1983

AN INVESTIGATION OF THE COSTS OF MUNICIPAL SERVICES TO TAX-EXEMPT INSTITUTIONS USING BROWN UNIVERSITY AS A CASE STUDY

Laura Harbottle
University of Rhode Island

AN INVESTIGATION OF THE COSTS OF MUNICIPAL SERVICES TO TAX-EXEMPT INSTITUTIONS USING BROWN UNIVERSITY AS A CASE STUDY

BY

LAURA HARBOTTLE

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF COMMUNITY PLANNING

UNIVERSITY OF RHODE ISLAND

1983

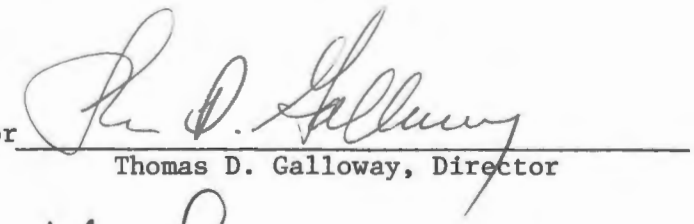
MASTER OF COMMUNITY PLANNING

RESEARCH PROJECT

OF

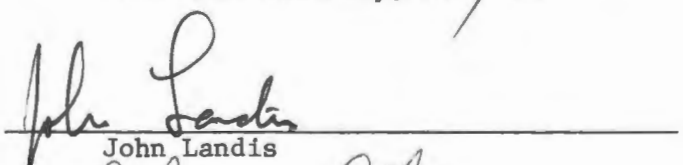
LAURA HARBOTTLE

Approved:

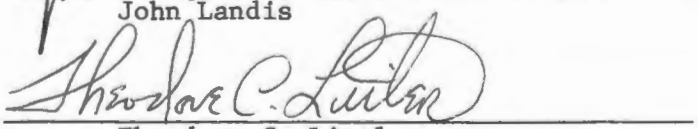
Major Professor 

Thomas D. Galloway, Director

Acknowledged:



John Landis



Theodore C. Littler

Abstract

Granting exemptions from the property tax has been criticized because it eliminates a source of municipal revenue. Exempt properties appear to be concentrated in urban areas, so this effect is especially problematic for cities because of the existence of urban fiscal stress. Recent writers have indicated that exempt institutions may provide valuable services to their communities, but the cost of municipal services to their properties represents a significant fiscal impact on local governments.

This paper investigates the fiscal impact of a single exempt institution, Brown University, on the City of Providence, R.I. Fiscal impact analyses were used to measure the cost of municipal services provided to the university.

The results of this investigation are that the costs of services to exempt educational institutions are minimal, and are not significant in view of the total municipal budget.

Table of Contents

Table of Tables

Table of Figures

Chapter I

History and Issues Concerning Property Tax Exemptions

The major significance of property tax exemptions is their ability to substantially reduce the tax revenue of local governments. Writers have demonstrated the impact of exemptions on the tax bases of many communities (Balk, 1971: 10-17; Myers, 1969: 75-6). Due to the cost of municipal services exempt users consume, a negative fiscal impact results for many of their host communities (Quigley and Schmenner, 1975: 273). The following project will contain an analysis of the fiscal impacts of Brown University, an exempt institution, on the City of Providence.

The first chapter of this project will describe the characteristics of property tax exemptions, the issues which have developed concerning their use, and the format for the research undertaken. Chapter Two will include an investigation of the current fiscal status and trends in financial condition of the City of Providence. Chapter Three will consist of an analysis of the municipal services used by Brown University and their costs. This chapter will also include an evaluation of the significance of the costs of municipal services to exempt institutions using the results of this analysis. Chapter Four will provide conclusions which can be drawn from this project. Chapter One will include sections on the significance of the property tax, the historic use of exemptions, the legal basis and practical

rationales for using exemptions, estimates of value and distribution of exemptions, and issues raised about their use. This chapter will also cover the major research questions addressed in this project, the methodology used for analyzing the data, and data sources.

The Role of the Property Tax in Local Government Revenues

The significance of property tax exemptions depends in part on the importance of the property tax as a source of local government revenue. Since approximately the middle of the twentieth century, the property tax has gradually decreased as a proportion of total local government revenue. According to the U. S. Bureau of the Census, property taxes accounted for 57.6 percent of local revenue in 1946, decreasing to 39.9 percent by 1970, and constituted only 29.5 percent in 1978. These declines were caused by the increased use of intergovernmental transfers, user charges, and local sales and income taxes. Despite its decline in relative importance, and recent initiatives limiting the growth of the property tax (i.e., Proposition 13 in California and Proposition Two-and-One-Half in Massachusetts), the property tax remains a major source of local government revenue. This is particularly true for New England, as the property tax constituted more than 45 percent of total local government revenue in each of the region's states in 1979 (Spain and Wooldridge, 1981: 117). Although cities enjoy a broader set of alternative revenue sources than suburban or rural municipalities, the property tax continues to be an important source of financing for large urban centers. This is suggested by the fact that per capita tax burdens in cities were twice as high as those of other municipalities in 1972 (U. S. Bureau of the Census).

Several features of the property tax make it likely to continue in use. These are its local availability and ease of administration, which support the autonomy of local governments; the permanent nature of the tax base; and strong ties to the established political and economic structure (Netzer, 1966: 171).

History of the Use of Property Tax Exemptions

Exemptions to the property tax have historically been granted for two major reasons. Municipalities gave exemptions to institutions which provided services considered desirable for the community at large. In other cases, government ownership of land made taxation superfluous (Balk, 1971: 4). Exemption of charitable and educational institutions had a long history in England, dating to the Elizabethan period, before it was introduced to the colonies in the 18th century. The exemption of these institutions met little dispute in its introduction into the American system. However, a U. S. Supreme Court decision, McCulloch v. Maryland (1819) was necessary to secure the right of federal properties to tax exemption. This case held that the State of Maryland could not sue a branch bank of the federal government for failure to pay property taxes. Exemptions to religious institutions were not initially granted in the United States because of strict interpretation of the Constitution's position on separation of church and state. These exemptions were instituted in the 1840's, but there were frequent movements to repeal them throughout the nineteenth and early twentieth centuries.

The Legal Basis for Granting Exemptions

The legal bases for granting property tax exemptions vary from state to state. In some states, state constitutions have been interpreted as granting exemptions to certain types of property. Other states have enacted laws granting certain types of exemptions. In both cases, the language used often implicitly includes many different types of land use among potential exempt properties. For example, Pennsylvania provides that any uses which "serve a public purpose" are exempted by state law, while New York's state constitution has been amended to provide exemptions to private charitable, educational and religious properties. In some states, including Rhode Island, additional exemptions to those constitutionally designated can be granted by acts of the state legislature. This reduces legal control over the granting of exemptions. In states where specific categories for exempt property are described in state law, there are many instances where the actual exemptions granted do not strictly follow these laws (Balk, 1971: 6). Custom, rather than law, appears to have determined the properties which receive exemptions in many cases (Myers, 1969: 77).

Practical Rationales of Governments for Granting Exemptions

According to Jens Jensen, author of a basic volume on the property tax (1931), the general rationales for granting property tax exemptions were the ownership or uses of property. Exemptions were granted for ownership to all levels of government and certain classes of homeowners, such as veterans or the elderly. Use exemptions, on the other hand, were given to charitable, educational or religious uses that provided some form of benefit to the community. In a symposium on tax exemptions

held in 1939, the Tax Policy League divided exemptions into two groups: those which provided services which would substitute for those of municipal government, and all others. Later, analysts John R. Meyer and Robert Leone used the provision of services which would have been provided by government to determine which services should be subsidized by exemptions (Meyer & Quigley, 1973: 48). John M. Quigley and Roger W. Schmenner proposed that their productivity or benefit to the community provided the traditional justification for exempting certain properties (1975: 259-61).

Estimates of the Value of Exempt Property

The value of exempt properties was equal to approximately one-third the value of real taxable property in the U. S. in 1966, according to an estimate based on calculations by the International Association of Assessing Officers (IAAO) (Balk, 1971: 11). This estimate was based on U. S. Bureau of the Census data on taxable property values. In a study published in 1969, Martin A. Larson and C. Stanley Lowell estimated exempt property to be 32.6 percent of real property in the United States. This estimate was based on a sample of assessed property values in fourteen American cities (Balk, 1971: 12). An earlier estimate of the value of exempt institutions was 22 percent of the total value of real property. This estimate was made by Will Myers of the Advisory Committee on Intergovernmental Relations (ACIR) using statistics on national wealth gathered by the National Bureau of Economic Research (Myers, 1967: 268-9).

A number of factors make it difficult to estimate the real value of exempt properties. Assessments are frequently incomplete or out of

date (Balk, 1971: 15; Myers, 1967: 272). Unique structures among exempt properties such as monuments or churches are difficult to assess as few standards exist for their valuation. It is difficult to compare or evaluate estimates of exempt properties because of inconsistencies in the data. For example, Louisiana is cited in the first two of the above estimates as having exempt property equal to 79 percent of total assessed value, but this includes exemptions on business inventories and equipment and private personal property. These are not included in the exempt totals of other states. However, in spite of these admitted problems in valuing exempt property, there is general agreement that sizeable amounts of property are involved in terms of taxable value and land acreage (Balk, 1971: 6).

The Distribution of Exemptions Among Different Types of Property

There is considerable variation in the types of properties which have received property tax exemptions. This has occurred because of the wide range of legal bases used to grant exemptions, the difficulty of defining which properties are properly associated with certain uses (e.g., university-owned bookstores, parking lots used by churches), and the natural variety in types of property in different uses in different regions. Included in the wide variety of exempt properties are the Chrysler Building in New York, Logan International Hotel in Boston, and luxury apartments for the elderly in Florida and California (Balk 1971: 7).

Several estimates suggest that the largest portion of exempt property is that owned by municipal governments. The next largest holder of exempt land is the federal government. All levels of government

combined are estimated to hold between 70 and 85 percent of exempt properties according to estimates made in 1966 and 1973 (Balk, 1971: 45; ACIR, 1978: 41). The federal government has compensated local governments for services provided to federal properties. Existing programs include revenue sharing from income on timber harvesting and mineral extraction, and aid to communities impacted by defense installations. Many writers suggest, however, that these programs do not fully compensate local governments for the services provided to these properties. The primary holders of the remaining exempt lands vary from state to state. In Iowa and Hawaii, the largest portion is owned by religious institutions; in California, by charitable activities; in Minnesota, New York, Oregon and Rhode Island, by educational uses. These ownership figures are based on assessed values (Myers, 1969: 114).

Significant Issues Concerning Property Tax Exemptions

Considerable scholarly research has focused on the relative equity and effectiveness of the property tax as a revenue source. These concerns are also found in the literature concerning property tax exemptions. The work of Balk and Myers, cited above, emphasized the sheer volume of exemptions to show their interference with the effectiveness of the property tax. This point of view was based on the assumption that fair market values could be agreed upon for exempt properties and that they were potentially taxable. Similarly, the Public Lands Law Review Commission used taxes foregone by host municipalities to measure the impact of exempt government lands (Barron & Jansma, 1970: 365-6). In a later analysis, Henry Raimondo considered the impact of an exempt property as the loss of the taxes it would pay if it were developed

for a profit-making use (1980: 105-7).

An analysis by the ACIR disagreed with the potential taxability of exempt properties. In their study on The Adequacy of Federal Compensation to Local Governments for Tax Exempt Lands, the ACIR held that because federal lands had never been taxable, local economies had adjusted to the lack of revenues. Therefore, they suggest, there was no justification for these lands to be considered taxable. The fact that their study was performed under the auspices of the U. S. Department of the Interior may have biased their findings.

Many writers have proposed that since the granting of exemptions is actually a subsidy to exempt institutions, the fiscal impact of exempt institutions on their communities should be measured to determine whether exemptions are worthwhile for municipalities. Both Meyer and Leone and Henry Raimondo proposed that the value of services provided to the community should be netted against the costs of municipal services used to determine the net fiscal impacts of exempt institutions. Leone and Meyer included an estimate of indirect costs assumed by taxpayers for city government and social services as part of the total costs that should be born by the university. Raimondo's analysis involved comparison of the costs and benefits of the exempt use with those of the foregone taxable use of the property. He did not suggest how the foregone use was to be determined. The ACIR also used a cost-benefit approach to determine the net fiscal impacts of federal exempt lands (1978: 42-4). Local expenditures for services were regarded as current costs, and therefore compensable. Any fiscal benefits to the host communities provided by these properties were subtracted from the

costs to give the net fiscal impact.

Leone and Meyer applied their method for determining fiscal impact to Yale University in New Haven. They found that the value of benefits provided by Yale exceeded the cost of city services. However, the services provided by Yale were found to be those that would have been provided by the state, rather than local government. This meant that the local government bore the costs of the exemption but did not receive the benefits it provided. Therefore, the exemption had a negative fiscal impact on the City of New Haven, and could be considered inequitable towards the local government (1977: 50-2).

The geographic distribution of exempt properties appears to encourage similar types of inequities. A number of researchers have found exempt properties to be concentrated in older urban areas, while the populations who make use of them are widely distributed outside of the cities. Thus, the taxpayers who are paying for the exemptions through higher tax rates are not benefiting from their services. Quigley and Schmenner found an inverse relationship between the proportion of exempt properties in municipalities and median per capita income. This suggests that besides being inequitable, the concentration of exempt properties in cities results in their being located where they are least affordable (1975: 264).

Several writers have pointed out that indirect fiscal impacts may be produced by property tax exemptions. Will Myers suggested that exempt institutions could increase the values of surrounding properties, resulting in net increases to the tax base. Robert H. Hendricks and J. C. Headley found property values in otherwise comparable areas to

be higher for properties located near tax-exempt public waterfront recreational areas (1978: 235-6). Meyer and Leone cite additional benefits to local economies resulting from the capital and operating expenditures of exempt institutions. However, they add that these benefits may also be generated by non-exempt institutions (1977: 44).

Other writers note that exemptions may have other positive effects on their communities besides fiscal impacts. Steven Gold states that property tax exemptions encourage a greater number and variety of human services than local governments might otherwise be able to provide (1975: 285).

Exemptions also produce some distinct economic side-effects. Property taxes encourage efficient land use. Landowners who are not required to pay taxes have less incentive to use land efficiently than those who do. Because projected tax payments are capitalized as part of the price of land, exempt owners can outbid others for land. Both of these effects can reduce the supply of land available for taxable uses.

Summary

Exempt institutions have a wide range of economic and fiscal effects on their host communities. Many of the economic effects are similar to those of non-exempt institutions. The impacts that are relevant to the granting of exemptions are the value of benefits provided by the exempt institution and the cost of municipal services. The benefits provided by some institutions are services which otherwise would have been provided by the state, rather than local government. In these cases, the net fiscal impacts of the institution are the costs of the municipal services they use. These impacts can be assessed by measuring

these costs.

