

A Survey of the Usage of Recurrent Cost Analysis in
Capital Budget Decision-Making
in Selected Canadian Urban Municipalities

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ABSTRACT

Shifting population patterns, the rate of urbanization and the demands for higher levels of municipal services combined with many financial constraints facing Canadian municipalities, demand an increase in the sophistication of financial planning. Recurrent costs which are those costs recurring annually in the form of operating, maintenance, debt servicing and others costs required for the support of capital facilities require increased analysis if municipalities are to avoid the problems of over-expansion, under-financing and loss of productivity. By analyzing recurrent costs, municipalities will be able to assess the fiscal impact of capital expenditures and as such, meet the financial challenges of the future.

All urban municipalities in Canada over the population of 75,000 were surveyed to determine the following: 1) the number of municipalities which analyze recurrent costs 2) the type of recurrent costs analyzed 3) the estimated dollar impact of recurrent costs 4) the type of decision-making groups presented with recurrent cost information; and 5) the difference between those municipalities which analyze recurrent costs and those which do not.

The results of the study indicated that the majority of urban municipalities analyze recurrent costs but many of the municipalities ignor very important recurrent costs in their analysis. The average recurrent cost of municipalities was estimated at 10 cents for every dollar of capital expenditure. Although this recurrent cost coefficient

is reasonable when compared to other findings, caution should be exercised with its use. Another study result indicates that although decision-making groups such as council and committees of council are presented with recurrent cost information, many important decision-making groups are totally ignored. The final result indicates that small municipalities particularly Ontario counties with small capital budgets do not analyze recurrent costs. Also, regional location, population size, age or type of recurrent cost information analyzed do not affect the recurrent cost coefficient of a municipality.

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I INTRODUCTION

1.1 Nature of the Problem

Financing local government capital improvements during the 1980's will depend upon many factors. Among these will be:

- the growth in capital facility requirements as reflected in demands for new and higher levels of service.
- the capacity of local government to meet debt servicing costs, particularly in a period of rising interest rates.
- the capacity of local governments to support other recurring costs of operation and maintenance generated by these capital improvements.
- the capacity and willingness of taxpayers to support these capital commitments.

This study will focus on the issue of recurrent costs which are those costs recurring annually in the form of operating, maintenance, debt servicing and other such costs required for the support of capital facilities. Conceptually, there is an implicit recurrent cost attached to every dollar expended on items of a capital nature. The decision, once made, to proceed with a capital improvement engenders certain social as well as economic considerations. These considerations relate to the productivity of the capital investment. Failure to provide adequately for the operation and maintenance of a capital investment will result in a loss of productivity. If losses in productivity are to be averted, recurrent costs become pre-emptive commitments on the use of future budgetary resources.

Recurrent costs are therefore critical to the capital budget

decision because capital expenditures are a key factor in the determination of future operating expenditure levels. Expenditures on operation and maintenance of a capital facility can often exceed the amount of the initial capital investment. Therefore, failure to consider recurrent costs within the capital budgeting process can have a more serious and lasting impact than errors in the current operating budget. This does not suggest budgeting on the operating side is any less important, but rather the level and type of capital expenditures cannot be determined independently of the level of operating expenditures. Capital and operating budgets are therefore directly related, with the recurrent costs the link between the two processes.

The recurrent expenditure implications of capital projects are not always thoroughly considered when the decision is made to proceed with a given project. Recognizing that different capital projects generate different recurrent costs, the costs, however different, represent permanent drains on future operating revenues. Assuming norms of rationality, it becomes incumbent upon a municipality to assess the fiscal impact of the mix of capital projects. While some municipalities may give some consideration to recurrent costs on an isolated project basis, it is the aggregation effect which is critical. Therefore, recurrent cost analysis is the first stage in an iterative process by which municipalities can make choices concerning the future pattern of capital improvements and ascertain the magnitude of resources required to cover subsequent recurrent commitments. By employing recurrent cost analysis, municipalities have a powerful tool by which to improve their financial planning.

1.2 The Research Questions

The importance of conducting recurrent cost analysis will be argued at greater lengths in later sections of this study. The assumption, at least for now, is that recurrent cost analysis is a reasonable activity for a municipality to engage in. The main question which will be addressed in this study is:

"To determine whether or not recurrent costs are considered by Canadian urban municipalities in their analysis of capital programs."

A number of sub-questions develop as a result of this question. For example, if municipalities do consider recurrent costs it becomes important to determine what costs are included or considered to be recurrent. Once the costs considered have been identified the next question is to assess the perceived magnitude of these recurrent costs. If, for example, recurrent costs are perceived to be very low, then the importance of conducting a recurrent cost analysis might be negated. This is of course only one conclusion which might be made.

Another sub-question relates to the usage of the recurrent cost information by decision-makers. It is important to establish the extent to which recurrent cost information is used during capital budget deliberations. A final question which is implied throughout the main research question and sub-questions is the difference between those municipalities which analyze recurrent costs and those which do not. Various correlated variables will be examined to determine if any difference exists.

More specifically, the sub-questions are:

- i) To determine what costs are considered in the recurrent cost analysis.

- ii) To determine the perceived recurrent cost impact of capital projects.
- iii) To determine the extent to which the recurrent cost analysis is presented to decision-making groups.
- iv) To determine differences between those who consider recurrent costs and those who do not.

The answers to these questions will provide considerable information. If it is shown that recurrent costs are significant and are either not analyzed or analyzed but not used in decision-making, then important improvements can be made. If recurrent costs are considered insignificant, then two conclusions might be drawn. Either recurrent cost analysis is a financial tool which is not appropriate at this stage in the evolution of municipal finance or it is an analysis totally inappropriate. If the former is proven, then the answers to these questions will provide significant insight into the state of municipal financial planning and hopefully identify areas for future research which will improve financial planning at the local government level.

1.3 Importance of the Study

With the expanding complexities of our society, urban populations have come to look with increasing frequency to local government for the provision of public services and facilities of a suitable type, size, and quality, when or where they are needed. As a result, local government has been confronted with heavy demands for capital spending and progressive municipalities have recognized the need for forward planning through the adoption of improved capital budgeting techniques.

In particular, Canadian urban municipalities are approaching a critical stage in their evolution. The combination of demographic and fiscal characteristics of current Canadian urban centers demand an increase in the sophistication of financial planning. Chapter two, of this study identifies in detail these factors. A high rate of urbanization, the peak of the urban population being reached in five years, the trend towards larger but fewer urban centers and the dramatic change in the age composition of the population represent the principle demographic concerns. The growth of local government spending, the nature of the municipal expenditure-revenue gap, the inefficient nature of municipalities over the size of 500,000 people and the dependent nature of local government to senior governments represent the fiscal concerns.

In response to these challenges, local government must improve the sophistication of its financial planning. Of particular importance to municipalities is the provision of those services which require capital investment. Not only is the magnitude of the initial outlay important, but the provision for recurring expenditures over

the life of the capital facility can be extremely significant. Unfortunately, most capital budgets are developed with insufficient attention to the effects it will have on the operating budgets. Therefore, major construction programs are undertaken that, rather than having the anticipated impact on the municipality's fiscal capacity, have a much more significant impact because inadequate consideration was given to the operating and maintenance costs these capital facilities generate.

The World Bank, the Harvard University Research Institute, and the Governments of Malawi and Kenya have found recurrent expenditure analysis a useful financial planning tool. In fact, the pioneering work in this area of recurrent expenditure analysis was developed and applied in the Third World countries of Kenya and Malawi within the past five years. These and other Third World countries are facing tremendous fiscal over-expansion problems as a result of a lack of coordination between developmental expenditures and the recurrent expenditures required for on-going operation and maintenance.

In many cases, these countries are forced to shut down capital facilities or let them deteriorate into a state of disrepair. The situation with urban municipalities is not as severe for a number of reasons, the most important being that local government is still able to raise taxable mill rates fairly readily. But recent developments such as Proposition 13, the financial collapse of New York City and the pending collapse of the City of Cleveland present new concerns in regard to the financial state of urban municipalities.

The concept of recurrent cost is a simple one, yet it is, as will be demonstrated, a concept which is frequently ignored or at

least not applied. As we move into the 1980's, recurrent cost analysis will be critical as a result of the demographic and fiscal changes affecting urban finance. This study will examine the usage, if any, of recurrent cost analysis and was initiated by the work of Heller¹ in his pioneering study of the 1970-74 Kenyan Development Plan, Anderson and Pinfold², and Hansen³ in other studies.

¹ Peter S. Heller, "Public Investment in LDC's with Recurrent Constraint: The Kenyan Case", Quarterly Journal of Economics, Vol. 88, No. 2, May 1974, pp. - 251-277. and

Peter S. Heller, "The Underfinancing of Recurrent Development Costs", Finance and Development, March 1979, pp. - 38-41.

² David L. Anderson and T.A. Pinfold, Testing the Financial Feasibility of a Development Strategy: An Application to the Fourth Kenyan Plan (1979-83), Unpublished paper, Halifax, 1978. and

David L. Anderson and T.A. Pinfold, The Relationship Between Operating and Investment Expenditures: A Problem of Planning and Budgeting, Journal of Economic Development, (forthcoming).

³ Peter Hansen, Malawi Recurrent Expenditure Study, Unpublished paper, World Bank, Washington, D.C., 1978.

1.4 Methodology

A survey was conducted to determine the current practice of Canadian urban municipalities as it relates to the analysis of recurrent costs. The survey was part of a broader survey conducted by the Office of the City Manager, City of Regina. The City of Regina is currently involved in a study to determine their debt carrying capacity in an effort to improve their financial planning. An integral part of their study relates to recurrent costs, with debt charges representing a major component of these costs.

The survey instrument took the form of a six page mail questionnaire consisting mainly of structured response questions. The survey package was sent to Canadian urban municipalities over the population of 75,000. It is felt that inclusion of urban centers under the 75,000 would not be suitable for comparison purposes. A second reason was the substantial increase in the number of municipalities which would have to be surveyed. The cut-off at 75,000 results in a manageable sample size of 64. This sample was selected from the 1978 Corpus Almanac of Canada - Handbook of Canadian Business and Government Affairs and checked by other sources.

The results of the survey were analyzed by computer application using the Statistical Package for Social Sciences Program (SPSS). Population, financial and time variables were analyzed by this package to aid in answering the various questions. The results are presented in a frequency break-down corresponding to the questions in the questionnaire, which will aid in answering the research questions identified in part 1.2 of this chapter.

1.5 Organization of the Study

This chapter provided an introduction to the purpose, importance and method of this study. Chapter II, presents literature which identifies the major demographic and fiscal characteristics which support the contention that local government must improve its financial planning. This chapter also contains a presentation of the conceptual issues surrounding local government budgeting with the particular application of recurrent costs. Chapter III, describes the methodology of the study. Chapter IV, presents the finding of the study and Chapter V, discusses the findings. Chapter VI, presents the conclusions, recommendations, and suggestions for future research.

II REVIEW OF THE LITERATURE

This chapter represents a review of the literature relating to financial planning at the local government level in Canada. The objective is to identify trends, both current and future, which suggest financial planning tools must be developed in order to respond to fiscal challenges. Demographic, fiscal, and budgeting issues are identified as the keys factors affecting the future state of Canadian urban municipalities.

2.1 Growth of Urban Municipalities

Anticipating the future of Canadian urban municipalities is a speculative venture at best and one which is impossible without some understanding of the history and composition of the nation's population. In 1960, three-fourths of the world's population still lived in localities of less than 20,000.¹ Canada's population just ten years later witnessed almost a reversal of the world situation. Today the majority of the Canadian population live in localities greater than 10,000.² The nation's rate of urbanization has been particularly notable. Since the end of World War II, the urban

¹ A.J. Robinson, Economic Evaluation of Municipal Expenditures: PPB, Canadian Tax Foundation, 1971, p. - 3.

