, 2000 to 2005**

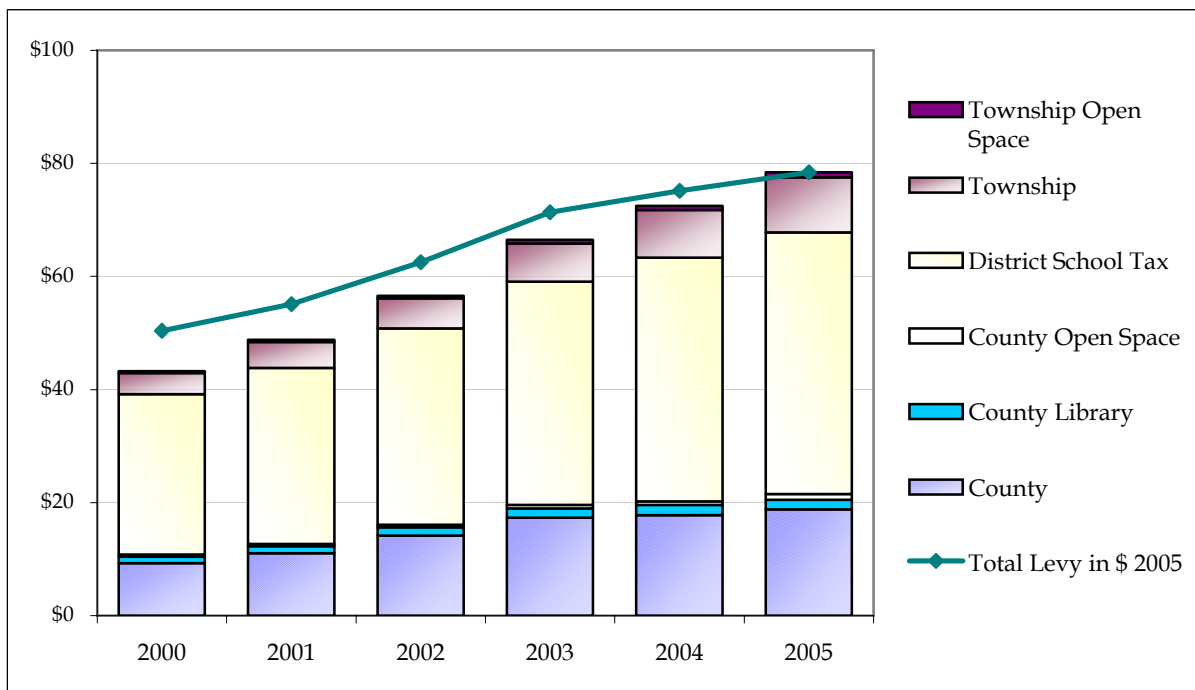
	2000	2001	2002	2003	2004	2005
Equalization Ratio	100.43%	95.73%	88.45%	74.17%	71.22%	67.45%

Sources: Hopewell Township Tax Assessor Office, *Table of Aggregates* (for indicated years).

### 3.2. Property Tax Levies

The amount of property taxes collected in Hopewell Township increased dramatically between 2000 and 2005 (Figure 3). The total tax levied rose from \$43 million in 2000 to \$78 million in 2005, a net gain of \$35 million (in current dollars). Roughly, half of this increase (\$18 million) was for the school tax. The second largest net increase in taxes was for the county tax, which doubled between 2000 and 2005, from \$9 to \$18 million. The municipal-purpose tax nearly tripled from \$3.7 million to \$9.7 million, a net increase of \$6 million. The trend of rapid increases holds even after being adjusted for inflation.

**Figure 3 Property Taxes Levied in Hopewell Township**



Figures are in million dollars. Dollar amounts in the columns are not adjusted for inflation but that for the line "Total Levy" is adjusted to 2005 dollars.

Sources: Hopewell Township Tax Assessor Office, *Table of Aggregates* (various years).

In 2005 dollars, the total tax levied increased from \$50 million to \$78 million between 2000 and 2005. This upward trend is caused by both the appreciation of property in the township and the steady increase in property tax rates. It is important to point out that the tax revenue for 2005 is an anticipated figure. It is quite likely that the total property tax revenues will reach \$90 million by the end of 2005 because the realized property tax revenues have consistently been larger than the anticipated amount

Between 2000 and 2005, the tax rate per \$100 valuation increased in all three major categories: district school tax, county tax, and township purpose tax (Table 5). Overall, tax rates rose from \$2.54 to \$3.404 per \$100 valuation, an increase of 26 percent (86 cents) over the past five years. The school tax takes the largest share: 59 percent of the total 2005 tax rate. While the school tax rate grew by 17 percent, other tax rates grew even faster. The major shift in the tax rate was in the assessment of the township municipal-purpose tax, which nearly doubled from 21 cents to 41 cents per \$100 valuation.

**Table 5 Property Tax Rates as per \$100 Valuation**

Item	2000	2001	2002	2003	2004	2005
County Tax	\$0.530	\$0.580	\$0.670	\$0.770	\$0.770	\$0.800
County Library	\$0.070	\$0.070	\$0.070	\$0.070	\$0.080	\$0.070
County Open Space	\$0.020	\$0.020	\$0.020	\$0.030	\$0.030	\$0.050
District School	\$1.610	\$1.640	\$1.630	\$1.760	\$1.860	\$1.950
Municipal Purposes	\$0.210	\$0.240	\$0.250	\$0.300	\$0.360	\$0.410
Municipal Open Space	\$0.020	\$0.020	\$0.020	\$0.030	\$0.030	\$0.040
Fire	\$0.080	\$0.080	\$0.080	\$0.080	\$0.080	\$0.084
Total Tax Rate	\$2.540	\$2.650	\$2.740	\$3.040	\$3.210	\$3.404

Sources: Hopewell Township Tax Assessor Office, *Table of Aggregates* (various years).

## 4. Municipal Finance

This section reviews the revenues and appropriations of Hopewell Township based on a study of the municipal budget for the past six years. This review provides useful information for estimating per capita municipal expenditures. It also helps understand which revenue sources and appropriations items are relevant to the proposed Berwind Project.

### 4.1. Municipal Revenues

Table 6 reports the total township revenues realized between 2000 and 2004.<sup>5</sup> Over this period, revenues have increased from \$15.4 million to \$17.6 million. Generally, it grew at a modest 3.4 percent per year. However, not all revenue items had the same pace of growth. Grants, local non-property taxes, surplus realized, and miscellaneous revenues are all declining, leaving the property tax and delinquent taxes as two expanding revenue sources. In particular, property tax revenue increased from \$5.8 million in 2000 to \$10 million in 2005.

**Table 6** General Revenues Realized in Hopewell Township

	2000	2001	2002	2003	2004	Annual Percent Rate
Property Tax	\$5.8	\$8.8	\$8.0	\$8.3	\$10.0	14.7%
Surplus Realized	\$3.1	\$3.8	\$3.4	\$3.2	\$2.5	-4.6%
State Aid	\$2.1	\$2.2	\$2.2	\$2.3	\$2.3	1.6%
Local Non-property Tax	\$1.7	\$1.5	\$1.2	\$1.1	\$1.1	-10.4%
Interlocal Services	\$0.3	\$0.3	\$0.4	\$0.4	\$0.4	6.0%
Grants	\$0.3	\$0.5	\$0.3	\$0.2	\$0.2	-10.8%
Delinquent Taxes	\$0.6	\$0.9	\$0.8	\$0.8	\$0.9	8.4%
Others	\$1.4	\$0.6	\$0.0	\$1.0	\$0.2	-39.6%
Total	\$15.4	\$18.6	\$16.3	\$17.1	\$17.6	3.4%

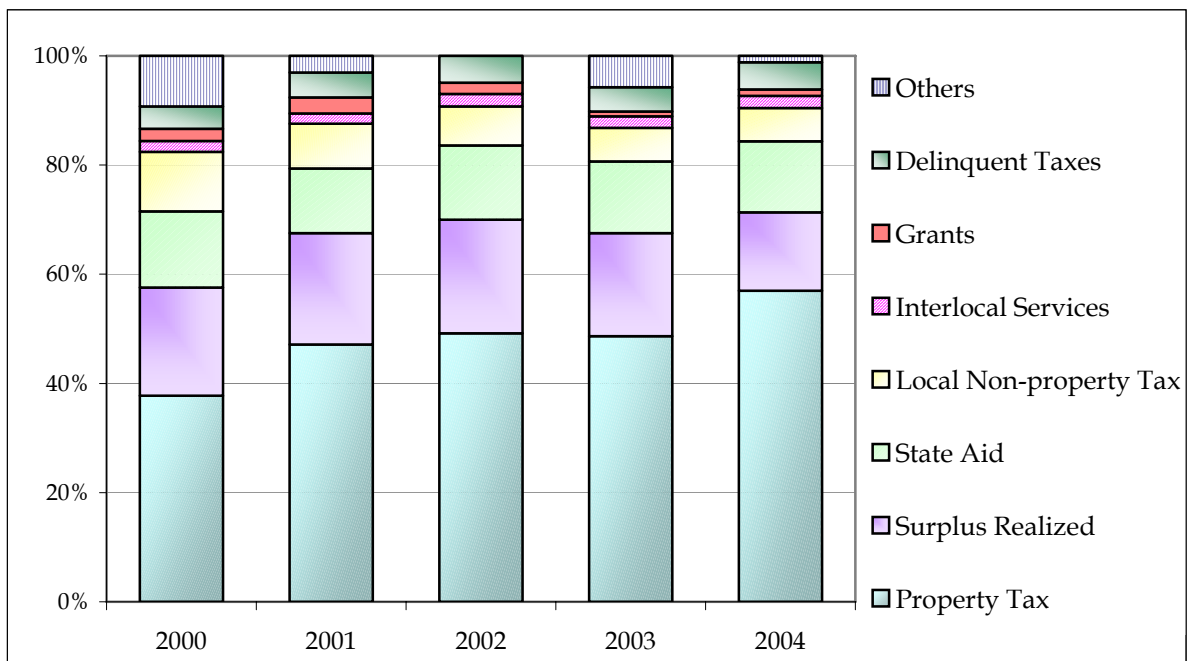
Figures are in current million dollars without inflation adjustment.

Sources: Sheet 11 of *Hopewell Township Municipal Budget* (various years).

<sup>5</sup> The realized figures for 2005 are unavailable at the time this report is prepared. For each year between 2000 and 2004, the realized revenues were 10 to 20 percent higher than anticipated.

Figure 4 shows the percent share of each major revenue source. In 2000, property tax accounted for slightly less than 40 percent of all revenues. In the five years since, the share has increased to 57 percent. The increasing reliance on the property tax indicates a retraction of state aid and a decline in other local revenue sources (such as interest on investments and deposits, fines and fess, and financial charges on tax delinquency). Recently, the township has experienced rapid property appreciation and benefited from the addition of several large nonresidential developments. As a result, the property tax base (in term of assessed value) has increased by 33 percent (from \$1.8 billion to \$2.4 billion) between 2000 and 2005.

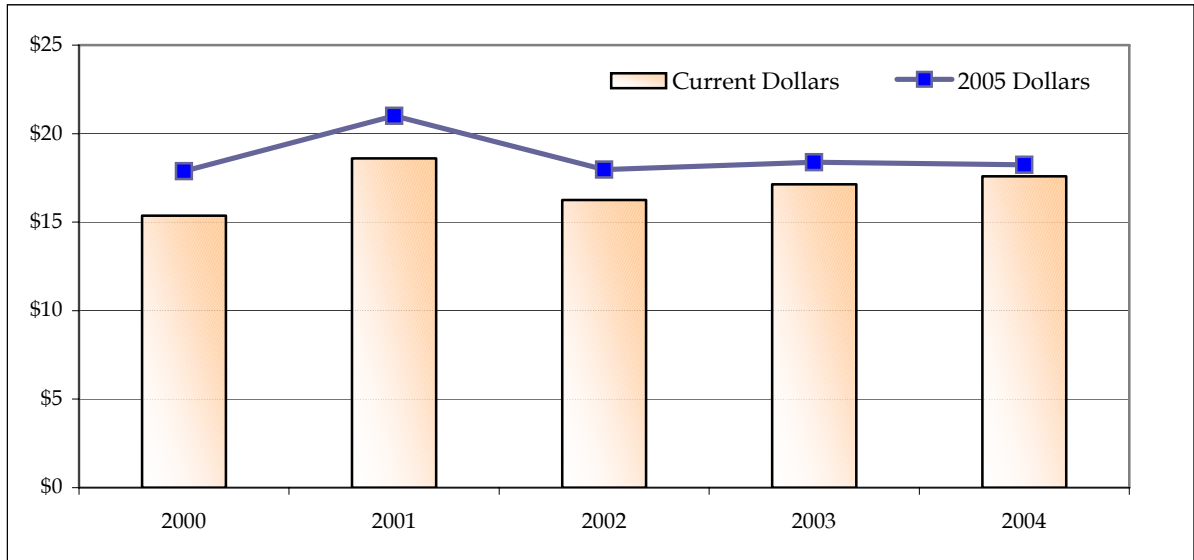
**Figure 4**      **Composition of General Revenues in Hopewell Township**



Sources: Sheet 11 of *Hopewell Township Municipal Budget* (various years).

When the revenues are adjusted for inflation, the township has experienced little real revenue growth (Figure 5). Between 2000 and 2004, the total revenues increased only by \$0.3 million (in 2005 dollars), which represents 0.5 percent real growth each year. After a revenue surge in 2001 (after the completion of the Merrill Lynch campus), the tax revenues were rolled back, reflecting that the township exercised strong fiscal discipline. Between 2000 and 2004, the inflation-adjusted realized revenues held steady at the \$18 million level, but the surplus declined from \$3.6 to \$2.6 million (all in 2005 dollars).

**Figure 5 Growth of Realized Revenues in Hopewell Township**



Figures for columns are in current million dollars without inflation adjustment; figures for the line are adjusted. Sources: Sheet 11 of *Hopewell Township Municipal Budget* (various years).

## 4.2. General Appropriations

The trends and composition of appropriations provide insight into the estimation of fiscal impacts. Table 7 shows the 2000-2004 actual general appropriations as adjusted for all transfers at the end of the budget year.<sup>6</sup> In nominal terms (without inflation adjustment), the appropriations have grown from \$13.3 million to \$16.8 million, or at an average rate of 6 percent each year.

