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Cost Saving Innovations  
In Canadian  
Local Governments



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INTRODUCTION

PURPOSE OF THIS STUDY:

For a variety of reasons local governments in Canada seem to be only slightly interested in the introduction of cost saving innovations. At least part of the responsibility for this must be placed at the door step of a rather poor information gathering and dissemination system.

The Bureau of Municipal Research has watched very carefully the development of a very comprehensive and successful programme in the United States whereby information on cost saving innovations is gathered and distributed by the International City Management Association. While we were aware that some Canadian municipalities were taking advantage of this U.S. based programme, we felt that a Canadian effort could produce a very positive impact. The timing for the introduction of such a programme could not be better. Municipalities are experiencing difficulty in satisfying existing programmes and services with available revenue. It was felt, therefore, that the initiation of a programme to document and share information on cost saving innovations was timely and feasible.

A proposal was developed for submission to the Ministry of State for Urban Affairs which basically consisted of three phases:

Phase 1 was proposed to be an effort to document cost saving innovations underway in Canadian municipalities, as well as municipalities outside of Canada.

Phase 2 was to be a more in depth evaluation of the actual impact of certain cost saving innovations and the factors which led to the success or failure of certain innovations under varying conditions, (using the case study of four or five innovations).

Phase 3 was to be an examination of the feasibility of establishing information transfer mechanism for cost saving ideas in Canada.

This report on the results of Phase I identifies several cost saving innovations from Canada as well as other countries. Canadian information was obtained by use of a questionnaire mailed to a number of municipalities across the country while the foreign experience was compiled from existing studies.

No study of this type had ever been attempted before in Canada and we were somewhat surprised and quite pleased by the very positive response to this initial effort.

BACKGROUND:

There was a time not too long ago when municipalities in Canada as well as in other western industrialized countries enjoyed a fairly trouble free existence. To be sure, there were the ongoing problems of providing sufficient housing for citizens, an efficient transportation system, standard municipal services such as garbage, fire, and police, as well as a growing list of social services such as day care. This rather tranquil period in the 1960's and early 1970's did have its anxious moments, as there emerged a growing concern for the environment and the quality of urban life, not to mention the continuously rising cost of providing this ever expanding range of services to the citizenry. However, because of the general economic growth that was being experienced, money could be fairly easily found either at the local level or at a senior level of government to fund programmes aimed at addressing the prevailing problems of the day.

Many municipalities in northeastern United States were undergoing a special phenomenon characterized by the flight of middle and upper-middle class citizens to the suburbs away from the central city creating a drain on municipal tax dollars. Senior levels of government hurried about designing programmes to address this problem and related problems while other parts of the U.S., specifically the south, mid-west and the southwest, primarily because of their favourable climate, were experiencing rapid growth and the problems associated with a large influx of population.

In the meantime, Canada was experiencing more or less a steady growth in its urban areas with no special distortions. There was the normal movement from rural to urban centers and some inter-regional relocation was occurring due to economic hardship in the Eastern Provinces and cultural irritations in French speaking Canada. However, urban growth in the 1960's and 1970's was primarily due to immigration.

Some new and significant issues were starting to have an effect in both Canada and the U.S. In nearly every North American city, the emergence of strong public employee unions became one of the dominant issues not only in terms of how municipal services were provided but more importantly what the cost of those services would be.<sup>1</sup> No longer satisfied with the promise of long-term security, municipal employees demanded and got parity with the private sector to the point where many now enjoy a superior position in terms of pay, fringe benefits and working conditions.<sup>2</sup> Also, as North America entered a general economic recession in the 1970's, budgets of senior level governments tightened, and as business development slowed, municipalities experienced slower growth in their assessment base. All of these problems came to a head in the United States in the early 1970's and are now starting to dominate the municipal scene in Canada.

The single most significant indicator that the public has become very displeased with government spending was the recently passed Proposition 13 in California. Without a doubt, this represented an extremely important message from the public to their public officials "cut government spending, do it now" was the cry. Of course, citizens have always complained that taxes were too high and yet when efforts were made by officials to reduce services in order to reduce costs, various special interest groups in the community emerged and bitterly complained that their service should not be the one to be so affected. Municipal politicians and civil servants continue to be caught in the trap of having to provide an expanding level of service with a financial base that is not expanding as fast. However, a few municipalities have taken it upon themselves to break ranks and challenge the traditional way of doing business. They have declared war on rising taxes with a fairly unfamiliar tool on the municipal scene: namely innovation. Cities like Dallas, Texas, and Scottsdale, Arizona, in just a few short years have reversed the cycle of increasing taxes and decreasing municipal services. By taking a hard look at every aspect of their municipal operation and challenging the traditional way of doing things, these cities have actually reduced real estate taxes in each of the last three years while increasing the level of service. And, while these two cities stand out as shining examples, there are others that are doing a commendable job of balancing their budgets and still many more that are slowly but surely trying a few of the innovations and new techniques that have been tried and proven by cities like Dallas and Scottsdale.

Many innovations are technical, such as the one-man garbage collection system in Scottsdale where a mechanical arm reaches out to collect large barrels of refuse at the curb side. What a contrast to the traditionally three-man crews that still exist in many North American cities. The computer is also making its contribution by designing more efficient garbage collection routes and developing models that help to find the most suitable location for proposed fire stations. In Dallas, Texas, the computer helps that City put all cash and cheques directly into the bank on the date of receipt, helping to earn a handsome 18 million dollars in interest in one year. Other innovations are not as technical but no less significant. For the past seven years, a private profit-making fire service has provided Scottsdale's fire protection. Using innovative equipment and manpower deployment, combined with the unique combination of full-time and part-time fire fighters, that City has managed to reduce its fire costs to the point where they are one-third of the cost of an average city of similar size in the United States. And, for the doubting Thomas', we should add that their fire insurance rates, as well as their property loss record, is as good or better than municipalities with a traditional fire department.

There were those in the United States in the early 1970's who saw this changing trend in municipal operations and quickly perceived the need to share this important information about municipal innovations between and among the innovators and the potential innovators. The National Commission on Productivity and Work Quality was established and the important process of documenting the growing list of innovative municipal reforms and technology was begun.



While many of the circumstances leading to the fiscal dilemma of municipalities in the United States were occurring in Canada, only recently have Canadian municipalities actually experienced severe difficulty in finding sufficient revenues to balance their budgets. This study is recognition of the fact that Canadian municipalities, while probably not in the dire financial straits of many cities to the south, nonetheless have a growing need to find less expensive ways to provide municipal services. Can we learn from the experience of our neighbours to the south and elsewhere? Can we quickly enough identify and implement innovations in Canadian municipalities to avoid the problems caused by budget balancing methods that include arbitrary across-the-board reductions in departmental budgets and/or the heavy-handed elimination of certain programmes and services which may be needed by the citizens but are seen as politically expendable by frustrated and confused politicians? Hopefully, this study will help not only to identify the many innovations which are being tried and proven in Canadian municipalities, as well as elsewhere, but will also go a long way towards identifying the factors that can lead to an increased receptivity to these ideas on the part of elected and appointed officials, as well as the general citizenry.

#### FACTORS AFFECTING LOCAL GOVERNMENT INNOVATION EFFORTS

##### The Monopoly Situation

How much truth is there in the almost universally accepted proposition that government generally, especially local government, is very oblivious to efforts to find more efficient and effective ways to provide necessary services? The answer will obviously vary from one community to another but a review of municipal practices will reveal an alarming resistance to change as evidenced by the presence of operating procedures sometimes two and three decades old. Certainly the old password in government, "if it works, leave it alone", has been readily passed down from council to council and department to department. Progressive changes have been taking place in many cities but certainly not at the same pace as has been the case in the private sector.

The basic difference between the public and private sector in terms of motivation to change lies in the fact that in most cases the public sector operates with a virtual monopoly over the services it provides. The private sector is constantly on the lookout for better, more efficient ways to provide goods and services, while the public sector has not felt the need to do the same. Competitors in the private sector continue to search for ways of reducing cost in order to grab a bigger share of the market and eventually increase the single most important component of a capitalistic economy: profit.

It has often been the case that the public sector has decided a certain service was not adequately provided by the private sector (parking, transit, health care, insurance, housing, etc.) and decided to enter the marketplace

health care, insurance, housing, etc.) and decided to enter the marketplace in an effort to give better and/or cheaper service. In many instances, these intrusions into the private sector were considered to be justified, but in others, private enterprise has complained that government was in fact interrupting the free market system. Complaints centre on the ability of government to avoid red tape, using tax revenues to subsidize their operations, and generally force private enterprise into a less competitive position.<sup>5</sup>

Regardless of the actual negative or positive impact of such intrusions, the general ability of the public sector to create and maintain monopoly-type advantages is clear.<sup>6</sup> While this may not represent the only reason for the lack of public sector innovation, it is fair to assume that this monopoly situation is a prime factor.

##### The Research Vacuum

Another reason often given when explaining the lack of innovation in the public sector, especially at the local level, is the unwillingness of public officials to provide sufficient funds for research. Usually short-range in their thinking (due to frequent elections), public officials have been far too busy filling pot holes and replacing streetlights to initiate expensive research projects locally or through their various associations. Traditionally, local government has looked to the senior levels of government for assistance or to the private sector in the hope that some technology could be transferred.<sup>7</sup>

Where research has occurred, the emphasis has been on equipment-oriented technology as opposed to operational reform, with the occasional exception being research into structural reform with an emphasis on studies examining the "manager" form of government, different kinds of elective procedures, and other organizational changes. Very little, if any, effort has been devoted to actual operational reviews into basic services like fire, police, or recreation.<sup>8</sup>

##### Rising Demands for Service

In spite of the apparently secure monopolistic position enjoyed by local governments, they have been going through a substantial transition over the past 20 years. The emergence of public unions and a greater demand for services to deal with rising crime rates, increased production of solid wastes, changing and increasing travel patterns, the need for housing and family support services, as well as facilities to deal with an expanding availability of leisure time, have all contributed to a substantial increase in the size and cost of maintaining local government.<sup>9</sup> Initial response to this burgeoning local government bureaucracy came in the form of increased efforts to raise sufficient money either at the local level or from the senior levels of government to meet the cost of these services.