Description of the Research Project

Because of the more significant effect of exempt properties on the finances of central cities than those of other areas, the subjects chosen for this study included the current fiscal status of Providence and the effect of property tax exemptions on that city's financial condition. A case study of a single exempt institution was used to investigate the fiscal impacts of these institutions on the city. Because of the variety in types of exempt property, it was difficult to find a property representative of all types. The variety of properties results in variations in the amount of services consumed. The properties which are likely to consume the most services are those occupied by institutions which are in active use daily, for example, hospitals or schools, or which involve residential use of the property requiring greater fire and police protection, which also consists of schools and hospitals. The property chosen for a case study, Brown University, was an example of a relatively large property in acreage from these two groups. Brown provides some of its own waste disposal and police protection services which are not uniformly provided by all schools. This suggests that an estimate of the costs of municipal services to schools based on Brown's costs would be a conservative estimate of these costs. Because of the differences between types of exempt properties, it was not possible to estimate the costs of services to all of these properties based on the cost of services to Brown.

Methodology for Research Project

The methodology to be used to calculate the net fiscal impact of Brown University will reflect those of the writers mentioned above. Raimondo's calculations were based on the projection of a hypothetical taxable use for a given exempt property. This is unrealistic because of the small possibility that an exempt institution, with historic and economic ties to a given location, will move to a new site (Leone and Meyer, 1977: 44). The ACIR and Leone and Meyer studies emphasize current costs and benefits. Leone and Meyer noted that both tax-paying and exempt institutions may provide similar spill-over benefits to their communities. The unsystematic distribution of exemptions to properties providing a variety of functions and services suggests that the exemptions are often granted on the basis of custom rather than services provided to the host community. For these reasons, the costs of services to exempt institutions was regarded as the main impact on local finances.

The allocation of costs of municipal services to different property uses performed by Leone and Meyer resembles the case study method of fiscal impact analysis (Burchell and Listokin, 1978: 45-66). This method of analysis uses the marginal costs of services to determine fiscal impact. Interviews with local officials are used to obtain information on the capacities and costs of local services. The excess or deficit capacity of local services is used to calculate the impacts of a given development or land use on the costs of services. Because it uses interviews, this method of analysis is adaptable to a variety of situations, and was therefore appropriate for determining the current costs of services to Brown University. This method was supplemented

by the proportional valuation method which was used to determine the costs of general government services.

Sources of Data

Several sources were used to provide data for this project. Data for Providence's financial status and trends included The Annual Reports of Local Government Finances produced by the Rhode Island Department of Community Affairs, budgets and Annual Reports of the City of Providence, financial analyses performed by the Mayor's Advisory Commission on Finance and the Providence Review Commission, and articles from the Providence Journal-Bulletin. Data on the social and economic trends that have affected Providence's fiscal status was obtained from U. S. Bureau of the Census data and the R. I. Department of Economic Development. Data from the Providence City Assessor's Office was used for information on property tax exemptions and for additional data needed to perform the fiscal impact analyses.

Information used to obtain the costs of municipal services to Brown included the acreage and location of parcels owned by the university, obtained from the Providence Assessor's Office; the types and amount of services which Brown provided in substitution for similar municipal services, obtained from the Brown Planning Office; and the costs, volume and capacity for expansion of municipal services used by Brown, obtained from interviews with municipal department heads and personnel.

Chapter One of this report has included general information concerning property tax exemptions and a discussion of significant issues surrounding their use. The conclusions of this chapter described a

research project to test the cogency of some of these issues. The following chapter will discuss the current financial situation of Providence, its fiscal trends, and the impact of property tax exemptions on its financial condition.

Chapter II

Financial Conditions and Trends in the City of Providence

The previous chapter described the negative fiscal impacts that exempt institutions may have on their host municipalities. These impacts were seen to be particularly great for cities because they contain high proportions of exempt property. Many cities are currently facing serious financial strain due to requirements for high levels of services and limited revenue growth. This makes the negative fiscal impacts of exempt institutions especially problematic for cities.

This chapter will examine the general nature of urban fiscal stress, the social and economic trends of cities thought to produce fiscal stress, and the relationship of these trends to present financial conditions in the City of Providence. The chapter will conclude by describing the type and amount of exempt property in Providence, and the relationship of past and current exemptions to the city's financial condition.

The Nature of Urban Fiscal Stress

Urban fiscal stress has been defined as a city's inability to adequately meet current public service demands (Burchell and Listokin, 1980: xi). The term describes a condition of strained finances marked by cash shortages, high deficits and inability to borrow funds which makes it difficult for a city to cover current expenses. This situation is created by continued high levels of spending relative to revenue, or

slow revenue growth. It may eventually lead to bankruptcy or near-bankruptcy, as in the cases of Cleveland and New York. The 1970's brought an increase in the number of cities affected by some degree of fiscal stress. The high inflation of this period heightened pre-existing financial problems. It increased expenses immediately, but was slower to affect revenue because of the infrequency of property re-valuations (Bahl, 1981: 195). Thus, while the high rate of inflation reduced municipal purchasing power, it did not lead commensurately to an appreciated property tax base. Fiscal stress has had a tendency to become chronic, and is a continuing problem for many cities (Weinstein and Clark, 1981: 114-5).

Recent literature has focused on the causes of urban fiscal stress. Some writers believed that the social and economic declines of cities following World War II were responsible for its development. Others felt that proper financial management could overcome the deleterious effects of these trends (Weinstein and Clark, 1981: 121-3). The following section will describe social and economic trends which have been identified as contributing to fiscal stress.

Social and Economic Trends Associated with the Development of Urban Fiscal Stress

Several coinciding social and economic trends in cities following World War II resulted in increased pressure on municipal finances. These trends included losses of population, relocation of manufacturing firms to the suburbs, and changes in the composition of urban populations.

Losses of population and manufacturing plants were primarily

responsible for reducing municipal revenue from the property tax. Declines in population of cities in the 1950's and 1960's produced declines in many urban neighborhoods, which were marked by the deterioration and abandonment of housing. This decreased the value of the city's housing stock, and lowered the rate of growth of the total tax base (Muller, 1981: 299).

Aging housing stock also contributed to low total property value in cities (Fossett and Nathan, 1981: 65). As shown in Figure I, northern cities generally have a higher percentage of older housing than southern or western cities (Sumka, 1983). Much of the older housing in northern cities is in poor condition and there has been relatively little new construction compared to other areas. These trends led to decreases in the rate of growth of revenue supplied by the property tax.

The loss of manufacturing firms to the suburbs also contributed to declines in revenue. This occurred partly as a result of improvements to highway systems in the 1950's which enabled goods to be transported easily to and from suburban locations. Losses of industry to cities resulted in the outmigration of employees and, in many cases, direct losses of property and non-property tax revenue (James, 1981: 20-4).

Municipal expenses were affected by post-World War II trends in the composition of urban populations. Gradual, but significant changes in the composition of urban populations were associated with the outmigration of white and middle income households from the city following World War II. Increasing numbers of blacks and low-income households moved into cities, resulting in an increase in the proportion of poor and minorities in urban populations. These groups included large numbers of households headed by women, who were chronically unemployed or

FROSTBELT CITIES GENERALLY HAVE OLDER HOUSING THAN SUNBELT CITIES

18 OF 25 LARGEST CITIES	HOUSING UNITS BUILT PRIOR TO 1950		HOUSING UNITS BUILT SINCE 1950	
	Number	Percent	Number	Percent
NORTHEAST	*3,109*	*72%*	*1,184*	*28%*
New York	2,004	71	837	29
Philadelphia	499	77	153	23
Baltimore	219	76	69	24
Washington, D.C.	194	71	82	29
Boston	193	82	43	18
MIDWEST	*1,790*	*75%*	*591*	*25%*
Chicago	872	76	272	24
Detroit	403	79	105	21
Indianapolis	127	47	143	53
Cleveland	212	84	40	16
St. Louis	176	85	31	15
SOUTH	*335*	*31%*	*758*	*69%*
Houston	155	31	353	69
Dallas	96	27	266	73
Memphis	84	38	139	62
WEST	*1,289*	*52%*	*1,174*	*48%*
Los Angeles - Long Beach	637	49	658	51
Phoenix	45	18	207	82
San Francisco - Oakland	351	76	113	24
Seattle - Everett	152	64	85	36
Denver	104	48	111	52

Figure I: Comparison of Age of Housing in Frostbelt and Sunbelt Cities

Source: Howard Sumka, paper on Future Prospects for Urban Development in the United States prepared for the Seminar on Long Term Perspectives on Human Settlements in the E.C.E. Region

under-employed. Elderly residents tended to remain in cities because of low incomes or reluctance to move. This increased their proportion in the total urban population.

The new populations of cities required higher amounts of services for housing, health care and welfare than previous residents. Concentrations of the poor were accompanied by the need for increased fire and police protection. Although the new populations of cities required relatively high levels of municipal services, they could provide only limited financial support for them (Sternlieb and Hughes, 1981: 51-76). This increased demands on urban revenue.

Providence shows evidence of each of these trends of social and economic decline. The following section will discuss these trends and their effect on the overall financial condition of the city.

Post-World War II Social and Economic Trends in Providence Which Affected Municipal Finance

The growth of property tax revenue in Providence has been affected by losses in population, aging of the housing stock, and declines in manufacturing employment since World War II. As shown by Table I, the population of Providence declined significantly between 1940 and 1980. Goldstein and Mayer, two Brown University economics professors who analyzed the loss of 41,176 city residents from 1950 to 1960, concluded that this decrease was due principally to middle and upper income families leaving the city for the suburbs. They believed that less wealthy city residents subsequently moved into the neighborhoods these families had left (Goldstein and Mayer, 1961, 18-22).

Significant declines affected many formerly middle-class

Table I

Population and Housing of Providence: 1940 - 1980

	1940	1950	1960	1970	1980	Percent Change 1940-50	1950-60	1960-70	1970-80
Total Population	253,504	248,520	207,498	179,213	156,804	- 2%	-17%	-14%	-13%
Housing Units	N/A	74,212	73,027	68,163	67,535		- 2%	- 7%	- 1%

Source: U. S. Bureau of the Census

neighborhoods in the 1950's and 1960's. South Providence, Elmwood, the West End and Federal Hill suffered declines that were accompanied by deterioration of much of the housing stock (Providence Department of Planning and Urban Development, Neighborhood Analyses). Neighborhood declines, and razing of houses for highway construction and urban renewal contributed to a steady decline in the absolute numbers of housing units in Providence from 1950 to the present. In addition, 1980 Census statistics indicate that 67 percent of the city's housing was constructed prior to 1939. This was a higher proportion of older housing than in all but one of the nineteen Census Designated Places in Rhode Island. The high proportion of older housing, and deterioration and decrease in total units since World War II resulted in relatively low real property values in Providence compared to other areas.

Providence lost a considerable number of commercialand industrial firms between 1960 and 1980. This decrease and the change in total and manufacturing employment during this period are shown in Table II. The increase in total employment from 1970 to 1980 was due to increases in employment in the service industries. However, manufacturing employment decreased steadily from 1950 to 1980. The closings of manufacturing firms during this period also contributed to a reduction of the real property base.

Providence's municipal expenses have been affected by significant changes in the composition of its population from 1950 to 1980. Table III shows increases in the city's percentage of minority, the elderly, and poor populations during this period. The increase in non-white populations reflects the recent immigration of Southeast Asian Hmong.

Table II

Firms and Employment in Providence: 1950 - 1980

	1950	1960	1970	1980	1985	Percent Change 1950-60	1960-70	1970-80
Total	N/A	7,698	6,422	6,002			-17%	- 7%
Manufacturing Employment	62,215	46,335	40,725	33,873	28,235	-26%	-12%	-17%
Service Employment	N/A	8,839	11,193	35,505			27%	217%
Total Employment	N/A	104,877	99,213	106,642	106,829		- 5%	7%

Source: R. I. Department of Employment Security

Table III

Changes in the Composition of Population of Providence: 1950 - 1980

					Percent of Population			
Race	1950	1960	1970	1980	1950	1960	1970	1980
White	239,715	195,525	161,338	127,320	97%	94%	90%	81%
Black	8,420	11,153	15,875	18,546	3%	5%	9%	12%
Other	385	820	2,000	10,938	-	1%	1%	7%
Total	248,520	207,498	179,213	156,804	100%	100%	100%	100%
Age								
65 or older	24,050	27,333	26,300	24,057	10%	13%	15%	19%
Below 65	224,470	180,165	152,913	132,747	90%	87%	85%	81%
Total	248,520	207,498	179,213	156,804	100%	100%	100%	100%
% Households below poverty level							13%	15%

Source: U. S. Bureau of the Census

These groups, particularly the non-English-speaking Hmong, require high volumes of municipal services.

Since World War II, Providence has undergone significant losses of population and employment. Decreases in the number of manufacturing firms and the declining condition and quantity of the housing stock have diminished the value of the city's real property. As a result, the estimated market value of the tax base of Providence grew at a rate substantially below the state average for 1970-1982. This resulted in slower growth of property tax revenue than the state average. The make-up of the Providence population changed gradually from the 1950's through the 1980's as proportions of minority and low-income residents increased. At present, per capita expenditures for health, welfare and public safety are significantly higher for Providence than for the state. High expenses in combination with slow revenue growth have resulted in significant financial problems for the city which will be described in the following section.

Recent Trends in Providence's Municipal Finances

Tables IV through VIII provide information on trends in the city's revenue, expenditures, total assessed and estimated market values, and in the Consumer Price Index for 1970 through 1982. As shown in Table IV, the city's revenue grew at a slower rate than expenditures for 1975 through 1981. Table V shows that the city's revenue also grew at a slower rate than that of the state except for 1981-2. Had it not been for a supplemental property tax, the city's revenue would have increased by 7 percent for 1981-2, again below the state rate. This slow rate of revenue growth was due to the city's heavy reliance on the property

Table IV

Financial Indicators for Providence: 1970-1982

($000)

	1970	1975	1980	1981	1982	Per Cent Change 1970-5	1975-80	1980-1	1981-2
Revenue	$ 55,213	$ 76,777	$ 108,745	$ 110,273	$ 132,033	37%	42%	1%	20%
Expenditures	55,409	75,736	109,737	118,781	131,973	31%	45%	8%	11%
Assessed Value-Real Property	806,391	882,407	1,290,931	1,308,826	1,333,950	9%	51%	-	1%
Est. Market Value-Real Property	$1,151,165	$1,491,056	$2,002,064	$2,105,914	$2,331,266	29%	34%	4%	10%
CPI						39%	53%	10%	5%

Source: R. I. Department of Community Affairs, Annual Reports of Local Government Finance

Table V

Comparison of Financial Trends of Providence and the State of R.I.: 1970-1982

	Per Cent Change - Providence				Per Cent Change - Rhode Island			
	1970-5	1975-80	1980-1	1981-2	1970-5	1975-80	1980-1	1981-2
Revenue	37%	42%	1%	20%	64%	51%	6%	19%
Expenditures	31%	45%	8%	11%	65%	48%	8%	18%
Total Ass'd. Value	9%	51%	-	1%	35%	51%	10%	7%
Est. Market Value	29%	34%	4%	10%	38%	76%	11%	11%

Source: R. I. Department of Community Affairs, Annual Reports of Local Government Finance

tax as a revenue source. The analysis of components of revenue in Table VI shows the city increasingly dependent on the property tax for revenue from 1970 to 1975. Although there was little change in the proportion of revenue provided by the property tax from 1975 to 1980, it still constituted a higher percentage of total revenue for the city than the state average.