The largest appropriations expenditure, operation expenses, has increased at nearly 8 percent a year, faster than the rate of total appropriations. Except for the other appropriations (which include mainly deferred charges and judgments that fluctuate from one year to another), the growth of debt service and reserves for uncollected taxes are slower than the overall growth rate. In particular, appropriations for capital improvements have declined from \$400,000 to \$100,000 a year.

<sup>6</sup> The actual appropriations have been consistently larger than anticipated in the budget, and the difference has increased to 7 percent in 2004.

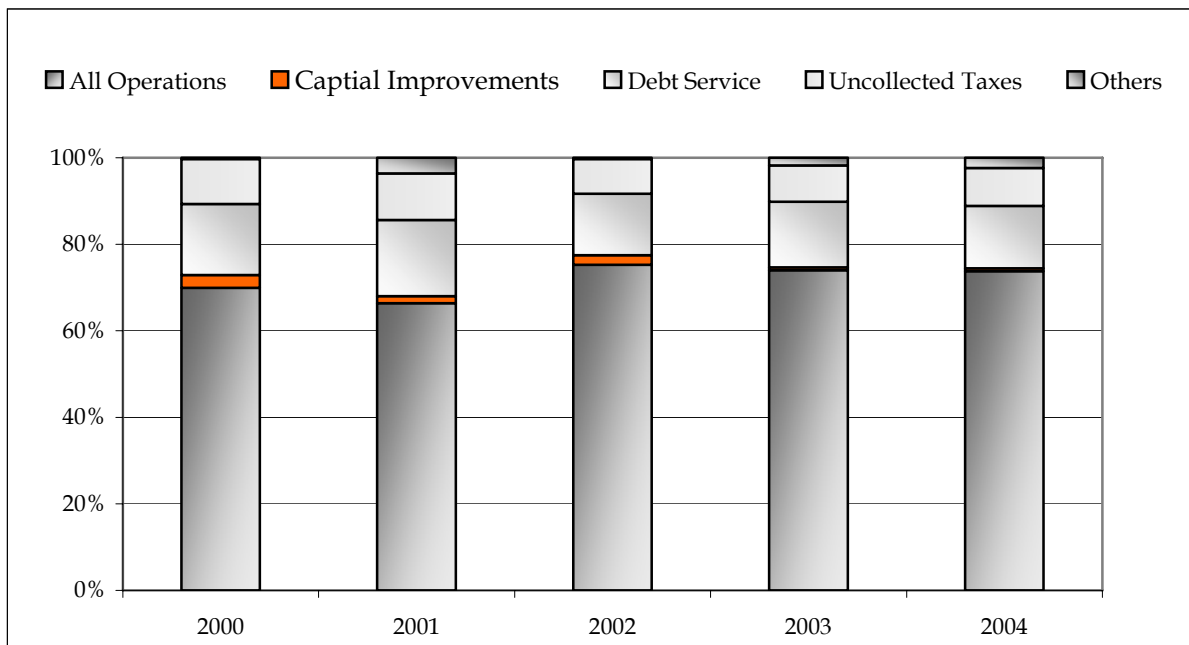
**Table 7 Adjusted General Appropriations, 2000 to 2004**

	2000	2001	2002	2003	2004	Annual Change
Operation	\$9.3	\$9.6	\$10.7	\$11.7	\$12.4	7.5%
Capital Improvements	\$0.4	\$0.2	\$0.3	\$0.1	\$0.1	-28.3%
Debt Services	\$2.2	\$2.5	\$2.0	\$2.4	\$2.4	2.7%
Uncollected Taxes	\$1.4	\$1.6	\$1.1	\$1.3	\$1.5	1.9%
Others	\$0.0	\$0.5	\$0.0	\$0.3	\$0.4	74.3%
Total Appropriations	\$13.3	\$14.4	\$14.3	\$15.8	\$16.8	6.1%

Figures are in current million dollars without inflation adjustment.  
Sources: Sheets 12 to 30 of *Hopewell Township Municipal Budget* (various years).

The appropriations are led by municipal operation, as this item, on average, accounts for three-quarters of total appropriations. Figure 6 presents the percent share of each broad expenditure item and indicates that the share of both uncollected taxes and debt services are shrinking. In particular, appropriations to capital improvements have dropped from 3 percent in 2000 to 0.6 percent in 2004.

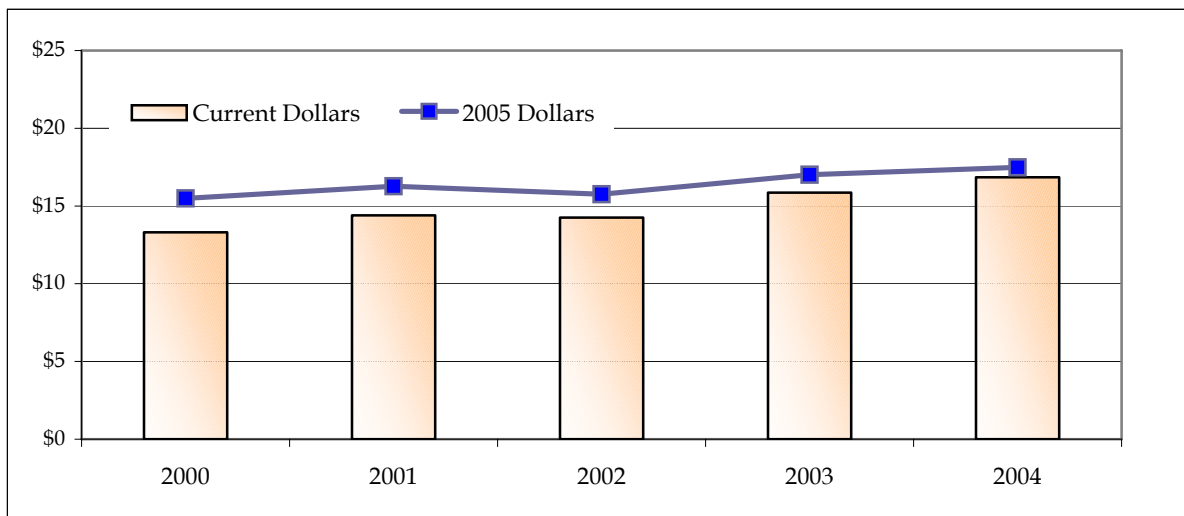
**Figure 6 Composition of General Appropriations in Hopewell Township**



Sources: Sheets 12 to 30 of *Hopewell Township Municipal Budget* (various years).

In real terms, the total appropriations have increased at a modest rate of 3 percent each year between 2000 and 2004 (Figure 7). In contrast, the township’s revenues grew at a real annual increase rate of 0.5 percent. This discrepancy in the real growth rate indicates some fiscal pressure on the township. As a result, the surplus has been decreasing. While the township has exercised strong discipline in its fiscal management, it is facing difficulties in containing expenditures under new fiscal pressures from rising fuel costs, contributions to health insurance and pension schemes, and the decline of community volunteerism.

**Figure 7 Growth of General Appropriations in Hopewell Township**



Figures for columns are in current million dollars without inflation adjustment; figures for the line are adjusted.  
Sources: Sheets 12 to 30 of *Hopewell Township Municipal Budget* (various years).

### 4.3. Operation Appropriations

Since three-quarters of the appropriations fall into the category of operation, they deserve a more detailed examination. Sheets 12 to 30 of the township Municipal Budget provide detailed appropriations by line item. We combined the “within CAPS” and “excluded from CAPS” items in the budget and reclassified specific items.<sup>7</sup> For example, appropriations to

<sup>7</sup> The State of New Jersey established a statutory limitation on government expenditures. Recurrent operating expenses are within CAPS and cannot expand faster than a set growth rate. One-time expenditures (such as overtime for snow removal, local match to state grants, and additional contributions to health insurance and pension) are excluded from CAPS.

the court are combined with police appropriations. Some appropriations under general services, such as parks and maintenance, streets and roads, utilities, and sanitation were grouped separately as public works. The broad functional categories are:

- General Services  
Administrative and executive, financial administration, tax assessment and collection, professional services, maintenance of fleet and municipal buildings, planning and zoning, insurances, and support of commissions and committees
- Public Safety and Court  
Police, municipal court, public legal defense
- Public Works  
Street and roads, street lighting, park maintenance, sanitation, and snow removal
- Health and Welfare  
Board of Health and dog regulation
- Interlocal and Local Matches to Grants  
Expenditures in providing services to other jurisdictions and local match to grant money from state and federal programs
- Other Operations  
Miscellaneous operational appropriations not included in the above four categories.

Table 8 presents a breakdown of operation appropriations, which grew at an inflation-adjusted rate of 4.5 percent a year as compared to the 3 percent real growth of the total appropriations. The major component of operation appropriations, the general services appropriations, expanded at about 9 percent annually. Health and welfare appropriations also increased at a higher rate than the operation appropriation, but its total amount is small (\$330,000 or 2 percent of the total operational expenses). Other categories like public safety and court, and public works, are growing at a rate slower than 4.5 percent.

The growth of the general services appropriations is primarily attributed to expenses outside the CAPS as defined by the state regulations. These expenses mainly come from employee group health insurance, employee retirement contributions, and general liability. The combined appropriations to these three items increased from \$0.1 million to \$2.2 million (both in 2005 dollars) between 2002 and 2004. In other words, inputs to municipal services have not been expanding but labor costs are rising rapidly.

**Table 8 Real Growth of Operation Appropriations, 2000 to 2004**

<b>Broad Functions</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>Annual Change</b>
General Services	\$4.33	\$3.99	\$5.02	\$5.09	\$6.10	8.9%
Public Safety & Court	\$2.83	\$2.95	\$3.16	\$2.97	\$3.07	2.1%
Public Works	\$1.54	\$1.62	\$1.62	\$1.80	\$1.82	4.1%
Health and Welfare	\$0.23	\$0.24	\$0.33	\$0.29	\$0.33	10.1%
Interlocal and Local Matches to Grants	1.14	1.52	1.27	1.92	1.09	-1.1%
Other Operations	0.75	0.48	0.46	0.51	0.49	-10.3%
<b>Total</b>	<b>\$10.82</b>	<b>\$10.80</b>	<b>\$11.86</b>	<b>\$12.58</b>	<b>\$12.90</b>	<b>4.5%</b>

Figures are adjusted to 2005 million dollars.

Sources: Sheets 12 to 30 of *Hopewell Township Municipal Budget* (various years).

The appropriations analysis shows that Hopewell Township has been prudent in controlling its municipal finances and maintaining a sound fiscal condition. However, outside factors such as rising insurance premiums and obligations to the pension system will continue to raise expenditures faster than the inflation level. This finding will be revisited in the section on fiscal impact because the effect on expenditures should be factored into the anticipation of public costs and revenues of any new real estate development.

## 5. Hopewell Valley Regional School District

### 5.1. Overview of the School District

Age-restricted developments like the Berwind Project do not directly add public school enrollment and school expenditures, but they will bring additional “school tax” revenues.<sup>8</sup> Therefore, a discussion of the public school system from a fiscal perspective is imperative.

The Hopewell Valley Regional School District (District 31) is comprised of Hopewell Township, Hopewell Borough, and Pennington Borough. There are six public schools in the district: four elementary, one middle, and one high school. They have a combined enrollment of approximately 4,010 students for school year 2005-06.

The School District is one of the finest in New Jersey. Hopewell Valley schools perform better than the state average in most measured categories, including all standardized testing administered by the state. Almost every student in Hopewell Valley Central High School graduates. Schools at every grade level enjoy a favorable class size, student-faculty ratio, and student-computer ratio when compared to the state averages. All four elementary schools score above state averages in Level 3 and 4 mathematics and in language proficiency.

Ninety percent of students at Timberlane Middle School scored “proficient” and “advanced” in the recent 8<sup>th</sup> grade language proficiency tests, as compared to the state average of 72 percent. Eighty one percent scored “proficient” and “advanced” in mathematics proficiency (62 percent in the state) and 93 percent scored the same standing in science proficiency (75 percent in the state). Hopewell Valley Central High School has an almost perfect graduation rate (99.6 percent). The average SAT score of its students in the mathematics and verbal sections is 590 and 570 respective, while the state average is 515 and 498. Ninety-two percent of the students at grade 11 are assessed as proficient and advanced in English language and mathematics proficiency.

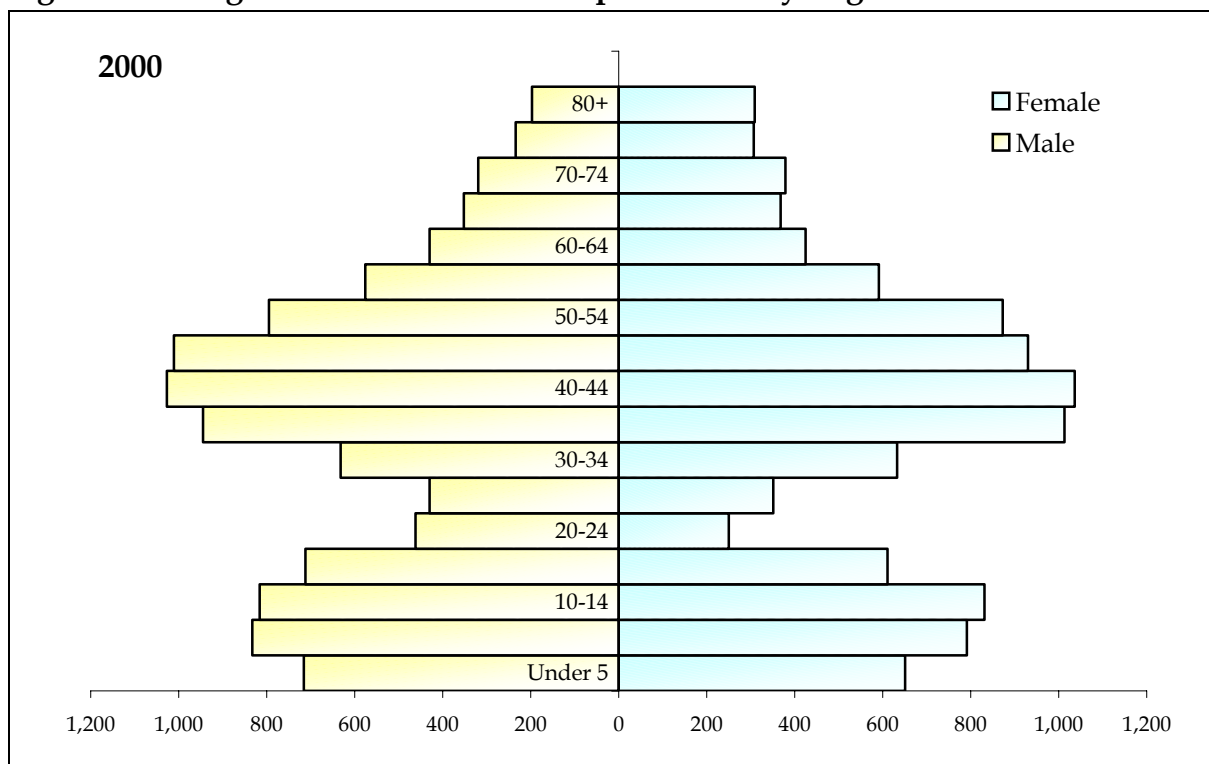
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<sup>8</sup> While Isherwood (2005) reported that age-restricted development caused enrollment increase in Hamilton Township, he also reported the absence of such connection in neighboring West Windsor-Plainsboro Regional School District. More study is needed to find out whether demographic changes of current residents and recent construction of family homes can sufficiently explain enrollment expansion.