However, for a variety of reasons, money became tighter and municipalities were forced to look to the expenditure side of their budget to make ends meet. This meant either reducing service levels, which is not politically acceptable, or finding improved methods of providing the same level of services, otherwise known as innovation.

#### Local Parochialism

Municipalities have always, to some extent or another, shared information on the various methods of operation, resulting in a standardization of municipal services across North America. However, the very system of information sharing that helped to set the standard of service for fire and police protection, transportation services, and a whole range of local government services is now acting as one of the major deterrents to innovative reform.

Having established fairly acceptable methods of operation, local governments have become complacent and satisfied with maintaining the status quo. In the world of politics, every new idea brings with it the risk of failure and the possibility for each politician of not being elected again. In addition, the lack of competition provides a smoke screen which hides inefficiency. It is not surprising then that change and innovation often must take a back seat. Parochialism is thus encouraged and is, perhaps, the single most important factor standing in the way of local governments moving into the 21st century. New ideas are often not fully understood as they inevitably bring to the fore the obvious fact that someone else has thought of it first. Politicians and municipal staff alike are, therefore, often cynical about the value of transferring innovations from one municipality to another.

#### The Tight Money Situation

The current financial hardship has been the result of a wide-range of factors, some within the control of local governments and others very much beyond their control. While they have certain influence over the number and types of programmes operating at the local level, as well as some control over the local economy, many public officials are quick to point out that the more serious factors affecting the financial conditions of local government are well beyond their control. They point specifically to inflationary and recessionary cycles as well as specific actions by senior levels of government which dramatically affect how they conduct their business as well as the funds available to provide the ever expanding range of services.

Local governments complain that senior levels of government not only restrict the taxes that municipalities can impose, but also reduce grants and shift the responsibility for major programmes and services down to the local level. These efforts, local observers say, are designed to help the senior levels of government balance their own burgeoning budgets, but, in reality, only shift the problem to the local level. And so, faced with high service demand, less money and more programmes from the senior levels of government and spiralling cost, municipalities are indeed in a tight money situation.

#### FOREIGN EXPOSURE:

##### Varying Needs to Innovate

When comparing the efforts of various countries to implement cost saving innovations, it is clear that different factors have been present from country to country. For example, in Europe, innovation came about, initially at least, not so much as a requirement to save money but rather as a recognition of various types of physical limitations. In most western European countries population densities are higher than in North America. In Amsterdam, this was due to an actual shortage of suitable urban land. In other cities like London, Paris, and Hamburg, the constraints are historical. Development in these cities has occurred over two or three centuries with many smaller houses, narrow streets, and a very concentrated population to ensure access to markets and efficient movement of people.

North America, on the other hand, is an automobile oriented society, developed in the past several decades and with more land suitable for development.

There is a very strong tradition of historical preservation in Europe, whereas North America has been more inclined to tear down the old and rebuild. Europeans induced by history and physical constraints, have had to find special ways to provide public services, such as fire protection, transit, and parks and recreation, just to mention a few.

By contrast, the current surge of interest in municipal innovations in Canada and the United States has its roots firmly implanted in the need to carefully use scarce financial resources. The taxpayers' revolt has spurred local officials into looking for every conceivable way of streamlining their local government operations. Such action is not taking place in every municipality, but the number of cities involved has grown substantially. As previously mentioned, part of this tight money situation has also been the result of action by senior levels of government in reducing transfer payments to local government and/or passing down responsibility for certain programmes. Certainly other factors, such as inflation, growing strength of public unions, and increasing demand for services have contributed to the financial crunch for local governments in foreign countries as well.

##### Overcoming International Parochialism

Just as parochialism exists at the local level, there is an almost universal reluctance on the part of one country to accept and adopt innovations and ideas which are developed in another country. In examining the causes of the unwillingness of the United States to adopt innovations developed in Europe, there are several rationales from which to choose. The first is the founding fathers of the U.S. rejected traditional European government structures which they considered unsuitable to conditions in the new

country. Success and prosperity encourage an opinion shared by many in the United States that no one from outside a country that is so powerful and so rich could possibly have ideas which would be better than those developed from within.<sup>14</sup> The other rationale, supported by those who cling to the belief that geographical and cultural conditions are significantly different in the United States, is to negate the feasibility of any European innovations being transferable.

The reluctance of Canadians to adopt innovations from the United States is somewhat different. Some Canadians feel too many ideas, in government as well as in other fields, are forced upon them from the United States by the mere physical proximity of the two countries, and the fact that the United States is so big and powerful. There is a constant infusion of ideas and information by way of the media to the point where many school-age children are confused as to whether the country is headed by a Prime Minister or a President, or whether we have a parliament or a congress. Of equal importance is the fact that many U.S. cities have encountered unique problems in terms of housing, welfare, and public safety that are related to the racial situation, a factor not yet of comparable significance in Canada. Also, the differences in our form of government and geography encourage Canadian municipal leaders to discount innovations touted in the United States and to regard such innovations as not entirely applicable in Canada. And so it is that both the United States and Canada, albeit for different reasons, have resisted the exchange of valuable urban innovations to the probable detriment of their cities, and, no doubt, at considerable expense to their citizens. This situation is, however, changing.

#### An Emerging U.S. Information Network

Local governments in the United States were faced with revenue short-falls much earlier than Canadian municipalities. It is not surprising, therefore, that a more sophisticated network of information and idea sharing has been established in the U.S. Aside from this fiscal incentive, the whole urban fabric of the United States developed and matured earlier than in Canada. The larger number of cities and close proximity to one another also made information sharing easier and less costly. Organizations such as The National League of Cities, The National Municipal League, and the International City Management Association, have been actively transferring new ideas among American cities for decades.

The financial crunch of the late 1960's and early 1970's produced a fairly specialized need which was met in part by the creation of the National Commission on Productivity and Work Quality. Established in the early 1970's by the Federal Government, the commission's main responsibility was to research the various ways by which the private and public sector could become more productive. Experimentation, especially in the public sector, was the name of the game, and even where new ideas had already been previously tried, evaluation tools were not very sophisticated and comparative analysis from one city to another was practically non-existent. The commission, with

the help of other established agencies and new ones, such as Public Technology Inc., set about to document the many cost saving ideas which were being developed in municipalities throughout the country. A special booklet entitled "A Guide to Productivity in Local Government" was produced from an initial list of innovations submitted by interested municipalities and this list has continued to grow and be up-dated. Although the commission has been phased out, much of their important work has been passed on to other agencies, such as The International City Management Association. Because of the commission's efforts, many municipalities have changed their previously parochial attitudes and now view this type of information exchange as invaluable. Representatives of ICMA now handling the productivity guide indicate that the service is more than paying for itself and that municipalities are showing less reluctance than ever before to adopting new ideas developed elsewhere.

In Canada, conditions are different. There are fewer municipalities dispersed over quite a large area. Urban deterioration and financial stress have not yet reached American levels. Nonetheless, there is a growing need to develop improved methods of sharing information.

#### THE CANADIAN CONTEXT

Local government in Canada has very limited legislative and revenue-raising capabilities, and, therefore, must depend on the benevolence of the provincial and federal governments, as well as the understanding and co-operation of a citizenry that is becoming less tolerant towards every level of government where tax dollars are concerned. While we may tend to think of the now famous Proposition 13 in California and the wave of taxpayers' enthusiasm for cutting back government spending in the U.S., this current mania was not the main cause of local government concern in Canada.

For example, the financial problems of Ontario's local government began more than two years ago when the Provincial Government, faced with a growing deficit, decided to cut back significantly the percentage increase in conditional and unconditional grants. This fiscal restraint programme, which was first thought to be a scare tactic on the part of the Province, is finally being perceived by local government in the actual context that it was intended. That is, the Provincial Government fully intends to balance its sizeable budget and force municipalities to cut the so-called fat out of their operations and raise additional revenue, if that is deemed necessary, through increases in the local property tax. Local governments across the province have spent the last few years trying to cope with this fiscal restraint programme and have often done so by depleting reserve funds, delaying capital projects, ordering across-the-board reductions in operating budgets and, in some cases, eliminating whole programmes where it is deemed politically expedient to do so.

Very recently, the Province of British Columbia froze the municipal general purpose mill rate at the 1978 level to control property tax increases. The Finance Minister of that Province said that increases in municipal, regional and hospital district budgets would be limited to 5 per cent, and that municipalities would be required to use their unspent 1977 and 1978 reserves as revenue during 1979. The Minister said: "The people in this province are expecting this kind of restraint action to try to control their property taxes -- they're very concerned for their taxes."

Many Canadian cities, especially the larger complex ones where more services and programmes are required, are now faced with the prospect of either cutting essential services and/or raising property taxes--options which are obviously not politically appealing. Faced with this dilemma, more cities are looking for innovative and imaginative ways to provide the range of municipal services that the taxpayers still demand. Such innovations are sometimes found in professional magazines or during attendance at conferences. However, they do not typically reach a large number of municipalities nor has the implementation rate been very high in those municipalities that have been able to transfer new technology and approaches from one municipality to another.

#### WHAT IS AN INNOVATION?

Innovation, particularly within the context of "Cost Saving Innovations in Local Government", is not the easiest of terms to define. One definition says that an innovation is simply a new way of combining the input so as to achieve a greater level of output for the same aggregate level of input.

However, for the purposes of our study, an innovation will be any idea, concept, or technology which has not been widely adopted by local governments and produces a cost saving while not producing a corresponding reduction in the level of service.

Innovations generally fall into three broad categories. They can be either technological innovations, managerial innovations, or client-oriented innovations. Technological innovations involve a new process utilizing a specific machine, material, chemical or analytic routine. Managerial innovations on the other hand usually deal with specific administrative policies or practices that adjust the government infrastructure or a particular operating procedure. And, finally, client-oriented innovations are an attempt to better understand and meet the needs of citizens. Citizen participation in local government is the underlying issue of this type of innovation.

The types of innovations that have typically occurred in the past at the local level of government have been incremental by nature. That is, change in a particular department occurs over a long period of time with a number of small innovations taking place quite separately from one another but having the overall effect of generally improving the method of operation. This contrasts sharply with the kind of innovation that is being called for now as local governments have an increasingly difficult time balancing their very substantial budgets. A sense of urgency surrounds this problem and many jurisdictions have ruled out the acceptability of continuing the incremental approach.