The growth of revenue from the property tax was limited by the slow growth of the taxable value of real property from 1970 to 1980. During this period, the estimated market value of the city's real property grew at a rate substantially below that of the state. The city's real property growth was below the inflation rate except for the period of 1981-2. Except for the period 1975-1980, which included a property revaluation in 1976, the rate of increase of assessed property values in Providence was below that of the state.

While the property tax increased as a proportion of the city's total revenue in the 1970's, other components of revenue decreased. "Other Revenue" decreased by 11 percent from 1970 to 1980 due to reduction of taxes from parimutuel betting distributed to the cities and towns. This occurred as a result of the closing of Narragansett Race Track and Lincoln Downs.

The need to increase revenue from the property tax resulted in high tax rates for Providence residents. The property tax burden is a measure of the proportion of tax payments per thousand dollars of per capita income. In Providence, the tax burden rose from $62.14 in 1970, to $72.29 in 1975, to $102.49 in 1980. Statewide, the property tax burden was $44.65 in 1970 and $49.52 in 1980.

Table VI

Trends in Components of Revenue of Providence: 1970-1982

($000)

	Providence Revenue			Per Cent of Total: Providence			Per Cent of Total: Rhode Island		
	1970	1980	1982	1970	1980	1982	1970	1980	1982
Property Tax	$34,636	$72,402	$87,515	63%	67%	66%	63%	63%	60%
Federal Grants	386	440	149	1%	-	-	2%	1%	1%
State Grants	10,832	22,547	30,804	20%	21%	23%	22%	23%	24%
Federal Revenue Sharing	-	4,994	4,918	-	5%	4%	-	3%	3%
Other Revenue	9,359	8,362	8,646	17%	8%	7%	13%	9%	13%
Total	55,213	108,745	132,033	100%	100%	100%	100%	100%	100%

Source: R. I. Department of Community Affairs, Annual Reports of Local Government Finance

In spite of a declining population, total expenditures for the city increased from 1970 to 1980, as shown in Table IV. This was due in part to high inflation, indicated by the increase in the CPI. The comparison of the rate of increase of per capita expenditures and the CPI during this period shown in Table VIII indicates that the rate of increase of per capita expenditures was higher than the inflation rate. This was partly caused by the high spending for health, welfare and public safety associated with urban areas. The city's per capita spending for general government, health, welfare and public safety was higher than that of the state for 1970 and 1980 as shown in Table VII. Expenditures for public safety and general government increased as proportions of total spending during the 1970's. Spending for general government included large expenditures for Public Building and Parks. Recent spending in this area has covered extensive renovations to City Hall, remodeling of the city zoo and an overhaul of Roger Williams Park.

One factor which increased expenses in all departments of the city is that the majority of municipal employees are unionized. In 1981, the city's independent auditors stated that they believed that savings from the layoff of 506 employees would probably be wiped out by negotiated salary increases throughout the city.

The current administration has reduced current costs by funding only 70 percent of pension fund payments. This practice was cited by Peat, Marwick & Mitchell as not in accordance with generally accepted principles (Providence Annual Financial Report, 1982). $2.6 million was deferred from the pension fund in 1978 to cover costs associated

Table VII

Comparison of Per Capita Expenditures - Providence and the State of R. I.: 1970-1980

	Providence		R. I.		Per Cent of Total: Providence		R. I.	
Expenditure:	1970	1980	1970	1980	1970	1980	1970	1980
General Gov't.	$19	$47	$11	$26	6%	7%	5%	4%
Public Safety	50	132	30	80	16%	19%	13%	13%
Health & Welfare	22	37	8	16	7%	5%	3%	3%
Schools	130	274	124	315	42%	39%	52%	53%
Total	$309	$700	$240	$600	100%	100%	100%	100%

Source: R. I. Department of Community Affairs, Annual Reports of Local Government Finance

Table VIII

Comparison of Growth of Per Capita Expenditures
in Providence and R. I. with the Rate of Inflation: 1970-80

	Providence		R. I.		Per Cent Change 1970-80	
	1970	1980	1970	1980	Providence	R. I.
Total Per Capita Expenditures	$309	$ 700	$ 240	$ 600	127%	150%
CPI			116.3	246.8		112%

Source: R. I. Department of Community Affairs, Annual Reports of Local Government Finance

with the blizzard of that year. These amounts will have to be repaid eventually. These repayments and the unionization of employees are likely to create continuing high expenses for the city.

During the 1970's and early 1980's, the growth of the city's revenue was limited by heavy reliance on the property tax accompanied by slow growth of the real property tax base. Slow revenue growth and increasing expenses have resulted in fiscal strain which has been evidenced by increasingly large deficits in the 1970's and early 1980's. A significant fiscal crisis occurred in 1981. Existing deficits reached a high point of $20 million. Cash shortages necessitated the layoff of 506 municipal employees in February, 1981. During this period, Moody's Investor Service threatened to reduce the city's bond rating from A1 to Baa[2], although they did not actually do so. A supplemental property tax levied in 1981 provided the city with the additional revenue needed to overcome these cash flow problems.

Although the financial crisis of 1981 has passed, Providence continues to face financial problems. This crisis was the culmination of continued high levels of spending relative to revenue during the second half of the 1970's. At the end of fiscal year 1982, the city still had a $6.1 million deficit. In the summer of 1983, the city again had cash shortages which led to the layoff of sixty-seven temporary employees. Unless the city can reduce its levels of expenses, or its heavy dependence on the property tax, Providence will probably face continuing fiscal stress.

The city has made some progress towards developing policies to deal more adequately with its financial problems. The Mayor formed

an Advisory Commission on Finance in 1981 to develop recommendations for improving the city's financial health. This commision has proposed implementation of user charges for municipal parks and the city zoo, and fees for services for exempt institutions, to increase municipal revenue.

Amount and Types of Exempt Property in Providence

Early writers on tax exemptions believed that exempt property had a negative fiscal impact on the community in which it was located because of the direct loss of tax revenue (Balk, 1971: 10-17). More recently, attention has focused on the amount of taxable land that exemptions remove from the real property base (ACIR, 1978: 44). This is a particular problem for central cities whose tax bases are growing at slower rates than those of other areas. The growth of exempt property in Providence provides evidence of this problem. As shown by Table IX, there was a net increase of 5 percent in the land area occupied by exempt property from 1980 to 1983.

In 1983, Providence contained 2,886 acres of exempt property, which was just under one-quarter of its total acreage. The City Assessor's Office has divided exempt properties into different categories depending on the reason for granting the exemption. Some categories indicate ownership, such as federal, state and local government, as well as state and local housing authorities. Several categories are based on the use of the property, including churches, schools, cemeteries, hospitals and libraries. Other categories are based on the stated purpose of organizations. These include charitable and chartered organizations. The latter include groups whose charters indicate they were organized to

Table IX

Growth of Taxable and Exempt Acreage in Providence: 1980-83

	Acres				Per Cent Change 1980-83
	1980	1981	1982	1983	
Taxable Property	8,842.4 A	8,813.1 A	8,690.1 A	8,697.8 A	-1%
Exempt Property	2,741.6	2,770.9	2,893.9	2,886.2	5%
	11,584.0 A	11,584.0 A	11,584.0 A	11,584.0 A	

Source: Providence, Tax Assessor's Office

serve a public purpose. Two additional categories were established to reflect special methods used to grant exemptions. Besides approval by the city assessor, exemptions may be granted by a vote of the city council or act of the state legislature. Exemptions granted by each of these methods are included in separate categories.

For purposes of analysis, exempt land was divided by public and private ownership. Properties owned by R.I.P.T.A. and the Providence Public Library were removed from the city's categories of chartered organizations and libraries and listed with other publicly owned properties. Twenty-six acres of property of private colleges was listed in the name of the R. I. Health and Educational Building Corp. under chartered organizations. This corporation was formed for the purpose of issuing state bonds to educational institutions. However, these properties function as part of their educational institutions and have been included in the category of private schools in the table.

A little less than two-thirds of the city's exempt land is publicly owned. The city itself holds title to almost half of total exempt property. The largest amount of land in the privately owned category is owned by private schools, whose holdings constitute 11 percent of the total exempt land area and approximately one-third of privately owned exempt property.

Table X shows that private schools own the largest amount of property of all private exempt land owners. As shown in Table XI, the majority of land owned by the schools is owned by private universities. Brown University is the largest property owner in this group. For this reason, the costs and volumes of municipal services

Table X

Proportions of Total Exempt Property
in Different Categories in Providence: 1983

	Acreage	Per Cent of Total
Publicly owned		
U.S. Government	41.2A	1.4%
State of R.I.	213.4	7.4%
City of Providence	1,438.0	49.8%
R.I. Housing Authority	3.2	.1%
Prov. Housing Authority	119.1	4.1%
R.I.P.T.A.	10.7	.4%
Public libraries	4.1	.1%
Total	1,829.7	63.4%
Privately owned		
Churches	94.6	3.3%
Private schools	344.7	11.9%
Cemeteries	227.5	7.9%
Hospitals	179.4	6.2%
Chartered Organizations	26.8	.9%
Charitable Organizations	52.3	1.8%
Libraries	3.9	.1%
Act of Legislature	126.3	4.4%
Vote of City Council	1.0	-
	1,056.5	36.6%
Total	2,886.2A	100.0%

Source: Providence, Tax Assessor's Office

Table XI

Exempt Property Owned by Private Schools in Providence: 1983

Ownership	Acres Owned	Per Cent of Total
Private colleges & post-secondary schools:		
Brown University	129.8 A	37.7%
Johnson & Wales College	10.7	3.1%
N.E. Institute of Technology	1.4	.4%
Providence College	85.2	24.7%
Rhode Island School of Design	12.1	3.5%
U.R.I. Foundation	.1	-
	239.3	69.5%
Private secondary schools:		
LaSalle Academy	31.2	9.1%
Lincoln School	.3	.1%
N.E. Yearly Meeting of Friends (Moses Brown School)	33.6	9.7%
Providence Hebrew Day School	.9	.3%
St. Francis Xavier Convent	1.4	.4%
St. Mary's Academy	.9	.3%
Mary Wheeler School	3.1	.9%
	70.5	20.4%
Other educational institutions	34.9	10.1%
Total	344.7A	100.0%

Source: Providence, Tax Assessor's Office

provided to the university will be extensively investigated in the following chapter.

Growth in the acreage of different categories of exempt property is shown in Table XII. The growth of exempt property is important as an indication of the amount of land that has been removed from the tax base.

Although there are high growth rates in the acreage of property owned by the U. S. Government and in the category "Act of Legislature," these are both the result of action outside of local control. In 1980, the U. S. Postal Service purchased the Providence Post Office's main branch from Intelex Systems, Inc. This added 16.9 acres to property owned by the U. S. Government. In 1981, a federal law was passed which prohibited the federal government from paying local taxes on Amtrak properties. This added 125.7 acres to the exempt rolls in the "Act of Legislature" category. With the exception of churches, whose holdings increased by eight percent, the amount of land in other categories has either increased only slightly or has decreased.

The exempt category of private schools includes private and parochial colleges and secondary schools. It also contains several organizations with very narrow educational functions, such as the Providence Water Color Club And the Rhode Island Shakespeare Theater. The greatest amount of land in this category is owned by private colleges, with 246.3 acres. Private secondary schools own the next largest amount of land, 70.5 acres.

Private cemeteries hold the third greatest amount of exempt property. The majority of this land consists of 199 acres owned by Swan

Table XII

Acreage of Exempt Property in Providence: 1980-83

	Acres				Per Cent Change
	1980	1981	1982	1983	1980-83
Publicly owned					
U.S. Government	24.3 A	41.2 A	41.2 A	41.2 A	70%
State of R.I.	208.6	208.9	211.0	213.4	2%
City of Prov.	1,448.4	1,444.5	1,440.1	1,438.0	-1%
R.I. Housing Authority	3.2	3.2	3.2	3.2	-
Prov. Housing Authority	119.1	119.1	119.1	119.1	-
R.I.P.T.A.	10.7	10.7	10.7	10.7	-
Public libraries	4.1	4.1	4.1	4.1	-
Total	1,818.4	1,831.7	1,829.4	1,829.7	1%
Privately owned					
Churches	87.9	95.6	96.2	94.6	8%
Private schools	344.7	353.5	353.8	344.7	-
Cemeteries	227.5	227.5	227.5	227.5	-
Hospitals	177.4	177.8	179.0	179.4	1%
Chartered Organizations	25.6	26.3	26.1	26.8	5%
Charitable Organizations	55.2	52.5	50.6	52.3	-5%
Libraries	4.3	4.4	4.2	3.9	-9%
Act of Legislature	.4	.4	126.1	126.3	31,475%
Vote of City Council	.2	1.2	1.0	1.0	400%
Total	923.2	939.2	1,064.5	1,056.5	14%
Total Exempt Property	2,741.6A	2,770.9A	2,893.9A	2,886.2A	5%

Source: Providence, Tax Assessor's Office

Point Cemetery. This is located in an area of highly marketable property along Blackstone Boulevard in the city's prestigious East Side.

Land owned by the State of Rhode Island includes some real estate with little market value, such as a bridge across the Seekonk River, a railroad tunnel, and various easements for bridges and railroad tracks across streets. On the other hand, there are two parcels of state-owned land totalling 13,550 square feet which are leased to private businesses.

The "chartered organizations" category includes property owned by non-profit organizations which serve a public purpose as defined by Chapter 44-3-3 of the R. I. General Laws. This group of properties includes two nursing homes, the YMCA and an Elks lodge, among other properties.

The "charitable organizations" classification of exempt property includes organizations established to provide health care, shelter, food and child care to the poor. The majority of these organizations, which include the United Fund, R. I. Meals on Wheels, the Salvation Army of R. I. and Bannister House, serve the general public. However, some organizations appear to serve limited groups. Examples of these organizations are several American legion posts, the American Polish Veterans' Mutual Benefit Association and the Madonna Dei Latta Ni Men's Society.

Properties in the category "Vote of Council" include a single downtown parking lot owned by the Providence Redevelopment Commission. The majority of property that is exempt because of an "Act of Legislature" consists of the previously taxable acreage owned by Amtrak.

As indicated in the preceding chapter, the assessed values of

exempt properties are often out of date. They are generally considered to be unreliable as an indicator of the real monetary worth of exempt properties. In Providence, there has not been a complete assessment of exempt properties since the 1950's. This assessment was based on replacement cost. As new construction occurred, it was added at current construction costs.

This combination of recent and earlier valuations makes the current assessed values of exempt properties difficult to use meaningfully. However, recent increases in assessed value can be used as an indicator of new construction on these properties. Changes in the assessed value of exempt property in Providence based on these assessed values are shown in Table XIII.