² Katherine A. Graham and Anne B. McAllister, 1979 Municipal Yearbook, International City Management Association, p. - 20.

growth rate has exceeded that of any other Western industrial nation.¹ During the 1950 decade the average annual urbanization rate was almost double the average rate of all the other industrial nations combined.²

1851 witnessed an urbanized population of 13 percent while projections by the Economic Council of Canada suggest that in 1980, approximately 81 percent of a 25 million population will live in urban centers. By 1986 this figure will increase marginally to approximately 83 percent and will represent the peak of urban concentration.³

The explanation of urbanization is a complex one and not central to this paper, but the implications for urban municipalities are of a serious nature. With urban concentration peaking at 83 percent in the mid 1980's, one might conclude that urban problems should diminish. This result is highly unlikely. Increasing challenges will face urban municipalities over the next several decades as major urban centers become larger and larger. Without any adjustment in current population distribution and migratory trends, one-third of the total Canadian population will be living in three cities - Toronto, Montreal and Vancouver, sometime between 1985 and the year 2000.⁴ This, coupled with the fact that 50 percent of Canada's increase in population

¹ Katherine A. Graham and Anne B. McAllister, 1979 Municipal Yearbook, International City Management Association, p. - 20.

² Lionel D. Feldman and Michael D. Goldrick, Politics and Government of Urban Canada, Methun Publication, 1969, p. - 13 and calculation by this author.

³ Gerald B. McCready, Profile Canada, Irwin-Dorsey Limited, 1977, p. - 8.

⁴ Ibid., p. - 10.

by 1986 will occur in the nation's six major urban centers, poses a serious scenario for larger urban municipalities in the future.

A projection of the urban-rural dispersion of the Canadian population indicates a trend towards an increase in larger centers of over the 500,000 population level and a decrease in smaller urban centers.¹ In fact, since 1851 the increase in urbanization has resulted in older cities becoming larger rather than new cities being created.²

The most important information gained from the identification of this trend is the fact that per capita municipal costs rise dramatically once municipalities reach the 500,000 population level. American experience indicates that as municipalities increase above 250,000 towards 500,000, the average increase in per-capita cost of local government is 3.1 percent, but as they go beyond 500,000 and approach 1,000,000 the average increase is 51 percent.³ Ontario figures tend to confirm these findings and show that as population increases from 35,000 to 55,000, per-capita costs increase by 4 percent; from 95,000 to 225,000, by 20 percent; and Toronto's per-capita cost of local government is 20 percent higher than the next largest city in Canada.⁴

¹ Gerald B. McCready, Profile Canada, Irwin-Dorsey Limited, 1977, p. - 19.

² James W. Simmons, The Growth of the Canadian Urban System, Center for Urban and Community Studies, Research Paper No. 65, University of Toronto, 1976, p. - 4.

³ Donald C. Rowat, The Canadian Municipal System, 1967, p. - 70.

⁴ Loc. cit.

Recent research has been directed at determining optimal population size. Although many problems have plagued this research, the findings suggest optimal city size is in the range of 100,000 - 600,000¹. Since the trend is towards larger and larger cities, financial management becomes critical as population is concentrated in fewer and larger cities.

This evidence is by no means conclusive but does suggest that for most urban municipalities, bigger is not better, at least from a financial perspective. The implication more specifically to finance is that the capital costs of physical development and related recurrent operating costs will rise more rapidly than in proportion to population.

Total population measures can be misleading in that they do not address the basic changes in the composition of the population. For the City of Ottawa, it has been estimated that the total population from 1951 to 1980 will have increased by approximately two-thirds while the populations of the young and old cohorts have almost doubled.² This trend is not unique to the City of Ottawa but is indicative of Canada's population as it undergoes a significant aging process. The median age of Canadians will increase from 31 in 1975 to nearly 36 by 1985 and 40 by the year 2001.³ Of particular

¹ Robert L. Bish and Robert J. Kirk, Economic Principles and Urban Problems, Prentice-Hall Inc., 1974, p. - 189.

² Donald C. Rowat, The Canadian Municipal System, McClellan and Stewart Ltd., 1967, p. - 69.

³ Gerald B. McCreedy, Profile Canada, Irwin-Dorsey Limited, 1977, p. - 23.

concern is the number of senior-aged Canadian citizens. In 1976 there were about 1.8 million people over the age of 65 and this is forecast to increase by 44 percent to 2.6 million in 1986.¹ 1.6 million will be added to this figure by 2001 and by the year 2030, one out of every four Canadians will be over 60 years of age.²

The planning implications are obvious. Future expenditures on health, welfare and recreation, normally demanded by older populations, will increase at a faster rate in proportion to population and municipal revenue sources. It is also these types of capital expenditures which have the highest recurrent costs of operation because of the high labour component. The labour intensive nature of local government is well recognized and figures documenting outlays typically indicate between 60 and 80 percent of each tax dollar is spent for personnel.³ Therefore, with increases in labour supported activities, one can expect that this percentage will rise in the future.

These increased pressures towards urbanization in Canada have, and will continue to challenge local government. The resulting demands for higher levels of service and facilities, necessitate more sophisticated financial planning. Not only will expenditures on traditional functions increase, but new responsibilities will challenge

¹ Gerald B. McCready, Profile Canada, Irwin-Dorsey Limited, 1977, p. - 27.

² Loc. cit.

³ Robert M. Cramer, "Local Government Expenditure Forecasting", Governmental Finance, Nov. 1978, p. - 4.

the fiscal capabilities of urban municipalities. Never before will the decisions of these urban centers affect so many people as they will in the future, making the role of local government most important.

2.2 Municipal Fiscal Dilemma

Local government spending in Canada has witnessed unprecedented levels during the 1970's. On a national accounts basis spending at the local level amounted to more than \$ 6.8 billion in 1969, about 26 percent of the \$ 26.4 billion spent by all governments in Canada.¹ This trend has continued with the average annual rate of expenditure increasing by approximately 16 percent from 1970 to 1978.² Canadian expenditure levels parallel U.S. experience. Over the past two decades, state and local government spending in the United States has grown faster than any other sector of the economy.³ 1978 witnessed \$ 41.5 billion in long-term debt plus \$ 20.5 billion in short-term. This is only down slightly from the 1977 record high of \$ 45 billion in long-term and \$ 21 billion in short-term. This has resulted in the total debt outstanding of American cities and states fast approaching an unrivaled \$ 300 billion.⁴

Financial statistics from all sources point to one unmistakable conclusion. Expenditures at the municipal level during the 1970's have assumed extremely significant proportions. If the experience of this decade is indicative of the one to follow, then municipal finance

¹ A.J. Robinson, Economic Evaluation of Municipal Expenditures: PPB, Canadian Tax Foundation, 1971, p. - iii.

² Government Finance, Statistics Canada, Cat. 68-001, 1970 to 1978, p. - 16.

³ "Borrowing Too Much to Keep Running", Business Week, Sept. 22, 1978, p. - 84.

⁴ "An Allusory Lightening in the Debt Load", Business Week, Oct. 16, 1978, p. - 103.

and its planning implications take on a new and greater dynamic. This combined with the precarious nature of the municipal financial structure suggests increasing concern for the future of urban Canada.

New functions and increased service demands are not the only causes of the fiscal plight of municipalities. The root of the problem is essentially an expenditure-revenue mismatching problem which is basic to the municipal fiscal system in Canada. The problem solving capacity of municipalities is constrained by two characteristics of this system. The first is that most grants to municipalities are conditional with Provincial and Federal levels of government having a major influence in local affairs.¹ Municipalities are coerced, if not held at political ransom, to participate in cost-shared projects. When these projects are capital in nature, municipalities are bound to operate and maintain the projects with the attendant future inflationary impacts.

This is not to suggest that senior level government involvement and aid is not necessary or welcomed. Much of the present level of municipal service would not be available if not for senior government support. But this does not avoid the two main issues, the erosion of the future revenue base and the increase in expenditure commitments.

Municipalities have the responsibility, for the most part, of operating capital facilities regardless of external involvement in capital construction. Senior governments have historically been

¹ Regina, RSVP: Five Year Capital Plan, City of Regina Planning Department, 1978, p. - 117. (unpublished municipal development plan.)

reluctant in committing themselves to operating activities and have only gone as far as providing incentive for capital construction. Therefore, because of this senior government approach, local government units are required to provide for the recurring costs of operation with obvious implications to future expenditure levels.

This situation is similar to problems developing countries are experiencing;

" the most important factor leading to development over-expansion, is the behavior of external aid agencies, both bilateral and multi-lateral. In a manner analogous to that of the domestic politician, aid agencies tend to favour physically identifiable projects. In many instances, tied aid requirements may influence the design in such a way that total project cost, primarily through the recurrent budget, may be significantly above the least-cost design. In addition, until recently, donors have tended to be quite unreceptive to picking up even a portion of the recurrent costs inherent in their projects.

Through the use of tied grants and loans, external aid agencies alter relative project prices in favour of aidable activities. Although there is obviously a welfare loss to the recipient from such conditional grants, the major problem appears to be the uncritical acceptance by developing nations of such tied aid. Frequently the value of the gift component, in both an absolute sense and as a proportion of the projects' life-cycle cost, is exceedingly small. Yet, because of the myopic focus on the construction stage of development, and the absence of thorough financial analysis, the apparently generous aid offer is accepted without realization of the future consequences."¹

Of course there are many differences between developing countries and urban municipalities but the situation that results from external

¹ D.L. Anderson and T.A. Pinfold, The Relationship Between Operating and Investment Expenditures: A Problem of Planning and Budgeting, Journal of Economic Development, forthcoming.

aid, when conditional, are identical. Slack, in a case study of Ontario municipalities, examined the effect on municipal expenditure levels of senior government grants.¹ One of the findings from the study showed that conditional grants for health and social service programs resulted in an increase in municipal expenditures greater than the amount of the conditional grant.²

The opposite was found for unconditional grants which can be explained by the fact that unconditional grants only increase the income of the municipality and do not affect the relative price of the capital project. Slack also found that conditional grants do not affect the choice of techniques of production. However, because some grants are for capital and other for labour services, the capital grant makes the capital cheaper and often municipalities alter their production process to make it more capital intensive.³ Therefore, the shift to unconditional grants and revenue sharing schemes should benefit municipalities. Specifically, the recently announced Saskatchewan revenue sharing program will provide a substantial revenue increase in the year 1978 - 79 which is unconditional in nature.⁴ This unconditional aspect to date only applies to non-capital items and as such

¹ Enid Naomi Slack, The Budgetary Response of Municipal Governments to Provincial Transfers: The Case Study of Ontario, Ph.D. Dissertation, University of Toronto, 1977, p. - 169.

² Loc. cit.

³ Ibid., p. - 170.

⁴ O. Yul Kwon, Revenue Sharing as an Improvement in Provincial-Municipal Relations in Canada: An Evaluation of Saskatchewan Revenue Sharing, Working Paper 78 - 03. Faculty of Administration, University of Regina, 1978, p. - 26.

does not avoid the problem related to capital projects.

The second, and most significant constraint facing municipalities is their largest source of revenue, property tax. A.J. Robinson summarized the problem as follows;

" the rising population density in the cities is increasing the demand for public services such as police and fire protection, water supply and sanitation. Transportation requirements are increasing, requiring expenditures, on traffic arteries, traffic control, parking for vehicles, and the development of mass transit facilities. At the same time, the per capita property tax base of central cities is likely to decline because of the less intensive use of urban land (more parking facilities and open green spaces), the increase in non-taxable use of land, and the transfer of high tax capacity manufacturing from the center of the city to the periphery with its replacements by labour intensive service industries. Moreover, the concentration of lower income groups in the city also tends to reduce the value per person of residential property."¹

The above describes in general terms the problems relating to the property tax issue. The issue most central to the municipal revenue structure is the fact that revenues from existing tax-rates and bases grow at a slower rate than the cost of providing a fixed level of government services.² If this is true, then it would seem that urban municipalities, and in particular, the older more functionally comprehensive ones, will have to continually raise tax-rates, establish new tax-revenues or seek additional senior government transfer payments.