The seriousness of the problem facing most municipalities now dictates that changes occur much faster than in the past and that they be on a larger scale. There appears to be a general perception that local government spending is so far out of control that only this kind of severe broad sweeping action will reverse the dangerous trend. In this regard, New York City's all too famous flirtation with bankruptcy has acted as an extremely effective warning signal that municipalities better get their act together very soon.

#### The General Diffusion of Innovations

There is a general sequence of events that occurs in the process of developing and distributing any type of innovation. The five frequently mentioned steps in this process are as follows:<sup>15</sup>

- 1) Innovation discovered and tested in the laboratory.
- 2) Innovation further tested and demonstrated in the field.
- 3) Innovation communicated or diffused.
- 4) Innovation tested by the users.
- 5) Innovation adopted or rejected by the users on the basis of their testing.

One of the most serious problems facing municipalities is that this general diffusion process takes a much longer time to occur in the public sector than in the private sector.<sup>16</sup> As mentioned earlier, governments generally have a monopoly on the services that they provide and together with the protection of the status quo, this does not create the same sense of urgency about developing and implementing new ideas as is true in the private sector of a capitalistic economy. In fact, industrial espionage exists to such an extent in the private sector that competitors are sometimes able to develop and market new ideas or products before the originator. We can rest assured that similar spy tactics do not occur as municipalities endeavour to find new ways of providing their services. While a private sector innovation might take several months and, in some cases, a few years from the identification to the implementation stage, municipalities often face a multi-year cycle before even moderate acceptance of a new idea takes place.

Also, as previously mentioned, this attitude coupled with a shortage of funds dictates that revenue for research and development is not readily forthcoming. Senior levels of government have tried, from time-to-time to prime the idea pump but with limited success due to their inability to correctly perceive the problems and develop practical solutions in time to make any difference.

Diffusion has always been affected by the urgency associated with the development of new ideas be they in the areas of pollution abatement, weaponry development, space technology or product improvement. Certainly the same could be said of the local government sector and, perhaps, the recent financial hardship being experienced by many municipalities has finally provided<sup>17</sup> the impetus to substantially speed up this general diffusion process.

FOREIGN EXPERIENCE WITH COST SAVING INNOVATIONS

Experience with cost saving innovations in the United States and Europe reveals many similarities and a few unique differences. Using the International City Management publication The Guide to Management Improvement Projects in Local Government and Council for International Urban Liaison Newsletter "Urban Innovations", we will review several of the more recent innovations from countries other than Canada.

THE UNITED STATES EXPERIENCE

ICMA publishes The Guide to Management Improvement Projects in Local Government every two months with approximately 50 innovations featured in each edition. With more than 300 innovations per year to review and consider, American municipalities have a large selection from which to choose. Many cities no doubt look for specific solutions to previously identified problems, while others review each innovation hoping to hit upon some that can be transferred successfully to their jurisdiction. Many of the innovations featured are fairly well known to most municipal observers, and still others produce marginal financial savings. We will review some of the more significant innovations. A complete list of the United States experiences is available in ICMA Guides from the Washington, D.C. office of ICMA.

General Administration

Savannah, Georgia (115,000) has instituted a resource management and control system with three purposes: (1) to improve productivity in city departments (realized a savings of \$500,000 in 1978); (2) to improve management control through the use of a system which integrates budgeting, work scheduling, work measurement and evaluation; and (3) to create the in-house capacity to carry out an ongoing productivity improvement programme. Consultants were hired to train 25 city employees in resource management techniques and the construction of an ongoing management control system -- the consultants provided technical assistance through the two pilot projects, while inhouse staff performed the studies. Each operation and staff unit in the city organization is studied for three to four months. The project phases included orientation, operations review, methods analysis and improvement, work measurement, standards development, reference reporting, manpower planning, installation of a management reporting system, and system maintenance. In the first two areas studied, recommendations to reduce staffing levels have been accepted and amount to savings of \$200,000. Throughout the study, heavy stress is being placed on obtaining the understanding of and commitment to the system and its techniques by the management and supervisory personnel in the department being studied.

New Rochelle, New York (75,385) decided to explore alternatives to traditional bank financing after they were forced to pay interest rates as high as 9.75% on one-year bond anticipation notes. One successful alternative was the private sale of notes to residents of New Rochelle. An advertisement was placed in a local newspaper offering \$165,000 in bond anticipation notes at 5% interest (the market was about 6% at the time) and in denominations of \$5,000. The ad showed the equivalent taxable yields. News stories appeared simultaneously in the newspaper and on the local radio stations. Written applications were accepted at the city's finance office. Each application was accompanied by a certified cheque equal to 2% of the amount of notes applied for. Applications were accepted in the order received. On the cutoff date, one week after the advertisement first appeared, \$1 million in applications had been received or requested. The \$165,000 in notes were sold to the first four individuals who filed applications. Although the note sale was a success from a financial and public relations point of view, the local newspaper demanded under the State's Freedom of Information Act the names of the four note holders. The City argued that disclosure would constitute unwarranted invasion of privacy, an argument which was rejected by the State Supreme Court. Therefore, the names of the note holders were disclosed. The City has yet to test the effect of such disclosure on future private note sales.

Sunnyvale, California (95,400) has developed several techniques to give management staff a new perspective and revitalize their jobs. A rotation on management people has been implemented. Over a three-year period, every management person, from foreman to department head, receives a rotating assignment in an entirely different slot in another department.

Oak Ridge, Tennessee (28,300) has a computerized inventory accounting system to maintain control and supply accounting information on 4,500 stock items and other items purchased directly by a department. The system generates output information for inventory control and develops information on materials cost for equipment maintenance and service work.

Fairfax County, Virginia (455,000) decentralized its inspection office and inspectors now report to three field offices close to the areas where they work. The inspectors have been relieved of certain clerical and scheduling responsibilities, freeing more of their time for inspections.

Public Works

Barrington, Rhode Island's (18,000) mandatory paper recycling ordinance requires residents to separate newspapers from other refuse for collection. Combined refuse will not be collected if a homeowner fails to separate out newspapers. Now 60% of all residents separate their trash, whereas only 20% separated it under an old voluntary ordinance. Citizens have reacted well to the ordinance and the city's revenues from the collection have tripled.

Milwaukee, Wisconsin (717,000) uses its recyclable wastes (solids left over after the sludge process, 75% organic) to produce a fertilizer called Milorganite (Milwaukee Organic Nitrogen). Milorganite costs more to produce than other fertilizers, so it is used for crops such as turf grasses and ornamentals. Between the years 1926 and 1960 the return exceeded the cost of processing the product. Since 1960, returns have paid for 20% to 25% of the operating budget.

Covina, California (33,000) experimented with a "Jumping-Bean Bag Loader" to greatly improve refuse collection and street sweeping productivity. On a successful one year test, bagged refuse was placed in the street near the curb, where the loader scooped it up while driving by at seven miles per hour. The plan was then to add street sweeping equipment to the loader and combine the two operations into one job. The system floundered in Covina due solely to opposition to mandatory bagging, which should be no obstacle to communities that already require refuse to be placed in bags.

Knoxville, Tennessee (175,000), through an Urban Mass Transit Administration (UMTA) demonstration project, is developing an overall metropolitan public commuter transportation service using ride-sharing as a method of solving metropolitan transportation problems at an economical cost. Although the results are not yet final, there have been certain accomplishments. Out of a work force of around 100,000, approximately 25,000 employees have expressed an interest in trying to improve their commuting. There are now 372 employees participating in the ride-sharing programme, served by a fleet of 65 vans, all privately leased or owned. Also, a computer ride-sharing matching data file is being maintained involving over 20,000 commuters. A programme of social service transportation brokerage using private business transportation has been started and results to date show cost savings and improved service.

St. Petersburg, Florida (236,000) has a programme to cut the damage caused by root growth in sewers, reduce infiltration into sewer lines, and lower the cost of removing the growth. It has been estimated that 80% of the 2,000 sewer stoppages in 1975 were root related. The city now uses a chemical treatment with soil-fumigant types of weed killer. Foam is squirted into the midpoint of the sewer line through 100 feet of polyethylene pipe. (A two-man crew treats 1,000 feet of sewer line per day.) The foam clings to the top of the pipe where roots enter and to the roots themselves, without blocking wastewater flow. This chemical treatment has significantly reduced the number of problem areas requiring root control work from 300 in 1973 to 69 in the first 6 months of 1975-76. The cost of mechanical treatment is \$210 per 1,000 feet of sewer-line compared to \$290 per 1,000 feet for chemical treatment. However, the chemical treatment is effective over two years, one more than for mechanical treatment. Root damaged sewerlines cost about \$4,200 per 1,000 feet of repair. Total savings are estimated in the vicinity of \$100,000 per year.

#### Public Safety

Palo Alto, California (56,000) has consolidated its fire department and reduced its costs (primarily salaries) without decreasing its service level. In May 1975, a feasibility study was completed which established that no significant service level reductions would occur and that substantial savings would accrue if consolidation took place. After all of the conditions established in the report were met, and the City Council approved the plan, consolidation took place in October of 1976. The consolidated fire department now maintains seven stations with thirteen first-line vehicles, 129 authorized positions which will be reduced to 117 as attrition occurs, and a budget of \$3.8 million. Palo Alto's expected net savings for the first year are \$136,000. Over a period of seven years, Palo Alto will save \$3 million with an estimated saving of over \$600,000 per year after the seventh year. In addition, the overall level of service increased as a result, since more firefighters can be placed at the scene of a fire.

Kansas City, Missouri (507,000) is in the process of implementing a plan to increase the effectiveness and productivity of the fire department. As part of the improvement plan an eight hour day, 40 hour work week has been implemented and a total of seventeen old fire stations will be closed and ten new stations constructed. Six mini-pumpers out of an eventual total of sixteen have been placed into service, and three quadruple combination vehicles are on delivery. All ladder field inspections take place around the clock while training, and apparatus and building maintenance, now occur during early morning hours. A computer based evaluation system tracks fire department performance as modifications are made. As a result of these improvements, fire fighter productivity has tripled. Mini-pumpers handle minor incidents with two firefighters rather than with a larger pumper manned by three or four. Problems are related to increased overtime, increased fuel consumption, and increased vehicle maintenance requirements.