Among the publicly owned properties, increases in assessed value have resulted from the federal government's purchase of the Providence Main Post Office branch mentioned earlier, and addition of units by R. I. Housing Authority. Increases in assessed value of privately owned property include the addition of Amtrak property to the "Act of Legislature" category and new construction by hospitals and private schools. Schools have shown the greatest growth in assessed value of privately owned exempt properties. Most of this growth is due to new construction by private colleges. Within the past four years, Providence College has added a $13 million library, while Brown has built its $7 million GeoChemistry Building.

Increases in residential or non-residential development are often associated with increases in employee or resident population. These increases are often associated with increased consumption of municipal

Table XIII

Assessed Values of Exempt Property in Providence: 1980-83

	Assessed Value				Per Cent Change 1980-83
	1980	1981	1982	1983	
Publicly owned					
U.S. Government	$ 8,242	$ 12,557	$ 12,557	$ 12,557	52%
State of R.I.	25,205	25,257	26,954	24,408	-3%
City of Prov.	76,561	81,411	81,035	79,518	4%
R.I. Housing Authority	639	2,539	2,529	7,509	1,075%
Prov. Housing Authority	27,121	27,121	27,329	29,364	8%
R.I.P.T.A.	1,315	1,315	1,315	1,315	-
Public libraries	2,722	2,722	2,722	2,722	-
Total	$141,805	$152,922	$154,441	$157,393	11%
Privately owned					
Churches	$ 23,886	$ 24,348	$ 24,348	$ 24,418	2%
Private schools	80,316	84,163	105,014	108,576	39%
Cemeteries	3,108	3,108	3,108	3,108	-
Hospitals	46,700	47,237	49,296	58,427	25%
Chartered Organizations	5,999	6,011	6,032	6,370	2%
Charitable Organizations	13,045	13,135	13,283	13,505	3%
Libraries	682	699	700	585	-7%
Act of Legislature	291	291	9,423	9,731	3,244%
Vote of City Council	1,362	1,362	1,323	1,323	-3%
Total	$175,387	$180,354	$212,527	$226,043	29%
Total Assessed Value	$317,192	$333,276	$366,968	$383,436	21%

Source: Providence, Tax Assessor's Office

services such as fire and police protection, public works, solid waste and sewage disposal, and consumption of water, which may lead to significant costs for the city.

Current and previous student populations at Brown are shown in Table XIV. An analysis of the change in Brown's student population shows significant growth during the 1960's and 1970's. However, in the 1980's, there has been little change in the number of students. Unless this trend changes, there is likely to be little change in the volume of services used by Brown in the immediate future.

The following chapter contains an investigation of current costs and volumes of municipal services provided to Brown. The chapter will include an explanation of the methodologies used to determine these amounts.

Summary

Social and economic trends in Providence beginning after World War II included the loss of population and manufacturing employment, and changes in population composition to include more minorities, low income and elderly . These changes led to increased demands for municipal services and slow growth of the property tax base in Providence, as in other central cities. However, Providence has continued to rely heavily on the property tax as a source of revenue which resulted in the recent incidence of fiscal stress.

Exempt properties in Providence impact the city's finances both by removing land from the tax base and through the costs of municipal services to the properties. The growth of exempt property in Providence in the last five years has been a modest 5 percent but still represents

Table XIV

Growth of Student Population at Brown University

Year:	1961	1965	1970	1975	1980	1983
Number of Students:	3,405	3,591	4,269	5,080	5,420	5,402

a continuing erosion of the city's taxable property. Private schools constitute the largest category of privately owned exempt property. Brown University was the largest property owner of this group and was chosen on this basis as a case study. At present, there is a level trend in student population, suggesting that there will be a limited amount of growth in municipal services to Brown. Therefore the present cost of services is a good indication of future costs.

The actual level of costs of services to the university as determined through fiscal impact analysis is presented in the following chapter. While schools are not representative of all exempt properties, they make up a sizeable percentage of all exempt property. Brown will be investigated as representative of this group of properties.

Notes

Chapter II

1. The figures given by the reports for revenue and expenses for Providence include the financial activity of the city's water department. These funds are restricted to that department's own use by the City Charter, so they were eliminated from the financial data for Providence. Transfers to the General Fund from other city funds, such as the Capital Fund, were also eliminated from city revenue.

2. Moody's municipal bond ratings range from Aaa, indicating highest credit quality, to Ba, used for speculative investments. Although not the highest rating, Al indicates good credit. Baa, the next lower rating, represents credit of only medium quality.

3. Brown's property ownership increased at an uneven rate through the 1970's from 130.9 acres in 1970 to 137.4 acres in 1981. In 1982, several parcels of land located along the Seekonk River were sold, reducing the university's acreage slightly below its 1970 holdings. Some parcels of land were dropped from the exempt rolls during the 1970's because they were profit making uses. For example, the University Club with approximately one-third of an acre was added to the city's tax rolls in 1972. The university currently owns several parcels of land and buildings in the name of Farview, Inc. which are taxed. These consist primarily of property held for future use. The university bookstore and the bottom level of a dormitory which is rented out to small shops are both taxed on the value of their buildings, but their land is exempt. The total taxable property owned by Brown is assessed at $669,910.

Chapter III

Determination of Costs of Services to Brown University

This chapter contains a description of the methodology used to assign costs of municipal services to the university and the findings of costs. The significance of these costs for the city and for exempt institutions, and the implications for alternative treatment of property tax exemptions will also be discussed.

Methodology for Determining Costs of Services to Brown University

Fiscal impact analysis involves the projection of municipal costs and revenue that are associated with new development (Burchell and Listokin, 1978: 1). In contrast to the broad impacts shown by an economic analysis, such as cost-benefit assessment, fiscal impact reflects only those direct municipal costs and revenue produced for local governments. Municipal services provided to new development are classified according to six or seven general categories established by the U. S. Bureau of the Census. Total costs of providing these services are determined using data from municipal budgets. Then, using the methods described by Burchell and Listokin in The Fiscal Impact Analysis Handbook (1978), a portion of these costs is assigned to the new development. In the following chapter, fiscal impact analysis was applied to determining the current costs of municipal services to Brown.

In almost all methods of fiscal impact analysis described by Burchell and Listokin, an important initial step was identifying which

municipal services are used by a given type of development. For example, all services are provided to residential development, but public schools are not available for use by employees of new commercial development and are not included among its costs to local government. The assignment of costs of services to Brown began with the determination of the total costs of municipal services provided by the city. Then, the costs of municipal expenditures relevant to Brown University were estimated. From these estimates, portions attributable only to Brown were determined.

Brown provides several types of services for its staff and students which would eliminate the need for almost all use of certain municipal services. The university has a wide range of recreational facilities, its own libraries, a health care center and a considerable amount of cultivated open space on its premises. Because of these facilities, it is likely that Brown employees would use very few municipal services for recreation, libraries, health and parks. Additionally, the use of public welfare services is assumed to be low because of Brown's high proportion of white collar employees. According to Burchell and Listokin, health and welfare account for only two percent of the average total costs of municipal services extended to commercial activities, and the major portion of this is for health care.

Additionally, several types of general government services receive very little use by the university because of the nature of its activities or its exempt status. These services include vital statistics department, licenses, the city council, building inspection, tax collection and assessment review. The university provides its own

waste removal, so this service is not received from the city. All of the services discussed here were excluded from those whose costs were apportioned to Brown. In addition, the university pays the city sewer and water fees, which are assumed to cover the costs of these services. Based on this assessment, municipal services for recreation and culture, health and welfare and some general government services were excluded from those services whose costs were assigned to Brown. Eliminating these services left public safety, public works, and the remaining portions of general government as municipal services provided to the university. This chapter will be organized in sections dealing with the analysis of the costs of each of these services. Public safety includes police and fire protection, which will be analyzed separately.

Table XV indicates the categories of city-wide expenses in the municipal budget which provides the base for the subsequent allocation of costs of services to Brown. The expenses shown are for fiscal year 1980-81 and were obtained from the 1983-84 budget. This was the most recent period for which detailed budget information was available. Because it provided a breakdown of debt expense between school debt and other debt, the R. I. Department of Community Affairs' Annual Report of Local Government Finance was used for debt expense for 1980-81.

For use with fiscal impact analysis, the municipal budget expenses were classified according to the service provided, i.e., General Government, Police Protection, Fire Protection and Public Works. The expenses included in each of these categories are shown in Tables XVI, XIX, XXI, and XXIII. These categories include the reallocation of certain

Table XV

Initial Allocation: City-wide Municipal

Budget Expenses Relevant to Brown University

Municipal Department Heading and Divisions	Budget, 1980-81	City-wide Expenses Relevant to Brown	Explanation for Allocation
1. Executive, Legislative and Judicial			
Mayor's Office	$ 304,089	$ 304,089	The majority of costs in this category represent services provided to all commercial and institutional establishments. The City Council represents residents, rather than institutions, and its annual costs of $201,798 were omitted as these services are not relevant to Brown.
City Clerk	113,360	113,360	
City Council	201,798		
City Sergeant	17,870	17,870	
Law Department	1,249,939	1,249,939	
Municipal Court	161,708	161,708	
Probate Court	79,495	79,495	
Total	2,128,259	1,926,461	

Table XV, Cont.

Municipal Department Heading and Divisions	Budget, 1980-81	City-wide Expenses Relevant to Brown	Explanation for Allocation
2. Finance Administration			
Director of Finance	$ 128,754	$ 128,754	The city provides the same services in this area to Brown as to other institutions and commercial establishments, and to other property owners. Because the university is exempt from property taxes, services for tax collection and assessment review totalling $421,004 were not included in costs of services to the university.
Controller's Department	375,267	375,267	
Employees' Retirement Administration	106,023	106,023	
Data Processing	580,742	580,742	
City Assessor's Office	298,892	298,892	
City Collector	398,778		
Board of Assessment Review	22,226		
City Treasurer	103,260	103,260	
Total	2,013,941	1,592,937	
3. Public Safety			
Commr. of Public Safety	125,497	125,497	Brown receives fire protection and some police protection from the city. The divisions of the Commissioner of Public Safety and Communications were allocated to these departments as shown on Tables XVIII and XX.
Police Department	10,209,396	10,978,292	
Fire Department	10,978,292	10,978,292	
Division of Communic.	942,199	942,199	
Traffic Engineering	465,234	465,234	
Total	22,720,617	22,720,617	

Table XV, Cont.

Municipal Department Heading and Divisions	Budget, 1980-81	City-wide Expenses Relevant to Brown	Explanation for Allocation
4. Building Codes & Inspection	$ 555,466	$ 555,466	Brown's buildings are not routinely inspected by the city, so these were not included in the costs of services to the university.
5. Public Works			
Public Works Admin.	264,855	264,855	Expenses associated with the maintenance and repair of streets were allocated to Brown because these are provided to streets in the study area. Similar services are received for street lighting and cleaning catchbasins. Brown provides its own solid waste removal, so expenses of $3,085,286 associated with solid waste collection were not included in the costs of services provided to the university. There are no bridges in the study area. These expenses, together with municipal docks and environmental (pest) control, were not considered applicable to Brown. Expenses of $3,739,961 associated with sewage disposal were not included in costs of public works services to Brown because the university pays the city sewer fees.
Engineering & Admin.	370,945	370,945	
Street Cleaning	610,769	610,769	
Highway & Envir, Control	2,140,294	2,140,294	
Snow Removal	342,864	342,864	
Sewer Construction & Maint.	779,296	779,296	
Street Lighting	1,180,000	1,180,000	
Garage Maint. & Equipment	252,084	252,084	
Sanitation Admin.	20,580		
Sewage Pumping	287,156		
Sewage Disposal & Pumping	3,452,805		
Waste Collec. & Processing	3,064,706		
Bridge Maintenance	164,168		
Municipal Docks	293,901		
Environmental Control	151,533		
Total	13,375,977	5,941,107	

Table XV, Cont.

Municipal Department Heading and Divisions	Budget, 1980-81	City-wide Expenses Relevant to Brown	Explanation for Allocation
6. Recreation Department	$1,435,017	$ -0-	Brown provides a wide range of recreational facilities for its staff and students, so use of municipal facilities is assumed to be minimal.
7. Public Properties			
Administration and Purchasing	1,994,436	1,994,436	Administrative expenses for purchases of supplies and maintenance of public buildings were considered part of general government services. Expenses associated with parks were not allocated to Brown. The university provides large amounts of cultivated open space which can be used by employees and students, so use of public parks is probably low. Expenses of $2,192,286 were omitted from those in this category allocated to Brown because they are for services connected with public parks. Developmental and environmental services pertain to gardens and greenhouses at Roger Williams Park.
Administration and Maintenance	966,662	966,662	
Public Buildings	112,906	112,906	
Custodial Services	494,522	494,522	
Public Lands and Parks	1,258,520		
Development and Environ. Service	325,306		
Zoo and Museum	470,791		
Public Programs	123,510		
Office of Supt. of Parks	14,161		
Total	5,760,812	3,568,526	

Table XV, Cont.

Municipal Department Heading and Divisions	Budget, 1980-81	City-wide Expenses Relevant to Brown	Explanation for Allocation
8. Schools	$34,188,073	$ - 0 -	Expenses for schools were not considered applicable to Brown.
9. Other Departments			
Recorder of Deeds	137,054	137,054	Expenses for recording of deeds and planning were considered relevant to Brown as a property owner and commercial and institutional entity in the city. The Human Relations and City Charter Commissions were considered related to the functions of general government. Those services not included were considered to be used by residential and other types of commercial development.
Bureau of Licenses	92,223	92,223	
Board of Canvassers	162,564	162,564	
Vital Statistics	81,475	81,475	
Zoning Board of Review	51,435	51,435	
Providence Civil Defense	67,106	67,106	
Prov. Human Rel. Comm.	110,045	110,045	
Dept. of Planning and Urban Development	1,012,435	1,012,435	
Prov. Charter Commission	13,277	13,277	
Temp. Seasonal Help	133,618		
Adm. Asst.-City Council	20,149		
Total	1,881,381	1,272,811	
10. General Public Assistance	7,676,081	- 0 -	Not considered applicable to Brown.

Table XV, Cont.

Municipal Department Heading and Divisions	Budget, 1980-81	City-wide Expenses Relevant to Brown	Explanation for Allocation
11. Pensions			
Police Department	$ 79,607	$ 79,607	Expenses for pensions for personnel for municipal services used by Brown were allocated to the departments. Public Works' employees pensions were determined using the estimated proportion of union employees in that department. This estimate was based on the total employment of the Public Works, Parks and Water Departments which contain the majority of unionized employees.
Fire Department	139,018	139,018	
Laborer's Int'l. Fund	903,289	352,283	
Laborer's Int'l. Legal Fund	217,912	84,986	
Public Empl. Health Serv.	68,127	68,127	
Total	$2,615,089	724,021	
12. Debt Service	8,750,458	5,641,209	Debt costs allocated to Brown represent total debt costs less that of the school and water departments.

Table XV, Cont.