## 5.2. District Demographics

In 2000, 20,836 persons lived in the district, including 847 prisoners and 36 persons in other group quarters. The dumb-bell shaped age distribution is typical for a suburban community (Figure 8). There is a large share of residents over 35 and less than 20 years old, but a smaller proportion between 20 and 35. While the annual number of births has increased from 200 in 1995 to 261 in 2000, it has decreased slightly each year since. In 2004, the birth total was estimated to be 227.<sup>9</sup>

**Figure 8 Age Distribution of the Hopewell Valley Regional School District**



Source: Summary File 1 of the 2000 Census for Hopewell Borough, Hopewell Township and Pennington Borough.

Delaware Valley Regional Planning Commission (DVRPC) projects that between 2000 and 2030 the population of Hopewell Borough and Pennington Borough will hold steady. Therefore, the number of future family homes in Hopewell Township is the key to future school enrollment. Current construction of new homes has slowed down after the

<sup>9</sup> Table 4 of Grip (2005) *Demographic Study for the Hopewell Valley Regional School District*.

completion of the 1,300 units in *Brandon Farm* in 1998. The township has no large-scale family home development other than the family townhouses in the half-completed *Hopewell Grant*. It is anticipated that another 300 units (including about 100 units expected in *Hopewell Grant*) will be constructed in the next several years.

The age structure of the School District shows that by 2010, the number of childbearing females will drop significantly. At that time, the 30 to 34 year cohort in 2000 will move to the 40 to 45 year cohort, and teenagers will continue to leave home when they reach college age. Without significant new housing construction, the current level of births will decline toward 2010.

### **5.3. School Enrollment Trends**

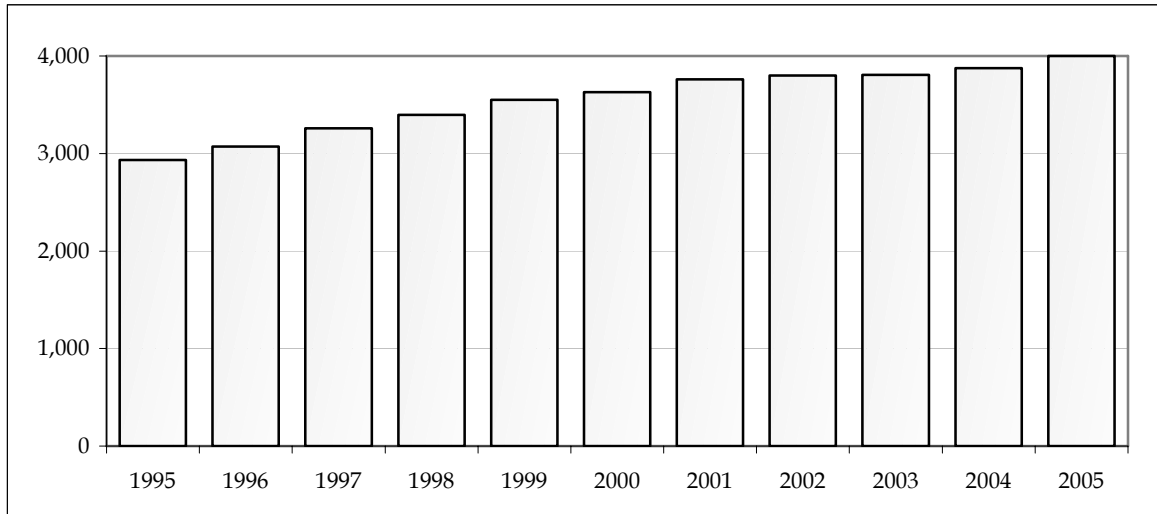
School enrollment follows a cycle of expansion and contraction. Enrollment grows immediately after homes in large subdivision become occupied because some incoming families move in with their school-age children. Families without children are likely to have their first child once they settle in, generating a second surge of school enrollment five to ten years later. As this student group progresses through the school system we can expect a decrease in student size in ensuing years if no new housing is added to a community. The expansion phase usually lasts for almost two decades and is followed by two to three decades of enrollment contraction. Now retiree homeowners sell their houses to younger families; the enrollment expands again, and the cycle repeats.

The enrollment trends in Hopewell Valley are complex. Like many postwar suburban areas, enrollment in the Hopewell Valley Regional School District had declined significantly in the late 1980s. Between 1975 and 1990, enrollment in public school dropped from 3,514 to 2,344. After this significant decline, enrollment steadily recovered (Figure 9). Two factors caused the enrollment to once again increase. The first factor is the aging of longstanding residents. Younger families started moving into homes previously occupied by post-war baby boomers. This impact on enrollment became more gradual over the years.

The second factor is the recent housing expansion. Between 1995 and 2000, approximately 1,250 dwelling units were added to Hopewell Township, Hopewell Borough, and Pennington Borough; these units immediately generated the first-round enrollment effects of in-migration of children to these housing units. Toward 2000, the number of children at the elementary and middle school levels peaked. Over this period, enrollment grew at 4.3

percent a year from 2,930 to 3,630. The growth between 2000 and 2005 has slowed down despite 520 newly constructed dwellings in this time. The average annual enrollment growth was 2 percent, about half of the rate between 1995 and 2000.

**Figure 9 Public School Enrollment, 1995 to 2005**



For consistent comparison, the enrollment excludes a small amount (less than 20) of students in pre-kindergarten and special education program starting in 2000.

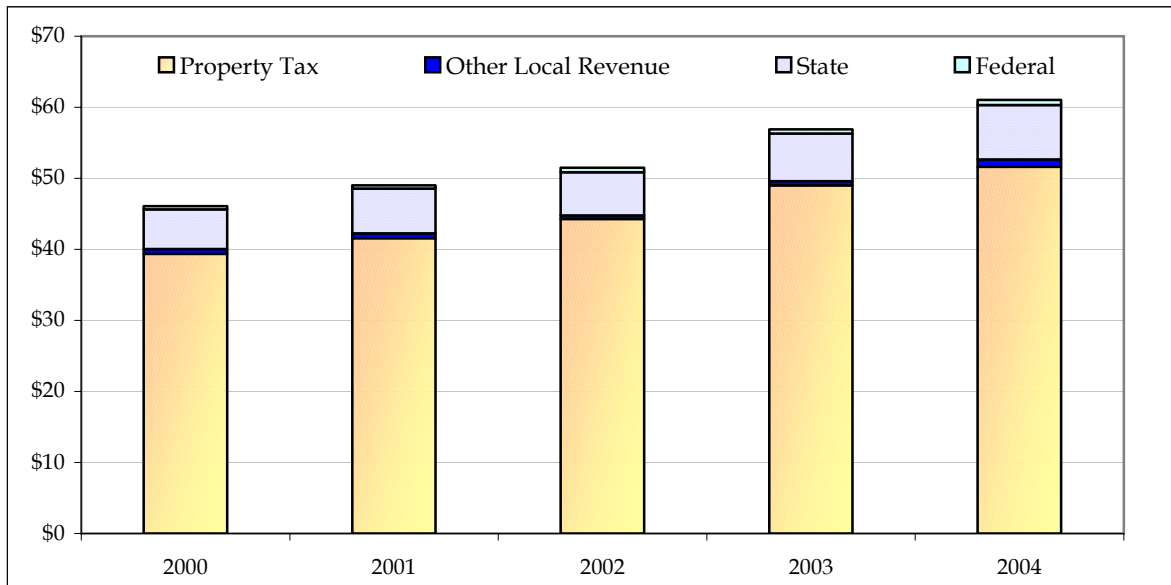
Source: *Demographic Study for the Hopewell Valley Regional School District, 2005.*

## 5.4. School Funding

School revenues have increased from \$40 million in 2000 to \$59 million in 2004. On average, it grew at 10.4 percent each year over this period. Figure 10 shows the revenue in 2005 dollars. Between 2000 and 2004, the real growth was 7.3 percent per year.

The School District is primarily locally funded. Approximately 86 percent of the total revenues are from school taxes. In 2004, a total of \$51.3 million in school taxes was collected from the three municipalities. 84 percent (\$43 million) of the tax revenue was from Hopewell Township where 77 percent of the School District’s students live. In 2005, the school tax rate of Pennington Borough and Hopewell Borough are \$2.33 and \$2.26 per \$100 valuation respectively. In contrast, the school tax rate in Hopewell Township is \$1.95 per \$100. The township has a lower school tax rate because it has a diverse tax base with several high-value nonresidential properties. For example, Merrill Lynch paid closed to \$6 million school taxes in 2004.

**Figure 10 School Revenues by Source**



Figures are adjusted to million 2005 dollars.

Source: Exhibit J-2, *Hopewell Valley Regional School District Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2004*.

Combined state funding accounts for about 12 percent of total school revenues, but in recent years the state of New Jersey has shifted funding priority to distressed school districts. As a result, state aids to Hopewell Valley Regional School District for student transportation and special education have not increased since 2000.<sup>10</sup> Therefore, it is unlikely that a real estate development can induce more state funding to the School District.

<sup>10</sup> [http://www.nj.gov/njded/stateaid/0405/cash\\_aidsearch.shtml](http://www.nj.gov/njded/stateaid/0405/cash_aidsearch.shtml)

## 6. Fiscal Impact Analysis

Many methods exist to measure the various impacts of a proposed development on a municipality. This section discusses the scope and usage of fiscal impact analysis. It then details the assumptions adopted in this study and the estimation of per capita cost in Hopewell Township.

### 6.1. The Scope

In *The Fiscal Impact Handbook*, Burchell and Listokin (1978:1) defined fiscal impact analysis as “[a] projection of the direct, current, public costs, and revenues associated with residential or nonresidential growth to the local jurisdiction(s) in which this growth is taking place.” Fiscal impact analysis is also known as cost-revenue analysis and is a standard way to identify a potential fiscal deficit (when costs exceed revenues) or surplus (when revenues exceed costs) generated by a development. Local jurisdictions have relied on this analysis to compare the costs (operating expenses, capital outlays, debt services, etc.) specific to a development with the tax revenues and other revenues generated by the development. The results of a fiscal impact analysis are often used to approve, deny, or modify development projects.

However, fiscal impact analysis has a narrow scope. Its primary concern is on public costs and revenues. Fiscal impact analysis commonly ignores indirect impacts because of the difficulties in predicting spillover effects and possible double counting of simultaneous impacts.

Fiscal impact analysis is confined to current costs and revenues. The fiscal impact analysis assumes the project was completed in the same year the analysis was conducted. This focus on current figures recognizes that development takes several years to complete and the finances of the local jurisdiction will be impacted in the interim. However, a focus on fiscal impacts after the build-out of the development avoids estimates of short-term impacts that are uneven and contingent on development pace.

It is standard practice to express fiscal impacts in annual figures. This allows the local government to gauge the impacts on their annual appropriations and tax revenues. Occasionally, the future fiscal impacts are capitalized into a present value. This approach will generate net present value sensitive to a particular time horizon and discount rate.

Fiscal impact analysis differs from cost-benefit analysis. Cost-benefit analysis conducted by the public sector has a wide scope that goes beyond agencies of a municipality. If a cost-benefit analysis is conducted by a developer, the focus is on the net return of the investment to the developer and its investors. If it is conducted on behalf of a geographic area, the emphasis is on the aggregate benefits and costs in that area. In contrast, fiscal impact analysis solely measures the increments of revenues and expenditures imposed by a development to selected agencies within a local jurisdiction.

Fiscal impact analysis differs from economic impact analysis. While fiscal impact analysis for nonresidential development involves projecting the number of jobs directly created by the development, it seldom examines the spillover effects. In contrast, economic impact analysis estimates the total changes in employment, wages, and sales, including both the direct changes as well as indirect changes resulting from the multiplier effects of a development. It employs economic base theory and an input-output model to estimate economic multipliers.

## **6.2. The Use**

Many jurisdictions use the result of fiscal impact analysis in their decisions to approve, deny or modify development applications. However, fiscal impact should not be the sole criterion in determining a development application. Other factors, such as traffic impacts, environment effects, concurrence to general plan, compliance of ordinances and regulations, provision of affordable housing, job creation, and preservation of open space are important considerations too. Decision makers should also examine the land use compatibility of the development with its neighboring land uses, and the location of the proposed development to infrastructure. Furthermore, decision makers should also consider how the development will contribute to the preferred mix and diversity in tax base, income, ethnicity, and employment.

Fiscal impact analysis furnishes important information to providers of local services (public schools, public safety, emergency medical services, police, fire fighting, and public works). It helps these providers plan for future services in light of the development. The analysis helps anticipate public revenue deficiencies and provides indications for the possibility to raise local taxes or user charges.