Citizen involvement in burglary prevention has been thoroughly organized in Bellevue, Washington (68,200). One hundred and fifty block watches have been set up and have held meetings where police officers provide information on security, and on the burglary problem in general. Senior citizen volunteers have been trained to engrave property and to perform home security checks. Residential burglaries in Bellevue dropped 17% from 1975 to 1976, compared to an 83% rise in 1972-1975. Citizen reaction has been excellent once they attend a programme, though initial apathy is somewhat of a problem among citizens who have not recently been burglary victims.

Montgomery County, Maryland (600,000) provides immediate fire protection service to growing areas of the County by using relocatable fire stations. The relocatable stations are prefabricated, can be moved if service needs change drastically or if a permanent fire station has been completed, and provide flexibility in planning future permanent fire station sites. The first relocatable station was built at a cost of \$72,000 and consisted of two prefabricated modules and an attached roofed bay, housing one engine company and one ambulance. Twenty-five thousand (\$25,000) in additional money has

been budgeted for moving costs. Two more stations are planned with modifications at a total cost of approximately \$100,000 each (the cost will decrease in direct proportion to the number of times the station is relocated). The new stations will be larger, completely prefabricated, capable of being disassembled, and contain a drive-through feature for vehicles.

Fort Lauderdale, Florida (160,000) has reduced the city's traffic accident rate by instituting a "Selective Traffic Enforcement Programme" Fifteen civilians were trained as accident investigators and assigned to relieve fifteen police officers who formed a Tactical Unit to concentrate on reducing accidents at thirty-one hazardous locations. The Unit made recommendations on engineering changes which were immediately instituted. They also identified those violations most often causing accidents and directed enforcement accordingly. As a result, accidents have been dramatically reduced at each of the thirty-one locations. The civilian investigators have also become very proficient at accident investigation. They are well received by the public and the difference in salary between the aide and an officer has resulted in savings of approximately \$50,000 per year.

Tacoma, Washington (154,000) signed an agreement with its fire fighters which provided for the joint exploration of more productive uses of manpower and equipment. Agreement conditions were such that savings were to be used to increase salaries and reduce the work week. The agreement had mediated the closing of one fire station and redeployment of manpower and equipment to a specially equipped roving squad.

#### Energy Conservation

Little Rock, Arkansas (132,000) is in the process of reducing its utility expenses through modifications that have been made to the physical structure of City Hall. Once all the building modifications are completed, it is projected that the city will reduce its annual utility bills by one-third to one-half, and the costs of the changes will be recovered in less than one year. The modifications are the result of a computer-based technique which examines possible building modifications and compares the cost of the changes to the possible savings. This energy audit has allowed the city to determine in advance if the benefits would outweigh the expenses. Some modifications include: exchanging light fixtures and moving them closer to work areas to provide more illumination with fewer bulbs, thereby reducing heat buildup; placing reflective mylar film on windows facing east and west which reduces the amount of heat transmitted through them by 75%; and adding a clock to the heating and cooling system which shuts the system off automatically at night and on weekends.

Kern County, California (248,700) has installed a new communications system that depends on solar energy. During the 1970 fire season, the demand on the county's existing communications system reached a critical stage. As a result of this crisis, the county installed a new county-wide communications

system. Solar light energy converter units were set up to power a 24 volt microwave and 12 volt UHF repeater station with an installed capacity of 3.5 KW. As a result, the county estimates its annual energy savings at \$10,000. The installation cost for this unit was equivalent to the construction of a power line from the utility's existing facilities to the county's station.

The Portland, Oregon (383,000) Housing Authority has discovered a way to make tenants more comfortable while reducing the costs of heating oil by as much as 19%. The method has been tested for a period of one year in a small group of living units. The device makes use of the fact that heat rises in a room to be trapped against the ceiling, where it is wasted. The device, called a Thermo-Cycler, functions by drawing the super-heated air next to the floor level. A very small motor draws so little electricity that it may cost no more than \$.07 per month, operating 24 hours a day. The air movement is so gentle (at 22 cubic feet per minute) that it creates no perceptible draft and a barely audible hum. After making comparisons between the amount of fuel oil that was used before installation of the Thermo-Cyclers and after their installation, it was found that 3,729 gallons were saved (\$1,417.02). As a result, the tenants are more comfortable and thermostats can be set lower.

A 10-megawatt power generation unit at the Moran generating station in Burlington, Vermont (42,000) was converted to enable the burning of wood chips. The project, undertaken to develop the use of renewable energy sources with a view toward diversification of fuels for power generation, will ultimately bring savings to users. By burning a combination of 75% wood chips and 25% oil at the facility, it has been found that power can be commercially produced at just over two cents per kilowatt hour. The cost for power generation with coal in the same plant is three cents per kilowatt hour. As a result, Burlington voted in favour of an electric department proposal calling for construction of an additional 50-megawatt wood-fire power facility. The Moran facility is the only one in the U.S. that can burn four fuels in one place -- coal, oil, natural gas, and wood chips.

Dade County, Florida (334,000) established a rationing system to conserve gasoline as well as to insure the availability of sufficient fuel for emergency services. In the initial months of the rationing system, daily fuel consumption for county vehicles decreased from 16,000 gallons per day during 1973 to 10,900 in January 1974, 10,300 in February, and 8,500 in March. The savings come to approximately 43 percent and were accomplished without an appreciable decrease in overall services.

#### Parks/Recreation/Libraries

Klamath Falls, Oregon (7,000) has hired mentally and physically handicapped personnel to perform park maintenance activities during the peak use period of the summer months. Performance specifications covering frequency of mowing, irrigating, restroom cleanup and litter pickup were established by city park officials and their requirements were given to the Klamath Work Activity Centre, a local non-profit agency which is responsible for

administering state aid to handicapped adults. They submitted a bid to the city which included all labour and equipment necessary to perform the maintenance tasks, and also included the services of 35 individuals with both mental and physical handicaps, but who were capable of being productive if given the right jobs. Not only has park care been improved, but vandalism has been reduced due to the increased number of individuals in the parks. Public support of the programme has been outstanding and citizens are pleased with the improved maintenance standards.

St. Petersburg, Florida (236,000) reduces grass cutting and trimming through a chemical control programme. The city currently maintains thousands of feet of narrow, grass covered areas along fence-lines, flower-beds, paved areas, etc. 60% of these areas are now being controlled through applications of chemicals, twice each year. The remaining 40% is maintained by mechanical trimming and cutting, with nine operations being required, on the average, for each area. However, the chemical application gives comparable control at lower costs. Mechanical cutting costs \$2.70 per 100 square feet, while the cost of chemical maintenance is \$1.74 per 100 square feet, a difference of \$.96 per 100 square feet.

Rialto, California (28,000) has worked out an arrangement for a private corporation to develop and manage a racquetball facility on city park land, receiving in return a percentage both of the gross and net revenue. By this means, the city will get a new facility at no front end cost, which will be managed without an increase in city staff, and will be self-supporting. The agreement provides for payment for the facility to be made from revenue over a ten year period. The management contract has a five year initial term and optional five year renewal terms.

Casper, Wyoming's (39,400) public library began to use a cable television channel in 1971 to answer reference questions, telecast library story programmes, telecast public forums, present special holiday programming, and communicate with local public interest groups. The library now is moving towards a total information retrieval system using computers, microfilm, and videotape.

Scottsdale, Arizona's (92,000) library programme includes a computerized circulation system which records where a book is, issues overdue notices, identifies patrons with a history of keeping books past due, updates patron preferences, and schedules bookmobile routes. The system also provides cost information, invoice summaries, purchase orders, and receiving lists.

#### Social Services

Nassau County, New York (1,412,400) analyzed the operations of its social services department. Tasks were standardized and reassigned, workloads were equalized, duties were specialized, and several work units were consolidated.

#### CONCLUSIONS ON U.S. EXPERIENCE

In the early stages of U.S. experience, the National Commission decided no attempt would be made to verify the stated success of various innovations submitted by local jurisdictions. It was felt this would be far too expensive and that individual users of the information would have to determine whether the cost savings, as claimed, were realistic or not. This decision led to a very real operational problem for the central information gathering agency as well as those municipalities that were forwarding their innovations to be included in the guide. As more and more users of the data began to contact cities to get detailed information on various innovations, an administrative overload developed. The expense of responding to all of the various requests for additional information became prohibitive and some action was necessary.

After the programme was transferred from the National Commission on Productivity and Work Quality to ICMA, a new service was added. Contributing municipalities were asked to forward evaluations and back-up information for the various innovations submitted. Instead of users contacting the contributing municipality directly, they now contact ICMA and pay a nominal fee for this clearinghouse service. Although contributing municipalities are probably still contacted, the extent of this practice has been reduced substantially with all parties in the process being more satisfied. ICMA reports that revenue, from the users of the guide and the back up material is now paying the entire cost of maintaining the programme.

#### THE EXPERIENCE ABROAD

Many foreign experiences with urban innovations stem from unique physical circumstances or historical influences to protect and improve the quality of urban life. Cost saving ideas have been forthcoming as well, and several will be featured in this section of our report. The fairly new interest in foreign experience in dealing with urban problems dictates that available information will be somewhat limited. We depend primarily on information gathered by the Council for International Urban Liaison, the only truly international agency currently gathering such information. While it was preferable to list innovations from the U.S. by department, it is more suitable in the case of other foreign experiences to list innovations according to country of origin only. There are a limited number reviewed, but they give an excellent sampling of the innovations that have been developed over the past few years.

#### West Germany:

Government agencies in West Germany will not subsidize the construction of a swimming pool at a public school unless the facility has an adjustable floor that can be raised and lowered hydraulically. The first North American model has been installed by the YMCA in Olean, N.Y., site of the manufacturer's new



U.S. subsidiary. Weighing 80 tons, the pool floor, in a typical olympic size installation, is lifted by four hydraulic ramps. It can be raised or lowered at the touch of a button from one to ten feet and, if desired, can be lifted to where it is flush with the surrounding area and becomes a gym floor. The conversion takes five minutes. The hydraulic lift equipment alone costs approximately \$30,000 per installation. The lift enables handicapped in wheelchairs to be lowered and raised out of the pool without assistance. The pool also works well in competitive swimming by eliminating backwash and for diving practice by converting the entire swimming area into a diving tank. When the pool floor is raised the diving boards are automatically tilted to a 90 degree angle -- an important safety feature as is the raising of the floor to the deck level when the pool is not in use. A self-cleaning system using jet leads for controlled water withdrawal from the pool floor performs a continuous cleaning operation.