Municipal Department Heading and Divisions	Budget, 1980-81	City-wide Expenses Relevant to Brown	Explanation for Allocation
13. Miscellaneous Activities			
FICA	$1,275,231	$1,275,231	Costs associated with personnel expenses were included in these costs for individual departments based on the average cost per employee. Brown provides its own health care facility for employees, so the mental health center was not allocated to Brown. Other costs in this area are for services to residential users or are not statutory expenses and not consumed by the university.
Blue Cross	2,469,042	2,469,042	
Unemployment Comp.	464,806	464,806	
Contingencies	76,240		
Board of Tenants Affairs	1,956		
Comm. Mental Health Center	175,000		
Demol. of Aband. Property	62,035		
Prov. Housing Authority	8,155		
Reserve-Antic. Abatement	310,995		
Total	4,843,460	4,209,079	
14. Grants	876,971	-0-	Grants include $832,000 to the Providence Public Library. Other grants were not statutory expenses and were therefore not allocated to Brown.
15. Public Celebrations	9,654	-0-	Provided primarily to residents.
16. Water Department	7,811,435	-0-	Expenses covered by water fees.

municipal expenses as explained below.

Expenses in the municipal budget that were allocated among different departments or reassigned to new categories included traffic engineering, the Commissioner of Public Safety, administration and purchasing, maintenance of public properties, public buildings, custodial services, pensions, and employee benefits.

Traffic engineering expenses were moved from public safety to public works as an expense dependent on traffic volume.

The Commissioner of Public Safety oversees the fire and police departments. For purposes of analysis, the expenses of his department were divided between the fire and police departments in proportion to their budgets.

In the city's budget, all purchases of supplies were included in the Public Properties Department in the category of Administration and Purchasing. These costs and expenses for administration and maintenance of public property, public buildings and custodial services were included with general government expenses.

Expenses for pensions were separated and included with the operating expenses of the departments of those personnel involved. Labor union pension payments were divided proportionately by employees in the departments having the majority of unionized employees. This allocation is explained further in Table XV.

Employee benefits including FICA, health insurance, unemployment compensation and the Public Employees' Health Service were allocated to separate departments based on average cost of $1,772 per employee per year. An actual breakdown of benefit costs by municipal department

was not available.

The selection of methods of fiscal impact analysis for determining the costs of services to Brown was based on the intended use of the methods available. The proportional valuation method was designed for projection of the costs of nonresidential development. In the following section, it was used to estimate the costs of general government services provided to Brown. A second method, case study, is applicable to both residential and nonresidential development. In this analysis, the interview format of this method was used to obtain information about the current costs of municipal services. The procedures and application of these methods are further detailed in the subsections which follow.

The Proportional Valuation Method of Fiscal Impact Analysis

The proportional valuation method of fiscal impact analysis was used to determine the costs of general government services to Brown. This method uses average costs as the basis for the current cost of services. The municipal costs for all nonresidential property are determined; then, a share of these costs is assigned to the facility in question. The method is based on the assumption that assessed values can be used as an indicator of use of municipal services.

The application of the method begins with the collection of data on municipal operating expenses attributable to non-residential (commercial and industrial) uses, total and nonresidential equalized real property value, and the number of total and nonresidential land parcels in the jurisdiction.

To calculate the municipal expenditures attributable to non-

residential uses, total municipal expenditures are multiplied by the proportion of nonresidential to total real property value. This product is multiplied by a refinement coefficient to produce expenditures associated with nonresidential uses. The refinement coefficients, provided by Burchell and Listokin (1980: 124), are based on data which showed the difference between the actual expenses on nonresidential property and those derived from a simple proportion. They are needed to adjust for the different requirements for services of residential and nonresidential development.

The second step of the analysis involves determining municipal costs that can be associated with a given facility. The municipal expenditures attributable to all nonresidential property are multiplied by the proportion of the projected value of the new development to total nonresidential real property value. A refinement coefficient derived from the proportion of the new property to average nonresidential property value is used to bring the results closer in line with actual values.

While this method is fairly simple to apply, it should be used with the understanding that it is based on refinement coefficients which were derived from a number of communities which differed in size, age, and proportions of commercial and residential development. Because individual communities may differ from the average of these communities, this method may not always provide an accurate determination of costs. Additionally, assessed values may not always be correlated with increased use of services.

The expenses for services for general government which the city

provides to Brown include central governing functions such as the Mayor's office, city courts and the city clerk; finance administration, and costs of debt service. An itemized listing of these expenses from information provided by the city budget is shown in Table XVI.

Figure II shows the data and calculations performed to obtain the expenditures for general government services attributable to Brown. The data on assessed valuations and numbers of parcels was obtained from the Providence City Assessor's Office. The equalization ratio was obtained from R. I. Department of Community Affairs. Figure II indicates an annual cost of $12,094 for general government services to the university.

There were several problems inherent in the application of this method to the estimate of costs for general government services provided to Brown. The charts for the refinement coefficients are ordinarily difficult to interpret. This was particularly true for this application of the method, where extrapolation was required. Secondly, Brown's own valuation of its real estate is based on construction costs and does not allow for depreciation. These values may not be comparable to those of industrial and commercial real property values. Brown's functions include a wider range of activities than most commercial and industrial establishments. Universities may require greater amounts of property than other commercial or industrial activities for accessory purposes, such as student dormitories. This may make comparisons based on property value less meaningful.[1] Additionally, some general government costs vary considerably from year to

Table XVI

Municipal Budget Expenses Classified as
General Government Expenses for Fiscal Impact Analysis

Department	Operating Expenses	Capital Expenses	Total Expenses
Mayor's Office	$ 304,089	$ --	$ 304,089
City Clerk	112,610	750	113,360
City Sergeant	17,870	--	17,870
Law Department	1,243,612	6,327	1,249,939
Prov. Municipal Court	161,708	--	161,708
Probate Court	79,455	--	79,455
Director of Finance	128,754	--	128,754
Controller's Department	375,267	--	375,267
Employees Ret. Admin.	106,023	--	106,023
Data Processing	580,742	--	580,742
City Assessor	298,167	725	298,892
City Treasurer	103,260	--	103,260
Recorder of Deeds	135,656	1,398	137,054
Prov. Human Relations Comm.	109,767	278	110,045
Planning & Urban Dev.	1,009,629	2,806	1,012,435
Prov. Charter Comm.	13,277	--	13,277
Public Buildings	112,906	--	112,906
Custodial Services	494,522	--	494,522
Administration & Maintenance of Public Properties	966,662	--	966,662
Purchasing	1,994,436	--	1,994,436
	8,348,412	12,284	8,360,696
Employee Benefits	583,236	--	583,236
	8,931,648	12,284	8,943,932
Debt Service	5,641,209*	--	5,641,209
	$14,572,857	$12,284	$14,585,141

*Includes all debt payments made for 1980-81 except those for schools and water bonds. Total debt service for 1980-81 was obtained from R.I.-D.C.A.'s Annual Reports of Local Government Finance because the city's debt expense was not broken down between categories. Principle payments of $350,000 and interest of $553,013 on Water Department bonds were eliminated from the R.I.-D.C.A.'s total debt expense of $6,544,222. These interest payments were calculated from Schedule 7 of the 1980-81 Annual Financial Report for Providence.

Figure II

Annual Costs for General Government Services Provided to Brown Determined by the Proportional Valuation Method

Data: (Complete data for the 1980-81 assessment is shown in the Appendix.)

1.	General government operating expenses	$ 14,572,857
2.	Total local equalized real property value	$1,946,139,600
3.	Total # land parcels	42,898
4.	Total nonresidential equalized real property value	$ 739,527,790
5.	Total # nonresidential land parcels	2,999
6.	Average equalized real property value	$ 45,367
7.	Average nonresidential equalized real property value	$ 246,591
8.	Property value of Brown University (based on the university's Annual Financial Report)	$ 154,356,000
9.	Average equalized real value of nonresidential parcels to average local parcel (7 divided by 6)	5.44
10.	Real property value of facility to average nonresidential real property value (8 divided by 7)	626

Step 1:

Total Municipal Expenditures Attributable to Nonresidential uses = Total Municipal Expenditures x Proportion of Nonresidential to Total Local Real Property Value x Refinement Coefficient

Nonresidential to Total Local Property = $\frac{\$739,527,790}{\$1,946,139,600} = .38$

Refinement Coefficient based on ave. parcel ratio of 5.44 = 1.04

= $14,572,857 x .38 x 1.04
= $ 5,759,193

Step 2:

Municipal Expend. Attributable to Brown = Municipal Expend. Attributable to Nonresidential Uses x Proportion of Facility to Total Local Nonresidential Real Prop. Value x Refinement Coefficient

= $5,759,193 x $\frac{154,356,000}{739,527,790}$ x Coefficient based on ratio of 626:1 (above)

= $5,759,193 x .21 x .01

= $ 12,094

year. High legal costs in 1980-81 were due to spending of $971,674 for settlement of claims. The amount budgeted for 1981-82 was only $400,000. Thus, it is difficult to estimate future expenses in this area.

In spite of these problems, the proportional valuation method was useful as a means of estimating the costs of general government services provided to Brown.

The Case Study Method of Fiscal Impact Analysis

The case study method was used to determine costs associated with Police Protection, Fire Protection and Public Works Services. This method was used as early as the 1930's. As a method of analysis, it assumes that local officials are the best source of information about the costs and excess or deficient capacities of local services. It is particularly useful for municipalities which are experiencing rapid growth or whose services are near the limit of their current capacities.

The costs incurred by cities for new development are estimated by determining the marginal costs of services. These costs depend on the current capacities of local services. If services are operating with excess capacity, the new services required by the development may be accommodated under present levels of expenditures. If they are operating with deficient capacities, the new services required will necessitate increases in personnel or capital equipment. These will result in significantly higher costs for the municipality.

Excess or deficient capacities in public services are determined from interviews with public officials. These interviews also provide

information on local standards for personnel and capital equipment, which may depend on population.

The procedure for performing the case study method includes several consecutive steps. First, local officials are contacted and the services and responsibilities of their departments identified. Then, operating or capital excess or deficient capacities for these departments are determined. Next, the population added by the new development is calculated. The service demand of this population is estimated through the use of service standards and capital ratios. The actual response of local departments to increased operating and capital requirements is determined from interviews with department officials. The cost of the actual expansion of operating and capital functions is projected for each department. Then, the total revenue generated by the development is projected and the cost-revenue relationship is determined by comparing total projected costs to revenue (Burchell and Listokin, 1980: 73-88).

While the case study method is generally accepted as a means of estimating municipal expenses incurred for new development, its results should not be considered an exact prediction of future expense levels. The service standards for municipal services were derived from a small sample of fourteen cities from each region. If local standards, wealth, or traditions differ significantly from those of these cities, the standards may not be applicable. In addition, the case study method depends heavily on interviewing local department heads. When describing the capacities of their own departments, it may be difficult for these individuals to present unbiased information.

Prior to the fiscal impact analysis, a land use survey was undertaken of the university's tax exempt properties. Information on property locations was obtained from the Providence Tax Assessor's Office. The detailed information obtained from this survey is included in the Appendix to this report.

In order to estimate the volume of some services provided to Brown, a study area was identified which included the majority of university property. This study area is shown in Figure III. The survey provided information on the types of development in the study area, the number of street lights and hydrants, and length of total miles of street. The amounts of property in the categories identified in the land use survey is summarized in Table XVII.

In order to obtain information concerning current operating and capital costs and excess or deficient capacities of local services, interviews were conducted with officials in the appropriate city departments for the services analyzed. Interviews were conducted with the Director of Public Works, two Associate Engineers in the Division of Sewer Construction and Maintenance, the Deputy Director of the Division of Public Safety of the Providence Fire Department, the Assistant Chief of the Providence Fire Department, the Administrative Assistant to the Chief of Police and the Manager of Brown University's Security Force.

The actual level of services utilized by Brown and the costs of current operating and capital expenses were determined from information obtained from the interviews. The operating and capital requirements of each department were calculated from Burchell and Listokin's service standards and capital-to-operating-expense ratios (1980: 73-88).

Figure III

Map Showing Brown University Study Area

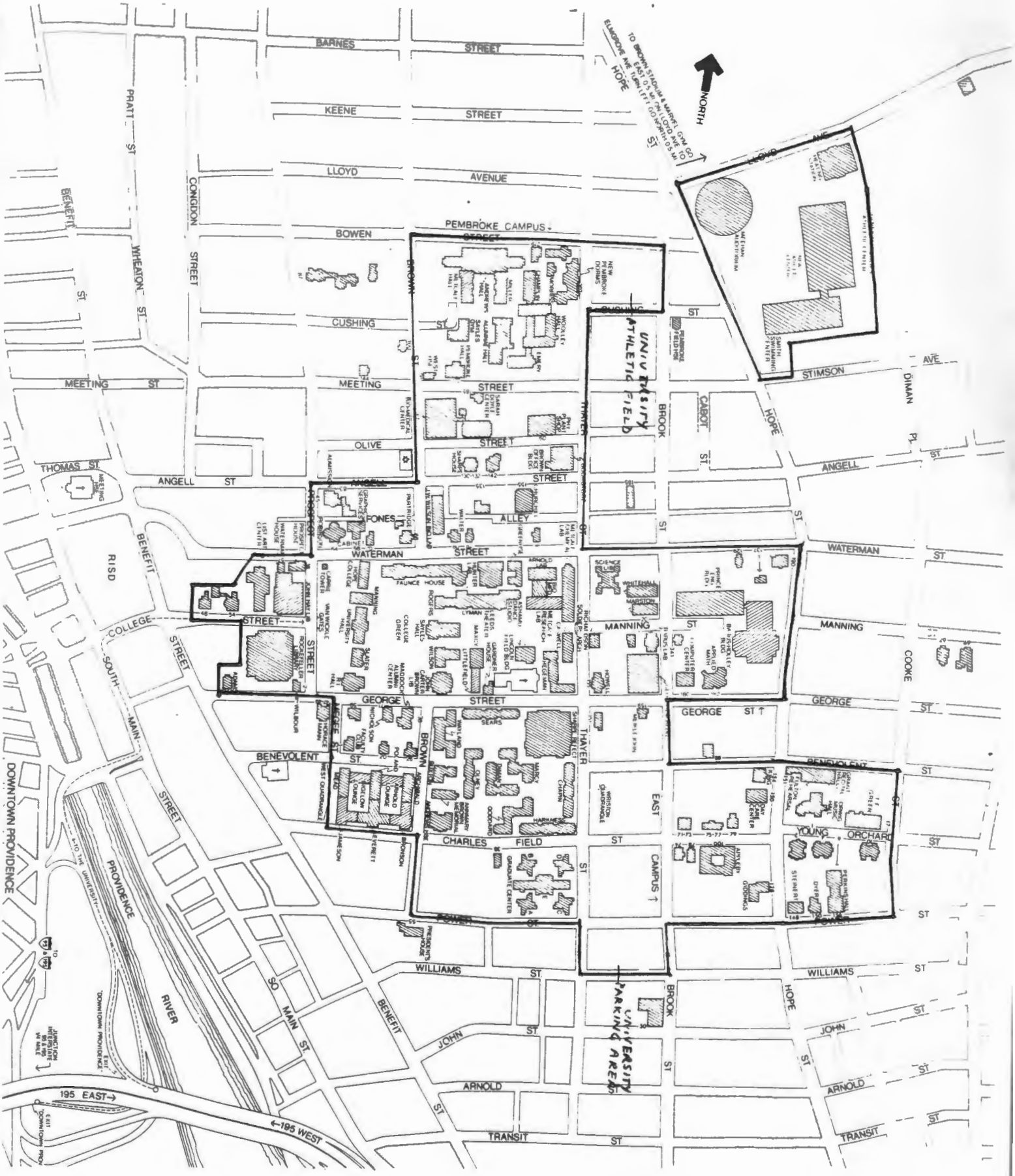


Table XVII

Summary of Land Use of Brown University: 1983

Type of Land Use	# Parcels	# Acres	% of Total
Education-related	36	35.24 A	27.2%
Building operations	5	1.52	1.2%
Residential	75	24.01	17.5%
Recreation	20	62.19	47.9%
Parking	47	5.16	4.9%
Other:			
Community services	4	.87	.7%
Fund raising	6	.81	.6%
Total	193	129.80 A	100.0%

These were compared to the actual levels of personnel and capital equipment described in the interviews to determine excess or deficient capacities in these departments together with officials' interview responses.