¹ A.J. Robinson, Economic Evaluation of Municipal Expenditures: PPB, Canadian Tax Foundation, 1971, p. - 11.

² Robert L. Bish and Robert J. Kirk, Economic Principles and Urban Problems, Prentice-Hall, 1974, p. - 113.

Technically, the problem is that tax elasticities are less than expenditure elasticities and has produced a situation urban economists describe as a revenue-expenditure gap.

Tax elasticity is a measure of the changes in tax revenue from existing taxes with changes in income.¹ The tax elasticity coefficient is determined as follows:

$$\text{tax elasticity} = \frac{\text{percentage change in revenue}}{\text{percentage change in income}}$$

Income for this purpose refers to growth in the economy as reflected by income and is best represented by the growth in the gross domestic product whether it be national, provincial or city measures.

Tax elasticity estimates are presented in Table 2.1, and represent U.S. state and local government tax bases. As one can see, property tax is among the most unresponsive taxes with a median estimate of 0.8. This means that property tax will produce 8 percent additional revenue for each 10 percent growth in income.

It must be understood that tax elasticities are only one-half of the revenue-expenditure gap problem. Expenditure elasticity is analogous to tax elasticity and is represented as follows:

$$\text{expenditure elasticity} = \frac{\text{percentage change in cost}}{\text{percentage change in income}}$$

The numerator of this expression, percentage change in cost, is the cost in providing a given level of standardized public good. Expenditure elasticities are very difficult to determine because of the

¹ Income refers to growth in the economy as reflected in income.

Table 2.1
Tax Elasticity Estimates

	Elasticity	Coefficient	Estimates
	Low	Median	High
Property Tax	0.4	0.8	1.2
Sales Tax: general	0.9	1.0	1.05
motor fuel	0.4	0.5	0.6
alcohol	0.4	0.5	0.6
tobacco	0.3	0.35	0.4
public utilities	0.9	0.95	1.0
Income Tax: individual	1.5	1.65	1.8
corporate	1.1	1.2	1.3

Source: Bish, Robert L, and Kirk, Robert J.
Economic Principles and Urban Problems,
Prentice-Hall, 1974, p. - 114.

difficulty in measuring the outputs of public goods and services.¹

Some estimates indicate that the expenditure elasticity coefficient is 1.1 for state and local governments and 1.0 for local governments only.²

This would indicate that relative increases in the cost of a constant level of public goods and services will be equal and/or exceed relative increases in income. The revenue-expenditure gap is determined by comparing the tax and expenditure elasticities which indicates revenue will continue to fall short of expenditures under the present fiscal structure.

Various other studies conducted by the U.S. Government indicate similar elasticity estimates for local tax-revenues but indicate 1.6 to 1.7 expenditure elasticity coefficients.³ Regardless of this difference, all of the estimates in the literature agree that urban expenditures are growing more rapidly than tax revenues at existing rates. Comparing the two elasticities will provide a proxy of the relative size of the revenue-expenditure gap but much more uncertainty exists with this type of estimate. Measuring the magnitude of the revenue-expenditure gap is not as important, at this stage, as appreciating that one exists. The challenge to local government in the future is how they will respond to what has been so aptly termed the municipal fiscal dilemma.

¹ Cost increases in the public sector are a consequence of the nature of public sector production.

² Robert L. Bish and Robert J. Kirk, Economic Principles and Urban Problems, Prentice-Hall, 1974, p. - 115.

³ Robert B. Pettengill and Jogindar S. Uppal, Can Cities Survive the Fiscal Plight of American Cities, St. Martin's Press, 1974, p. - 87.

2.3 Capital Budget and Capital Program

Confusion of a definitional nature exists in regard to the terms capital budget and capital program. The (American) National Committee on Government Accounting has defined the concept of a capital program and a capital budget in this manner:

CAPITAL PROGRAM - A plan for capital expenditures to be incurred each year over a fixed period of years to meet capital needs arising from the long-term work program or otherwise. It sets forth each project or other contemplated expenditure in which the local government is to have a part and specifies the full resources estimated to be available to finance the projected expenditures.

CAPITAL BUDGET - A plan of proposed outlays and the means of financing them for the current fiscal period. It is usually a part of the current budget. If a Capital Program is in operation it will be the first year thereof.¹

In practise, other terms such as capital works program, long-range capital planning and capital facilities planning are used interchangeably, but incorrectly according to the literature in this area.

The distinction between a capital program and capital budget are definitional, but one issue which has attracted much attention in both

¹ Lennox L. Moak and Albert M. Hillhouse, Local Government Finance, Municipal Finance Officers Association, 1975, p. - 95.

the economic and accounting literature is a conceptual rather than definitional question and relates to the distinction between capital and operating projects. For the purpose of this paper a capital project will refer to projects of large size, fixed nature, and/or long life, involving expenditures of a nonrecurring nature, designed to provide new or additional governmental facilities for public service.¹ Although differences exist, monies allocated for the construction of a road or sewer system would be considered a capital expenditure, monies to sustain the operations of such facilities, in terms of salaries, materials, supplies, and repairs would be considered as an operational or recurrent expenditure.

Capital programming saw its earliest attempt by local government in the United States in the 1920's. Although the concept of capital programming has spread, Moak and Killian in 1964-65 discovered that among sixteen larger cities selected for study, the state-of-the-art of capital programming and capital budgeting was well advanced in some cities, moderate in others, and only barely perceptible in some.² Moak, in a later report to the United States Housing and Home Finance Agency, involving 28 smaller cities, found only a few examples of good

¹ Alan Walter Steiss, Local Government Finance, Lexington Books, 1975, p. - 10.

² Lennox L. Moak and Kathryn W. Killian, A Manual of Suggested Practice for the Preparation and Adoption of Capital Programs and Capital Budgets by Local Governments, Municipal Finance Officers Association, 1964, p. - 152.

practice.¹

As indicated, the situation is not as serious in most larger centers, but it should be clear that this is no accident or freak occurrence. Those municipalities which have developed a capital programming process seem to have done so as a necessary response to the tremendous fiscal challenges faced, not for the most part from a conceptual basis. Therefore, given this reactive description of urban municipalities, one can expect the sophistication of capital programming to vary between urban municipalities.

Of greater importance is the difference in budgetary experience between American and Canadian municipalities. Budgeting as it is known in the United States is a comparatively recent innovation in Canada.² Capital budgeting, as separate from capital programming, was largely underdeveloped among Canadian municipalities even in the late 1940's.³ The fact the American municipalities have been involved in capital budgeting does not necessarily imply a corresponding high level of sophistication within the capital budgeting process, it does suggest that Canadian municipalities have lagged behind their American counterparts.

¹ Lennox L. Moak and Albert M. Hillhouse, Local Government Finance, Municipal Finance Officers Association, 1975, p. - 96.

² Lennox L. Moak and Kathryn W. Killian, A Manual of Techniques for the Preparation, Consideration, Adoption and Administration of Operating Budgets, Municipal Finance Officers Association, 1963, p. - 10.

³ Loc. cit.

2.4 Operating or Recurrent Budget

The operating or recurrent budget dates back many years in the history of municipal government and is perhaps the best known of all the budget concepts. The National (American) Committee on Governmental Accounting has defined the annual budget as:

A plan of financial operation embodying any estimate of proposed expenditures for a given period and the proposed means of financing them. Used without any modifier, the term usually indicates a financial plan for a single fiscal year.¹

The annual, operating, current or recurrent budget is the centerpiece of the financial system in municipalities. This budget mediates between long-term aims and realities, and is the vehicle for resolving each year the conflict between what is desired and what can be afforded. The annual budget is the only recurrent occasion when on-going activities are seen as a whole, expressed in the common denominator of money, and considered under the compulsive pressures, political and otherwise, of rate fixing.²

¹ Lennox L. Moak and Kathryn W. Killian, A Manual of Techniques for the Preparation, Consideration, Adoption and Administration of Operating Budgets, Municipal Finance Officers Association, 1974, p. - 3.

² A. H. Marshall, Financial Management in Local Government, George Allen and Unwin Ltd., 1974, p. - 73.

The annual budget has been the most important form of financial control for local government, yet it is not an old practice for Canadian municipal units. Canadian municipalities have prepared revenue and expenditure estimates dating back to Confederation in 1867, but it has been only since World War I that a connection between budgeting and accounting developed.¹ Again, improvements in Canadian budgeting did not result from desires of a conceptual nature, rather financial difficulties during the depression years forced municipalities to employ stricter budgetary methods.

Writing in 1937, C.M. Wrenshall recommended a system of budgeting which had its basis in the development of the Canadian municipal budgetary system. His recommendations included:

- 1) An executive budget system with legislative consideration and the balancing of the budget.
- 2) A standard classification system for revenues by sources and expenditures by organizational units and the major and minor objects of expenditure.
- 3) The use of three standard request forms.
 - a) one for salaries and wages.
 - b) one for current operating expenses.
 - c) one for capital outlays.
- 4) A capital program over a given period of years.
- 5) A centralized department of finance.

¹ Lennox L. Moak and Kathryn W. Killian, A Manual of Techniques for the Preparation, Consideration, Adoption and Administration of Operating Budgets, Municipal Finance Officers Association, 1974, p. - 3.

- 6) An accrual basis of accounting for both revenues and expenditures in order to have an effective budget control system.
- 7) A treasurer who acts as comptroller and pre-audits all proposed expenditures throughout the year.¹

Many of the problems of local government budgeting in the late 1930's were corrected as a result of Wrenshall's writings. In 1942, a manual of instructions by the Dominion Bureau of Statistics complemented Wrenshall's publication. This manual dealt with uniform terminology, uniform classification of both revenue and expenditure accounts, and the content and format for financial reporting.

The evidence presented suggests that the budgetary experience, on both capital and operating sides, of Canadian municipalities is limited and in many cases underdeveloped. The reasons for this underdevelopment are as varied and many as the problems created by this situation. Steps have been taken and many recent inroads made in the area of municipal budgeting which will enable Canadian municipalities to respond rather than react to future fiscal challenges.

¹ C.M. Wrenshall, Municipal Administration and Accounting, Toronto: Sir Isaac Pitman and Sons, Ltd., 1937, pp. - 44-66, cited in Moak, Lennox L. and Killian, Kathryn W., A Manual of Techniques for the Preparation, Consideration, Adoption and Administration of Operating Budgets, Municipal Finance Officer's Association, 1974, 5d., p. - 10.

2.5 The Capital Investment Decision

Municipalities have been involved in capital budgeting for more than half a century in the United States, less so in Canada, yet a theory of capital budgeting does not exist within the governmental sphere comparable to that developed in the private sector. The economic theory of public sector capital budgeting has been explored, but the emphasis has related to economic stabilization, stimulation and welfare economics. Most of these developments originated at the national government level and were directed at responding to national concerns as opposed to local issues.

It is generally understood that the role of local government differs from the role of the federal government. The federal government should be concerned with the allocation of resources, distribution of income, maintenance of economic stability and encouragement of economic growth. Local government should be primarily concerned with efficiency in the allocation of resources (and delivery of services.)¹ As a result, much of the development of public sector capital budgeting theory at the local level has been subordinated to federal applications.

This explains, at least in part, the reason local government capital budgeting has not advanced as rapidly as senior governments. Of greater significance is the gap which exists between public and

¹ John O. Wilson, Capital Budgeting and Local Government Investment Decision-Making, Ph.D. Dissertation, University of Michigan, 1966, p. - 34.

private sector capital budgeting. Much of the reason public sector budgeting has lagged relates to the nature of the investment decision. The valuation of social benefits and costs has remained imprecise and as such continues to pose problems for the public sector decision-makers. Recent developments in the valuation process have made great inroads but have not been advanced to the practical level.