Downtown pedestrian malls were first widely used in Scandinavia and West German cities, where auto traffic choked narrow streets. Some have been introduced in America, but their popularity is almost exclusively in small cities (Minneapolis being a major exception); the notion that auto access is essential to downtown commerce has prevented full-scale downtown pedestrian malls in large U.S. cities. The experience in Europe and in small American cities indicates that carefully designed traffic-free zones (taking into account the needs of merchants, citizens and the city's traffic flow) do not diminish downtown business and indeed can enhance downtown activity.

In Munich, West Germany, utility lines are under sidewalks instead of roadways, thus avoiding the need to tear up roads and impede traffic to make repairs. The sidewalks are precast concrete squares that can be removed for easy-access utility repairs.

Even so mundane a piece of "urban furniture" as the fire hydrant has a new twist in many European cities that save both capital investment and maintenance. Fire trucks carry the fire hydrant and plug it into an underground access covered by a simple manhole cover.

Portability has enhanced recreation services for children in Germany. In Cologne, converted moving vans are outfitted as mobile playgrounds that can be set up in one hour on a parking lot, open air market area, square or other vacant space. The van offers climbing equipment, swings, a slide, basketball nets and other game equipment. On rainy days, children participate in activities inside the van. The van travels from neighbourhood to neighbourhood on a regular schedule.

In Germany, parking lots have been covered by slabs perforated so that grass can grow. The lawned parking lots absorb runoff and keep down surface temperatures better than concrete/asphalt versions that occupy large areas in most cities.

A powerful truck-mounted suction nozzle tested by Stuttgart's street cleaning department over the past three years has cut the cost of cleaning gutters and curbsides by about half. The department calculated that the \$600,000

investment costs voted by the city council to equip service vehicles with the vacuum cleaner units will be amortized in little more than a year through lower personnel expenditures. According to the Stuttgart figures, manual sweeping costs the city the equivalent to \$55 per gutter kilometer while the vacuum cleaning operation runs to about \$30 for the same length. An additional major advantage of the system is that it works even if cars are parked along the curbside lane. The extended suction hose is swung by the single attendant over and around parked cars and other obstacles.

#### ISRAEL

Instead of parking meters, the city of Tel Aviv, Isreal (1,150,000) sells booklets of ten, one-time parking permits through a wide variety of concessionaire vendors. To park in non-free areas, one must display a ticket with the date and time torn out, which invalidates the card for future use. Booklets are available for various time periods, and can be combined if more time is needed, up to the legal limit for the parking zone. The city avoids all costs for parking meter maintenance and coin collection, and has seen its parking revenues go from under \$21,000 per year to over \$84,000.

Parks and recreation facilities for the blind are provided in Vienna and Jerusalem. They feature sounds (of rushing water, a wind harp), scents (of an aromatic garden), braille signs, relief maps, and such activities as music lessons, gymnastics and chess.

#### JAPAN

From Japan come audio traffic signals for blind pedestrians. Five thousand of the low-cost signals are in use in major metropolitan areas of that country. Recently a demonstration signal has been installed in Washington, D.C. A simulated bird call device trills while the green light is on; the volume is raised or lowered according to the surrounding noise level.

#### AUSTRALIA

As an alternative to retirement or nursing homes, "Granny Flats" have enabled many elderly persons in Australia to live near their children and still maintain privacy and independence. The Victoria Housing Commission, which pioneered the project, rents one-bedroom prefabricated homes to the elderly, and places them on their children's property. Since they are portable, they can be removed when no longer needed. Rockville, Md. is planning a pilot project.

#### FRANCE

A number of major cities throughout Western Europe are leasing advertising space on public property thereby providing public information facilities,

adding to downtown vitality and at the same time turning a profit. In Paris, for instance, the city realizes \$1.6 million a year in profits from a concessionaire who sells space for notices and posters on 400 street columns. West Germany alone has 77,000 columns.

#### SINGAPORE

Ways to improve transportation and reduce downtown traffic congestion are the subject of innovation in many countries. One of the most drastic measures has been taken in Singapore. Any vehicle (except buses and four-person car-pools) must show an expensive sticker on the windshield to enter the downtown area during the morning rush hour or pay a heavy fine. An impressive reduction of rush-hour traffic and pollution levels has been matched with better bus service.

#### SWEDEN

Rural mail carriers in Sweden have been acting as extension agents of the social services. The postmen no longer merely deliver mail; they are expected to call each time on those over 65 who live along their postal route. They chat, deliver medicines, help with filling out forms, pass on requests and report back to Headquarters if anything seems to be wrong. The local social service office is notified the same day to send a visiting nurse or social worker if help seems necessary. In emergencies where the old person is too ill or weak to open the door for the mailman, a call for immediate help is placed, and the mailman notifies neighbours and stays there, if necessary, until help arrives.

A computer that can register books and write postcards has been developed by Swedish electronics specialists and is already reported in use by major municipal libraries. Library routines handled by the computerized system include borrowing, registration of book loans and book reservations. The system can instantly name the nearest library holding a requested book, and it trips a signal automatically when a book on the request list is returned. Another signal instructs an off-premises computer to write a postcard informing the person who has reserved the book that it is available. The central unit of the computerized library service is a terminal for registration, data storage, communication, reference, and queries. Its components include a microprocessor, a memory and a communications processor. The terminal can be kept at a table behind the service counter ready for use. It is served by a keyboard as well as a display with 40 alphanumerical characters. Two bar code readers can read any type of bar code, allowing the title of the book and the borrower's library card which have bar-coded labels to be identified and registered.

The foregoing innovations clearly illustrate that North American municipalities can learn much from experience abroad. One obvious difficulty is obtaining detailed information on these foreign innovations since they are found in cities far away geographically and usually are reported in a foreign language.

Personal visits to foreign cities are expensive and not particularly popular with a North American public becoming less and less tolerant of spiralling government spending.

The Council for International Urban Liaison has been encouraging contact between North American cities and those abroad through specially funded projects such as seminars and the exchange of key city management personnel between cities. However, the number of city officials to be potentially involved in such programmes is limited. Perhaps the Council will establish a clearing house similar to the one set up by ICMA, thereby allowing more North American jurisdictions to get detailed information regarding some of innovations being developed abroad.

#### SURVEY OF COST SAVING INNOVATIONS IN CANADA

##### OBJECTIVE OF SURVEY

The questionnaire that we sent to Canadian municipalities was designed basically to retrieve information from appointed municipal officials on the types of cost saving innovations that have been implemented in recent years. Since, to the best of our knowledge, this is the first time that a study such as this has been conducted in Canada, we had little experience to draw on in attempting to determine how many cost saving innovations would be reported and how much analytical information would be available on each one. Also, we realized from the outset that soliciting such responses from municipal officials could produce a somewhat biased sampling of opinion as to the success factor of any given project. What we soon came to realize was that the relative success or failure as perceived by municipal officials is perhaps not as important as some other data. The mere fact that a cost saving innovation is still in place might indicate that a project is not an outright failure.

At this point, it then becomes a matter of determining the degree of success. While we asked questions pertaining to the amount of money saved as a percentage of the departmental budget and the city budget, we realized that this might not represent the true and absolute impact of any given cost saving innovation. Even questions aimed at determining an overall impact which were included would probably go unanswered simply because most municipalities have not yet developed a capability for, nor an interest in comprehensive cost-benefit analysis. Therefore, we placed our emphasis on questions related to the factors contributing to the success or failure of each cost saving innovation and the public's reaction to these innovations.

While we can appreciate the value of having comprehensive cost-benefit analyses, it must be understood that in reality such information very rarely exists and is especially difficult to produce when dealing with certain municipal services. Even the use of indicators such as crime rates, fire loss statistics, and other quality of life indicators is meaningless when we realize that so many other factors also affect these indicators and that many innovations only deal with a small portion of a certain municipal service.

It was our intention then, through this survey, to create a comprehensive checklist of cost saving innovations that have been implemented across Canada. We wanted first of all to produce a shopping list from which officials could, after some perusal, decide which ideas, if any, were worthy to be considered for transfer to their jurisdiction. If, at the same time, we could identify certain factors that led to the success of these innovations, then we will have performed an important first step in the process of documenting and understanding the nature of cost saving innovations in local government in Canada.

METHODOLOGY OF THE SURVEY

In order to gain a representative sampling from municipalities across Canada, we compiled a list of municipalities for each of the 10 provinces and 2 Territories. Approximately 100 municipalities were to receive the questionnaire -- 66 of these to have populations greater than 50,000 and 34 less than 50,000. The questionnaire was to be mailed to the Chief Administrative Officer, City Manager or City Clerk, whichever person was deemed to be in the best position to distribute said questionnaire to department heads for completion.

The actual questionnaire was a combination of multiple choice and statement type questions designed to permit accurate responses to each question. The exception to this was the question dealing with factors contributing to the success of the innovation where numerical ranking was requested. In order to keep the questionnaire as short as possible, we did not employ the usual cross-check questions as a means of testing the validity of certain responses. In this regard, we believe a legitimate trade-off was made in terms of keeping the questionnaire as short as possible thus optimizing the potential for the highest possible rate of return.

Only two major questions required more than a few words to answer. These had to do with why the project was undertaken and what specifically was done. Due to the incredible potential for variety in the kind of projects to be reported, we thought that a statement-type response was absolutely necessary in these two cases. With regard to the number of questionnaires sent to cities of over 50,000 (66), it was felt that cities with a higher population would be more likely to have considered and/or implemented cost saving innovations. Also, these cities would more likely have sufficient professional staff to allow for an accurate and speedy reply to the questionnaire.

Finally, because of the limited amount of information that can be gained from a 3-page questionnaire and the possibility that several municipalities might want to find out more about certain innovations, we asked if written evaluations of the project were available and for the name, address and telephone number of a person within each municipality who could, upon request, supply additional information on each cost saving innovation.