Analysis of Cost of Police Protection Provided to Brown

Although Brown University employs its own security force, some police protection is also supplied to the university by the Providence Police Department. To obtain information about the services of the two departments, interviews were conducted with the Manager of Brown's Security Force and the Administrative Assistant to the Chief of the Providence Police Department.[2]

Brown's patrolmen are licensed by the state as special officers to private institutions. Their role is somewhat restricted compared to that of municipal police officers. Although required by state law to respond to any criminal activity that they find on campus or while on patrol, their pursuit of criminals is hampered by a university policy which prohibits them from carrying guns. They do not normally handle traffic violations or accidents; these are routinely handled by the Providence Police Department.

In addition to normal police duties, Brown's patrol officers are responsible for security for university buildings. This involves locking all buildings and checking them periodically. According to the Manager of the Security Force, these duties occupy approximately 25 percent of the patrolmen's time. Brown's entire police department includes 35 employees. If 25 percent of their time is assumed to be taken by security, there would be the equivalent of 26 persons employed

full time on normal police work.

The resident population of Brown includes 6,689 students. The service standard for police employees for northeastern cities the size of Providence is 3.02 persons per thousand (Burchell and Listokin, 1980: 73). This would indicate a police department of 20 persons needed for a population the size of Brown. The actual number of police employees, 26, is slightly higher which suggests that the university's police force is adequate for its needs. The capital budget for the department was not available.

The Providence Police Department is available for back-up for Brown's police. However, since Brown's force appears to be adequate, most likely the Providence force would rarely be used for routine patrolling of the university area.

According to the Manager of Brown's Security Force, the Providence police are called in to Brown on approximately 100 incidents per year.

Precise information on the amount of personnel time and equipment used for police calls at Brown was not available, so these were assumed to take the same amount of time and equipment use as the average police call. According to the Administrative Assistant to the Chief, the city police received 250,000 calls in the last twelve months. Using total operating expenses of $11,109,248 which are shown in Table XVIII, this would be the equivalent of $44.43 in operating expenses per call. Capital expenses for the department are $140,294; or $.56 per call. This would produce operating expenses of $4,443 and capital expenses of $56 for the 100 calls received in a year at Brown.

A special situation that has required additional time and expense

Table XVIII

Municipal Budget Expenses Classified as Police Department Expenses for Fiscal Impact Analysis

	Operating Expenses	Capital Expenses	Total Expenses
Police Department Expenses	$10,069,102	$140,294	$10,209,396
Commissioner of Public Safety	60,239*	--	60,239
Employee Benefits	900,300	--	900,300
Pensions	79,607	--	79,607
Total	$11,109,248	$140,294	$11,249,542

*The Commissioner's Department oversees Police and Fire Department operations. This department's expenses were split proportionately between the two departments.

for the Providence Police Department in behalf of the university has been detective investigation in a recent murder of a Brown undergraduate. This is being investigated by two detectives on the Providence Police Department and two members of Brown's Security Force. Based on average weekly salaries of $440 with two men working full time on the case since July, 1983, this case has cost the Providence Police Department $17,600 in salaries to date. The Administrative Assistant to the Chief indicated that this has been the first incident of its kind at the university in about ten years. Therefore, to determine the average annual cost to the department, these detectives' salaries were divided by ten to produce an average annual cost of $1,760 per year.

The Providence Police Department currently employs 127 patrolmen for the East Side of Providence. Because this figure includes only patrolmen, the total number of employees would be higher. The East Side has a population of 34,762 including the census tracts considered part of this area by the Providence Department of Planning and Urban Development (U. S. Bureau of the Census, 1980). The service standard for police for this size population is 105. Therefore, the personnel levels of the Providence department are higher than the service standard and adequate for the current level of use.

According to Burchell and Listokin's capital-to-operating expense ratio of .026 for police departments in cities the size of Providence, capital expenditures for the Providence Police Department should be $263,000 for 1980-81. Actual capital expenses for 1980-81 were $140,294. However, the Administrative Assistant to the Chief

indicated that purchases for capital equipment were increased to $310,779 the following year because of revenue sharing funds allotted to the department.

The costs of police services provided by the city to Brown are summarized in Table XIX. The Providence Police Department has adequate levels of staff to support additional population growth. Capital expenses were increased in 1981-2 to allow for additional purchases of equipment. Currently, no staff or capital increases are planned. Therefore, expected costs for police service to Brown in the immediate future should continue at current levels.

Analysis of Cost of Fire Protection Provided to Brown

The Providence Fire Department provides essentially all fire protection f or Brown. Fire alarms are connected to a dispatching center operated by the Division of Communications of the Department of Public Safety. Although this department provides some services to the Police Department for radio repair, it primarily serves to coordinate Fire Department Operations. Therefore, its expenses were included with those of the fire department for analysis.

Information about fire department services was provided by interviews with the Deputy Director of Public Safety and the Assistant Chief of the Providence Fire Department. The Chief Dispatcher of the Division of Communications provided information on the cost of dispatching various units.[3]

Brown installs and maintains its own alarm systems which are connected to the city's dispatching office. There are 69 city fire boxes on the campus. The university pays the city an annual fee of $300 for

Table XIX

Annual Costs to the City of Providence for Police Protection Provided to Brown University

Category	Amount
Operating expenses - normal	$4,443
- special detective work	1,760
Capital expenses	56
Total	$6,259

their use. According to the Deputy Director, this fee was based on charges for fire protection to universities in other cities.

The City of Providence leases fire hydrants from the Providence Water Supply Board. They are rented at $125 per hydrant per year. There were 25 hydrants in the Brown study area, which indicated an annual expense of $3,125.

According to the Deputy Director, the number of calls for fire service from Brown has increased significantly over the last few years. The reason for this is the increase in the use of smoke-sensitive fire alarms at Brown. In some cases, these alarms were installed in hallways near the doors to dormitory rooms, where they are easily set off by food cooking or burning on stoves inside the rooms.

In the first ten months of 1983, there were 206 calls from Brown for fire service. There were 8,619 calls during this period from the entire city. This is the equivalent of 248 calls per year from Brown[4] and 10,343 from the city. None of the calls from Brown required hose to be laid down, which involves significant expenses for the fire department. For each of the calls at Brown, two engines, a ladder and a chief were dispatched. According to the Chief Dispatcher, the costs for each call were approximately $100 for each of the major units dispatched, or $300 per call. These charges include operating and capital expenses of both the Fire Department and Division of Communications. The relatively high cost for responding to what were usually false alarms led the department to reduce the amount of equipment dispatched to each call. As of November 1, 1983, only one engine and a chief were dispatched to alarms at the Wriston and West dormitory quadrangles, at a

cost of approximately $100 per call. This change is not expected to affect overall safety at the university because of the large number of false alarms.

Because the majority of calls occur at the West and Wriston quadrangles, the cost of calls to these areas will be used as the average cost of fire calls at Brown.

The 248 calls received from Brown per year would result in an annual operating expense of $24,800 for the city's fire department, based on only one truck responding to the calls. According to the Deputy Director, Brown's fire alarm system is now almost completely installed, so costs are not expected to be affected by further increases in the alarm system.

Capital expenditures for fire department services for 1980-81 were $374,521 as shown on Table XX. This exceeds the amount of $159,761 suggested by standard capital-to-operating expense ratios. The department has recently replaced some antiquated equipment. In 1980-81, a new engine was purchased for the Brook St. station at a cost of $225,000. According to the Assistant Chief, the costs of capital equipment replacement for the Fire Department and Division of Communications are included in the approximate cost of $100 per unit to answer alarms. Therefore, the cost of purchasing this unit was not included separately in estimating Brown's costs. According to the Assistant Chief, no additional major equipment is expected to be purchased in the immediate future.

The Providence Fire Department employs a total of 531 persons. This number of personnel is far in excess of the service standard of

Table XX

Muncipal Budget Expenses Classified as Fire Department Expenses for Fiscal Impact Analysis

	Operating Expenses	Capital Expenses	Total Expenses
Fire Department	$10,636,172	$342,120	$10,978,292
Division of Communications	909,798	32,401	942,199
Commissioner of Public Safety	65,258*	--	--
Employee Benefits	941,061	--	--
Pensions	139,018	--	--
Total	$12,691,307	$374,521	$13,065,828

*See explanation under Police Department.

420 employees for a department for a city the size of Providence. The Assistant Chief indicated that he felt current levels of personnel were adequate for the needs of the city and that no expansion would be necessary in the immediate future.

Table XXI shows current operating expenses associated with providing fire protection services to Brown University. The number of employees exceeds the service standard, and the Assistant Chief has indicated that expansion of the department in the immediate future is unlikely. Therefore, the costs of the department's services can be expected to continue at their current level in the near future.

Analysis of Cost of Public Works Services Provided to Brown

Public works services which the city extends to Brown include street repair, street cleaning, snow removal and cleaning of storm drains and catchbasins. Sidewalk repair is no longer performed by the city and is the responsibility of private property owners. Street cleaning and snow removal are contracted to independent operators.

Information about the city's public works services was obtained from interviews with the Director of Public Works and Associate Engineers in the Division of Sewer Maintenance and Construction.[5]

The Director of Public Works indicated that personnel and equipment used for street repair and cleaning depend on the volume of traffic on a particular street. According to the Director, the mix of major and minor streets and traffic volumes in the Brown study area are similar to those of the city as a whole. All costs associated with street repair and maintenance, as well as snow removal, could therefore be determined for this area based on the average costs per mile of providing

Table XXI

Annual Costs to the City of Providence for Fire Protection Provided to Brown University

Category	Amount
Operating and capital expenses for answering calls at Brown	$24,800
Cost of rental of fire hydrants	3,125
Less: fee received from Brown for fire boxes	(300)
Total	$27,625

these services to the city. As shown in Table XXII, the annual operating budget for the department of Highway and Environmental Control (street repair) for 1980-81 was $4,782,280. This would result in average expenses of $12,925 per mile for street repair based on a total of 370 miles of streets in Providence. There are three-and-one-half miles of streets in the study area, so annual costs there would be $45,238.

According to the Director, the capital equipment for street repair receives approximately the same amount of use on streets throughout the city. Therefore, its costs, like operating expenses, can be allocated to the study area based on the average cost per mile. Using total capital expenses of $586,780 for 1980-81, the average annual cost per mile for capital equipment consumed is $1,585.89. This would result in costs of $5,551 for capital equipment used in the study area.

The Department's Division of Sewer Construction and Maintenance performs cleaning and maintenance of sewer catchbasins for the city. According to an Associate Engineer, twenty men out of the total of thirty employed by the division are primarily responsible for cleaning catchbasins. Using this figure and the average cost for laborers and truckdrivers for the department, there is a $280,080 cost for the department for personnel to clean catchbasins. According to one Associate Engineer, there are 12,000 catchbasins in the city. The average annual operating cost for cleaning catchbasins would be $23.34 per unit. Using an average of 32.4 cathcbasins per mile, the number of catchbasins in the study area is estimated at 114. The average annual operating costs would be $2,661 for the study area.

Table XXII

Municipal Budget Expenses Classified As

Public Works Expenses for Fiscal Impact Analysis

Costs Allocated to Streets By Average Cost Per Mile:	Operating Expenses	Capital Expenses	Total Expenses
Public Works Administration	$ 262,331	$ 2,524	$ 264,855
Engineering & Administration	370,943	--	370,945
Street Cleaning	610,769	--*	610,769
Highway and Environmental Control	1,646,906	493,388**	2,140,294
Snow Removal	342,864	--*	342,864
Garage Maintenance and Equipment	252,084	--	252,084
Traffic Engineering	384,151	81,083	465,234
Purchasing	423,510	--	423,510
Employee Benefits	474,961	--	474,961
Labor Union Pensions***	352,283	--	352,283
Labor Union Legal Fund***	84,986	--	84,986
	4,782,280	586,780	5,369,060
Other Costs:			
Street Lighting	1,180,000	--	1,180,000
Sewer Construction and Maintenance	688,428	90,868	779,296
Total	$6,650,708	$677,648	$7,328,356

*These services are contracted to independent contractors who purchase and maintain their own equipment.
**Includes $335,000 in leased equipment.
***The city's payments to union pensions include coverage for employees in the public works and water departments and the parks section of the public properties department. The breakdown of these departments into union and non-union employees was not available, but the great majority of employees in these departments are union members. The pension cost allocated to the Public Works Department is based on the proportion of employees in these three sections employed in Public Works.

Capital equipment for sewer maintenance and construction is used for other functions in addition to cleaning catchbasins. The cost for equipment used for catchbasins was estimated using the proportion of personnel in this area. This resulted in a capital expense of .66 of the division's capital expenditures, or $55,072. This is equivalent to an average annual cost of $4.59 per catchbasin. This would produce annual costs of $523 for capital equipment for sewer maintenance in the study area.

The City of Providence leases its street lights from Narragansett Electric Co. There are 134 street lights (4,000 lumens) in the study area. At an annual rental of $48.60 per year, the annual cost for street lights in this area would be $6,512.

There are 170 personnel employed by the Department of Public Works for street repair. The service standard for a city the size of Providence is 154 employees. According to the Director, the number of street repair and sewer cleaning personnel may be increased in the near future because of increases in commuters and construction in downtown Providence. However, the amount of increase in personnel or equipment has not yet been determined.

Purchases and leases of capital equipment for street repair for 1980-81 were $493,388. The standard for Providence based on capital-to-operating expense ratios is $551,941. One reason that capital expenses are below standard is that there is a large percentage of very old trucks in the department's fleet. The Director expects to purchase six new trucks next year to replace several of these and others whose leases have run out. This is expected to cost the department $500,000

in 1983/84. If these costs are allocated according to cost per mile, this would result in an average cost of $4,730 for the study area.