The private sector does not have to deal with the type of imprecision faced by the public sector. Average rate of return, pay-back, present values and internal rate of return are some of the more common methods employed by the private sector in evaluating capital projects, methods which are not appropriately transferable to most public investment decisions. Present values are sometimes employed by the public sector but with much less confidence than the private sector. This lack of confidence stems from the frequent use and abuse of the discount rate. This is not to suggest that the private sector makes extensive use of finance tools available. Helliwell, for the Royal Commission on Taxation surveyed the practices of larger Canadian corporations and found that only a small percentage of companies resorted to discounting cash flows and that only one half of total expenditures, by value, were subject to any form of rate of return calculation.¹ Another study conducted on Fortune's

¹ Canada, Royal Commission on Taxation, Taxation and Investments: A Study of Capital Expenditure Decisions in Large Corporations, Queen's Printer, Ottawa, 1967, cited in Peter A. Lusztig and Bernhard Schwab, Managerial Finance in a Canadian Setting, 1973, p. - 130.

top five hundred corporations discovered a large gap between the theory of capital budgeting and industry practice. Thirty-nine percent of the companies responding failed to recognize the time value of money.¹ It should be noted that the theory and application of finance has greatly advanced over the last eight to ten years with firms using subjective probabilities and computer models. Considering this, it is not surprising that the public sector has had its difficulties. Not only must decision-makers in the public domain contend with imprecise measurement criteria, but their decisions are conditioned by a broader political context, something which is void from most private sector investment decisions.

An additional reason capital budgeting has not developed in the public sector as compared to the private sector relates to the different functions performed by the two sectors. The private sector capital investment decision is conditioned upon the income earning potential of the capital project. The normative goal of the firm is maximizing shareholder wealth subject to some capital rationing process which attempts to select the combination of capital projects that will provide the greatest profitability.²

¹ Canada, Royal Commission on Taxation, Taxation and Investments: A Study of Capital Expenditure Decisions in Large Corporations, Queen's Printer, Ottawa, 1967, cited in Peter A. Lusztig and Bernhard Schwab, Managerial Finance in a Canadian Setting, 1973, p. - 131.

² James C. Van Horne, Fundamentals of Financial Management, Prentice-Hall, 1974, 2d, P. - 4, 5 & 164.

The public sector exists to provide goods and services which for a variety of reasons are not provided by the private sector. The public sector capital investment decision is not conditioned upon income earning potential, but economic efficiency. Broadly defined, economic efficiency is achieved when the value of what is produced by any set of resources exceeds by as much as possible the value of the resources used; or when the least valuable set of resources is utilized in producing any particular worthwhile output.¹ It is obvious that the evaluation criteria used in the public sector is not as rigorous as that of the private sector and as such many resources are often allocated on an inefficient basis. This must be true since social costs and benefits are guesstimated, the consequence being, unwise expenditure decisions often result.

Consequently, no abstract body of principles exist to judge the adequacy of capital investment decisions in the public sector. The public sector, has for many years, recognized the importance of budgeting but only as it relates to annual operating programs. It has not been until recently that local government has accorded the same importance to the capital side. As a result, with minor exceptions, the theory of capital budgeting has not been set forth; rather the emphasis has been on devising and improving the techniques of capital budgeting.²

¹ Robert H. Haveman and Julius Margolis, ed., Public Expenditures and Policy Analysis, Rand McNally College Publishing, 1970, p. - 7.

² Alan Walter Streiss, Local Government Finance, Lexington Books, 1976, p. - 19.

2.6 Budget Comprehensiveness and Consistency

Two basic principles are repeated in most of the literature on budgeting theory; comprehensiveness and consistency. The principle of comprehensiveness states that all expenditures and revenues should enter into the basic budgetary process and be subjected to the standard mechanism of evaluation. This means no item should be exempt from budget evaluation regardless of the nature, source of financing or political characteristics. This principle is supported by the principle of consistency and states that all budget requests should be evaluated according to the same criteria.

It may seem regressive at this point to reaffirm such fundamental budget principles, but this reaffirmation is necessary at the municipal level. Capital outlays and operating expenditures have traditionally represented two distinct aspects of the budget process in local government and have received almost completely separate treatment without any regular effort to link these processes together.¹ Some municipalities give consideration to capital outlays only if a surplus has developed in the preceding fiscal period.²

Therefore, this approach which is followed by many municipalities, of the separate treatment of the capital and operating budgets, represents an initial violation of the basic principles of budget comprehensiveness and consistency.

¹ Alan Walter Steiss, Local Government Finance, Lexington Books, 1976, p. - 20.

² Loc. cit.

Many reasons have been postulated to explain why capital and operating budgets tend to receive separate treatment. The most common reason supporting the separate treatment is that capital expenditures are nonrecurrent. The nonrecurrent argument is also the conceptual justification used to support the debt financing of capital expenditures. An "equity to the taxpayers" theory is employed to support the capitalization of certain expenditures. The contention is that the construction of a capital facility which will have a serviceable life of twenty years should not be paid totally by the current taxpayers because much of the benefits will accrue to future generations of taxpayers who have made no financial contribution. Therefore, to avoid such inequity, the expenditure is capitalized with the costs spread over the term of the debt instrument, taking on the form of economic rent. The cost of this equity is the resulting interest charges generated by the borrowing decision.

Additional arguments advanced in favour of the separate treatment of capital expenditures include; 1) capital expenditures represent additional investment in the basic facilities owned by the municipality; 2) capital budgeting requires the generation of different types of information; 3) capital outlays are conceived and appropriations made on a project rather than a program basis; and 4) capital outlays are future oriented, important to the economic and social well-being of the municipality.¹

¹ Alan Walter Steiss, Local Government Finance, Lexington Books, 1976, p. - 20.

These same points have been used to suggest that, while the operating program comes properly under the purview of the budget office, the planning of capital improvement programs should be directed by a planning agency. In fact, during one phase of the development of municipalities, there was a tendency to consider the capital improvement program as the exclusive domain of the planning department.¹ In spite of the bankrupt nature of this concept many urban municipalities still delegate this responsibility to the planning department. This formal separation of budget responsibilities can only further erode the principles of budget comprehensiveness and consistency.

¹ Morris C. Matson, "Capital Budgeting - Fiscal and Physical Planning", Governmental Finance, Aug., p. - 42.

2.7 Summary

Canadian urban municipalities are entering an important period in history. Shifting population patterns combined with both structural and compositional changes will forge new dimensions on urban Canada. The unprecedented spending of the 1960's and inflationary pressures of the 1970's have created tremendous fiscal demands, demands which the municipal financial structure was unprepared to handle. In many respects, the future has been mortgaged. The final years of this Century will inherit the results of poor physical and financial planning. In particular, debt servicing and other recurring costs created by capital expansion, will be passed to future generations. A desire to respond to the demands for new and higher levels of municipal services, while ignoring in a myopic manner, the capital replacement requirements of existing services, will become the legacy of the past two decades.

This lack of financial planning is a result principally of a history of inadequate budgeting. Capital budgeting combined with the inherent problems of the capital investment decision will continue to plague municipalities at an increasing rate. If municipalities are to meet the financial challenges of the future, capital budgeting and related analyses must assume a greater exposure. Only through improving the sophistication of the various financial tools and techniques can financial planning assume the role it now lacks.

III METHODOLOGY

3.1 Introduction

The purpose of this study is to determine if Canadian urban municipalities analyze recurrent costs. The method selected to answer this question is a mail survey. A mail survey is deemed to be the most appropriate vehicle for this type of data collection for a number of reasons. Cost factors, the distance between municipalities, size, different structure and method of operation, and language problems are the principal justifications which preclude using other methods. Personal interviews, telephone questionnaires and other more intimate survey methods are often viewed as more accurate, but the information sought in this survey does not lend itself to such methods. Many of the questions require research for answers which are not readily available.

Although many problems exist with this type of survey instrument, every effort was made to minimize ambiguity and misinterpretation. Therefore, the questionnaire as an instrument, is not subject to any special limitations which are not contained in similar surveys. Limitations may be placed on the results from various questions but these will be stated when determined.

3.2 Sample Selection

Urban centers are most commonly thought of as cities, but because of legislative differences between provinces, urban centers lack a uniform definition. Population size, density, form of government and location are some of the factors which enter into the definitional difference. An attempt to select only urban centers described as cities might prove misleading. Throughout this study the term urban municipality will be used. Irrespective of various municipal labels, the ramifications of this study encompass all urban centers. For the purpose of sample selection the term municipality includes the following urban center types: town, city, borough, metropolitan area, district, region and county.

The municipalities were selected from the 1978 Corpus Almanac of Canada - Handbook of Canadian Business and Government Affairs, which is the most comprehensive source of information available in this area. This sample selection was crosschecked with the 1979 Municipal Year Book published by the International City Management Association.

Many of the selected municipalities were contacted by telephone to crosscheck mailing information. This additional check was intended to encourage a good percentage response and avoid unnecessary misdirected mail.

Urban municipalities with populations greater than 75,000 were selected from the ten Canadian Provinces. Although the 1971 census defined urban populations as those persons living in incorporated cities, towns and villages with populations of 1,000 or more, as well

as unincorporated places of 1,000 or more with a density of at least 1,000 per square mile¹, this study is concerned with municipalities of a metropolitan character. These municipalities are also more likely to be engaged in financial planning activities and since the trend is towards larger and fewer urban centers this selection criteria seems justified. A secondary, but nevertheless an important consideration in limiting the sample to populations greater than 75,000, is that a manageable sample size is achieved.

The 62 urban municipalities which were selected are as follows:

City of Calgary	County of Grey
City of Edmonton	County of Hastings
City of Vancouver	County of Kent
District of Burnaby	County of Lambton
District of Richmond	United Counties of Leeds and Grenville
District of Surrey	County of Middlesex
City of Winnipeg	County of Oxford
City of Saint John	County of Peterborough
City of St. John's	County of Renfrew
City of Halifax	County of Simcoe
Metropolitan Toronto	United Counties of Stormont, Duncas and Glengarry
Region of Durham	Corporation of the County of Wellington
Region of Haldimand-Norfolk	City of Brampton
Region of Halton	City of Burlington
Region of Hamilton-Wentworth	City of Hamilton
Region of Niagara	City of Kitchener
Region of Ottawa-Carleton	City of London
Region of Peel	City of Mississauga
Region of Sudbury	City of Oshawa
Region of Waterloo	City of Ottawa
Region of York	City of St. Catharines
County of Brant	
County of Essex	
County of Frontenac	

(cont'd)

¹ Katherine O. Graham and Anne B. McAllister, "Urban Canada in the Future:", 1979 Municipal Year Book, International City Managers Association, 1979, p. - 20.

City of Sault Ste. Marie
City of Sudbury
City of Thunder Bay
City of Toronto
City of Windsor
Borough of East York
Borough of Etobicoke
Borough of North York
Borough of Scarborough

Borough of York
City of LaSalle
City of Laval
City of Longueuil
Town of Quebec
City of Sainte Foy
City of Sherbrooke
City of Saskatoon

3.3 Survey Instrument

The survey package contained the following items; a 10 x 13 inch mailing envelope, a 9 x 12 inch printed and postage paid return envelope, a covering letter, questionnaire directions and a three page questionnaire. The covering letter was on the letterhead of the City Manager's Office, City of Regina. Each letter was addressed personally to the respective chief administrative officer or city manager, as the case may have been, and personally signed by the City Manager of Regina. This effort was principally responsible for the relatively high response rate. The covering letter explained the purpose of the survey and invited the participation of the respective municipalities.

The directions for completing the questionnaire were attached to the questionnaire in such a way as to be easily removed when no longer needed. Coloured paper and a script type were used to clearly distinguish between the directions and questionnaire material. The directions were general in nature providing special instructions on completion, the time frame and method of returning the questionnaire, and a toll free phone number to call should the respondent have any problems.

The questionnaire itself is three pages in length with printing on both sides. The questionnaire, which is printed on a high quality coloured paper, is printed on both sides to give the appearance of shortness making it less formidable. The last question provides an opportunity for the respondent to make comments, provide additional information or express specific concerns. The questionnaire ends with a note of thanks, closing instructions and an offer to provide a summary of survey results upon request.