SURVEY RESULTS

Of 100 cities originally contacted, 30 have responded by forwarding questionnaires completed by their various departments. Several other cities responded by indicating that while they did not have innovations to share, they were very interested in the project and wished to be kept informed as the project proceeded. Responses from across the Country included eight provinces and one territory:

	<u>No. of Cities Responding</u>	<u>Questionnaires Originally Sent</u>
Alberta.....	2	5
British Columbia.....	4	15
Manitoba.....	3	4
New Brunswick.....	-	5
Newfoundland.....	-	4
Nova Scotia.....	1	5
North West Territories.....	-	1
Ontario.....	15	33
Prince Edward Island.....	-	2
Quebec.....	1	21
Saskatchewan.....	3	4
Yukon Territory.....	1	1

There were four municipalities under 50,000 population, eight municipalities with a population of 50,000 - 100,000, twenty-one municipalities with a population of 100,000 - 1,000,000, and one municipality with a population exceeding 1,000,000, which responded. A more detailed breakdown of the response by municipality, province or territory and population appears as Exhibit I. This response is excellent and provides a good sampling geographically and by city size.

These 34 cities returned a total of 161 completed questionnaires. While some cities returned only one questionnaire, others returned several, with the Municipality of Metropolitan Toronto leading the way with 23 completed questionnaires. Other cities returning a large number of questionnaires included the City of Edmonton returning 17, the City of Winnipeg returning 11, the City of Quebec returning 9, and the Regional Municipality of Hamilton/Wentworth returning 6. A complete breakdown of the questionnaires returned by City appears as Exhibit II.

INNOVATIONS BY CATEGORY

As might have been expected, reported innovations ranged widely across the whole spectrum of municipal operations. Practically every department and operating procedure has been touched by at least one or more of the responding municipalities. In order to ensure consistency of identification with innovations outside of Canada, we have used the topic headings presently found in the ICMA Guide to Management Improvement Projects. This should facilitate retrieval of information for those wishing to try innovations developed in both Canada and the U.S. The major departmental headings under which all innovations have been classified are:

- \* General Administration
- \* Public Works
- \* Finance
- \* Community Services
- \* Transportation
- \* Parks, Recreation, and Libraries
- \* Economic Development

Each of these major categories also have several subheadings to further assist in the proper identification of each innovation. In order to give some initial impression of the number of innovations that have been received in each category, the list of subheadings that follows also indicates the number of innovations received in each sub-area.

General Administration (25)

Planning & Development.....(2)	Management & Computer Services....(6)
Personnel.....(3)	Supply & Services.....(2)
Clerk's Office.....(5)	Telecommunications.....(1)
Building Department.....(6)	

Public Works (56)

Engineering.....(17)	Utilities.....(2)
Works.....(27)	Sanitation.....(10)

Finance (22)

Treasury Department.....(16)	Assessment.....(2)
Comptroller.....(4)	

Community & Social Services (8)

Social Services.....(7)
Community Services.....(1)

Public Safety (19)

Fire.....(11)	Police.....(6)
Health.....(2)	

Transportation (16)

Roads & Traffic.....(6)
Transit.....(10)

Parks, Recreation & Libraries (13)

Parks & Recreation.....(12)
Libraries.....(1)

Economic Development (1)

We can see from the list above that over one-third of all innovations were in the area of Public Works. This may be due to the ease with which services in that area can be measured and evaluated, but equally important is the fact that this area of municipal operations has some very highly trained personnel and professional engineers. With extensive training in efficiency techniques and the benefit of considerable private research and development, it is no surprise that Public Works leads the parade of municipal innovations.

Clustered well behind Public Works are the areas of General Administration (25), Finance (22), and Public Safety (19). General Administration is high primarily because it acts as a catchall for functions not easily classified. Finance is near the top due to the influence of the computer with many previously manual operations being converted to electronic data processing as well as the fact that this area naturally receives attention because it deals so directly with money. Public Safety probably is high on the list due to its perceived importance to the citizenry. This is an area of priority spending for every municipality and because so much money is spent on public safety services, they deserve attention when it comes to finding ways to cut costs. Other areas such as Community Services, Transportation, Parks, Recreation & Libraries, are either hard to evaluate or do not lend themselves readily to service modification. Transportation often falls into this latter category because the roads or transit costs are determined by a large network of expensive facilities and/or a service featuring high personnel costs.

This distribution of innovations very closely parallels the U.S. experience although no formal evaluation of the rationale for this distribution has been produced by any agency involved in the U.S. programme.

INNOVATION IMPLEMENTATION AND LONGEVITY

Responding municipalities were asked to indicate when the particular innovation they were reporting was first discussed, finally implemented and whether or not it was still in effect. Only a few innovations were discussed or implemented prior to 1970. A vast majority of the innovations submitted were first discussed in the 1973, 1974 and 1975 time period with implementation usually following 12 months afterwards. All but two of the 161 innovations submitted were still in effect in the summer of 1978 when the questionnaires were returned to the Bureau office.

PERCEIVED SUCCESS RATE

Respondents were asked to indicate the success rate of each innovation submitted. There was a range of five degrees of success with "highly successful" at the top and "failure" at the bottom. 159 of the 162 innovations were rated with 78 or nearly 50% considered to be highly successful. All but one of the remaining 80 innovations were judged to be either successful or fairly successful. Only one was rated a failure. This was a special case in Windsor where mechanized garbage collection was tried. The project was actually a success but could not be implemented because of high capital cost to users and the high existing efficiency level of the refuse collection service.

It is interesting to note the two innovations that were no longer in effect were not the two that did not indicate their success rate. In fact, they were rated as successful and fairly successful. We can only attribute the two incomplete questionnaires on the matter of success to an oversight. We must also take into consideration the fact that in every instance, innovations were submitted by department heads responsible for implementing and monitoring their respective innovations. There would be a natural reluctance to submit innovations that have not been successful.

FACTORS CONTRIBUTING TO SUCCESS

In addition to asking various municipalities to indicate the relative success of their innovations, we attempted to determine what factors specifically contributed to the success of the various projects and programmes. A list of 10 factors was provided on each questionnaire and respondents were asked to choose any and all factors that contributed to the success of their innovation. These factors were:

- (1) Co-operation from the public;
- (2) Co-operation from the employees;
- (3) Co-operation from politicians;
- (4) Co-operation from other departments;
- (5) Support from the media;
- (6) Thorough planning on the part of the department involved;
- (7) A dire need to save money;

- (8) Pertinent information on the experience of other municipalities;
- (9) Excellent evaluation model; and
- (10) The availability of implementation funds.

There was also space provided for other factors and many municipalities did mention some which were not on our list.

Since there was such a wide-range in the number of factors listed by each municipality and we needed to have a fairly accurate analysis, statistically we have included only the first five factors to be rated by each municipality. There is somewhat of a problem due to the fact that a few municipalities mentioned less than five factors but this should not render our ranking invalid. By applying a weight of one for the highest ranking, two for the next highest and so on, we are able to produce a mathematical weight for each factor contributing to the success of the various innovations. The following list gives that weighted average as well as the number of times each factor was listed:

<u>FACTOR</u>	<u>WEIGHTED AVERAGE</u>	<u>NUMBER OF TIMES MENTIONED</u>
Co-operation from the public.....	2.95	22
Co-operation from the employees.....	2.54	86
Co-operation from politicians.....	3.10	51
Co-operation from other departments....	3.20	62
Support from the media.....	3.50	6
Thorough planning on the part of the department involved.....	2.10	107
A dire need to save money.....	2.40	66
Pertinent information on the exper- ience of other municipalities.....	3.00	40
Excellent evaluation model.....	3.20	32
The availability of implementation funds.....	3.20	38

It should also be mentioned that the eleventh factor referred to as "Other" received an overall ranking of 1.7. Because of the special circumstances surrounding that item, we shall first deal with the 10 specifically listed factors and then explain those factors listed as "Others".

We can see from the above list that thorough planning on the part of the department was by far the most significant factor both in terms of having the best average as well as being mentioned the highest number of times. The dire need to save money had the next lowest average, however, co-operation from employees was the next most mentioned factor. In addition to these three factors, only co-operation from the public had an average of under 3.0.

If we look at these factors in terms of those which were internal, that is, within city hall, and those that were external or outside of city hall, we can draw a very interesting comparison. Almost without exception, the top five factors were internal factors such as co-operation from employees, politicians or other departments as well as thorough planning and the need to save money. The least mentioned or less important factors included co-operation from the public, support from the media or information on the experience of other municipalities--all outside-related factors. Within the municipal operation, it is also significant to note that co-operation from employees and other departments as well as thorough planning within the department affected ranked above co-operation from politicians. One could surmise from this that while politicians in many instances have the last word on whether something is or is not implemented, without the co-operation of other departments and employees, most innovations would not be nearly as successful as they are. Although a dire need to save money did not top the list in terms of the most important factor contributing to the success of various innovations, one cannot help but wonder how many innovations would have gone forward had it not been for this factor. Perhaps the real significance of this internal and external comparison can be seen in an evaluation of those factors listed under "Other". In a vast majority of cases, other factors were also internal with the availability of staff, the co-operation of senior management and the existence of employee incentive plans being the most frequently mentioned factors.

Another question that could be raised from this comparison of success factors centers on the importance of information from other municipalities. It is certainly clear that municipalities have done much of the planning and preparation for the introduction of various innovations without the help of extensive information from other jurisdictions. This does not, however, reduce the significance of sharing of information at least in the initial stages. Many suggestions provided by municipal staff may have been derived from their own reading of professional magazines, exposure to new ideas at conferences or other similar contact with other municipalities. Perhaps another reason why information sharing was not at the very top of the list as a factor contributing to successful implementation of innovations is the fact that currently only formal reports are documented by ICURR (Intergovernmental Committee on Urban and Regional Research) and very little innovation information has been put in report form.

In addition to asking each municipality to indicate factors contributing to the success of their innovation, they were asked to indicate which factor, if handled differently, might have made the project even more successful. Approximately one-half of the responding municipalities indicated that there were things that could have been handled differently. Once again, in nearly every instance, they related to internal planning or co-operation. Items frequently mentioned included more employee involvement, better employee training, better communication with the elected people, more money for implementation of pilot projects and more professional planning with the help of consultants. In a few cases, municipalities indicated that if co-operation has been more readily forthcoming from the provincial and/or federal government, their project could have been more successful.

AFFECT OF LEVEL OF SERVICE

The definition of a cost saving innovation in the case of this particular study means some hardware or operational change which produced a cost saving while not negatively affecting the level of service provided. There might also be situations where the budget was not reduced, though service was expanded. This would also qualify as a cost saving innovation. Therefore, we asked all respondents to indicate the affect of their particular innovation on the level of service provided.