### 6.3. Methodology for the Hopewell Township Study

All fiscal impact analysis studies follow certain common procedures:

- a) Projecting the “population” (such as residents, housing units, public school children, and employees) generated by the development,
- b) Estimating the public service costs to meet the demand of the new population,
- c) Estimating the increase in tax base and revenues the development will produce, and
- d) Comparing the potential service costs and potential revenues.

Estimating revenues is a straightforward process in which the current tax rate is applied to the estimated assessed value of the development. However, there are different ways to estimate potential public costs (Burchell, Listokin & Dolphin 1985). The following are the six common techniques associated to two different methods – average costing and marginal costing.

**Table 9 Techniques of Fiscal Impact Analysis**

Average Costing Method	Marginal Costing Method
Per Capita Multiplier	Case Study
Service Standard	Comparable City
Proportional Valuation	Employment Anticipation

The majority of fiscal impact studies apply the per capita multiplier technique because it is simple, straightforward and easy to administer. This technique assumes a local fiscal condition in which the public service delivery system is not drastically over- or under-utilized. In this case, the future public costs of a development can be reasonably represented by the current average cost per various population units. This technique is also appropriate when the scale of the proposed development is relatively small compared to existing development.

This report uses the per capita multiplier technique as the primary method because of the stable fiscal conditions of Hopewell Township and the Hopewell Valley Regional School District. Additional methods are used to complement this primary method. First, a proportional valuation technique is used to estimate how municipal costs are split between

residential and nonresidential uses. Second, case studies are conducted to identify whether some components of local services are approaching a capacity threshold. The interviews with service providers generate important information for refining multipliers and for verifying the validity of the results of the per capita multiplier techniques.

## **6.4. Assumptions Adopted**

Readers of this study should be aware of the following assumptions, in addition to the scope and application of fiscal impact analysis:

1. The estimated fiscal impacts reflect the Berwind Project as completed.
2. It is assumed that the Berwind Project would take six years to complete. The fiscal impacts reported here represent the total increase in costs and revenues at build-out.
3. Throughout this report, the potential impacts are expressed in annual figures and all dollar amounts are in 2005 dollars. These figures are in “real” rather than “nominal” dollars.
4. The current conditions of the township and the school district serve as a reasonable guide for predicting the impacts associated with the project.
5. The estimated impacts are specific to the Berwind Project. Any future changes of the township-wide fiscal conditions are independent of the development. In other words, the fiscal impacts of the Berwind Project are increments added to the overall fiscal conditions that serve as a baseline.
6. Because of the unavailability of housing size configuration, the estimate of costs and revenues is based on scenarios developed to best reflect current market preferences.
7. Multipliers are average figures that capture past conditions; they should not be interpreted as definite and precise measures.
8. Because of the complexity of Council on Affordable Housing (COAH) requirements, the analysis will not factor in the amount of on-site affordable units or impact fees. Those impacts require a separate study.
9. The proposed Berwind Project do not create a gated development, so the maintenance and services of local roads are the responsibility of the township.
10. This study adopts the existing equalization ratio and property tax rate because of the uncertainty concerning the reassessment being conducted.

## 6.5. Estimating Average Household Size

The public service costs of a development are usually a function of such indicators as square footage, number of residents, number of housing units, and number of school-age children. The first step in identifying fiscal impacts of a development that has a residential component is to estimate how much population this development would induce.

The most common technique is to multiply an estimated average household size -- the average number of residents per household -- with the total number of occupied units in the development. However, the selection of appropriate average household size is not straightforward. For example, applying the 2000 township-wide average household size of 2.77 is appropriate only when the proposed development has a similar housing mix with the township. For a development with large number of four and five bedroom single-family units, this multiplier would underestimate the future population. On the other hand, applying this multiplier to an age-restricted development that provides units less than four bedrooms would result in population overestimation.

In Appendix 4, we list ten sets of average household size multipliers from past studies. Four sets generated by the Burchell and Listokin team at Rutgers University are broken down by housing type and bedroom size (columns (a), (c), (d) & (e) in Appendix 4). Their estimates are based on data from American Housing Survey and the Public Use Microdata Samples (PUMS). However, the most recent set of them (column (e) in Appendix 4, published in 1994 for the Urban Land Institute) was based on units constructed between 1980 and 1987. Since average household size has been consistently declining over past decades, this set of multipliers cannot be used without adjustment or updating.<sup>11</sup>

It is difficult to identify estimates of average household size that are up-to-date, geographically relevant, and specific to the appropriate housing type and size. As a result, planning professionals commonly adopt a standard blend measure. For example, a blended multiplier of 1.8 is widely used for age-restricted units in the region. An analysis of blocks in *Brandon Farms* that have a high concentration of senior citizens reveals a similar average household size of 1.79 (Table 10).

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<sup>11</sup> The US average household size has declined from 3.11 to 2.59 over the period 1970 and 2000 (see <http://www.census.gov/statab/hist/HS-12.pdf>).

**Table 10** Average Household Size in *Brandon Farms* (Selected Blocks)

Block	Percent Population 55 Years and Over	Total Household Population	Total Number of Households	Average Household Size
8043	94.8%	58	33	1.76
8047	91.7%	12	6	2.00
8042	89.6%	48	28	1.71
8041	87.2%	47	24	1.96
8046	84.0%	25	15	1.67
Overall	90.0%	190	106	1.79

Source: Summary File 1 of the 2000 Census for selected blocks in Block Group 8 of Census Tract 39.01 in Mercer County.

We expanded the analysis to include other blocks in Mercer County that are predominantly occupied by residents who were over 55 years old (Appendix 5). We calculated the average household size of 1.68 for blocks that have a high home ownership rate. This analysis shows that the age-restricted section of *Brandon Farms*, which is a newer development, has a slightly above-average household size. However, both estimates are blended and do not taken into consideration housing type and size.

Regarding non-age restricted units, the standard blend multiplier of 2.88 is applied to single-family dwellings. This multiplier is generated by an upward adjustment of the average household size of Hopewell Township (2.77) to offset the effects of townhouses and age-restricted units. Unfortunately, this multiplier is not specific to townhouses. Applying it to townhouses that typically have either two or three bedrooms (as compared to single-family units that have three to five bedrooms) will overestimate the anticipated population.

To fine-tune our population estimates, we conducted a study of the 2000 Public Use Microdata Samples (PUMS) data covering Burlington, Hunterdon, Mercer and Middlesex counties for housing units that were constructed between 1990 and 2000. We developed a set of average-household-size multipliers specific to housing size, housing types, and age of the occupants. Appendix 6 reports the procedures of the PUMS study and the results of several sets of estimated demographic multipliers.

After careful consideration of the PUMS calculations and other available multipliers, we used the following demographic multipliers for the Berwind Project:

2-bedroom townhouses (age-restricted):	1.61
1-bedroom condominium (age-restricted):	1.40
2-bedroom condominium (age-restricted):	1.52

## **6.6. Municipal Service Costs**

In Section 4, we analyzed the township appropriations adjusted after all transfers (as compared to the anticipated appropriations) for the period 2000 and 2004 and concluded that the township is fiscally healthy. In this section, a background will be provided first, then information from the appropriations will be used to develop the per resident municipal cost multiplier. We use this per capita multiplier method because the township is unlikely to face drastic changes in its stable fiscal structure. However, we found that upward pressure on health care expenditures from health care will be an issue in future years.

To derive appropriate per-person municipal costs, we conducted several calculations. The first calculation apportioned the share of municipal costs attributed to residential uses. In this calculation, two methods were used to derive the multipliers. The second calculation examined the past trends of the residential portion of municipal costs to determine whether adjustments are required. Third, we calculated the per capita cost based on a recent population estimate to determine whether the multiplier (after inflation adjustment) is expanding or remaining constant.

### **6.6.1. Background of Municipal Expenditures**

A background of the municipal services helps to explain the probable service impacts of any residential development in the Hopewell Township. Most of the township (especially to the northwest) is a rural community with sparse residential development. Municipal services in such a rural setting are less intensive as they do not cover garbage pickup, water supply, and public sewerage. In Hopewell Township, these services are provided by a private contractor. Each household is charged on a usage basis. Some services are self-provided because residents build their own wells and septic tanks.

Hopewell Township provides the following municipal services which are financed through the municipal budget: police protection, general government services, tax collection and assessment, court services, road lighting, snow removal, and maintenance of local roads. It also provides public health services (inspection and dog regulation), and other regulatory and licensing activities. The township has minimal recreational and park facilities.

The township relies on volunteers for fire protection and emergency medical services (EMS). However, the township is not served by a single provider; rather, several providers based in the two boroughs and other municipalities are involved in interlocal compacts and mutual aid agreements. The township levies a small “fire tax” outside the municipal budget to fund some of the services. Our case study identified some structural changes that may weaken the foundation of volunteer services. Recent demographic changes have reduced the availability of volunteers. While longstanding residents are aging, newcomers to the township are either retirees (attracted to the age-restricted development) or families whose lifestyle makes volunteer work difficult.

### **6.6.2. Residential Portion of Municipal Expenditures**

The share of municipal expenditures by residential and nonresidential uses was estimated using the Proportional Valuation Method. This method first calculates the nonresidential (commercial and industrial) share. The residential share is determined as a residual. The Proportional Valuation Method estimates the ratio between the average property value of nonresidential properties and the average property value of all land parcels in the township. The ratio helps identify a refinement coefficient which is used to adjust the proportion of nonresidential property value by the total property value. This proportion was used to determine the share of municipal expenditures that goes to the nonresidential uses.

*The Fiscal Impact Handbook* contains a chart of the refinement coefficient. When the average value of nonresidential parcels is more than 6 times the average value of all parcels, the proportion of nonresidential property value to the total property value will be adjusted downward. When the ratio is smaller than 6, the proportion will be adjusted upward. The Proportional Valuation Method assigns a lower share of municipal costs to very large commercial developments (such as office park shopping malls, and high-rise offices) and a higher share to smaller establishments.

To illustrate this adjustment procedure, the relevant 2005 township ratable data is summarized in Table 11. The average assessed value of nonresidential parcels is \$3.4 million. The average value of all parcels is \$323,700. Dividing the former figure by the latter figure generates a ratio of 10.5 between the average property value of nonresidential parcels to that of all parcels.<sup>12</sup> In the same year, nonresidential parcels in the township accounted for about 26 percent of all net assessed values (\$618 million of \$2.37 billion). This unadjusted proportion needs to be scaled down because the ratio is larger than 6. When this proportion is multiplied with the appropriate refinement coefficient of 0.63, it yields an adjusted share of nonresidential municipal costs of 16.5 percent and a “residential” share of 83.5 percent.

**Table 11 2005 Net Assessed Value in Hopewell Township**

Property Class	Number of Parcels	Assessed Value (in \$ Millions)	Average Value per Parcel
Nonresidential - Commercial & Industrial	182	\$618.6	\$3,398,860
Others *	7,126	\$1,747.0	\$245,160
All Uses	7,308	\$2,365.6	\$323,700

Net assessed value exempt about \$3.3 million value on telephone and telegraph utilities.

\* This classification includes residential, apartment, farmland and vacant parcels.

Source: Hopewell Township Tax Assessor Office, *Table of Aggregates* for 2005.

A simpler method to derive the share of nonresidential municipal costs can be used without applying a refinement coefficient. This method computes two sets of numbers; the parcel and assessed value shares of nonresidential properties compared to all properties (excluding vacant and farm parcels). Taking the average of these two sets of shares yields the adjusted share of nonresidential municipal costs. The 2005 ratable data are presented differently in Table 12 to illustrate the different classification in the residential property.

<sup>12</sup> *The Fiscal Impact Handbook* used equalized property value as the basis of calculation. Since the relationship between equalized and assessed value is fixed at the time of estimation, using either type of value does not materially affect the calculation.

**Table 12 2005 Net Assessed Value (Alternative Classification)**

<b>Property Class</b>	<b>Number of Parcels</b>	<b>Assessed Value (in \$ Millions)</b>	<b>Average Value per Parcel</b>
Nonresidential - Commercial & Industrial	182	\$618.6	\$3,398,860
Residential and Apartment	5,692	\$1,552.6	\$272,770
<i>Subtotal of Residential &amp; Nonresidential</i>	<i>5,874</i>	<i>\$2,171.2</i>	<i>\$369,630</i>
Farm Land & Vacant Parcels	1,434	\$194.4	\$135,600
All Uses	7,308	\$2,365.6	\$323,700

Source: Hopewell Township Tax Assessor Office, *Table of Aggregates* for 2005.

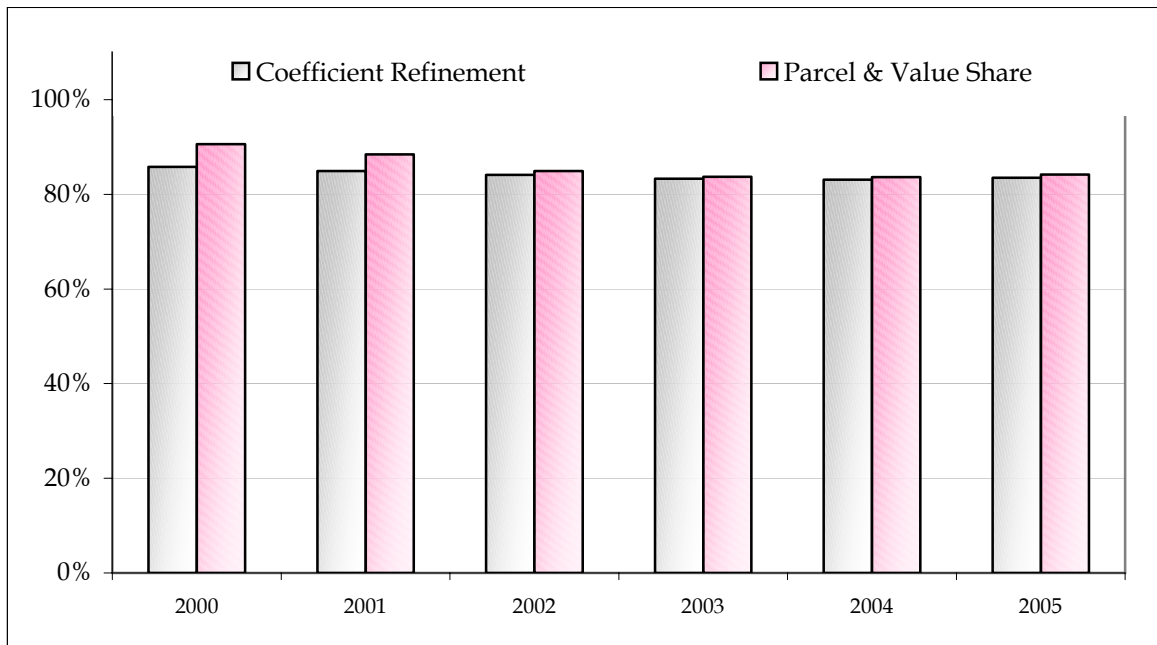
In 2005, there are 5,874 nonresidential and residential parcels (excluding farm land and vacant parcels) in the township. Of all these parcels, 182 are nonresidential (commercial and industrial). This represents a share of 3.1 percent of the 5,874 parcels. In terms of assessed value, the nonresidential properties account for 28.5 percent of the combined nonresidential and residential properties (\$618.6 million of \$2.17 billion). The average of 3.1 percent and 28.5 percent is 15.8 percent, and therefore the derived residential share of the municipal costs is 84.2 percent.