Pretesting of the questionnaire was conducted after many revisions had been made to the initial version of the questionnaire. More structured questions, rewording and reorganization of questions was the result of several revisions. Finally, the questionnaire was tested on a group of informed civic officials. Their comments were recorded and adjustments made until the questionnaire was in final form.

A follow-up letter was sent approximately eight weeks after the date of the first mailing. This letter expressed concern that the original questionnaire might have been inadvertently mislaid or have not reached the potential respondent. This letter, which also restates the importance of the study was signed personally by the City Manager. The second survey package contained the same material as in the first mailing. The cutoff date was six weeks after the mailing of the second or follow-up letter.

Appendix A, contains a copy of the survey package. Sample 1, is the covering letter, sample 2, is the questionnaire instructions, sample 3, is the six page questionnaire and sample 4, is the follow-up letter directed at those municipalities which did not respond to the first mailing.

3.4 Survey Questions

The questionnaire is composed of 17 questions, 15 of which are a structured response type. The first 5 questions are factual and collect information such as name, age and type of municipality. The remaining questions solicit information directed at answering the research questions.

Four main variables will be examined in the analysis of the individual questions. Type of municipality, regional location, age and population are the main variables. The variable information was collected from the first page of the questionnaire. These four main variables and others will be used during the analysis to determine the difference between municipalities which analyze recurrent costs and those which do not.

Regional location was determined by the name of the municipality responding. Five regions were selected represented by the Atlantic, Quebec, Ontario, Prairies and British Columbia. Year of municipal incorporation was used as a proxy for the age of municipalities. It was felt that the incorporation date would be more readily accessible and accurate than having respondents venture estimates of age. The 1978 population was reported, if the population figure was not that of 1978 space was provided for the population date.

Question 11, is directed at answering the main research question. A definition of recurrent costs is provided and then the question presented. The respondents are required to answer yes or no. No direct provision for any other type of response was allowed. If yes or no

was not appropriate provision was made under direction number 2 which reads, "If the answer to any question might be incorrectly interpreted or does not fully describe the situation of your municipality, please provide an explanation in the space below each question. If additional space is required please attach a separate sheet of paper." The results of this question and the results when considered in light of the various variables previously identified, will provide insight into the use of recurrent cost analysis.

The second part of Question 11, will answer the first sub-question of the main research question. The results of this question will identify those reported costs considered in the recurrent cost analysis of those municipalities who answered yes to Question 11. Debt charges, maintenance costs, operating costs, contributions from current revenue to capital projects, opportunity costs, increase in revenues, and other costs, are the recurrent cost choices.

Question 14, is designed to answer the second sub-question, which is to determine the perceived recurrent cost impact of capital projects. The respondents were asked to estimate the increase in current expenditures which result from a capital expenditure. For example, every \$ 1.00 of capital expenditure creates an annual 10¢ increase in current or operating expenditures. Therefore, a \$ 20 million capital budget will result in a current budget increase of \$ 2 million annually.

Question 15, is directed at answering the third sub-question which is to determine the extent to which recurrent costs are presented to decision-making groups. The contention is that recurrent cost analysis

is of little use unless it is considered by decision-making groups during budget deliberations. Although there is no assurance that the mere presentation of recurrent cost information will be used, it is assumed that this information would condition the budget decision.

The second part of Question 15, was directed at identifying the type of decision-groups this information is presented to. Senior governments, citizens, burgesses, council, committees of council, city administration, and other, represent the decision-making groups available for selection. This information is important because if recurrent cost information is not presented to burgesses during voting on money bylaws, the taxpayer may be making a decision he might not otherwise have made.

Questions 11, 14 and 15 focus directly on the research question and sub-questions. The remaining questions in the questionnaire will aid in determining the differences between those who consider recurrent costs and those who do not. The questions will also add explanatory power and additional insight into answering the main research question and sub-questions.

Question 8, is designed to determine the number of municipalities who produce capital budgets or programs and the length of the budget. Since capital budgeting is not an old practice for Canadian municipalities, it is unlikely that a recurrent cost analysis is conducted if a capital budget is not produced. One would also expect that those municipalities producing only a one year capital budget would not also conduct a recurrent cost analysis. Any municipality sophisticated

enough to conduct a recurrent cost analysis would also produce a capital budget or program for more than a single year.

Question 10, is intended to determine whether or not the respondents forecast operating expenditures and revenues, and the length of such forecasts. A large component of any expenditure-revenue forecast is determining the recurrent cost resulting from the capital program. Therefore, it is unlikely that a municipality could conduct expenditure-revenue projections without also conducting a recurrent cost analysis. The length of the respective forecast will also provide a method to gauge the sophistication of the financial planning of a given municipality.

Question 12 and 13 serve principally as checks to Question 11, which is the question relating to the analysis of recurrent costs. Question 12, is intended to determine whether or not municipalities forecast the debt charges relating to their present outstanding debt. Since debt charges are known with some certainty, it would seem reasonable that if this committed expenditure is not determined that the existence of a recurrent cost analysis seems unlikely.

Question 13 expands upon Question 12 and serves as a very close check on recurrent cost Question 11. The question is designed to determine whether or not the anticipated future debt impact of adopting a capital program is considered. No, yes, sometimes and other, responses are provided. Since debt charges are a major component of recurrent costs, a negative response to this question would negate or at least cast doubt upon a positive response to Question 11.

Finally, Question 17, which is an open-ended question, allows for response or comment on any part of the questionnaire.

3.5 Survey Response

The survey package was mailed on March 5, 1979 with a request that it be returned in two weeks. Approximately one-third of the sample responded within two weeks and one-half within four weeks. Additional time was allowed for municipalities to respond because most respondents were engaged in their budget preparations. The follow-up letter and a copy of the original questionnaire was sent the beginning of June with a cut-off date three weeks after. In retrospect, late fall is a more appropriate time to survey Canadian urban municipalities.

Of the 62 urban municipalities surveyed, 49 responded. Two of the municipalities surveyed were determined inappropriate and 3 municipalities returned the survey after the cut-off. Taking this into account results in a total response of approximately 87 percent. The City of Saskatoon, in conjunction with the College of Commerce, University of Saskatchewan, conducted a survey similar in format but on a different topic to essentially the same municipalities and received a 47 percent response rate. That response rate was considered high by the authors of the study.¹

¹ John Turtle, A Study of Vehicle Fleet Management in Canadian Municipalities, University of Saskatchewan, (unpublished 1978)

IV REPORT OF THE FINDINGS

4.1 Introduction

This chapter and the one which follows will present the findings of the survey. Chapter IV, will report the findings and Chapter V will discuss the findings. Using questionnaire data, a number of conclusions will be drawn which will answer the research questions contained in Chapter I. Both Chapter IV and V are organized in the same format as the research questions.

Presented in this chapter are a number of frequency tables with four columns of information. Absolute frequency, the first column, is the number of responses in each of the various categories. The total of 49 is the number of municipalities which responded to the survey. The next column, relative frequency, is the absolute frequency as a percentage of total respondents. Adjusted frequency is the next column which is the relative frequency adjusted for missing cases or responses. The last is the cumulative frequency which is the successive addition of the adjusted frequency figures.

4.2 Demographic Questions

The following four tables present information on the type, regional location, age and population size of the responding municipalities.

Seven types of urban municipalities were surveyed with cities representing over 50 percent of the respondents. The next largest group of respondents were regions and counties and the balance was composed of a town, a metropolitan area, two boroughs and two districts.

The respondents to the survey were principally from Ontario. Approximately 10 percent were represented by Quebec with a similar percentage from the three Prairie Provinces. The balance were from British Columbia and one Atlantic province.

The relative age of the responding municipalities was measured by incorporation dates. Seventeen percent of the respondents are at least 130 years old, 38 percent at least 80 years old and 30 percent are in the 1950 - 1980 range. The average age of the respondents was 105 years. It should be noted that 14 respondents in the 1950 - 1980 range represent mainly regions and boroughs in Ontario which have been reorganized and subsequently incorporated since 1970. Netting this irregularity out would result in an increase in the average age of the responding municipalities.

The average population size of municipalities which responded was approximately 180,000. About 27 percent of the respondents were under 100,000 and 55 percent were under 200,000. Only 12 percent of the respondents had populations of 500,000 and over.

Table 4.1 Type of Responding Municipality

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
Town	1.	1	2.0	2.0	2.0
City	2.	25	51.0	51.0	53.1
Borough	3.	2	4.1	4.1	57.1
Metropolitan Area	4.	1	2.0	2.0	59.2
District	5.	2	4.1	4.1	53.3
Region	6.	10	20.4	20.4	83.7
County	7.	8	16.3	16.3	100.0
	TOTAL	49	100.0	100.0	

Table 4.2 Regional Location of Responding Municipalities

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
Atlantic Prov.	1.	1	2.0	2.0	2.0
Quebec	2.	5	10.2	10.2	12.2
Ontario	3.	37	75.5	75.5	87.7
Prairie Prov.	4.	4	8.2	8.2	95.9
British Columbia	5.	2	4.1	4.1	100.0
	TOTAL	49	100.0	100.0	

Table 4.3 Grouped Incorporation Dates of Responding Municipalities

CATEGORY LABEL (Year)	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
1800-1849	1.	8	16.3	17.0	17.0
1850-1899	2.	18	36.7	38.3	55.3
1900-1949	3.	7	14.3	14.9	70.2
1950-1979	4.	14	28.6	29.8	100.0
Missing	0.	2	4.1	Missing	100.0
	TOTAL	49	100.0	100.0	

Table 4.4 Grouped Population of Responding Municipalities

CATEGORY LABEL (in thousands)	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
less than 100	1.	13	26.5	26.5	26.5
100-199	2.	14	28.6	28.6	55.1
200-299	3.	8	16.3	16.3	71.4
300-399	4.	4	8.2	8.2	79.5
400-499	5.	4	8.2	8.2	87.5
500-599	6.	4	8.2	8.2	95.9
600-699	7.	1	2.0	2.0	98.0
greater than 1000	11.	1	2.0	2.0	100.0
	TOTAL	49	100.0	100.0	

4.3 Research Questions

This question, which is the main research question, was to determine the number of municipalities which analyze the recurrent costs resulting from capital project expenditures. Of the 49 respondents to the question, 83.3 percent of the municipalities reported analyzing recurrent costs. Exacting 16.7 percent indicated that recurrent costs are not analyzed and one municipality did not reply to the question.

The following sub-question, which is in response to the first research sub-question, identifies the type of costs included or considered in the recurrent cost analysis. Six major recurring costs were identified: debt charges, maintenance costs, operating costs, current revenue contributions, opportunity costs, and negative costs or revenues. Provision was also made for respondents to identify other costs.



Table 4.5 Respondents Which Analyze Recurrent Costs

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
Yes	1.	40	81.6	83.3	83.3
No	2.	8	16.3	16.7	100.0
No Reply	0.	1	2.0	Missing	100.0
	TOTAL	49	100.0.	100.0	

Table 4.6 Type of Costs Included in Recurrent Cost Analysis

a) Analyzes the Recurrent Cost of Debt Charges

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
Yes	1.	40	81.6	100.0	100.0
No Reply	0.	9	18.4	Missing	100.0
	TOTAL	49	100.0	100.0	

b) Analyzes the Recurrent Cost of Maintenance Costs

Yes	1.	25	51.0	62.5	62.5
No	2.	15	30.6	37.5	100.0
No Reply	0.	9	18.4	Missing	100.0
	TOTAL	49	100.0	100.0	

c) Analyzes the Recurrent Cost of Operating Costs

Yes	1.	26	53.1	65.0	65.0
No	2.	14	28.6	35.0	100.0
No Reply	0.	9	18.4	Missing	100.0
	TOTAL	49	100.0	100.0	

d) Analyzes the Recurrent Cost of Current Revenue Contributions

Yes	1.	23	46.9	57.5	57.5
No	2.	17	34.7	42.5	100.0
No Reply	0.	9	18.4	Missing	100.0
	TOTAL	49	100.0	100.0	

e) Analyzes the Recurrent Cost of Opportunity Costs

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM- FREQ (PCT)
Yes	1.	2	4.1	5.0	5.0
No	2.	38	77.6	95.0	100.0
No Reply	0.	9	18.4	Missing	100.0
	TOTAL	49	100.0	100.0	

f) Analyzes the Recurrent Cost of Revenue Resulting from Capital Projects

Yes	1.	23	46.9	57.5	57.5
No	2.	17	34.7	42.5	100.0
No Reply	0.	9	18.4	Missing	100.0
	TOTAL	49	100.0	100.0	

g) Analyzes the Recurrent Cost of Other Costs

Yes	1.	1	2.0	2.5	2.5
No	2.	39	79.6	97.5	100.0
No Reply	0.	9	18.4	Missing	100.0
	TOTAL	49	100.0	100.0	

Table 4.6 (a) represents the number of municipalities which include debt charges in their recurrent cost analysis. The broad definition of debt charges was used which includes; interest, principal repayments, sinking fund repayments, and repayments to internal sources of funding.