Of the 129 responses to this question, 83 or almost two-thirds indicated that the level of service increased after the implementation of the cost saving innovation. 43 responses or one-third indicated that the level of service remained the same. Only three innovations were said to have actually reduced the level of service. In one instance, it was a rather minor reduction such as reducing the number of times that water meters were read. In another instance, it had to do with the re-allocation of resources which caused the reduction in one area of service provision but allowed for an increase in the level of service in another area.

REVIEWING 51 SELECTED CANADIAN INNOVATIONS

The following Canadian innovations have been selected from among 161 that were submitted for slightly more detailed explanation. They were chosen on the basis of originality, available documentation, amount of cost savings claimed, as well as an effort to obtain a fair geographical distribution across the country. The Bureau has not attempted in anyway to substantiate the cost savings claimed by the various innovations.

A summary of the remaining 110 innovations appears as Exhibit IV.

GENERAL ADMINISTRATION

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Municipality: Edmonton, Alberta      Population: 469,917  
 Date of Innovation: 1975              Service: Computerized Transactions

Reference #74)

The City's Department of Central Supply and Services initiated a programme in 1977 to centralize all matters related to the rental of commercial equipment. The purpose of the centralization was to provide better management of the civic fleet, to ensure consistency of rental rates, to collect historical data for future purchasing decisions and to provide detailed data for job costing. To increase overall utilization of equipment using a computer, all daily transactions related to the rental of commercial equipment are monitored from the initial issuing of the purchase order to the final payment.

The programme has not yet been formally evaluated to determine the actual cost savings that are being realized; however, initial reaction by department heads rate this programme as being successful and that overall there has been an increase in the utilization of the City's equipment.

Among the factors contributing to the successful implementation of this project, co-operation from politicians and from senior management are seen as the two most important factors. Also high on the list was the need to save money. While no formal evaluation has been prepared, it is perceived that the public's reaction to this change has been positive.

The City will perform an overall cost comparison with previous years' experience, as well as determine the increased utilization of existing equipment.

For more information contact: Mr. R. R. Coutts, Branch Manager, Central Supply and Services, 10535 - 96th Street, Edmonton, Alberta. Telephone: (403) 428-5654

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Municipality: Toronto, Ontario Population: 2,154,279  
Date of Innovation: 1974 Service: Document Retrieval and  
Reproduction

(Reference #25)

The Department of Management and the City Clerk's Department has implemented a text processing system. The system was introduced in an effort to cope with a 5% annual growth in clerical workload, as well as to extend the overall document retrieval capabilities of the City's information system. There was also a considerable financial incentive since the City estimates a cost savings of at least \$100,000 per year on type-setting charges. Camera ready copy can be obtained directly from the word processing unit. The City estimates a savings of \$30,000 per year from not hiring additional personnel to handle the increased paperwork.

Features of the programme include an on-line text preparation and editing capability, document retrieval, photo type-setting of reports, a soon to be introduced automatic indexing system. The project, although only implemented in April 1977 on a full scale basis, is determined to be highly successful.

The City has not fully documented the effect on cost or service level, but has an estimated annual savings of \$130,000 per year with increased workload being handled in less time than in the past. (Refer to Appendix III).

For more information, please contact: Mr. John Fruhwirth, Systems Analyst, Department of Management Services, City of Toronto, 100 Queen Street West, Toronto, Ontario, M5H 2N2. Telephone: (416) 367-7953

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Municipality: Township of Nepean, Population: 76,208  
Ontario. Service: Document Retrieval  
Date of Innovation: 1977 and Reproduction

(Reference #49)

The Clerk's Department has purchased word processing equipment in an effort to reduce the cost of producing those municipal documents that are either constantly or periodically amended. They include council minutes, by-laws, financial reports, subdivision agreements, and union contracts. To date, the municipality has been able to realize a savings of approximately 8 to 10 thousand dollars, equivalent to the cost of almost one clerk typist. Also, reports and documents are now prepared much quicker than in the past, which has improved the ability of the Township to manage its affairs. The word processing equipment features a C.R.T. section and a high speed printer which allows secretaries to correct and amend documents without re-typing any of the material which is still valid. This not only saves the time of typing, but also the necessity of proof-reading those items which are already recorded on the floppy diskette which serves as the storage vehicle for the information. To date the Township has acquired only one Xerox word processing unit for which the rent is \$450 per month, which is all-inclusive. Only two employees are currently trained to use the equipment which is being utilized by all Township departments. As acceptability increases and different kinds of work can be produced, the Township may consider purchasing or renting additional units. The project is rated as highly successful and the Township will, no doubt, increase their use of this type of equipment as other departments become aware of its capability.

For further information, please contact: Mr. John LeMaistre, Deputy Clerk, Clerk Department, Township of Nepean, 3825 Richmond Road, Ottawa, Ontario, K2H 5C2. Telephone: (613) 829-1510

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Municipality: Winnipeg, Manitoba Population: 560,874  
Date of Innovation: 1974 Service: Computerized Assessment

(Reference #43)

The City's Assessment Department was asked to develop a programme for re-assessment of all City properties without a major increase in overall costs. It was decided that the best vehicle for accomplishing this difficult task would be the utilization of a computer to assist in the evaluation process. This process is still in the development stages, but will feature a classification system for various properties and for the establishment of an average annual increase in the value of properties based on properties which have been sold in the previous year. Many other factors will also be included in the calculation, some of which could include lot size, square footage of building, age of building, materials used in construction, proximity to schools and transportation lines, etc. No projected figures on cost savings are currently available; however, the planning of the programme is on schedule and the minimum amount of difficulty is anticipated. The City anticipates a positive reaction from the general public and feels that the level of service in this area will be generally increased. No major purchases of additional computer equipment or other capital costs have been necessary for this programme to date. The majority of the work in developing the programme has been performed in-house.

For more information, please contact: Mr. David Schmidt, City Assessor,  
City of Winnipeg,  
Assessment Department,  
3rd Floor, 10 Fort Street,  
Winnipeg, Manitoba, R3C 1C4.  
Telephone: (204) 942-2111

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Municipality: London, Ontario. Population: 247,065  
Date of Innovation: 1974 Service: EDP Zoning Information

(Reference #29)

The Department of Community Services and Planning in an effort to prove its ability to disseminate information about zoning by-laws, has computerized all information on this subject. This programme has reduced the time required to respond to enquiries while still allowing for a reduction in required staff time to provide this improved level of service. All information is coded by address and allows for instant retrieval on a CRT screen. This allows for the City to provide a print-out of zoning information within one day of a written enquiry.

As a result of this programme, there has been a reduction in one staff member and the City has been able to realize approximately \$20,000 in extra revenue. This is based on a \$5.00 per request charge for information on the zoning of a given property. Previously, requests for such information took up to one week to process.

Public reaction has been very positive. The project is generally rated as highly successful.

For more information, contact: Mr. Howard Pulver, Planning Administrator,  
Department of Community Services - Planning,  
300 Dufferin Avenue, P.O. Box 5035,  
London, Ontario, N6A 4L9.  
Telephone: (519) 679-4980

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FINANCE:

Municipality: Edmonton, Alberta Population: 469,917  
Date of Innovation: 1970 Service: Risk Insurance

(Reference #80)

The Department of Finance, after conducting a feasibility study prepared by a consulting service for \$12,000 in 1971, has decided to shift from reliance on purchased insurance to a programme of self-insurance. Probability-based self-insurance is being phased in gradually with reliance on insurance as a risk transfer mechanism being reduced. Under this system the City is responsible for the first \$100,000 of property insurance per incident, and insurance with a regular insurance company provides for additional coverage of up to \$70,000,000 per incident. In the area of public liability, the City assumes the first \$20,000 of responsibility with the insurance company coverage up to \$2,000,000 per incident. The City has accumulated approximately \$1,000,000 in reserves since the programme was initiated in 1974.

Because a majority of the City's occurrences are under \$100,000 for property damage and \$20,000 for public liability, this self-insurance programme has allowed them to greatly reduce their overall insurance premiums. A most important factor which made this a feasible programme for the City is the fact that they own their own power and generator company, as well as their own telephone company. Having such high valued fixed assets no doubt improves the City's financial rating and, therefore, their ability to embark on this self-insurance programme.

Current efforts are concentrated in the casualty insurance area where such a programme can be more readily established with a minimum risk on the part of the City. After adequate reserves have been established, other types of insurance would be included in the programme. The project has been rated as highly successful not only in terms of dollars saved on insurance premiums, but also in terms of the increased coverage that now is provided, with the City serving as its own insurer. The City has not prepared an actual cost benefit analysis due to the difficulty of gathering in one place all the criteria necessary to properly evaluate such a programme. The City does have a limited amount of documentation available that can be obtained from: (Refer to Appendix III).



Mr. D. C. Shaw, Risk Manager,  
Department of Finance,  
City Hall, 5th Floor,  
1 Sir Winston Churchill Square,  
Edmonton, Alberta,  
Telephone: (403) 428-5364

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Municipality: Moose Jaw, Saskatchewan  
Date of Innovation: 1978  
Population: 32,581  
Service: Equipment Maintenance

(Reference #83)

The Department of the Comptroller-Treasurer has developed a comprehensive data collection system on the maintenance of City-owned equipment and vehicles. All costs associated with operating and maintaining City equipment is now analyzed to ensure that every piece of equipment is fully utilized, properly maintained, and replaced before maintenance costs become excessive.

The City uses such measuring devices as the number of miles that each vehicle is utilized, as well as the number of hours of use of each piece of equipment. Although there is an indication that some operating departments could utilize this information more extensively, especially in terms of scheduling for preventative maintenance, there has been overall a positive reaction to the programme.

The project was initiated at the suggestion of the City's cost accountant in 1969, and while no comprehensive analysis of the programme has been prepared, it is generally felt that there has been better use of City equipment. Definitely no negative effects have been substantiated to date.

For more information, please contact: Mr. D. J. Metka,  
Comptroller-Treasurer,  
228 Main Street North,  
Moose Jaw, Saskatchewan,  
S6H 3J8.