Using the 2005 data, the refinement coefficient method and the parcel and assessed value shares method generate almost identical estimates for the non-residential and residential share of municipal costs. However, it is prudent to compare them for a longer period. Figure 11 shows that the traditional method tends to provide an estimate slightly lower than the simple method, but the differences between them are larger before 2002. Nonetheless, both methods indicate that the declining trend of the residential share stabilized in 2003 and has started climbing at a moderate rate.

There is another important consideration in deciding the appropriate residential share. Figure 11 shows that prior to the occupancy of major office and research facilities (such as the Merrill-Lynch campus and the Bristol-Myers Squibb research park), almost 90 percent of the municipal expenditures went to residential uses. The share came down gradually to about 84 percent. However, a closer look at these newly added nonresidential developments reveals that most of these developments require minimal municipal services. These commercial compounds are similar to gated communities because the corporate

owners provide their own security services, road maintenance, street lighting, snow removal, and other infrastructure services. Based on this observation as well as recent share trends, a residential share of municipal costs of 88 percent is adopted in this study.

**Figure 11 Estimated Residential Share of Municipal Costs based on Alternative Methods**



### 6.6.3. Municipal Costs per Resident

Once the amount of residential expenditure is obtained, it is divided by the township population to obtain the per capita costs. However, the following refinements are necessary.

1. The current year appropriations reported in the township budget are anticipated figures. Over past years, the actual appropriations as modified by all transfers invariably exceeded the original anticipation slightly (currently at 7 percent). Using the anticipated appropriations will underestimate the per capita costs. To overcome this issue, the actual appropriations of the previous year as reported in the budget were used.
2. Some appropriations are not directly related to the number of residents. For example, expenditure categories under interlocal services are reimbursed. Local matches to grants are a function of funding opportunities rather than of

population size. If these expenditures are incorporated when estimating the per capita cost, over-estimation will result.

3. It is imperative to provide the estimation in real dollars, so we adjusted all calculations to 2005 value for a consistent comparison of costs.
4. Estimated per capita municipal costs based on a single year cannot reflect the trend of how this multiplier behaves. Therefore, we compute the per capita costs for the period between 2000 and 2004.
5. To provide year-by-year estimation of the per capita cost multiplier, a separate population forecast is required (Appendix 1). The total township population of 16,105 reported by the 2000 Census includes 881 non-household residents (including 847 prisoners). Since prison population is essentially outside the municipal service system, including them in the calculation will underestimate the per capita cost multiplier.

Table 13 reports the 2000 to 2004 per capita municipal costs in Hopewell Township. These figures were calculated as follows. First, the appropriations to interlocal services and local offsets of grants were taken out from the total actual appropriations. This deduction is necessary because such appropriations are not directly affected by the increase in housing units. Interlocal service appropriations are reimbursed by jurisdictions who solicit services from the Township, while local offsets are matching expenditures to state and federal grants. These appropriations have decreased in real terms and are unlikely to increase due to new development.<sup>13</sup> Second, the net amount was multiplied by 88 percent to derive the net residential appropriations. Third, this number was divided by the number of mid-year household residents. Fourth, the 2005 per capita municipal cost was projected from the 2004 figure (\$880) for one year. Since the average real growth was 1.3 percent each year, the 2005 per capita cost was estimated to be \$890.

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<sup>13</sup> The same principle is used in the revenue side to exclude interlocal services revenues, interest earnings, fines and fees.

**Table 13 Estimated Per Capita Municipal Costs in Hopewell Township**

	2000	2001	2002	2003	2004
General Appropriations	\$15.49	\$16.27	\$15.75	\$17.00	\$17.48
<i>Less Interlocal and Local Match to Grants</i>	<i>\$1.14</i>	<i>\$1.52</i>	<i>\$1.27</i>	<i>\$1.92</i>	<i>\$1.09</i>
Net Appropriations	\$14.35	\$14.75	\$14.48	\$15.08	\$16.39
Residential Appropriations at 88 percent Share	\$12.63	\$12.98	\$12.74	\$13.27	\$14.42
Per Capita Costs for Municipal Services	\$827	\$835	\$805	\$824	\$880
Estimated Mid-year Household Population *	15,270	15,550	15,830	16,110	16,390

All dollars are in million 2005 dollars, except the per capita costs for municipal services.

\* See Appendix 1 for the estimation of mid-year population.

An alternative calculation involved similar steps. Instead of using the actual appropriations, the anticipated figures were used to estimate the net residential appropriations (after subtracting interlocal services and local offsets and applying the 88 percent residential share) as \$13.8 million. This figure was adjusted upward by 7 percent to reflect the difference between anticipated and actual appropriations. Dividing the adjusted amount of \$14.8 million by the estimated 2005 mid-year household population of 16,670 derived a multiplier of \$885.

The lower estimate of \$885 is chosen as the 2005 baseline per capita municipal cost in Hopewell Township. It should be interpreted as a multiplier for a project that closely resembles the entire existing development of the township. It can be further broken down by major functions. In accordance to the average percent share in the appropriations, we estimate that of the \$885, about \$613 (69 percent) are allocated to operations, \$166 (19 percent) to capital improvement and its long-term financing, and \$90 (10 percent) to uncollected tax. When applying this multiplier, further refinement is needed if the proposed development does not resemble the township profile. For example, an upward adjustment is needed for a development that is far away from a serviced area because the costs to serve a scattered development are higher than an area with more compact development. When the proportion of families and school-age children is higher than the township average, extra municipal services are required.

## 7. The Berwind Project

This section introduces the proposal submitted by the Berwind Property Group to Hopewell Township. In particular, the housing size, sale price and property values are estimated for the purpose of this study.

### 7.1. Project Description

The Berwind Property Group has proposed to develop a tract in Carter Road II in the northeastern Hopewell Township (the “Berwind Project”). The site is bound by Hopewell Princeton Road to the east and Pennington Rocky Hill Road to the north (Map 1). The total gross area of the Berwind Project is 168 acres. Table 14 lists the specifics of the development proposal. A total of 53 townhouses and 219 condominiums would be constructed. All units are being developed as age-restricted communities.<sup>14</sup> All units will be sold at market rate.

**Table 14 Development Parameter of the Berwind Project**

Tract	Gross Acreage	Net Acreage	Town-house	Condo-minium	Total Number of Unit
Carter Road II	168	153	53	219	272

Currently, precise information about the distribution of housing size is not available. However, through the examination of selling prices and unit sizes of comparable age-restricted communities that are under construction or partly occupied, the Berwind Project can be better assessed (Appendix 2 and 3).

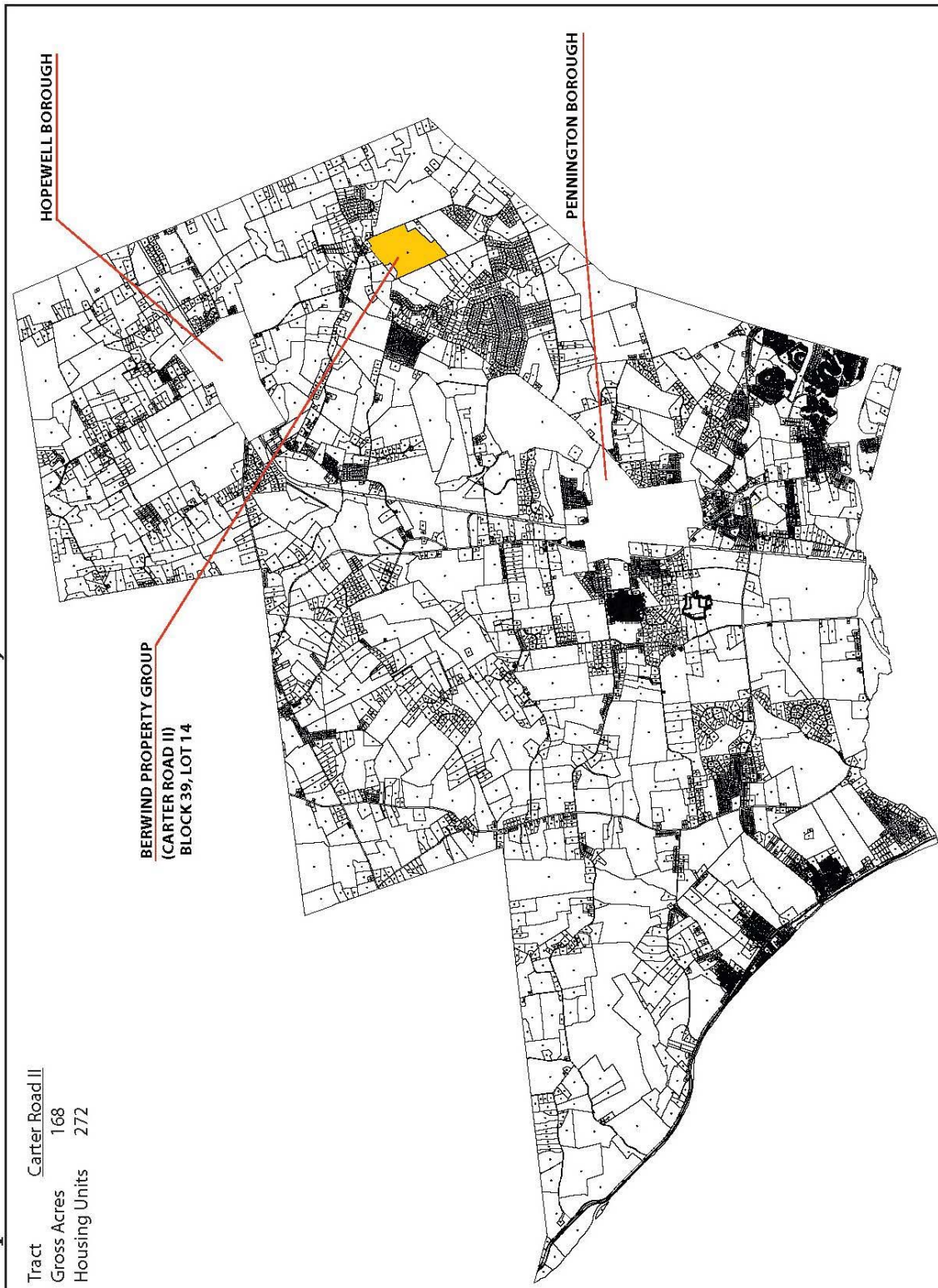
Each community examined is in Mercer County and units were sold at market rate. These age-restricted communities include *Gatherings at Lawrenceville*, *Riviera at East Windsor*, *Traditions at Hamilton Crossing* and *Wellington Manor*. All are oriented to small units. Townhouses in these communities uniformly have 2-bedrooms. There are no comparable age-restricted condominium projects, but an age-restricted rental project (*Hopewell Garden*) where most units are for low and moderate income tenants, has either 1- or 2-bedrooms.

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<sup>14</sup> Age-restricted means one of the occupants must at least be 55 years of age and no occupants are under 19 years old.

# Map 1 The Location of the Berwind Project

Tract Carter Road II  
Gross Acres 168  
Housing Units 272



## 7.2. Housing-Size Scenarios

We assume that the Berwind Project will not deviate significantly from these trends, so we anticipate that all townhouse units would have 2-bedrooms with an average size of 1,500 square feet. For condominiums, the average size of 1-bedroom and 2-bedroom units would be 1,000 square feet and 1,300 square feet respectively. The final housing mix of the Berwind Project is a function of market demand because buyers choose the models offered by the developer. Therefore, we developed two scenarios to capture different consumer preferences (Table 15). The development in Scenario A has more condominiums with 1 bedrooms while the development in Scenario B has more condominiums with 2 bedrooms.

**Table 15 Number of Housing Units Based on Bedroom Number**

	<b>Townhouses 2-B</b>	<b>Condominium 2-B</b>	<b>1-B</b>	<b>Total Mix</b>
Scenario A - Emphasis on Smaller Units	53	100	119	272
Scenario B - Emphasis on Larger Units	53	200	19	272

## 7.3. Sales Price and Property Values

The next step is to estimate the assessed value by type of housing units. The survey of comparable age-restricted communities shows that home prices have a large range depending on lot size, housing types, bedroom numbers, model style, and other features. We estimated that the average sales price of a 2-bedroom townhouse is around \$300,000. The price of condominiums, however, is more difficult to estimate because we could not identify comparable market-rate condominium projects for senior citizens in the region. We cannot use the capitalized value of rental income of aged-restricted rental apartments because there is great difference between these figures. We finally estimated that the sales price of a condominium ranges from \$200,000 to \$250,000 which reflects the more restrictive use and slower pace of appreciation than typically seen with townhouses.

Table 16 shows the aggregated values of the Berwind Project under Scenario A (emphasis on small units). It yields an aggregate market value of \$65 million. Applying the current equalization ratio (0.6745), the aggregate assessed value will be \$45 million. Under Scenario

A, the Berwind Project will generate \$1.49 million of combined property tax revenues: \$851,000 for school uses, \$401,000 for county purposes, \$196,000 for township municipal purposes and open space, and \$37,000 for fire services.