The annual expenses for public works services associated with the university are summarized in Table XXIII. These include current expenses as well as the projected expense of new trucks for the department.

There were several problems in the application of the case study method to determining the costs of services to Brown. The allocation of costs of labor pensions and employee benefits to different departments was based on average costs per employee, and therefore was only an approximation of actual costs of benefits for different departments. Information on personnel and capital costs for police calls and sewer catchbasin cleaning were also based on average costs and may not reflect individual variations at Brown. In estimating the costs of providing each of the services analyzed above, assumptions made regarding the unit costs of providing services and personnel costs may not provide an exact measure of the costs of these services. However, they indicate approximate values which are useful in determining the general level of costs of services to Brown.

Significance of Results

The total costs of municipal services provided to Brown are summarized in Table XXIV.

According to Burchell and Listokin, typical public safety costs for commercial properties average 75 percent of total municipal service costs. Brown's relatively low public safety costs may reflect provision of their own police protection. Brown's public works expenses, on the

Table XXIII

Annual Costs to the City of Providence for Public Works Services Provided to Brown University

Current Expenses:	Amount
Operating expenses:	
Street maintenance and repair	$45,238
Sewer maintenance (cleaning catchbasins)	2,661
Street lighting	6,512
Total	54,411
Capital expenses:	
Street maintenance and repair	5,551
Sewer maintenance	523
Total	6,074
Projected capital expense for new trucks in '83-'84	4,730
Total	$65,215

Table XXIV

Summary of Costs of Municipal Services Assignable to Brown University

	Amount	Percent of Total	Typical Division of Public Service Costs for Commercial Properties*
General Government Expenses	$ 12,094	10.9%	6%
Police Department Expenses	6,259	5.6%	75%
Fire Department Expenses	27,625	24.8%	
Public Works Expenses	65,215	58.7%	15%
Total	$111,193	100.0%	96%

*Burchell and Listokin, The Fiscal Impact Handbook, p.127

other hand, are considerably higher than the average for commercial property.

Brown's property holdings may be larger than that of the average commercial firm and may have a relatively greater amount of street frontage, resulting in relatively high public works costs for the university.

Unfortunately, it is difficult to estimate the margin for error in these calculations. This would differ from one area of expense to another, depending on the relative knowledge of the persons interviewed. As noted by Burchell and Listokin, information obtained by the Case Study method is the most reliable estimate of actual expenses of any of the fiscal impact methods because it provides information specific to the city and development being investigated. In the application of the Proportional Valuation method to estimating the costs of General Government, the calculations produced refinement coefficients which were beyond the range of those provided by the chart. For these reasons, there is most likely a substantially greater margin for error in the estimate of general government than in the other estimates of service costs.

The costs of services to schools was not used to estimate the costs of services to other types of exempt institutions because these most likely use considerably different amounts and types of services. However, schools are the largest private owner of exempt property, with 33 percent of exempt land and costs of services provided to schools, and would therefore be significant in the total cost of municipal services to exempt institutions.

There are considerable differences among exempt educational institutions in Providence which affect the volume of municipal services they consume. The students of some schools are primarily city residents; others serve many nonresidents and therefore provide dormitories, which require additional fire protection services. Except for Brown, other institutions do not provide their own security force. Several schools do not provide their own solid waste disposal. These factors would result in higher total costs for services.

If Brown's costs were used to estimate the costs of services to all schools, this would produce a conservative estimate of these costs. Using the costs of municipal services to Brown, shown in Table XXIV, indicates costs of $856.65 per acre. If the costs of services to all schools were the same as those of Brown, the total cost of these services to the city would be $294,942.

From the perspective of the city's total budget, the amount of costs extended to educational institutions is not particularly significant. The city's total expenditures for 1980-81 were $139,824,277. Expenditures for costs to educational institutions of $294,942 would be less than one percent of this amount. However, as noted above, this is most likely a conservative estimate of the costs of services to private schools. Further study is needed to produce a more precise estimate of these costs.

The costs of municipal services also represent only a small fraction of the university's budget. With total revenues of $98,474,000 for 1981, the cost of municipal services calculated above would be approximately one-tenth of one percent of the university's budget.

The relatively small cost of services to exempt institutions suggests that these institutions do not have a significant impact on the finances of their communities. Therefore, proposed alternatives to tax exemptions compensating communities for these costs would not have significant effects on the volume of municipal expenditures.

During the investigation, several issues arose which were related to the effectiveness, rather than the cost of municipal services delivery. Brown's extensive use of smoke-sensitive alarms in its dormitories may provide a high level of safety for students, but this policy initially resulted in high costs to the city for the units dispatched. The city subsequently reduced its costs by reducing the numbers of units dispatched to each alarm. Although the Deputy Director of the Division of Communications believed that this policy would not interfere significantly with the students' safety, such policies of changing the amount of equipment sent to a fire should be monitored closely to maintain adequate protection in case of a serious fire.

A second problem in service delivery exists in the conflicting policies governing the Brown security force. There have been a number of violent incidents such as armed robberies in the area adjacent to Brown. The employee credit union at Brown was held up during the last eighteen months. According to university policy, patrolmen are not allowed to carry guns. However, according to the Manager of the security force, armed patrolmen are needed to deal adequately with these incidents. The Manager of Brown's force sees a need for his patrolmen to become more involved in community police work in order to better protect the Brown community. He sees this involvement requiring higher

levels of cooperation between the Brown and Providence police.

Communication between university administrators and the Providence Fire Department could help to assure effective fire safety without excessive costs for the city Fire Department. Cooperation is definitely needed between the Brown and Providence police forces to provide adequate security for students and if there are increased needs for armed protection in the community.

The following chapter will summarize the findings of this report and contain conclusions drawn from the findings.

Notes

Chapter III

1. It would have been desirable to verify these results by using another method of fiscal impact analysis. The only other method suitable for nonresidential development was the employee anticipation method. Multipliers for this method are provided in ranges of 50,000 for cities of up to 150,000 population. Providence, with a population of 156,904, was 13 percent above the highest range. This method was experimentally applied to calculation of general government costs for Brown using the multipliers for cities of 150,000 population, but resulted in an unusually high cost of $67,311 for general government services. The proportional valuation method was therefore considered the only appropriate method for this case.

2. The individuals interviewed were Major Walter J. Clark, Administrative Assistant to the Chief of the Providence Police Department and Glen J. Normile, Manager of the Brown Security Force.

3. The Deputy Director of the Division of Communications of the Department of Public Safety was Larry Donahue. Chief Dispatcher of the Division of Communications is Captain Trainor. The Assistant Chief of the Providence Fire Department was Gilbert MacLaughlin.

4. These 206 calls were for the months of January through October. According to the Deputy Director, there are very few calls made in July and August. The calculation of average calls per month was based on 206 calls received over an eight month period.

5. The Director of the Department of Public Works is Frank Tibaldi. Associate Engineers Alex Scungio and Thomas Grieco of the Department of Public Works were also interviewed.

Chapter IV

Conclusions

Early interest in property tax exemptions focused on their impact on property tax revenue. Granting exemptions to some properties because of ownership or use not only reduced potential tax revenue from those properties but also reduced the amount of taxable land in a given jurisdiction. Recent studies have stressed the value of exemptions because they encourage the success of institutions which provide benefits to the community. However, because of the costs of services to exempt institutions, these properties may have negative fiscal impacts on their communities.

Post World War II social and economic trends resulted in the development of financial problems in many cities. Population declines and loss of manufacturing resulted in erosion of the tax base, while the increase in poor and elderly in urban populations led to increased expenditures for human services.

By the 1970's and 1980's, expenditures grew at a faster rate than revenue in many urban centers. This resulted in the development of fiscal stress, or inability to provide needed services, in a growing number of cities.

Studies of tax-exempt properties have shown that they are generally concentrated in central cities. Their fiscal impacts may be more significant in these than in other locations because of the prevalence

of fiscal stress in urban areas.

This project began with an investigation of the current financial condition of Providence. Post World War II trends of population decline, loss of manufacturing and changes in composition of population were identified. Recent financial trends have included more rapid growth of expenditures than revenue. The city has recently suffered from deficits and cash shortages.

There has been recent growth in the acreage of exempt property in the city. The largest amount of privately owned exempt land is owned by private schools. The largest property owner in this group is Brown University. The university was chosen as a case study for investigation of the fiscal impacts of exempt institutions in the City of Providence. In order to assess these impacts, the cost of municipal services to the university was measured using several methods of fiscal impact analysis.

The costs of services provided to Brown were found to be approximately $111,000 per year. Based on this figure, the costs of municipal services to all of the city's private schools are estimated to be approximately $295,000 per year. This figure is less than one percent of the city's annual budget for the year for which these costs were calculated. The cost of municipal services to exempt schools can therefore be considered to have relatively minor impact on the city's expenditures and, therefore, on its overall finances.

However, these costs should not be used as an indicator of costs for services to all exempt properties. There is considerable variation among the types of exempt institutions and the amount of services

consumed may vary significantly. Studies of the costs of services to other exempt institutions are needed before conclusions can be drawn regarding the total cost of services to exempt institutions. However, this study suggests that these costs may not be significant.

While municipalities must cover the cost of services to exempt institutions, they also receive benefits from the presence of these institutions. Large exempt properties, such as universities and hospitals, may produce valuable economic spin-offs such as industry related to medical research or commercial activities serving their client or student populations. Their indirect benefits to communities include increases in employment income, sales and property taxes, cultural opportunities as well as others. While writers on exempt properties indicated that these benefits may also be provided by taxable property, there have been no comparisons of the amounts of spin-off activities for taxed and exempt properties. Further investigation in this area is needed. To determine the full impact of exempt institutions on their communities, it would be necessary to weigh the costs of municipal services against the services provided to the local population and the spin-off benefits, both of which are difficult to measure. This study suggests that the costs of services to these institutions may be relatively low and may be outweighed by their benefits. However, further study is needed before definite conclusions can be drawn. These studies should be undertaken before any strategies are implemented which would require payments from exempt institutions to cover the cost of municipal services.

An additional problem which arose during this study was the relationship between university and city departments who are involved

in the delivery of services to the university community. Increased cooperation and communication between these departments concerning the methods of service delivery would be desirable. Such cooperation could avoid situations such as the poorly placed fire alarms, which initially resulted in high costs to the city, or inadequate security for students, which may result from unarmed officers on the Brown University security force. Achieving greater cooperation in these areas, however, will depend on the inclinations of both city and university personnel.

Taxable Land in Providence: June, 1981

State Code	Land Use	Assessed Values: Land	Building	Total	# Parcels
1	Residential-Single Family	$ 63,599,190	$213,169,710	$ 276,768,900	14,242
2	Residential-2-6 Family	40,570,680	173,261,720	213,832,400	14,200
3	Residential-Apts.,over 6 fam.	8,154,460	41,143,150	49,297,610	1,272
4	Comm/Residential Comb.	1,558,210	5,764,530	7,322,740	265
5	Commercial I	3,417,410	6,570,430	9,987,840	720
6	Commercial II	58,013,600	153,745,390	211,758,990	1,330
7	Industrial	28,204,210	81,222,890	109,427,100	624
8	Estate	825,480	2,410,740	3,236,220	28
10	Utilities/RR	15,481,880	81,877,200	97,359,080	161
12	Miscellaneous	8,568,840	3,933,130	12,501,970	1,737
13	Vacant-Residential	15,527,750	1,472,500	17,000,250	7,076
14	Vacant-Comm. & Indus.	10,459,630	889,540	11,349,170	1,050
23	Residential-Condo.	104,170	3,624,830	3,729,000	146
24	Commercial-Condo.	- 0 -	1,651,060	1,651,060	41
98	Other	- 0 -	36,450	36,450	2
	Total	$254,485,510	$770,773,270	$1,025,258,600*	42,894

*Equalized real property value = $\frac{\$1,025,258,600}{.5722}$ = $1,791,783,600

APPENDIX

Land Use Inventory - Brown University

(1983)

Key: A - Alumnae and fundraising activities

C - Community Services

E - Education-related

O - Building Operations

P - Parking

R - Residential

Y - Recreation and Open Space

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
7/3		Elmgrove Av.	-	Y	Stadium & Fields				528,136	
7/8	425	Elmgrove Av.	2	Y	Marvel Gym				160,178	
7/88	22	Aldrich Ter.	-	Y	Playing Fields				6,928	
7/89	28	Aldrich Ter.	-	Y	"				4,449	
7/90	32	Aldrich Ter.	-	Y	"				5,682	
7/91	33	Aldrich Ter.	-	Y	"				3,960	
7/92	29	Aldrich Ter.	-	Y	"				3,600	

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
7/93	25	Aldrich Ter.	-	Y	Playing Fields				3,600	
7/94	19	Aldrich Ter.	-	Y	"				4,150	
7/357		Elmgrove Av.	-	Y	"				24,556	
8/144	44	Phillips St.	2	R					5,380	
8/265	210	Doyle Av.	2	E	Astronom. Observvtry.				37,430	
8/267	206	Doyle Av.	3	R					5,000	
10/42	28	Olive St.	5	E	BioMed Building				45,674	
10/263	118	Angell St.		P			37		13,200	
10/266	130-132	Angell St.	2	E	Sharpe Building				14,400	
10/268	142	Angell St.	3	E	History Department				14,400	
10/279	60-64	Olive	2	O	Plant Operations				10,099	
10/280	52-58	Olive	-	P			16		8,012	
10/282	48-50	Olive		Y	Open Space				3,709	
10/284	84	Brown		P			37		11,691	
10/291	185	Meeting	1	C	Women's Center				10,805	
10/294	195-7	Meeting		P			40		4,711	
10/324	156	Meeting	2	R					4,588	
10/332	100	Brown	2	R					4,964	
10/333	91	Brown	3	R					3,433	
10/337	111	Brown	2	R					8,452	
10/344	95	Bowen	3	R					3,965	

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
10/347	85-87	Prospect	3	R					46,396	
10/353	93	Brown	3	R					3,607	
10/356	131-5	Brown	2	R					5,635	
10/357	181	Bowen	3	R					4,881	
10/551	117-129	Brown	3	R					15,536	
10/554	144	Meeting	3	R					7,805	
10/574	193	Meeting		Y	Open Space				5,415	
10/575	72-4	Olive	3	R					3,644	
10/580	219	Bowen	3	R					5,381	
10/619	101-9	Brown	3	R					4,491	
10/644	101-9	Brown	3	R					1,331	
10/649	99	Brown	4	R	Pembroke Dorms.				262,432	
			5	R	"					
			3	R	"					
			3	R	"					
			3	R	"					
			3	R	"					
			3	R	"					
			3	R	"					
			2	Y	Sayles Gym					
			2	E	Pembroke Library					
			1	E	Alumnae Hall					
11/110	310	Lloyd Av.	1	O	Heating Plant				16,245	
11/115	195	Angell	2	Y	Meehan Auditorium				1,634,244	
			1	Y	Athletic Center					
				P			435			