Of the 40 respondents who analyze recurrent costs, all 40 reported including debt charges in their recurrent cost analysis. The 9 "no reply" or "missing cases" represent those responding municipalities which reported not analyzing recurrent costs.

Table 4.6 (b) represents the number of municipalities which include maintenance costs in their recurrent cost analysis. Maintenance cost is separated from operating cost for the purpose of this question. Maintenance costs refers to costs of keeping a capital facility in normal working order and include such things as repairs, regular maintenance or servicing, janitorial services, etc..

Exactly 62.5 percent of the respondents who analyze recurrent costs indicated that maintenance costs are included in their analysis with 37.5 percent reported not including maintenance costs.

Table 4.6 (c) represents the number of responding municipalities which include operating costs in their recurrent cost analysis. Operating costs were to include utilities, materials, supplies, direct labour and any other cost required to operate a capital facility.

Exactly 65 percent of the respondents reported including operating costs in their recurrent cost analysis with 35 percent reported not including this cost.

Table 4.6 (d) represents the number of responding municipalities which include in their recurrent cost analysis, contributions from current revenue to capital projects. This cost is not a true recurring cost because it can only occur in the first year. Nevertheless, it is an important cost and one which should be considered in any recurrent cost analysis.

Exactly 57.5 percent of the responding municipalities which analyze recurrent costs reported including contributions from current revenue with 42.5 percent reported not including this cost.

Table 4.6 (e) represents the number of responding municipalities which include opportunity costs in their recurrent cost analysis. Opportunity cost is the cost of a project in terms of opportunities that are forsaken or given up in order to carry out that project. Therefore, the opportunity cost of building a park is the foregone property tax which would have been collected had the land been commercially developed.

Exactly 5 percent of the responding municipalities reported including opportunity costs in their recurrent cost analysis with 95 percent reported not including this cost.

Table 4.6 (f) represents the number of municipalities which consider revenue resulting from capital projects. Just as some capital projects have recurring costs some projects have recurring revenues. Exactly 57.5 percent of the responding municipalities reported that revenue is considered and 42.5 percent do not consider revenue resulting from capital projects.

Table 4.6 (g) represents the number of responding municipalities which included other costs in their recurrent cost analysis. Only one municipality reported that other costs were considered.

Table 4.7 Grouped Recurrent Cost Figures

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
0-5¢	1.	4	8.2	16.0	16.0
5-10¢	2.	7	14.3	28.0	44.0
10-15¢	3.	8	16.3	32.0	76.0
15-20¢	4.	5	10.2	20.0	96.0
25+¢	6.	1	2.0	4.0	100.0
Missing	0.	24	49.0	Missing	100.0
	TOTAL	49	100.0	100.0	

This table presents the results of survey question 14, which was designed to determine the dollar impact of recurrent costs resulting from capital expenditures, thereby answering the second research sub-question. Respondents were asked to estimate the amount current expenditures increased for every one dollar of capital expenditures. For example, a municipality reported that for every dollar capital expenditure, current expenditures increased by 10 cents. Therefore, if the municipality had a \$ 20,000,000 capital budget, the current or operating budget would increase by \$ 2,000,000.

The results of this question were categorized into groups of 5 cent increments from zero to 25 cents and over. One-half of the municipalities did not respond to this question, indicating that the recurrent cost figure varied significantly and they were not prepared to venture an estimate.

About 16 percent of the respondents reported recurrent costs in the range of 0 - 5¢, 28 percent in the 5 - 10¢ range, 32 percent in the 10 - 15¢ range and 20 percent in the 15 - 20¢ range. Only one respondent reported a recurrent cost in the 25¢ and over range. The average recurrent cost figure reported was approximately 10¢.

Table 4.8 Percentage of Decision-Making Groups Presented With Recurrent Cost Information

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
Yes	1.	36	73.5	76.6	76.6
No	2.	11	22.4	23.4	100.0
No Reply	0.	2	4.1	Missing	100.0
	TOTAL	49	100.0	100.0	

This table presents the results of survey question 15, and is directed at the third research sub-question. It is designed to determine the extent to which recurrent cost information is presented to decision-making groups. The first table shows the number of municipalities which present recurrent cost information to decision-making groups.

Exactly 76.6 percent of the respondents indicated that recurrent costs are presented to decision-making groups and 23.4 percent reported not presenting the information. Two respondents did not reply to this question.

Table 4.8 shows the type of decision-making groups which are presented with recurrent cost information.

Table 4.8 (a) shows that only 15.8 percent of the respondents present recurrent cost information to senior governments. The majority, 84.2 percent, do not present this information. No municipalities reported presenting recurrent cost information to citizens or burgesses as shown in Tables 4.8 (b) and (c).

Table 4.8 (d) indicates that 78.9 percent of the respondents present the recurrent cost information to council. Table 4.8 (e) reports that 57.9 percent present the information to committees of council. One-half of the respondents present the information to city administration and 10.5 percent to other decision-making groups as shown in Tables 4.8 (f) and (g).

Table 4.8 Decision-Making Groups Presented With Recurrent Cost Information

a) Recurrent Costs Presented to Senior Governments

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
Yes	1.	6	12.2	15.8	15.8
No	2.	32	65.3	84.2	100.0
No Reply	0.	11	22.4	Missing	100.0
	TOTAL	49	100.0	100.0	

b) Recurrent Costs Presented to Citizens

No	2.	38	77.6	100.0	100.0
No Reply	0.	11	22.4	Missing	100.0
	TOTAL	49	100.0	100.0	

(c) Recurrent Costs Presented to Burgesses

No	2.	38	77.6	100.0	100.0
No Reply	0.	11	22.4	Missing	100.0
	TOTAL	49	100.0	100.0	

(d) Recurrent Costs Presented to Council

Yes	1.	30	61.2	78.9	78.9
No	2.	8	16.3	21.1	100.0
No Reply	0.	11	22.4	Missing	100.0
	TOTAL	49	100.0	100.0	

e) Recurrent Costs Presented to Committees of Council

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
Yes	1.	22	44.9	57.9	57.9
No	2.	16	32.7	42.1	100.0
No Reply	0.	11	22.4	Missing	100.0
	TOTAL	49	100.0	100.0	

f) Recurrent Costs Presented to City Administration

Yes	1.	19	38.8	50.0	50.0
No	2.	19	38.8	50.0	100.0
No Reply	0.	11	22.4	Missing	100.0
	TOTAL	49	100.0	100.0	

g) Recurrent Costs Presented to Other Groups

Yes	1.	4	8.2	10.5	10.5
No	2.	34	69.4	89.5	100.0
No Reply	0.	11	22.4	Missing	100.0
	TOTAL	49	100.0	100.0	

V DISCUSSION OF THE FINDINGS

5.1 Main Research Question

The principal purpose of this study was to determine the number of municipalities which analyze the recurrent costs resulting from capital projects. The survey results report that 83.3 percent, or the majority, of the responding municipalities analyze recurrent costs. Table 5.1, which shows the results of survey question 8, indicates that approximately 94 percent of the responding municipalities produce capital programs, supporting the results of the recurrent cost question. It would seem unlikely that a municipality which does not have a capital budget would analyze the recurrent costs resulting from capital expenditures. The results of both these questions suggest that urban municipalities analyze the recurrent costs of capital expenditures. When the component costs identified by the respondents are considered the statement becomes less conclusive.

Debt charges are included as a recurring cost by all municipalities conducting a recurrent cost analysis. Because debt charges are such an important recurrent cost, three check questions on debt charges were asked. Tables 5.2A and B, indicate 40 of the 49 respondents forecast debt charges with 34.8 percent forecasting five years and 30.4 percent for twenty years or to maturity. The balance of the responses varied between 3 years and maturity. Table 5.3, determined the number of municipalities which analyze the debt impact of the capital budget. Approximately 89 percent of the respondents responded "yes", 8.5 percent responded "no", and 2.1 percent responded "sometimes".

Table 5.1 Respondents Which Produce Capital Budgets

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
Yes	1.	46	93.9	93.9	93.9
No	2.	3	6.1	6.1	100.0
	TOTAL	49	100.0	100.0	

Table 5.2 (a) Respondents Which Forecast Debt Charges

Yes	1.	40	81.6	81.6	81.6
No	2.	9	18.4	18.4	100.0
	TOTAL	49	100.0	100.0	

Table 5.2 (b) Length of Debt Charge Forecast

	3.	2	4.3	5.3	5.3
	5.	16	34.8	42.1	47.4
	10.	4	8.7	10.5	57.9
	15.	1	2.2	2.6	60.5
	19.	1	2.2	2.6	63.2
	20.	14	30.4	36.8	100.0
	0.	8	17.4	Missing	100.0
	TOTAL	46	100.0	100.0	

Table 5.3 Respondents Which Analyze the Debt Impact of the Capital Budget

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
Yes	1.	12	80.0	85.7	85.7
No	2.	1	6.7	7.1	92.9
Sometimes	3.	1	6.7	7.1	100.0
Missing	0.	1	6.7	Missing	100.0
	TOTAL	<u>15</u>	<u>100.0</u>	<u>100.0</u>	

The results of these questions strongly indicate that the respondents analyze the recurrent cost of debt charges. The remaining component costs are not considered as frequently in the recurrent cost analysis as debt charges are by municipalities. Approximately 37 percent of the respondents do not include maintenance costs and 35 percent do not include operating costs in their recurrent cost analysis. The exclusion of maintenance and operating from a recurrent cost analysis negates much of such an analysis. Excluding maintenance and operating costs can be a greater mistake than excluding debt charges from a recurrent cost analysis. Not all capital expenditures involve debenture borrowing but all capital expenditures create some recurring maintenance and operating commitments.

Approximately 42 percent of the respondents do not consider current revenue contributions which occur in the year of the capital expenditure. While not technically a recurring cost, it is an important cost which should be included in such an analysis. Most municipal jurisdictions are required by law to make a current revenue contribution when debenturing for capital projects.

Only two responding municipalities include opportunity costs in their recurrent analysis. This result is not surprising when considering the Federal Government has only begun examining opportunity costs in a formal budget process. Nevertheless, the fact that opportunity costs are not considered, would suggest a high level of sophistication does not exist with the recurrent cost analysis conducted by the responding municipalities.

Exactly 42.5 percent of the respondents do not include the generation of recurring revenue resulting from the construction of a capital facility. Finally, only 2.5 percent of the respondents consider other recurrent costs in their analysis.

In Summary, the answer to the main research question indicates that the majority of urban municipalities in Canada analyze recurrent costs. The answer to the first research sub-question sheds light on the main research question. While all municipalities which analyze recurrent costs include debt charges, only a little more than one-half include maintenance costs, operating costs, current revenue contributions and increases in revenues or negative costs; and only a small number include opportunity costs or other costs in their recurrent cost analysis. Although many municipalities exclude important recurrent costs in their analysis, approximately one-half of the municipalities which analyze recurrent costs, include in their analysis the major recurring costs. These results indicate that only a minority of the respondents effectively determine the recurring costs of capital expenditures.