**Table 16 Scenario A of Berwind Project - Selling Price and Aggregate Values**

Housing Types & Size	No. of Units	Average Selling Price	Aggregated Values (\$ Mil)	
			Market	Assessed *
2-BedroomTownhouses	53	\$300,000	\$15.90	\$10.72
Condominiums				
2-Bedroom	100	\$250,000	\$25.00	\$16.86
1-Bedroom	119	\$200,000	\$23.80	\$16.05
Total	272	\$237,868	\$64.70	\$43.64

All dollar amounts are in 2005 value and assessed value based on the 2005 equalization ratio of 67.45 percent.

In contrast, Scenario B has an emphasis on larger units and yields a larger aggregate market and assessed value (Table 17). Its estimated market value and assessed value are \$70 million and \$47 million respectively. It would provide combined property tax revenues of \$1.6 million: \$917,000 for school uses, \$433,000 for county purposes, \$212,000 for township municipal purpose and open space, and \$39,000 for fire services.

**Table 17 Scenario B of Berwind Project - Selling Price and Aggregate Values**

Housing Types & Size	No. of Units	Average Selling Price	Aggregated Values (\$ Mil)	
			Market	Assessed *
2-BedroomTownhouses	53	\$300,000	\$15.90	\$10.72
Condominiums				
2-Bedroom	200	\$250,000	\$50.00	\$33.73
1-Bedroom	19	\$200,000	\$3.80	\$2.56
Total	272	\$256,250	\$69.70	\$47.01

All dollar amounts are in 2005 value and assessed value based on the 2005 equalization ratio of 67.45 percent.

## 8. Future Population and Service Needs

In order to estimate the future costs and revenues that the Berwind Project will generate it is necessary to determine the added population and the associated service needs. This section estimates the population that the Berwind Project will add to the township and the public services that will be needed.

### 8.1. Added Population

In 6.5, we have estimated a set of average household size multipliers specific to the housing type and size of the Berwind Project. Here we apply these multipliers to the estimated number of occupied units. The housing market of Hopewell Township is very tight, so we adopted an occupancy rate of 98 percent (the same as the 2000 census estimate). On average 5 of the 272 units in the Berwind Project will be vacant at any time. Table 18 shows the calculation of the population increase that would result from the Berwind Project. Under Scenario A, the Berwind Project would have approximately 400 residents, while under Scenario B, the number of estimated residents is 410. Under either scenario, the forecasted population increase represents about 2 percent of the existing household population in the township.

**Table 18 Estimated Population of the Berwind Project**

Housing Types & Size	No. of Units	Average Occupied Units*	Average Household Size	Estimated Population
<i>Scenario A - Emphasis on Smaller Units</i>				
2-Bedroom Townhouses	53	52	1.61	84
Condominiums				
2-Bedroom	100	98	1.52	149
1-Bedroom	119	117	1.40	164
Total	272	267	1.49	397
<i>Scenario B - Emphasis on Larger Units</i>				
2-Bedroom Townhouses	53	52	1.61	84
Condominiums				
2-Bedroom	200	196	1.52	298
1-Bedroom	19	19	1.40	27
Total	272	267	1.53	409

\* An occupancy rate of 98 percent is used to reflect the tight housing market condition.

## **8.2. Municipal Service Needs**

The Berwind Project will add 272 units and increase the existing township's housing stock by 4 percent. The estimated added population ranges between 400 and 410 persons, or another 2 percent to the township's household population. Because all units are age-restricted, the Berwind Project would not generate any school-age children and additional schooling needs. Its service needs will be primarily township municipal services, fire protection, and EMS. We assume the Berwind Project is not a gated community, so the township is responsible for street lighting, road maintenance, and snow plowing. Therefore, it should have an average impact on general government services, public works, public health, and capital improvements. While an age-restricted development demands less police services and fire suppression, it may impose above-average needs on EMS because the incidence of medical problems increases with age.

## **8.3. Summary**

Table 19 summarizes the above estimations. Generally, an orientation toward smaller units (Scenario A) yields about 328,500 square feet of residential floor space and 400 residents. It has an estimated market value of \$65 million and assessed value of \$44 million. This Scenario would generate approximately \$1.5 million of property tax revenues to various governments. Hopewell Township would obtain \$178,900 for municipal purposes and \$17,500 for the open space trust, while the Hopewell Valley Regional School District would receive \$851,000 school tax revenue.

Under Scenario B (oriented toward larger units), the Berwind Project would generate 358,500 square feet of residential space and 410 residents. Its total market value is estimated to be \$70 million. With an assessed value of \$47 million, the Berwind Project would yield \$1.6 million combined property tax revenues: \$192,800 for township municipal uses, \$18,800 for township open space fund, and \$917,000 for the school district.

**Table 19 Proposed Berwind Project -- Summary**

	<b>Scenario A</b>	<b>Scenario B</b>	<b>B - A</b>
Added Residents	397	409	12
Added Public School Students	0	0	0
Residential Floor Space (sq. ft.)	328,500	358,500	30,000
Total Market Values	\$64.7 million	\$69.7 million	\$5.0 million
Total Assessed Values	\$43.6 million	\$47.0 million	\$3.4 million
Average Assessed Value per Unit	\$160,440	\$172,800	\$12,400
Average Assessed Value per Resident	\$109,930	\$114,950	\$5,020
Combined Property Tax Revenues	\$1.49 million	\$1.60 million	\$110,000
County Tax Revenues (General, Library & Open Space)	\$401,500	\$432,500	\$31,000
Township Tax Revenues (Municipal Purposes & Open Space)	\$196,400	\$211,600	\$15,200
Fire Tax Revenues	\$36,700	\$39,500	\$2,800
School Tax Revenues	\$851,000	\$916,800	\$65,800

All dollar amounts are in 2005 value.

## **9. Fiscal Impacts of the Berwind Project**

### **9.1. Hopewell Township**

The purpose of this study is to evaluate the municipal costs and revenues generated by the Berwind Project. Up to this point, the study has focused on generating the estimates and calculations necessary to quantify the fiscal impacts of the Berwind Project. This section integrates these estimates and determines the probable municipal costs and revenues generated by the development -- specifically the impacts on the municipal government, public schools, and fire protection. Finally, the net fiscal impacts are calculated, which demonstrate that the Berwind Project generate a different fiscal impact for Hopewell Township and the Hopewell Valley Regional School District.

#### **9.1.1. Municipal Revenues**

Real estate development projects generate extra revenues for a municipality directly and indirectly. The direct way produces revenues such as property taxes, user charges, impact fees, and license and processing fees that are assessed at the location of the development. The indirect way generates revenues from increased transactions and activities off-site. Indirect impacts include local sales tax, fines and fees (such parking meter income and traffic tickets), and state and federal grants that are distributed based on population formula.

To determine the potential revenues of the Berwind Project, we identified sources of revenues that are specifically related to the development. In previous discussions on municipal revenues, we noted that realized municipal revenues have not increased in real terms. Moreover, state aid, grants, and non-property taxes are all declining after being adjusted for inflation. Small revenue sources that show real growth are: a) charges from interlocal services, and b) financial charges from delinquent taxes. The former is operated under a self-financing principle while the latter is anticipated to decline as collection is being improved. Neither is a function of a new development. Recent residential development and the completion of various office parks and corporate research facilities have increased the property-tax revenues significantly. As a result, the township has increasingly relied on the property tax to finance its activities while its surplus reserve is moderately declining.

The property tax is the only direct revenue that the Berwind Project brings to Hopewell Township. Currently, residents are paying two types of property taxes to the township: 41 cents for every \$100 of assessed real property value for municipal purposes and 4 cents for an open space trust fund. Earlier, we developed two scenarios based on differing configurations of housing size. Under a scenario oriented to smaller units (Scenario A), the total assessed value of the Berwind Project is \$43.6 million (Table 20). Upon completion, it would generate \$178,900 in property taxes each year for municipal use. Under a scenario oriented to larger units (Scenario B), the development has a total assessed value of \$47 million and would add \$192,700 in property tax revenues to the township each year.

**Table 20 Municipal Property Tax Revenues Generated by the Berwind Project**

Housing Types & Size	No. of Units	Aggregated Assessed Value (in \$ Million)	Property Tax Revenues
<i>Scenario A - Emphasis on Smaller Units</i>			
2-Bedroom Townhouses	53	\$10.72	\$44,000
Condominiums			
2-Bedroom	100	\$16.86	\$69,100
1-Bedroom	119	\$16.05	\$65,800
Total	272	\$43.64	\$178,900
<i>Scenario B - Emphasis on Larger Units</i>			
2-Bedroom Townhouses	53	\$10.72	\$44,000
Condominiums			
2-Bedroom	200	\$33.73	\$138,300
1-Bedroom	19	\$2.56	\$10,500
Total	272	\$47.01	\$192,700

All dollar amounts are in 2005 value and the tax revenues exclude those designated for the open space trust.

The township open space levy is not part of the municipal budget because it is set aside in a trust fund, for acquiring open space or purchasing conservation easements. The Berwind Project will bring approximately \$22,000 a year to the open space trust fund (\$21,800 under Scenario A and \$23,500 under Scenario B).

### 9.1.2. Municipal Costs

In estimating added municipal costs generated by a development, the principle of relevance is important. Applying the per capita municipal costs computed in Section 6.6 to a new development is appropriate insofar as that the development has a similar profile with the rest of the township.

Heikkila & Davis (1997) point out that fiscal impact analysts should pay attention to how the socio-demographic characteristics of new residents affect the nature and level of the additional municipal services. The Berwind Project is not a typical development because all its units are age-restricted. While it may generate similar services requirements for most municipal services, it will create differential impacts on public safety and emergency medical services (EMS). Since EMS is financed on a complex arrangement combining voluntary contribution and interlocal services compact, it will be discussed separately. The following discussion focuses on how the police and court services will be affected.

The absence of teenagers (except occasional visitors) in the Berwind Project would greatly reduce petty crimes like vandalism, graffiti, and property theft. Residents of older ages are less likely to commit violent crimes or be involved in domestic disturbances that consume a large amount of police time. As a result, the demand for police and court services would be below the township average and we assumed the service level as three-quarters of the township average. To reflect this change, we adjust the per capita municipal costs downward. Since public safety and court accounts for approximately 20 percent of total municipal costs (excluding interlocal services and local offset of grant), a 25-percent decrease means about a 5 percent reduction in the original per capita municipal costs. The adjusted municipal costs per each added resident in the age-restricted units Berwind Project is \$840.

Table 21 presents the estimated added municipal costs generated by the Berwind Project. Under Scenario A, the added cost would be \$33,350. Approximately \$231,000 of the added costs would be allocated on operation, \$62,600 on capital improvements and long term financing of capital projects, and \$39,900 on the other expenditures. The Berwind Project would induce \$343,500 of added expenditure when oriented to larger units (Scenario B). The distribution among operation, capital improvements and debt services, and others are \$237,900, \$64,500 and \$41,100 respectively. When the two scenarios are compared, Scenario A would cost \$10,100 less than Scenario B in municipal expenditures.

**Table 21 Added Municipal Costs of the Berwind Project**

Housing Types & Size	No. of Units	Added Population	Cost per Resident	Generated Municipal Costs
<i>Scenario A - Emphasis on Smaller Units</i>				
2-Bedroom Townhouses	53	84	\$840	\$70,560
Condominiums				
2-Bedroom	100	149	\$840	\$125,160
1-Bedroom	119	164	\$840	\$137,760
Total	272	397	\$840	\$333,480
<i>Scenario B - Emphasis on Larger Units</i>				
2-Bedroom Townhouses	53	84	\$885	\$70,560
Condominiums				
2-Bedroom	200	298	\$840	\$250,320
1-Bedroom	19	27	\$840	\$22,680
Total	272	409	\$840	\$343,560

Dollar amounts are in 2005 dollars.

Currently, we do not have precise information to estimate the costs to upgrade and maintain the sewerage system even though the developer (and finally the residents) will ultimately bear the hook up fees and operation charges. The above calculations include the expenditures (\$63,000 a year in average) to meet this type of expense and other required capital improvement. The township should work with the Ewing-Lawrence Sewerage Authority to explore the financial implications of anticipated increased volume in sewage discharges.

## 9.2. Hopewell Valley Regional School District

Because residents in the Berwind Project would not use school services, they would only contribute school tax revenue to the Hopewell Valley Regional School District. Currently, property owners are paying \$1.95 for every \$100 of assessed real property value. The estimated school tax revenues from the Berwind Project will be \$851,000 under Scenario A and \$961,700 under Scenario B (Table 22).

**Table 22 School Tax Revenues Generated by the Berwind Project**

<b>Housing Types &amp; Size</b>	<b>No. of Units</b>	<b>Aggregated Assessed Value (in \$ Million)</b>	<b>Property Tax Revenues for School Purposes</b>
<i>Scenario A - Emphasis on Smaller Units</i>			
2-Bedroom Townhouses	53	\$10.72	\$209,100
Condominiums			
2-Bedroom	100	\$16.86	\$328,800
1-Bedroom	119	\$16.05	\$313,000
Total	272	\$43.64	\$851,000
<i>Scenario B - Emphasis on Larger Units</i>			
2-Bedroom Townhouses	53	\$10.72	\$209,100
Condominiums			
2-Bedroom	200	\$33.73	\$657,600
1-Bedroom	19	\$2.56	\$50,000
Total	272	\$47.01	\$916,700

Dollar amounts are in 2005 dollars.

### **9.3. Fire Protection and Emergent Medical Services**

Time and resource constraints did not allow us to conduct a full-scale study of the expenditures of each fire and EMS provider serving Hopewell Township. These providers are located inside the township, the two boroughs, and adjoining jurisdictions. Currently, fire services and EMS are provided under a mutual-aid arrangement. Most of the providers are staffed by volunteers. The township is now charging a “fire tax” at 8.4 cents for every \$100 of assessed real property value. The Berwind Project would generate fire protection and EMS contributions in the range of \$36,700 to \$39,500. We estimate that the Berwind Project will likely generate above-average needs on EMS but below-average needs on fire suppression services.

### **9.4. Net Impacts**

The net fiscal impacts of the Berwind Project are shown in Table 23. From the Hopewell Township perspective, the development would likely generate net expenditures in the range of \$150,800 to \$154,600. This finding of negative fiscal impacts is consistent with all previous fiscal impact studies on residential development in the township. However, the Berwind Project will add about \$883,800 to the Hopewell Valley Regional School District.