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
11/115	195	Angell								
(cont.)			2	Y	Swim Center					
				P			35			
			1	O	Plant Operations					
				Y	Tennis Crts. & Fields					
11/121	295	Lloyd		Y	Playing Fields				24,249	
12/154	83	Angell	3	E	Admissions Office				18,653	
12/159	121	Angell	5	E	Sol Koffler Building				34,882	
12/161	129	Angell	3	R					4,652	
12/162	135	Angell		P					9,304	
12/164	143	Angell		P					4,652	
12/165	147	Angell		P			11		4,652	
12/167	155	Angell		E					13,956	
12/177	195	Angell	3	E					4,652	
12/191	96	Waterman	3	Y	Credit Union				3,452	
12/194	90	Waterman		P			20		5,521	
12/197	84	Waterman	2	E					4,652	
12/198	82	Waterman	2	E	Norwood House				4,652	
12/201	76	Waterman	3	E	Partridge Hall				10,192	
12/203	70	Waterman	3	E					4,663	
12/204	68	Waterman	3	O	Printing Center				9,326	

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
12/205	64	Waterman	3	E	Robinson Hall				13,990	
12/217	48	College	2	E	Classics Dept.				7,980	
12/218	54	College	3	E	Philosophy Dept.				16,800	
12/219	58	College		Y	List Art Center				6,389	
12/220	62	College	5	E	List Art Center				5,250	
12/222	72	College	5	E	John Hay Library				44,800	
			3	E	Prospect House					
			3	E	Waterman House					
12/228	51	Waterman	3	E	Elmer Blisten Hse.				6,143	
12/235	127	Angell		P			33		4,652	
			3	R						
12/239	12	George	3	E	Adams House				5,861	
12/241	22-36	George	5	E	Rockefeller Library				87,420	
				P			37			
			3	E	Wilbour					
12/249		Main Quad.		Y	Carrie Tower				603,196	
			2	Y	Manning Chapel					
			4	R	Hope College					
			3	Y	Faunce House					
			4	E	University Hall					
			4	E	Slater Hall					

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
12/249		Main Quad.								
(cont)			2	E	R.I. Hall					
			1	E	John C. Brown Library					
			3	E	Wilson Hall					
			2	E	Sayles Hall					
			2	E	Rogers Hall					
			3	E	Lyman Hall					
			3	E	Medical Research Bldg.					
			3	E	Metcalf Research Lab					
			4	R	Caswell Hall					
			3	R	Hegeman Hall					
			3	E	Lincoln Field Bldg.					
			2	R	Gardner House					
			4	E	Maxcy Hall					
			4	R	Littlefield Hall					
			3	Y	Faunce Theatre					
			2	Y	Leeds Theatre					
			4	E	Hunter Building					
			1	E	Plant Environ. Lab					
			3	E	Arnold Biology Lab					
12/262	159	George	2	E	Math.Dept.				7,071	

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
12/271		Brook		P			37		28,842	
			7	E	White Hall					
12/272		Brook	2	E	Marston Hall				60,015	
			15	E	BioMed Building					
12/289		Brook	2	E	Faculty Offices				81,138	
			2	E	Barus Computer Lab					
			4	E	GeoChem Bldg.					
			3	E	Howell House					
			4	R	Richardson House					
12/295	66-8	Benevolent	3	R					3,905	
12/306	141	Thayer	1	E	Gould Computer Lab				4,603	
12/309	15	George		Y	Open Space				6,562	
12/319	151	Thayer	3	E	Kassa Computer Building				10,218	
12/322	71	George	3	E	Nicholson House				9,736	
12/326	1	Magee	3	Y	Faculty Club				4,036	
12/327			1	Y	"				3,966	
12/333	45-9	George	3	E	Horace Mann House				6,368	
12/334	43	George		P				35	5,577	
12/335	41	George	2	E					5,548	
12/337	3	Magee	2	Y	Faculty Club				4,140	
12/340	59	George	2	E	Religious Studies Dept.				7,381	

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
12/341	67	George	2	R					7,436	
12/343	77	George	3	A	Alumni Center				14,197	
12/344	26	Benevolent	3	A	Brown Fund				5,367	
12/345	22	Benevolent	3	R					3,863	
12/346	20	Benevolent	3	A	Donor Programs				7,786	
12/370	155	George	3	E					12,085	
12/372	70-72	Benevolent	2	R					4,336	
12/373	74-80	Benevolent	3	R					6,988	
12/378	5	Benevolent	3	R					4,688	
12/402	75	Benevolent	2	R					2,973	
12/404	69	Benevolent		P			10		1,722	
12/405	73	Benevolent		P			10		1,443	
12/415	163	George	2	E	Judaic Studies				4,887	
12/436	310	Brook		R					3,996	
12/439	51	Charlesfield	2	R					5,300	
12/440	55	Charlesfield	3	R					5,000	
12/441	117-9	Thayer	2	R					5,232	
12/443	57	Charlesfield		P			15		9,185	
12/444	59	Charlesfield	3	R					9,204	
12/446	276-82	Brook	3	R					5,085	
12/447	61	Charlesfield		P			10		4,500	

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
12/451	71	Benevolent		P			7		1,719	
12/452	88	Waterman		y	Walkway - Open Space				4,232	
12/455	15-25	Charlesfield		R	Wriston Quadrangle				90,366	
				R	"					
				R	"					
				R	"					
				R	"					
				R	"					
				Y	"					
				Y	"					
12/457			1	R	Sharpe Refectory				56,570	
12/458	33	Charlesfield	3	Y	Andrews Health Bldg.				61,186	
			2	E	Annmary Brown Library					
			3	E	Olney Hall					
13/12	165-7	Lloyd	3	R					9,140	
13/13				P			15		2,450	
13/15	240	Bowen	3	R					3,694	
13/16	315-7	Thayer	3	R				9	6,981	
13/40	230	Hope		Y	Athletic Field				76,864	
			2	A	Brown Club of R.I.					
13/81	129	Waterman	3	R					5,529	
13/85	137	Waterman	3	E					22,996	
				P			21			
13/88	355-9	Brook	2	E	Prince Bldg.				143,143	
			8	E	Barus-Holley Building					

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
13/93	257-9	Bowen		-	Vacant Lot				6,625	
13/100	-	(no street access)		Y	Open Space				16,141	
13/110	315	Brook	3	E	Computer Center				34,833	
13/129	88	Benevolent	3	C	WBRU				4,566	
13/130	86	Benevolent	3	R					4,549	
13/136	101	Benevolent		P			18		7,048	
13/138	154	Hope	3	R	King House				8,890	
13/140	71-3	Charlesfield	3	R					9,000	
13/142	75	Charlesfield		Y	Family Services, Inc.				21,772	
13/144	79	Charlesfield	3	R					14,845	
13/145	105	Benevolent	3	E	Orgis Music Hall				55,312	
			2	E	Grant Recital Hall					
13/147	21	Cooke	2	E	Theodore E. Green Bldg.				22,300	
13/169	148	Hope St.	1	C	Brown-Fox Pt. Day Care Ctr.				10,902	
13/173	69	Manning	3	R					17,565	
13/204	147	Hope		Y	Tennis Court				14,002	
13/208	307	Thayer	2	R					2,730	
13/212	67	Manning	2	R					11,310	
13/223	84	Benevolent	3	R					6,558	
13/242		(no street access)		Y	Open Space				6,446	
13/250	251	Bowen	3	R				9	5,714	
13/251	247	Bowen	3	R				12	6,620	

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
12/252	341	Brook		Y	Open Space				7,034	
13/254				Y					5,160	
13/259	89	Charlesfield		C	Brown-Fox Pt. Day Care	Ctr.			11,809	
16/2	56	Charlesfield		P			18		5,000	
16/147	58-60	Charlesfield		P			18		7,500	
16/155	97-103	Thayer		P			20		5,814	
16/164	112	Charlesfield		P			30		7,906	
16/175	70-72	Charlesfield	3	R					4,794	
16/176	62-4	Charlesfield		P			10		7,500	
16/177	110-116	Power		P			30		10,090	
16/190	67	Thayer		P			17		5,411	
16/191	105	Power		P			17		4,282	
16/192	107	Power		P			17		4,282	
16/195	109	Power		P			17		4,282	
16/198	89	Power	3	R					5,075	
16/222	175	Williams	3	R					3,624	
16/240	8	John		P			8		2,780	
16/253	194-208	Brook	2	O	Warehouse				10,458	
16/255	58-60	John	3	R					5,008	
16/437	55	Power	2	R	President's House				29,260	
16/493	111	Power		P			17		4,283	

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
16/494	113	Power		P			18		5,298	
16/495	134	Williams		P			18		5,906	
16/496	132	Williams		P			18		4,500	
16/497	130	Williams		P			18		4,500	
16/498	128	Williams		P			18		4,499	
16/499	126	Williams		P			18		4,498	
16/500	124	Williams		P			18		5,854	
16/517	116	Power	3	R					3,667	
16/520	74-76	Charlesfield	3	R					5,417	
16/532	249-51	Brook		P			15		5,066	
16/533	245-7	Brook		P			15		4,978	
16/538	128	Hope	2	E					19,074	
16/541	44	John	2	A	Warehouse				1,972	
16/549	253	Brook	3	R					5,161	
16/552	78-80	Charlesfield	3	R					5,061	
16/555	91-3	Thayer		P			29		5,406	
16/556	85	Thayer		P			29		5,406	
16/557	75	Thayer		P			29		5,808	
16/558	110	Power		P			29		5,017	
16/564	10	John		P			3		2,653	
16/568	108-10	Charlesfield	2	R					5,029	
16/588	66-8	Charlesfield	3	R					4,795	

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
16/596	77-9	Williams	3	R					14,878	
16/597	76-92	Brook	5	R	Graduate Dorms.				95,990	
			5	R	"					
			6	R	"					
			5	R	"					
			4	Y	"					
	38	Charlesfield	2	R				1		
16/598	82-100	Charlesfield	3	R	Appleby Hall				26,377	
			3	R	New Appleby Hall					
16/623	153-5	Williams	3	R					5,769	
16/624	157-9	Williams	3	R					5,092	
16/625	165	Williams	2	R					8,903	
				P			10			
16/626	52-4	John	3	R					5,700	
16/627	56	John	2	R					5,550	
16/623-16/627		Parts of 5 lots		P			22			
17/54	-	India St.		Y	Marston Boathouse				30,993	
17/69	271-9	Tockwotten	1	O	Stockroom				27,408	
				P			5			
17/169	4-6	Young Orchard	3	R	Dorm.				15,984	

Plat/Lot	Street No.	Street Name	No. Floors	Activity Type	Activity Description	Auxiliary Use	No. Parking Spaces	No. Household Units	Square feet (Lot)	Parcel No.
17/ 260	46	Hope	3	R					4,439	
17/ 261	148	Power	2	R					8,893	
17/ 262	150-4	Power	4	R					31,082	
17/ 604	2	Young Orchard	2	E					12,208	
17/ 605	8	Young Orchard	3	E					23,587	

Bibliography

Aaron, Henry. 1975. Who Pays the Property Tax? Washington, D.C.: Brookings Institution.

Advisory Commission on Intergovernmental Relations. 1978. The Adequacy of Federal Compensation to Local Governments for Tax Exempt Lands. Washington, D.C.: U.S. Government Printing Office.

Aronson, J. Richard, and Schwartz, Eli. 1981. Management Policies in Local Government Finance. Washington, D.C.: International City Manager's Association.

Bahl, Roy. 1981. Urban Government Finance: Emerging Trends. Beverly Hills, California: Sage.

Balk, Alfred. 1971. The Free List. New York: Russell Sage Foundation.

Barron, James C., and Jansma, J. Dean. 1970. The Impact of Public Land Problems in Local Government Finances. American Journal of Agricultural Economics 52: 365-71.

Bish, Robert L., and Nourse, Hugh D. 1975. Urban Economics and Policy Analysis. New York: McGraw Hill.

Bryce, Herrington J. 1977. Small Cities in Transition: The Dynamics of Growth and Decline. Cambridge, Massachusetts: Ballinger.

Burchell, Robert W., and Listokin, David. 1978. The Fiscal Impact Handbook. New Brunswick, New Jersey: Center for Urban Policy Research.

Burchell, Robert W., and Listokin, David. 1981. Cities Under Stress. New Brunswick, New Jersey: Center for Urban Policy Research.

Case, Karl E. 1978. Property Taxation. The Need for Reform. Cambridge, Massachusetts. Ballinger.

deTorres, Juan. 1972. Government Services in Major Metropolitan Areas. New York: The Conference Board.

Florestano, Patricia S. 1981. Revenue-Raising Limitations on Local Government: A focus on Alternative Responses. Public Administration Review 41, 1: 122-30.

Gold, Steven David. 1979. Property Tax Relief. Lexington, Mass.: D. C. Heath.

Greater Hartford Chamber of Commerce. 1978. Property Tax Exemptions for Non-Profit Institutions: Problems and Proposals. Hartford, Conn.: Greater Hartford Chamber of Commerce

Hendricks, Robert H. and Headley, J.C. 1980. Financing Local Government The Impact of Public Land Ownership. Land Economics 55,4: 499-509.

Larson, Martin A. and C. Stanley Lowell. 1969. Praise the Lord for Tax Exemption. Washington, D.C.: Robert B. Luce.

Lynn, Arthur D. 1976. Property Taxation Land Use and Public Policy. Madison, Wisconsin. University of Wisconsin Press.

Meyer, John R. and Quigley, John M. 1977. Local Public Finance and the Fiscal Squeeze: A Case Study. Cambridge, Massachusetts: Ballinger.

Meyers, Harold B. 1969. Tax Exempt Property: Crushing Burden for the Cities. Fortune 79, 5: 75-99.

Moore, Peter R. 1978. Property Tax Exemptions and the Use of Local Service Charges. Unpublished paper for the R.I. Department of Community Affairs.

Netzer, Dick. 1966. The Economics of the Property Tax. Washington, D.C. The Brookings Institution.

Ostrom, Elinor. 1976. The Delivery of Urban Services: Outcomes of Change Beverly Hills, California: Sage.

Quigley, John M. and Schmenner, Roger W. 1975. Property Tax Exemption and Public Policy. Public Policy 23, 3: 259-297.

Raimondo, Henry J. 1980. Compensation for Tax Exempt Property in Theory and Practice. Land Economics 56, 1: 33-42.

Robertson, D.B. 1968. Should Churches Be Taxed? Philadelphia, Pennsylvania: The Westminster Press.

Seastone, Don. 1968. Public Lands and Tax Policy. American Journal of Agricultural Economics 50, 7: 1688-1702.

Seastone, Don. 1971. Revenue Sharing or Payments in Lieu of Taxes on Federal Lands? Land Economics 46, 4: 373-381.

Snyder, James C. 1977. Fiscal Management and Planning in Local Government. Lexington, Massachusetts: D.C. Heath.

Walzer, Norman and Chicoine, David L. 1981. Financing State and Local Governments in the 1980's: Issues and Trends. Cambridge, Massachusetts. Oelgeschlager, Gunn & Hain.

Walzer, Norman and Fisher, Glenn W. Cities, Suburbs and Property Taxes. Cambridge, Massachusetts. Oelgeschlager, Gunn & Hain.