5.2 Second Research Sub-Question

The answer to the second research sub-question, which was to determine the financial impact of recurrent costs, is found in the results of survey question 14. An average recurrent cost of ten cents per capital dollar expended was reported by the responding municipalities. Although a recurrent cost figure of ten cents might seem reasonable, confidence in this figure is reduced because 24 of the 49 respondents did not reply. Approximately one-third of the missing respondents indicated in the comment section of the survey that the recurrent cost figure varied substantially. The other missing respondents left the question blank.

Two conclusions might be drawn from this: 1) the question was not understood by two-thirds of the missing respondents; or 2) the respondents could not venture an estimate because they had not analyzed recurrent costs.

More confidence can be placed on the recurrent costs identified by the respondents when compared to three recurrent cost studies identified in the first chapter of this study.

Peter Heller identified recurrent cost coefficients for capital expenditures in developing Third World countries.¹ For example, if a school costs \$ 1,000,000 to construct and equip, and it costs on average \$ 170,000 in each subsequent year to pay the teaching staff, to operate and maintain the building, then the recurrent cost coefficient would be 0.17. Table 1 in Appendix B, presents a number of

¹ Peter Heller, "Public Investment in LCD's With Recurrent Cost Constraint: The Kenyan Case", Quarterly Journal of Economics, 1978, pp. - 252-277.

recurrent cost coefficients for investment expenditures across development sectors.

Another study conducted by Peter Hansen of the World Bank identified recurrent costs of development expenditures for the Country of Malawi.¹ His approach shows not only the recurrent cost coefficient in the year of the capital investment but also introduces a time component. The recurrent cost coefficient is adjusted each year to reflect wage creep in the labour component and inflationary forces in the operating cost component. Table 2 in Appendix B, presents selected recurrent cost coefficients and Table 3, provides a more detailed break-down of the wage and operating components.

Anderson and Pinfeld in their study of recurrent expenditures and review of the literature, found estimates for recurrent cost coefficients varying from 0.075 to 0.33. The best guess range was from 0.075 to 0.20 with their best guesstimate concurring with Heller's estimate of 0.15 as the average recurrent cost coefficient.

If one accepts the premise that no material differences exist between Third World capital investments and Canadian municipal capital investments, or at least between the recurrent cost requirements, then the reported recurrent cost figure of responding municipalities of 0.10 is low compared to the 0.15 average just presented. The fact that Canadian municipalities currently borrow at rates above 12 percent, suggests that the recurrent cost figure of 0.10 might be underestimated. This, combined with the fact that many municipalities do

¹ Peter Hansen, Malawi Recurrent Expenditure Study, World Bank, 1978.

not analyze all relevant recurrent costs, supports the conclusion that the reported recurrent cost figure is under-estimated and should most likely approach the 0.15 level. There is of course no evidence to suggest that the recurrent cost coefficient of Canadian municipalities is greater than 0.15.

This conclusion is of course under the assumption that no material differences exist between municipalities and developing countries. Differences might exist in the composition or mix of the capital investment package and the nature of the capital investment. Governments with a national perspective provide more comprehensive services than governments responding to local demands. Extensive health and welfare, multi-level educational facilities, transportation and agricultural development projects represent common capital expenditures for national governments.

Capital expenditures in developing countries are also, for the most part, new expenditures which generate new recurrent costs. Capital expenditures for urban municipalities can represent some renewal and upgrading of existing capital facilities. Such renewal would not incur new recurring costs and in some cases reduce the current level of recurring expenditures. However, the impact of this argument is reduced when recognizing the trend of urban municipalities in becoming more functionally comprehensive. Demands for new levels of service will result in more "soft" services which traditionally have a higher labour and therefore recurrent cost component.

Although there is no strong evidence not to accept the average

0.10 recurrent cost figure, caution must be exercised. The wide range of reported recurrent cost coefficients is too large to render any average coefficient useful except for considerations at a macro level.

5.3 Third Research Sub-Question

The answer to the third research sub-question is found in the results of survey question 15. It is designed to determine the extent to which recurrent cost information is presented to decision-making groups. The purpose of analyzing recurrent costs resulting from capital expenditures is diminished if the information is not used or at least presented to decision-making groups.

Of the 40 respondents which reported analyzing recurrent costs, 36 present the information to decision-making groups. The conclusion to this question seems obvious until the decision-making groups are identified. The most surprising result is that none of the respondents present recurrent cost information to citizen or burges groups. These groups are particularly important because they make decisions on money bylaws which authorize major capital works construction.

Senior Governments and Other, are decision-making groups which are seldom presented with recurrent cost information. Although senior governments are not the most important group, they should find the information useful. It is important for senior governments to appreciate the recurrent impact of capital expenditures. Approval for many capital construction projects and operating grants are made at that level.

City council is the decision-making group most often presented with recurrent cost information. Committees of council and city administration receive this information from 57.9 and 50 percent of the responding municipalities, respectively. Although 78.9 of the respondents report recurrent cost information to councils, a substantially

lesser number of respondents present this information to committees of council or administration. These decision-making groups are often in a better position to take advantage of such information.

In summary, the majority of responding municipalities present recurrent cost information to council, but a number of important decision-making groups are excluded. In particular, citizens and burgesses are ignored by all responding municipalities. Although there is no evidence to suggest the mere presentation of recurrent cost information will improve capital investment decisions, one would expect some benefits.

5.4 Fourth Research Sub-Question

The final research sub-question was intended to determine differences between those urban municipalities which consider recurrent costs resulting from capital expenditures and those which do not. This question cannot be answered in total because only 8 of the 49 respondents indicated that recurrent costs are not analyzed. At the outset of this study it was hoped two distinct groups would emerge so as to allow a meaningful comparison. Since this did not occur, the question and answer will be redirected slightly. The 8 respondents which do not analyze recurrent costs will be examined and the 40 respondents which analyze recurrent costs will be examined to determine the differences between municipalities based upon the type of recurrent costs considered.

The eight municipalities which do not analyze recurrent costs were, for the most part, counties. Two of the respondents were small cities and one was a medium sized region. With the exception of the region, the average value of capital budgets of these municipalities was \$ 2.5 million as compared to the average of between \$ 15 and \$ 20 million for all respondents. In fact, one-half of the 8 respondents do not produce a formal capital budget. These municipalities also have an average population of 80,000 excluding the region. The average population of all respondents is 180,000.

In summary, the difference between those municipalities which analyze recurrent costs and the 8 which do not seem to relate to the following: 1) the small size of the 8 municipalities 2) the small value of the capital budget 3) the type of municipality; and 4) the

fact that one-half of the municipalities do not have a capital budget. In fact, there may be little advantage for many of the 8 municipalities in analyzing recurrent expenditures.

Most municipalities reported analyzing recurrent costs in some form, but the costs included in the recurrent analysis differed significantly including the recurrent cost coefficients estimated by the respondents. An attempt was made to identify differences which are reflected in the reported recurrent cost coefficients.

The various values of the recurrent cost coefficients were compared to the various recurrent costs used, population, age of the municipality and the regional location. The results of the analysis showed no distinguishable effects. The recurrent cost coefficients of the respective municipalities are not distinguishable in terms of the costs analyzed, the regional location of the municipality, age or population.

These results indicate that the differences in the reported recurrent cost coefficients cannot be explained by the number or type of recurrent costs included in the recurrent cost analysis. There is reason to believe that the more costs included in a recurrent cost analysis the higher the reported recurrent cost coefficient should be. This reasoning was not borne out by the analysis.

There is also evidence which suggests differences in recurrent costs attributed to regional location, population size and municipal age. The analysis did not identify any differences. The conclusion which might be drawn from this is that population size, regional

location, municipal age and costs included in the recurrent analysis do not affect the estimate of the recurrent cost coefficients. Unfortunately, because of the unreliability of the reported recurrent cost coefficients, such a conclusion cannot be made.

VI CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

6.1 Conclusion

The main research of this paper was directed at determining the number of Canadian urban municipalities which analyze recurrent costs which result from capital expenditures. The literature on this topic suggested that recurrent cost analysis is seldom used by urban municipalities and that great benefits would accrue as a result of such analysis. A review of some of the major demographic and financial factors confronting municipalities suggests that financial planning tools must be developed if urban Canada is to meet the challenges of the future.

The results of the main research question and the first sub-question indicate that although the majority of municipalities reported analyzing recurrent costs, very few consider all of the critical costs. Several critical recurrent costs are ignored by more than one-half of those municipalities which analyze recurrent costs. This study would conclude that although the majority of municipalities consider recurrent costs, the analysis as measured by the type of costs included, is inadequate and requires substantial improvements.

The second research sub-question was intended to gauge the dollar impact of the recurrent costs of Canadian urban municipalities. While this question had the potential of determining most important information, it was the question which was subject to the most uncertainty. Although an average recurrent cost coefficient of 0.10 was received

and corresponded with coefficients in other sectors, the wide range of recurrent cost estimates renders the average coefficient almost useless for any further detailed analysis. Any use of this estimate, other than of a general nature, should be cautioned against.

The third research sub-question indicates that the use of recurrent cost information by decision-making groups is questionable. Although this conclusion is dependent upon the decision-making process of the respective municipalities, the results of the survey indicate that major decision-making groups are ignored. One would expect that a more intense use of recurrent cost information would improve the decision-making process. Recurrent costs provide the link between the operating and capital budgets and show the decision-maker the recurrent impact of capital expenditures and should therefore improve the decision-making.

The last research sub-question was intended to identify differences between those municipalities which analyze recurrent costs and those which do not. The small number of municipalities which do not analyze recurrent costs are mostly counties with small populations and low capital expenditures often combined with no capital budget.

In an attempt to gain a greater understanding of recurrent costs, an analysis was conducted to determine if differences exist between municipalities based upon regional location, age, population or recurrent costs analyzed as reflected in the recurrent cost coefficient reported. It was determined that municipalities are not distinguishable in terms of the reported recurrent cost coefficients. The results

of this analysis must also be qualified. The unreliability of the recurrent cost coefficients provided by the responding municipalities add uncertainty to the results of the analysis.

As indicated in other sections of this paper, a number of limitations exist with the results. Although the majority of municipalities reported analyzing recurrent costs, the costs included suggest the analysis needs much improvement. The reported recurrent cost coefficient estimate remains very soft. As such, the use of this estimate must be cautioned against. A number of the study limitations could have been avoided had the questionnaire been restructured. Municipalities should have been asked to identify recurrent estimates for different types of capital expenditures. This would have resulted in information from which important study conclusions might have been developed. It would also have increased the reliability of the reported recurrent cost coefficients. Other questions of a more general financial nature would have allowed for better inter-city comparisons and would have resulted in a greater number of important conclusions.

6.2 Recommendations for Future Research

This study has answered a number of very important questions. Although recurrent costs are considered by the majority of municipalities, substantial improvements must be made in order to fully analyze the impact of recurrent costs. It is very important at this stage in the development of urban Canada to expand the role of financial planning in order to meet the fiscal realities of the future.

The analysis of recurrent costs represent only one, but yet a critical financial planning tool. Much research remains to be done to develop procedures and methods of recurrent cost analysis. This pioneering work has been initiated in Third World developing countries, and requires further refinement and modification for use in urban finance.

Future research could be directed at examining various strategies related to recurrent costs. When faced with an over-expansion program, how can the composition of the capital expenditure program be altered at the program selection level in order to reduce the recurrent impact? The effects of program mix alterations on the overall goals and objectives of the organization would require extensive research. Another strategy is to increase the initial capital cost of a project in order to realize lower recurrent expenditures. For example, concrete could be substituted for asphalt in road construction. Another strategy requiring research is determining the sensitivity of capital projects to under-financing of recurrent expenditures. Postponing park watering will have a more immediate impact than crack filling streets.