**Table 23 Net Fiscal Impacts of the Berwind Project**

	<b>Added Revenues</b>	<b>Added Expenditures</b>	<b>Net Effects</b>
<i>Scenario A - Emphasis on Smaller Units</i>			
Municipal Purposes	\$0.179	\$0.334	-\$0.155
School District	\$0.851	\$0	\$0.851
<b>Total</b>	<b>\$1.030</b>	<b>\$0.334</b>	<b>\$0.696</b>
<i>Scenario B - Emphasis on Larger Units</i>			
Municipal Purposes	\$0.193	\$0.344	-\$0.151
School District	\$0.917	\$0	\$0.917
<b>Total</b>	<b>\$1.110</b>	<b>\$0.344</b>	<b>\$0.766</b>

Dollar amounts are in 2005 million dollars.

The anticipated fiscal impacts can also be expressed in terms of the average revenues and costs per housing unit. Table 24 summarizes the result. In general, the township would pay \$554 to \$568 to support each unit in the Berwind Project, but the School District would be benefited approximately \$3,200 from each unit.

**Table 24 Per-Unit Revenues and Costs of the Berwind Project**

	<b>Revenues</b>	<b>Expenditures</b>	<b>Deficit / Surplus</b>
<i>Scenario A - Emphasis on Smaller Units</i>			
Municipal Purposes	\$658	\$1,226	-\$568
School District	\$3,129	\$0	\$3,129
<b>Total</b>	<b>\$3,786</b>	<b>\$1,226</b>	<b>\$2,560</b>
<i>Scenario B - Emphasis on Larger Units</i>			
Municipal Purposes	\$709	\$1,263	-\$554
School District	\$3,370	\$0	\$3,370
<b>Total</b>	<b>\$4,079</b>	<b>\$1,263</b>	<b>\$2,816</b>

Dollar amounts are in 2005 dollars.

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## Appendix 1      Population Changes between 1990 and 2005

This appendix provides more details about population change in Hopewell Township and how the annual population increment is estimated between 2000 and 2005. The census compiles detailed population and housing information, so it provides a starting point for any population extrapolation.

Table 25 presents selected 1990 and 2000 demographic and housing information for Hopewell Township. The township's population has grown from 11,590 to 16,105. This rate of growth is equivalent to adding about 451 persons a year or an annual percent growth of 3.3 percent. The total population is comprised of household population and group quarters population. For population estimation purposes, only the household population is relevant. The majority of the group quarters population is housed in a correctional facility and has no relationship to the township's housing starts. In the 1990s, the township added about 4,116 persons in household population, primarily due to the completion of the 1,300-unit *Brandon Farms*.

**Table 25      Population Characteristics of Hopewell Township**

	1990	2000	Changes 1990 to 2000	Annual Changes	Annual Percent Change
Total Township Population	11,590	16,105	4,515	451.5	3.3%
Persons Living in Households	11,108	15,224	4,116	411.6	3.2%
Number of Households	3,924	5,498	1,574	157.4	3.4%
Persons per Household	2.830	2.769	-0.061	-0.01	-0.2%
Institutionalized Persons	482	868	386	38.6	6.1%
Other persons in Group Quarter	0	13	13	1.3	--
<i>Subtotal in Group Quarters</i>	482	881	399	39.9	6.2%
Owner Occupied Housing Units	3,551	5,109	1,558	155.8	3.7%
Renter Occupied Housing Units	373	389	16	1.6	0.4%
<i>Subtotal of Occupied Units</i>	3,924	5,498	1,574	157.4	3.4%
Vacant Units	147	131	-16	-1.6	-1.1%
Total Housing Unit	4,071	5,629	1,558	155.8	3.3%
Vacancy Rate	3.6%	2.3%	-1.3%	-0.1%	-4.3%

Sources:      Summary Tape File 1 of the 1990 Census and Summary File 1 of the 2000 Census.

The average household size has declined from 2.83 to 2.77 in the 1990s. This downward trend is consistent with the national trend and can be attributed to such factors as aging, late marriage, late age for the first child, and smaller family size.

Finding a set of geographically relevant and up-to-date average household size multipliers, specific to the appropriate housing type and size, requires much research. Usually it involves the analysis of the American Housing Survey or the Public Use Microdata Samples (PUMS).

To estimate the township-wide population change, an imperfect proxy multiplier can be calculated to reflect the more recent changes in the average household size multiplier. Between 1990 and 2000, the township's occupied housing units (this figure is equivalent to the number of households) increased from 3,924 to 5,498. In the same period, the household population increased from 11,108 to 15,224. Dividing the net gain in the household population (4,116) by that the occupied housing units (1,574) yields a multiplier of 2.62. Though not a perfect proxy, it represents the average household size for the newly constructed units.

There are several ways to project population change. The simplest method is the extrapolation of past trends. A straight-line extrapolation estimated the household population in 2005 to be 17,280, while an exponential method led to an estimate of 17,820. Assuming the group quarters population remains at the 880 level, the subsequent total population of the township falls within the range of 18,160 to 18,700. However, the extrapolation method for areas with a small population like Hopewell Township is deficient because it does not take into consideration the most important component of population change: the housing supply.

Therefore, a bottom-up housing method is used to provide a more reliable estimate. Such groundwork has been provided by the township's planner in a memo to the Mercer County Division of Planning in January 2005. Based on certificates of occupancy issued in the period January 2000 to December 2004, the memo identified that of the 515 units that were occupied in that period: 322 were single-family detached units, 124 townhouses, and 69 age-restricted units.

If the housing construction rate was steady in this period, we could assume that each year the township added 105 occupied units. Multiplying this with an average household size of

2.62 discussed above yields an annual population increment of about 280 household residents.

It should be noted that the census was taken in April, so the estimated population between 2001 and 2005 represents conditions in that month only. For the purpose of calculating the per capita municipal costs, a mid-year population estimate is more prudent. Therefore, a minor adjustment is made to move the estimates two months forward. The result of the annual population estimation is reported in Table 26.

**Table 26 Estimated Annual Population Change between 2000 and 2005**

	2000	2001	2002	2003	2004	2005
<i>April Estimates</i>						
Occupied Housing Units	5,498	5,603	5,708	5,813	5,918	6,023
Household Population	15,224	15,500	15,780	16,060	16,340	16,620
Average Household Size	2.77	2.77	2.767	2.76	2.76	2.76
Total Population *	16,105	16,380	16,660	16,940	17,220	17,500
Total Housing Units #	5,629	5,737	5,844	5,952	6,059	6,167
<i>Mid-Year Estimates</i>						
Household Population	15,270	15,550	15,830	16,110	16,390	16,670
Total Population *	16,150	16,430	16,710	16,990	17,270	17,550
Total Housing Units #	5,650	5,750	5,860	5,970	6,080	6,180

\* The total population is the sum of household population and population in group quarters that is assumed to be at 800 throughout the estimation period.

# The housing stock is estimated by applying a occupancy of 2.3 percent.

## Appendix 2      Recent Residential Developments

In September and October, 2005, the project team conducted a survey of residential communities on sale in and around Hopewell Township. The two active builders are Beazer Homes and Toll Brothers. Beazer Homes markets their properties in the middle price range while Toll Brothers targets the high end of the market. The findings are presented in Table 27 below.

### Developments without Age Restrictions

There are two major types of housing under construction in the region: townhouses and single-family homes. The townhouses are predominantly 3-bedroom units, while the single-family homes are predominantly 4-bedrooms. The selling price of single-family homes in this region has increased tremendously in recent years. The selling prices of townhouses range from \$357,900 to \$608,975, with an average of \$488,497, while prices for a single-family home starts at \$634,975 and reaches \$922,975.

### Developments with Age Restrictions

Like the developments without age restrictions, two types of housing are offered: townhouses and single-family homes. All townhouses are 2-bedrooms; and all single-family homes are either 2- or 3-bedrooms. The selling price of a 2-bedroom single-family unit ranges from \$351,975 to \$389,900. The price for a 3-bedroom single-family unit is between \$396,975 and \$427,900. All townhouse developments are priced between \$289,490 and \$335,990.

**Table 27      Selling Prices of Recent Developments**

Community Name and Model Type	Numbers of Bedrooms	Floor Area	Selling Price
<b>Townhouse (Not Age-Restricted)</b>			
<i>1. Hopewell Grant</i>			
Barrington	2-3	1,540	\$357,900
Davenport	3	1,930	\$385,900
Coventry	3	2,100	\$387,900
Ellsworth	3	2,285	\$401,900

**Table 27 Selling Prices of Recent Developments (Continued)**

<b>Community Name and Model Type</b>	<b>Numbers of Bedrooms</b>	<b>Floor Area</b>	<b>Selling Price</b>
<i>2. The Estates at Princeton Junction Carriage Collection</i>			
Ashbourne	3	1,820	\$526,975
Bainbridge	3	1,940	\$536,975
Carlyle	3	2,040	\$584,975
Eastport	3	2,230	\$604,975
Lindenhurst	3	1,960	\$608,975
<b>Townhouse (Age-Restricted)</b>			
<i>1. Gatherings at Lawrenceville</i>			
Kingsley	2	1,948	\$329,990
Fairfield	2	1,869	\$335,990
<i>2. Traditions at Hamilton Crossing</i>			
Abbott	2	1,300	\$289,490
Crosswick	2	1,400	\$296,990
Watson	2	1,500	\$310,490
Pearson	2	1,600	\$320,490
<b>Single-family Home (Not Age-Restricted)</b>			
<i>1. Combs Farm</i>			
Hampton II	4	3,365	\$756,690
Ballimore	4	3,578	\$775,690
Allington	4	3,824	\$793,690
Hardwick	4	3,894	\$804,690
<i>2. The Estates at Princeton Junction Heritage Collection</i>			
Hardwich	3	2,000	\$634,975
Greenwich	4	2,200	\$646,975
McLean	4	2,400	\$658,975
Mansfield	4	2,600	\$688,975
Brookline	4	2,800	\$698,975
Mt. Vernon	4	3,000	\$708,975
<i>3. The Estates at Princeton Junction Signature Collection</i>			
Cheshire	3	2,690	\$831,975
Philmont	4	3,200	\$861,975
Columbia	4	3,170	\$871,975
Harvard	4	3,430	\$899,975
Duke	4	3,650	\$909,975
Reston	4	3,680	\$922,975

**Table 27 Selling Prices of Recent Developments (Continued)**

<b>Community Name and Model Type</b>	<b>Numbers of Bedrooms</b>	<b>Floor Area</b>	<b>Selling Price</b>
<b>Single-family Home (Age-Restricted)</b>			
<i>1. Wellington Manor</i>			
Jefferson Classic	2	1,735	\$372,900
Lincoln Classic	2	1,847	\$384,900
Franklin Classic	2	1,944	\$389,900
Madison Classic	3	2,569	\$427,900
<i>2. Riviera at East Windsor</i>			
Westridge	2	1,690	\$351,975
Stamford	2	1,720	\$354,975
Norwich	2	1,800	\$359,975
Linwood	3	2,367	\$396,975
Narberth	3	2,326	\$403,975
Stockton	3	2,590	\$407,975
Walden	3	2,358	\$407,975

### **Appendix 3          Rental Apartments and Condominiums**

In October, the project team conducted a survey of apartment rent and condominium price in the Princeton-Lawrenceville region. This information was used to gauge the selling price of the condominium component of the application projects. The surveyed properties do not impose age restriction on its occupants.

The apartment units surveyed showed great diversity in terms of accessibility, amenities, and the quality of management. The monthly rent for a 1-bedroom unit in a low-rise apartment complex ranges from \$875 to \$1,385. The rent for a 2-bedroom apartment is between \$1,000 and \$1,720. Apartments with higher rents are often equipped with indoor gyms, swimming pools, and clubhouses. Five condominium units were identified on the market in Pennington Borough. The asking price for two 1-bedroom units is between \$219,000 and \$230,000. The selling price for the three 2-bedroom units range from \$265,000 to \$366,000.

## Appendix 4 Demographic Multipliers by Housing Types and Size

Table 28 summarizes the demographic multipliers for average household size in past studies. Some are reported by housing types and size while others are blended multipliers. They are reported for comparison and illustration of the difficulties in obtaining updated, geographically relevant, specific multipliers.