The financial planner of the future will be required to wrestle with recurrent financing at both the micro (project) and aggregate levels. The benefits of a given mix of capital projects can no longer be assessed without an analysis of the future budgetary capacity of a municipality to finance, through the operating budget, the recurrent costs resulting from that mix of capital projects. The provision of recurrent costs are critical to realizing many of the benefits used in the selection of the capital projects.

It is the financial planning at the aggregate level which may prove most useful for municipalities in the future and as such requires considerable research. Determining the amount of overexpansion implicit in a capital works program would greatly benefit a municipality. Identifying the proper size and mix of a capital program so as to ensure the resulting recurrent expenditures can be accommodated under various revenue growth scenarios will become very important. This information would enable municipalities facing overexpansion problems to implement various strategies so as to avoid major underfinancing and productivity loss of its capital investments.

Research should be directed at determining recurrent costs at the project level. This study only addressed the recurrent cost question at the aggregate level. Recurrent cost information relating to roads, schools, recreation facilities, water and sewage projects would be very useful for a financial planner. This type of information is available for Third World countries and should be available at the local government level.

These recommendations for future research only point out how little is presently known regarding recurrent costs. Many advancements and refining must take place if municipalities are to develop the financial planning tools necessary to meet the fiscal challenges of the future. It is hoped this paper has initiated some interest, enough to encourage others to continue research in this area.

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APPENDIX A

The Survey Package

REGINA



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P.O. BOX 1790

REGINA, SASK.

S4P 3C8

March 5, 1979

Mr. E. M.
Chief Administrative Officer
County of
169 William Street
, Ontario
K8A 1N7

Dear Mr.

The City of Regina is currently conducting a study to determine the debt carrying capacity of the City. Recent economic factors, a widening of the expenditure-revenue gap and increased pressures to expand services have underscored the necessity for the City of Regina to engage in more sophisticated financial planning.

As part of our debt capacity study, we would like to determine some aspects of current practice in major urban municipalities in Canada. We feel that this type of survey will provide us with invaluable information.

I am asking for the participation of your City in our study. Attached to this letter is a questionnaire which we would like completed by your budget or financial officer; and if possible, returned within two weeks. Please rest assured that any information you provide us will be kept in the strictest confidence. Summaries of our findings will be made available on request. I would like to thank you in advance for your cooperation in contributing to the success of our study.

Yours sincerely,

A. Bruce Smith
City Manager

Attachment

March 5, 1979

CITY OF REGINA
DEBT CAPACITY STUDY QUESTIONNAIRE
DIRECTIONS

1. Please answer all questions in the space provided.
2. If the answer to any question might be incorrectly interpreted or does not fully describe the situation of your municipality, please provide an explanation in the space below each question. If additional space is required please attach a separate sheet of paper.
3. Please enclose any other information on your financial planning (i.e. studies, manuals, reports, etc.) that you feel would be of use to our study.
4. Please return this questionnaire in the attached envelope within 2 weeks of the date received.
5. If you have any problems in completing this questionnaire please telephone collect:

Mr. Garnet Garven
306-569-7624

CITY OF REGINA
DEBT CAPACITY STUDY - 91 -
QUESTIONNAIRE

1. Name and job title of person completing this questionnaire.

2. Name of municipality.

3. Type of municipality.

- Town
- City
- Borough
- Metropolitan Area
- District
- Region
- County
- Other; specify

4. Year of municipal incorporation.

5. 1978 municipal population.

If the population shown above is not as of 1978, indicate the year.

6. What percentage of your total 1978 operating expenditures were debt charges? (debt charges are to include long and short-term interest, principal payments, sinking fund payments, foreign exchange payments and internal loan repayments.)

Debt charges were % of our 1978 operating expenditures.

7. What was the face value of your outstanding debt as of December 31, 1978?

\$

8. Does your municipality produce a capital program or budget?

Yes No

If yes, what length of time does the program or budget cover?

1 year

5 years

10 years

Other; please specify.

9. What was the total value of your 1978 capital budget? The total value is defined as the total construction value and is independent of the source of financing.

\$

10. Does your municipality forecast operating expenditures and revenues for a period greater than one year?

Yes No

If yes, for what length of time?

2 years

3 years

5 years

Other; specify

12. Does your municipality produce forecasts of the debt charges on your present outstanding debt?

Yes No

If yes, for what length of time?

years

13. Does your municipality determine the anticipated future debt impact (annual debt charges) of adopting its capital program or budget?

No
Yes
Sometimes
Other; please specify

14. For every dollar in your capital program or budget, estimate in cents the amount of recurrent cost.

Every \$1.00 of capital expenditure creates an annual ¢ increase in current expenditures.

15. Are the recurrent costs you identified in Question 11, presented to any decision-making groups?

Yes No

If yes, indicate which one(s)

Senior Governments
Citizens
Burgesses
Council
Committees of Council
City Administration
Other; specify

16. What methods does your municipality use to determine the amount of debt it can afford?

does not determine

ratios or rules of thumb

financial model

other; please specify

Please provide a description of the methods you use.

Ruled lines for providing a description of the methods used.

OF REGINA



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P.O. BOX 1790

REGINA, SASK.

S4P 3C8

May 28, 1979

Mr. H.
Chief Administrative Officer
City of
City Hall
Church & James Streets
Ontario L2R 7C2

Dear Mr.

As you are aware, the City of Regina is conducting a study to determine the debt carrying capacity of the City. As part of our study, we are surveying several Canadian urban municipalities to determine their current financial practices. To date we have received a very good response from across Canada and are convinced that this survey will be of great benefit.

Our records indicate that a questionnaire was sent to your municipality on March 5, 1979, but to date we have received no reply. I am concerned that perhaps the questionnaire did not reach your municipality and have taken liberty of enclosing another copy of the questionnaire.

In order that your municipality will be included in this survey, I would ask you to complete and return the questionnaire as soon as possible.

Yours truly,

A handwritten signature in cursive script, appearing to read 'A. Bruce Smith'.

A. Bruce Smith
City Manager

Enclosed

APPENDIX B

Recurrent Cost Studies

TABLE 1

SELECTED RECURRENT COST COEFFICIENTS

<u>SECTOR</u>	<u>RECURRENT COST COEFFICIENT</u>
<u>Agriculture</u>	
Fisheries	0.08
Forestry	0.04
General Agriculture	0.10
Livestock	0.08 - 0.43
Rural Development	0.07
Veterinary Services	
<u>Buildings</u>	0.01
<u>Education</u>	
Agricultural Colleges	0.17
Polytechnic Schools	0.17
Primary Schools	0.06 - 7.0
Secondary Schools	0.08 - 0.72
Universities	0.02 - 0.22
<u>Health</u>	
District Hospitals	0.11 - 0.30
General Hospitals	0.183
Medical Training School	0.14
Nurses College	0.20
Nutrition Rehabilitation Unit	0.34
Rural Health Centers	0.27 - 0.71
Urban Health Centers	0.17
<u>Housing</u>	0.03
Manufacturing, Commerce, and Construction	0.01
<u>Roads</u>	
Feeder Roads	0.06 - 0.14
Paved Roads	0.03 - 0.07
<u>Social and Rural Development</u>	0.04
<u>Tourism</u>	0.05

Source: Peter Heller, "The Underfinancing of Recurrent Development Costs", Finance and Development, March 1979, p. - 39.

TABLE 2

RECURRENT COST COEFFICIENTS FOR MALAWI

Sector	Year of Investment	Year of Investment Plus 5	Year of Investment Plus 10
<u>Agriculture</u>	0.099	0.111	0.125
Major Projects	0.144		
General Agriculture	0.100		
Forestry	0.042		
Fisheries	0.077		
Veterinary Services	0.074		
Surveys	0.110		
<u>Road Construction</u>	0.026	0.027	0.028
<u>Education</u>	0.085	0.094	0.105
<u>Health</u>	0.247	0.264	0.284
<u>Water</u>	0.010	0.011	0.013
<u>Buildings</u>	0.005	0.008	0.025

Source: Peter Hansen, Malawi Recurrent Expenditure Study, World Bank, Aug. 22, 1979.

TABLE 3

MALAWI
GROWTH OF RECURRENT EXPENDITURE COEFFICIENTS
OVER TIME

	<u>Year of</u> <u>Investment</u>	<u>Iv+1</u>	<u>Iv+2</u>	<u>Iv+3</u>	<u>Iv+4</u>	<u>Iv+5</u>	<u>Iv+6</u>	<u>Iv+7</u>	<u>Iv+8</u>	<u>Iv+9</u>	<u>Iv+10</u>
<u>AGRICULTURE:</u>											
Empirical Coefficient	.099	.050	.052	.055	.057	.060	.062	.065	.068	.071	.074
Wage Component (43%)	.048	.051	.051	.051	.051	.051	.051	.051	.051	.051	.051
Operating Costs Component (52%)	.051	.051	.051	.051	.051	.051	.051	.051	.051	.051	.051
Adjusted Coefficient	.099	.101	.103	.106	.108	.111	.113	.116	.119	.122	.125
<u>NRDP:</u>											
Empirical Coefficient	.081	.040	.041	.043	.045	.047	.049	.051	.053	.054	.058
Wage Component (47%)	.038	.043	.043	.043	.043	.043	.043	.043	.043	.043	.043
Operating Costs Component (53%)	.043	.043	.043	.043	.043	.043	.043	.043	.043	.043	.043
Adjusted Coefficient	.081	.083	.084	.086	.088	.090	.092	.094	.096	.097	.101
<u>ROADS:</u>											
Empirical Coefficient	.0264	.0035	.0037	.0039	.0040	.0042	.0044	.0046	.0048	.0050	.0052
Wage Component (13%)	.0034	.0230	.0230	.0230	.0230	.0230	.0230	.0230	.0230	.0230	.0230
Operating Costs Component (87%)	.0230	.0230	.0230	.0230	.0230	.0230	.0230	.0230	.0230	.0230	.0230
Adjusted Coefficient	.0264	.0265	.0267	.0269	.0270	.0272	.0274	.0276	.0278	.0280	.0282
<u>EDUCATION:</u>											
Empirical Coefficient	.085	.039	.040	.042	.044	.046	.048	.050	.052	.055	.057
Wage Component (43%)	.037	.048	.048	.048	.048	.048	.048	.048	.048	.048	.048
Operating Costs Component (57%)	.048	.048	.048	.048	.048	.048	.048	.048	.048	.048	.048
Adjusted Coefficient	.085	.087	.088	.090	.092	.094	.096	.098	.100	.103	.105

(cont'd)

TABLE 3 (cont'd)

	Year of Investment	<u>Iv+1</u>	<u>Iv+2</u>	<u>Iv+3</u>	<u>Iv+4</u>	<u>Iv+5</u>	<u>Iv+6</u>	<u>Iv+7</u>	<u>Iv+8</u>	<u>Iv+9</u>	<u>Iv+10</u>
<u>HEALTH:</u>											
Empirical Coefficient	.247	.072	.075	.078	.082	.086	.089	.093	.097	.102	.106
Wage Component (28%)	.069	.178	.178	.178	.178	.178	.178	.178	.178	.178	.178
Operating Costs Component (72%)	.178	.178	.178	.178	.178	.178	.178	.178	.178	.178	.178
Adjusted Coefficient	.247	.250	.253	.256	.260	.264	.267	.271	.275	.280	.284
<u>WATER:</u>											
Empirical Coefficient	.010	.006	.007	.007	.007	.007	.008	.008	.008	.009	.009
Wage Component (58%)	.006	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004
Operating Costs Component (42%)	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004
Adjusted Coefficient	.010	.010	.011	.011	.011	.011	.012	.012	.012	.013	.013
<u>BUILDINGS:</u>											
Empirical Coefficient /b	.0050	.0050	.0050	.0050	.0075	.0075	.0125	.0125	.0125	.0125	.0250
<u>MEMO ITEM:</u>											
Wage Creep Index (4.4% p.a.)	1.00	1.044	1.090	1.138	1.188	1.240	1.295	1.352	1.411	1.473	1.538