**Table 28 Average Household Size in Prior Studies**

	Burchell & Listokin 1978 (a)	Burchell & Listokin 1978 (b)	Burchell et al. 1985 (c)	ULI Study 1994 (d)	ULI Study 1994 (e)	Scotch Road Study 1997 (f)
<b>Single-family Homes</b>						
2-Bedroom	2.536	-	2.223	2.655	2.447	-
3-Bedroom	3.766	-	3.258	3.237	3.316	2.950
4-Bedroom	4.655	-	4.031	4.219	3.625	3.590
5-Bedroom	-	-	4.853	4.594	4.371	-
Blended	3.831	-	3.384	3.522	3.307	-
<b>Townhouses</b>						
1-Bedroom	1.885	-	1.695	-	1.000	-
2-Bedroom	2.630	-	2.019	2.451	2.069	2.030
3-Bedroom	4.110	-	2.808	2.975	3.006	2.250
Blended	3.933	-	2.441	2.755	2.437	-
<b>Duplex, Triplex, Quadplex</b>						
1-Bedroom	-	-	1.556	1.151	1.000	-
2-Bedroom	-	-	2.320	2.293	2.014	-
3-Bedroom	-	-	3.429	3.203	3.645	-
Blended	-	-	2.619	2.202	2.321	-
<b>Garden Apartments</b>						
1-Bedroom	1.722	-	1.443	1.337	1.228	-
2-Bedroom	2.525	-	2.175	2.133	1.964	-
3-Bedroom	-	-	3.439	3.244	-	-
Blended	2.190	-	1.904	1.806	1.687	-
<b>Blended Affordable Units</b>						
Age-restricted	-	-	-	-	-	-
Family	-	-	-	-	-	-
<b>Low Rise/Garden Condominiums</b>						
1-Bedroom	-	2.714	-	-	-	-
2-Bedroom	-	2.614	-	-	-	-
<b>Low-Rise Elderly Residences</b>						
1-Bedroom	-	1.699	-	-	-	-
2-Bedroom	-	1.898	-	-	-	-
Blended	-	-	-	-	-	-

**Table 28 Average Household Size in Prior Studies (Continued)**

	Hopewell Grant Study 1999 (g)	Wellington Manor Study 1999 (h)	Bristol-Myers Squibb Study 2005 (i)	Janssen Phamaceutica Study 2005 (j)
<b>Single-family Homes</b>				
2-Bedroom	-	-	-	-
3-Bedroom	-	-	-	-
4-Bedroom	-	-	3.550	-
5-Bedroom	-	-	-	-
Blended	-	-	-	-
<b>Townhouses</b>				
1-Bedroom	-	-	-	-
2-Bedroom	-	-	-	-
3-Bedroom	-	-	2.330	-
Blended	3.000	-	-	-
<b>Duplex, Triplex, Quadplex</b>				
1-Bedroom	-	-	-	-
2-Bedroom	-	-	-	-
3-Bedroom	-	-	-	-
Blended	-	-	-	-
<b>Garden Apartments</b>				
1-Bedroom	-	-	-	-
2-Bedroom	-	-	-	-
3-Bedroom	-	-	-	-
Blended	-	-	-	-
<b>Blended Affordable Units</b>				
Age-restricted	1.540	-	-	1.800
Family	-	-	-	1.920
<b>Low Rise/Garden Condominiums</b>				
1-Bedroom	-	-	-	-
2-Bedroom	-	-	-	-
<b>Low-Rise Elderly Residences</b>				
1-Bedroom	-	-	-	-
2-Bedroom	-	-	-	-
Blended	-	1.800	-	-

\* Average household size declines over time across all housing type and size. The multipliers in column (a) and (b) are based on housing units constructed in the 1960s. The large value reflects the conditions of big family in the last decade of postwar Baby Boom.

Sources:

- (a) Exhibit 13-1 of *The Fiscal Impact Handbook*, based on the 1970 US Census Public Use Sample data for housing constructed in the Middle Atlantic Region between 1960 and 1970.
- (b) Exhibit 13-4 of *The Fiscal Impact Handbook*. Multipliers for condominium and elderly residences were for the whole nation and the Middle Atlantic Region respectively; based on the 1970 US Census Public Use Sample data for housing constructed between 1960 and 1970.

- (c) Exhibit 12 of *The New Practitioner's Guide to Fiscal Impact Analysis*; based on the 1980 Census Public Use Sample data for units constructed in the Middle Atlantic Region between 1975 and 1980.
- (d) Exhibit II.5, Appendix II (page 299) of *The ULI Development Impact Assessment Handbook*; based on the 1980 American Housing Survey for units constructed in the Northeast Region between 1975 and 1980.
- (e) Exhibit II.1, Appendix II (page 295) of *The ULI Development Impact Assessment Handbook*; based on the 1987 American Housing Survey for units constructed in the Northeast Region between 1980 and 1987.
- (f) Exhibit 11A & B of *Fiscal Impacts of the Scotch Road Office Park Development*. Multipliers were estimated from the 1990 Census PUMS for units constructed in Mercer County and Hunterdon County in comparable price range.
- (g) Page 30 of the *Community Impact Statement of Hopewell Grant*; based on adjusted multipliers from the 1994 ULI Study. The study assumed 240 market-rate townhouse (168 3-bedroom and 72 4-bedrooms) and 150 age-restricted affordable rental units of 1- and 2-bedroom configuration.
- (h) Page 28 *Community Impact Statement: Wellington Manor*. The study assumed 121 age-restricted single-family houses.
- (i) Exhibit III-2 of the *Fiscal Impact of the Bristol-Myers Squibb Company Hopewell Campus*. Multipliers were estimated from the 2000 Census PUMS for units constructed in New Jersey between 1990 and 2000 in comparable price range.
- (j) Memo from Richard Reading Associates regarding the COAH effects of the Janssen Campus expansion. Data based on a survey of the affordable housing sections of the Hills at Bedminister Project.

## Appendix 5      Blocks with High Concentration of Aged Residents

Table 29 presents the findings on the average number per household. The average household size for predominantly owner-occupied blocks is 1.676. This calculation was based on 17 blocks within Hopewell Township and its adjoining suburban communities that fit the character of an age-restricted development:

- a) all residents were older than 20 years of age,
- b) at least 85 percent of the residents were over 44 years old,
- c) at least 70 percent of the residents were over 55 years old, and
- d) at least 10 residents lived in the block.

**Table 29      Average Household Size of Blocks with High Concentration of Residents who are 55 Years Old and Over**

Census Tract	Block Group	Block	Percent over 55	Population in Households	Households	Persons per Household	Percent Owner-occupied
39.01	8	8041	87%	47	24	1.96	100%
39.01	8	8042	90%	48	28	1.71	100%
39.01	8	8043	95%	58	33	1.76	100%
39.01	8	8046	84%	25	15	1.67	93%
39.01	8	8047	92%	12	6	2.00	100%
42.04	3	3012	100%	13	8	1.63	100%
42.04	6	6001	92%	12	7	1.71	86%
43.04	1	1039	76%	21	11	1.91	91%
43.04	1	1040	100%	20	12	1.67	92%
43.04	1	1045	100%	11	7	1.57	100%
44.03	1	1034	98%	139	109	1.28	23%
44.05	8	8004	99%	158	133	1.19	30%
44.06	1	1013	83%	115	71	1.62	86%
44.06	1	1014	83%	36	25	1.44	84%
44.06	1	1015	82%	22	11	2.00	82%
44.06	1	1018	100%	19	13	1.46	100%
44.06	1	1019	74%	27	19	1.42	95%
Blocks with High Home Ownership			87%	486	290	1.676	93%
Blocks with Low Home Ownership			98%	297	242	1.227	27%
All Blocks			92%	783	532	1.472	63%

Sources:      Summary File 1 of the 2000 Census for selected blocks in Mercer County, NJ.

## Appendix 6      Public Use Microdata Samples Analysis

Following the methodology established by Burchell et al (1980, 1985 & 1994), Public Use Microdata Samples (PUMS) data are used to calculate specific multipliers. The demographic multipliers for standard housing types and number of bedrooms are based on number of persons in household, grade, and age. Previous studies have shown that the number of bedrooms and presence of school-aged children tend to be the most reliable means of estimating public service needs based on future development. Specific PUMA (Public Use Microdata Area) codes were utilized to establish a local geographic region for which multipliers could be reliably calculated.

Census 2000 PUMS software (Beyond 20/20 Browser, version 6.0) is designed to produce relevant tables based on two basic data files: "Persons" and "Housing." The "Persons" data file includes data on all individuals in any given subcategory for any variable coded as either "housing" or "persons." In contrast, the "Housing" data file only included data gathered specifically on the unit itself. For example, the "Persons" data file would provide the total number of individuals residing in an area, while the "Housing" data file would provide the total number of units in the same area. Dividing the total from the "Persons" file by the total from the "Housing" file will yield an average number of persons per unit, or average household size.

PUMS software extracted necessary cases based on the parameters described below, and weighted them to provide an estimation of the actual population figures for the geographies and structures defined. This estimate is a close approximation of the entire population for the selected geographies; the multipliers are not strictly based on a sample. Multipliers were then calculated based on the persons and units figures obtained through the Beyond 20/20 software. Due to confidentiality procedures to protect small numbers or lack of persons within specific subcategories, many cells were designated as "system missing." In other words, no persons or units were designated for those cells. Subsequent calculations yielded no multiplier in those cases.

### Geographic Aggregation and Year Built

The PUMS data were extracted at the smallest level possible to be able to best estimate multipliers that would more directly apply to the local area while still providing a large enough sample size to be able to make reliable predictions using the given statistics. Two

aggregations were developed: the New Jersey geographic group and the Pennsylvania geographic group. These aggregation levels were used for the purpose of comparison. Further, the PUMA1 variable was used to select all of the relevant PUMA5 categories.

The PUMS study covers the following the geographical area (in Super PUMA code) in New Jersey:

34041: Middlesex County (part), including sub-geographies expressed by PUMA code 00901, 00903, 00904, and 00905.

34042: Mercer County (02301, and 02302) and part Middlesex County (00902)

34050: Hunterdon County (00800) and part Somerset County (01001 and 01002)

34120: Burlington County (02001, 02003, 02003)

Recently constructed homes from the lowest geographic aggregation possible were selected. For the PUMS 2000 data, housing units built before 1990 are eliminated to best represent the most recently constructed units. Using this 10-year interval (1990-2000) will provide enough cases to run reliable multiplier estimates. These estimates establish how new development may impact the community to approximate local conditions.

#### Housing Type and Bedroom Size

Housing types were consolidated from original PUMS data to best approximate the units used in the earlier studies. In contrast to Burchell et al's procedures, this study does not exclude the housing stock of the lowest 10 percent value or those in inner city because this study specifically defines the local geographic context. Categories include the following:

- 1: Mobile Homes
- 2: Single-family detached
- 3: Single-family attached to other housing units (for example, duplex or triplex)
- 4: "Garden" apartment (Structures with 2-19 units)
- 5: Mid- to High-Rise apartments (Structures with over 20 units)

The six bedroom categories run from "no bedrooms" to "five or more bedrooms" and are included in the analysis as subcategories of the housing type variable. The "blended" category is based on the total number of persons per total number of units for each housing type.

### Household Size

Household size refers to the number of persons living in one dwelling unit regardless of family relationship. The PUMS variable "PERSONS" provides specific information of household size; average household size is the mean number of people living in various housing unit types. Household calculations are based on the number of occupied units. There are generally slightly more people than bedrooms in a given home. In general, as the number of bedrooms increases, the average household size also increases.

### Presence of School-Aged Children

The PUMS data set includes information regarding current enrollment in school. This variable codes enrollment by several categories:

- 0: Not in universe (under 3-years-old)
- 1: Nursery school & preschool
- 2: Kindergarten
- 3: Grades 1 to 4
- 4: Grades 5 to 8
- 5: Grades 9 to 12
- 6: College undergraduate
- 7: Graduate or professional school.

For the purposes of this analysis, categories "6" and "7" (college age) are omitted as are "0" and "1" (too young for school), and kindergarten is included with Grades 1-4. Generally, most school-aged children tend to reside in single-family detached housing, while the fewest reside in mobile homes and mid- / high-rise apartments (20 or more units)

The variable ENROLL was additionally provided to calculate the percentage of children that are in public or private schools.

### Age 50 and Over

In addition, it was necessary to examine the average number of persons in households including persons 50 years old or over. The "Persons" file provides a total estimated number of persons based on the sample size, and weighted to approximate the actual number. However, it is not possible to select the number of units based on a subset of Persons data. Therefore, household unit data were estimated based on persons living in the household.

The following is an illustration of how the multipliers are calculated for housing units that are occupied by person 50 years older by estimating the number of occupied units. Age multipliers were calculated for each bedroom category within each building type category by taking the “Persons” totals and dividing it by the estimated “Units” totals.

Example of how the multipliers are calculated:

Category	Persons	Calculation	Approximate Units
Householder living alone	8,522	÷ 1	8,522
02	23,564	÷ 2	11,782
03	7,314	÷ 3	2,438
04	4,872	÷ 4	1,218
05	2,895	÷ 5	579
06-12 persons use the same technique			
Total	50,150	(na)	24,997
Multiplier	50,150 ÷ 24,997 = 2.006		

### Results

The PUMS is a 5-percent sample dataset, so the precision of the multipliers depends on the effective sample size. When the sampled cases are distributed to various categories as defined by structure type and size configuration, there may not be enough number of cases in some categories. In that case, the estimated demographic multipliers come with large variability. The overall sample size in this study was further reduced by two factors. First, the exclusion of units built before 1990 significantly reduced the sampled size. Second, defining the study area to four Super PUMAs to capture areas similar to Hopewell Township further restricts the sample.

In addition, PUMS definition of housing type does not include townhouse and condominium. In theory, the identification of townhouses and condominium can be assisted by other variables such as mortgage, rent, and condominium fee. However, the creation of additional categories often causes insufficient number of cases in some housing categories. When age of the householders is included in the study, the sample size was further reduced.

Therefore, analysts must exercise professional judgment and consider other data in determining the appropriate value of demographic multipliers. The PUMS calculations provide crucial information but adjustment may be needed in view of the following issues: data anomaly due to small sample size, the geography in which the data are drawn, the inclusion and exclusion of variables in classifying housing types, the availability of other Census data at more disaggregated level, comparison to multipliers in others studies in the region, and survey data of new development projects.

Take townhouse as an example. It may fall into the category of “single-family attached” (duplex or triplex and quadplex) or “multifamily structure with 2 to 19 units,” commonly labeled as “garden apartment.” In the context of Hopewell, a newly constructed townhouse may physically look like an apartment or modern row house, but its interior is well designed. It is targeted for homeowners in a high property value area, so a townhouse should be considered more similar to a single-family attached dwelling. This interpretation was endorsed by the client at a working meeting in October.

**Table 30 Demographic Multipliers Derived from the 2000 PUMS Data**

Housing Type	All Size	1 Bedroom	2 Bedroom	3 Bedroom
<i>Household Size - For Persons Aged 50 and Over</i>				
Single-family detached	2.501	---	1.806	2.288
Single-family attached	1.836	2.351 *	1.613	2.107
Multifamily (2-19 units)	1.602	1.483	1.507	2.426
All Housing Types	2.006	1.325	1.618	2.202
<i>Household Size - Without Age Restriction</i>				
Single-family detached	3.481	---	2.081	3.004
Single-family attached	2.319	2.649 *	1.901	2.604
Multifamily (2-19 units)	2.199	1.916	2.124	3.213
All Housing Types	2.876	1.814	2.016	2.863
<i>Number of School-Age Children - Without Age Restriction</i>				
Single-family detached	0.851	---	0.119	0.523
Single-family attached	0.272	0.456 *	0.138	0.356
Multifamily (2-19 units)	0.313	0.172	0.254	0.876
All Housing Types	0.586	0.168	0.184	0.509

\* The unexpected high value is the result of insufficient sample size.

The estimation is restricted to housing units constructed between 1990 and 2000.

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