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Municipality: Edmonton, Alberta  
Date of Innovation: 1976  
Population: 469,917  
Service: Supplementary Income Plan

(Reference #79)

The Finance and Personnel Departments have implemented a special supplementary income replacement plan in order to qualify for reduced unemployment insurance premiums. As a form of self-insurance, the City by assuming the

risks and responsibilities of funding this new income supplementary replacement plan, has been able to realize an annual savings of \$464,803 in reduced unemployment insurance premiums. Initial savings have been used to fund the supplementary income replacement plan itself and the remainder is to be shared by the City and the employees to reduce the premiums. Benefits of the income replacement plan to City employees have actually increased and the City anticipates that savings will continue to increase as the plan becomes more solvent in the future years.

For further information, please contact: Mr. E.K. Barry, General Manager,  
Finance Department,  
City of Edmonton, City Hall,  
1 Sir Winston Churchill Square,  
Edmonton, Alberta, T5J 2R7.  
Telephone: (403) 428-5353

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Municipality: Regional Municipality of Sudbury, Ontario  
Date of Innovation: 1976  
Population: 97,604.  
Service: Computer Finance Model

(Reference #3)

The Department of Policy Analysis, in an effort to safeguard the future financial stability of the Region, has developed a computer model of the Region's debenture programme to test the impact of various financial policies. The model was instrumental in securing the approval of a reduced capital expenditure programme for the Region plus the development of a priority-setting formula for all capital projects. Although it is estimated that \$200,000 a year is currently being saved by the Region as a result of this programme, this does not represent a net savings as there has been a reduction of the capital expenditures programme, thus delaying some projects and possibly producing increased operating costs. This potential negative impact has not been measured but because of the improved information base from which decisions are now made, as well as the new priority-setting system, it is thought that it will be minimized. The Region is very satisfied with this cost saving innovation and credits the co-operation of the various departments and politicians with the successful implementation. Public reaction has been positive and the programme is slated to stay in effect indefinitely.

For further information, please contact: Mr. Sid Morehouse,  
Department of Policy Analysis,  
Regional Municipality of Sudbury,  
P.O. Box 370,  
Sudbury, Ontario, P3E 4P2.  
Telephone: (705) 673-2171.  
Extension 211

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Municipality: Hamilton, Ontario. Population: 312,003  
Date of Innovation: 1976 Service: Budget Review

(Reference #96)

The Treasury Department has introduced zero-base budgeting, which, in effect, calls for a complete budget review of all departments and independent boards justifying each expenditure. The City Council felt that such a move was necessary to prove to the taxpayers that they were operating in an efficient manner in providing only essential services at a minimal cost. While the City has not been able to affix a specific amount saved as a result of the zero-base budgeting process, they were able to reduce the residential mill rate by a one-half mill and this, after receiving approximately one million dollars less in Provincial subsidies, absorbing a 6% increase in employee costs in wage and salary settlements, as well as an unexpected \$300,000 additional expense for snow removal. Also, 74 additional recommendations have developed from the new budgeting process which have the potential of saving an additional 1.5 million dollars. While the project is generally rated as highly successful, there is the belief that it could have been more so had there been a greater involvement and commitment from political representatives.

For further information, please contact: Mr. Webster H. McFarland,  
Treasurer and Commissioner of Finance,  
Department of Treasury,  
City of Hamilton,  
City Hall, 71 Main St. West,  
Hamilton, Ontario, L8N 3T4.  
Telephone: (416) 527-0241,  
Extension 372

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Municipality: Calgary, Alberta Population: 469,917  
Date of Innovation: 1977 Service: Work Measurement

(Reference #91)

The Department of Finance, in an effort to improve and streamline their utility customer accounts procedures, conducted an overall management and organizational review. The staff of the utility section of the Department of Finance were trained in techniques of method study and work measurement in order to address these problems of organization, workloading, and other internal problems. As a result, the Department was re-organized allowing them to absorb a substantially increased workload and no growth in staff. It is estimated that this saved the City approximately \$120,000.

For further information, please contact: Mr. J. Sparkes,  
Productivity Co-Ordinator,  
Department of Personnel Services,  
City of Calgary,  
P.O. Box 2100,  
Calgary, Alberta,  
Telephone: (403) 268-2235

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PARKS, RECREATION, AND LIBRARIES

Municipality: Regina, Saskatchewan Population: 149,593  
Date of Innovation: 1976 Service: Recreational Supervision

(Reference #107)

The Department of Parks and Recreation initiated a programme in 1976 to turn the supervision of various programmes, such as skating and hockey, over to community associations. While the City is able to realize a \$100,000 per year reduction in its budget, it could be argued that these costs were merely passed on to the various community associations. However, since these community associations do not normally hire staff to provide supervision, but rather use volunteers, there is an expenditure of energy as opposed to financial resources. The City has indicated that the level of service has remained the same, and, that the number of hours the service is available and the number of participants has not decreased as a result of this change. The City did indicate that some associations gave less consistent supervision than others, but efforts are being made to overcome this problem.

One of the primary methods of judging the success of such a change is the public's reaction. The City indicates that there has been little negative reaction to date. The dire need to save money was the primary factor in implementing this programme.

For more information, contact: Mr. Neil Balkwill,  
Superintendent of Recreation,  
Department of Parks & Recreation,  
P.O. Box 1790,  
Regina, Saskatchewan, S4P 3C8.  
Telephone: (306) 569-7347

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Municipality: Kelowna,  
British Columbia. Population: 51,955  
Date of Innovation: 1976 Service: Contract Procedure

(Reference #88)

The Department of Civic Properties and Recreation Services has significantly changed the manner by which the City constructs and maintains its recreational facilities. Under ordinary circumstances the City, having decided that a certain facility is necessary, would engage an architect to design the facility. Tenders would then be let and a general contractor would construct the building.

Under the new programme interested construction companies are requested to submit proposals for a facility in accordance with certain specifications. A prime contractor is then chosen, with the Civic Properties Department acting as construction manager. In a recent case involving this procedure, the City has estimated that approximately \$400,000 was saved in architect's fees and reduced cost of construction.

A further advantage to the City occurred when a private recreation firm agreed to lease the facility for a 20 year period, during which time the complete capital cost of the project will be paid by the private club after which the facility will revert back to the City to be used as it sees fit.

The City has rated this project as highly successful and proposes to use this approach in the future. The service level has increased with no actual increased cost to the tax payers. It should be noted that the capital and operating expenses of the facility will be paid by members of the private recreation club. It has not been determined to what extent the general public will be allowed to use the facility and what the charge for such use will be. What is known is that an actual facility now exists in the community and that all costs associated with the facility will be borne by users only.

For more information contact: Mr. H. Markgraf,  
Director of Civic Properties,  
Department of Civic Properties and  
Recreation Services,  
1435 Water Street,  
Kelowna, British Columbia,  
Telephone: (604) 763-6011

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Municipality: Quebec City, Quebec. Population: 177,082  
Date of Innovation: 1969 Service: Contract Procedure

(Reference #142)

The Department of Parks has implemented a unique programme for the maintenance of 80% of the City's green space and nurseries. The City lets contracts to private entrepreneurs to provide this maintenance and nursery service, thus allowing them to reduce their parks and recreation budget by \$35,000 per year.

This programme was originally initiated in 1970 in an effort to save money and has been considered to be highly successful, with the level of service actually increasing over the years. The City's green spaces and nursery requirements have been increasing while the cost of providing this service through the private sector has not increased proportionately.

In addition, the City does not have to be concerned with maintaining productivity, civic employees, the cost of pension and other fringe benefits, or the difficulty of finding work for these maintenance employees in the off-season. The City has not had difficulty in attracting several bids from the private sector and a high level of performance is maintained by not awarding multi-year contracts.

For more information, contact: Mr. Jean-Guy Perras,  
Ass.-chef de la division des Parcs,  
Loisirs et Parcs,  
Hotel de Ville de Quebec,  
2, rue Desjardins,  
Quebec, P.Q., G1R 4S9.  
Telephone: (418) 694-6223

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Municipality: Halifax, Nova Scotia Population: 117,882  
Date of Innovation: 1974 Service: Evaluation Process

(Reference #92)

The Department of Recreation, in an effort to evaluate the qualitative and quantitative progress in programme service delivery and to increase effectiveness and efficiency, has improved its management information system. With the assistance of outside consultants the City estimated its recreation budget on a programme and goal basis. Community surveys were utilized, and it was determined that the City needed more recreational choices for its citizens in many more locations around the City. As a result, the number of programmes provided by the City increased from 54 in 1973 to 1500 in 1978. This was done while maintaining the recreation portion of the overall City budget at a constant 1.2%. Additionally, the City, by increasing user charges, has seen revenue jump from \$500,000 in 1973 to \$1.1 million in 1978.

This programme to more fully utilize resources and streamline costs, utilizes a P.P.B.S. system to compute programme hours, revenue, programme attendance, programme registration, and the cost per unit to each taxpayer or every participant in the Recreation Department Program. Service to the community, as mentioned earlier, has increased dramatically, and public reaction has been very positive. An excellent indicator of just how successful this programme is can be seen in the fact that the City receives 84,000 volunteer hours from the community in support of their recreation programme.

For more information, contact: Mr. Howard J. Oehmen,  
Director of Recreation,  
City of Halifax, P.O. Box 1749,  
Halifax, Nova Scotia, B3J 3A5.  
Telephone: (902) 426-6427

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PUBLIC SAFETY

Municipality: Quebec City, Quebec. Population: 177,082  
Date of Innovation: 1966 Service: Fire Station Reduction

(Reference #146)

The Fire Department hired a consulting firm to study the feasibility of closing and/or amalgamating certain fire stations. The study was originally initiated in 1967 in an effort to reduce the rising cost of fire protection. An important consideration for the City involved the necessity to maintain the same level of service while still reducing overall costs.

Closing and amalgamation of fire stations is usually necessary because the physical makeup of the City has changed since the stations were first constructed. By shifting some manpower and equipment to nearby stations the City can ensure that response time and fire fighting force are not reduced. In addition to reduced maintenance cost, the City can also reduce the total amount of equipment and manpower required to adequately serve the City.

The City closed three stations in the early years of the programme, and is considering amalgamating two more stations. The overall savings accomplished by these closings and amalgamations is now estimated at \$5,000,000. The public reaction to the project has been positive. There have been no noticeable negative effects because of the programme. The City representatives rate this economy measure as highly successful.

For more information, contact: Mr. Cyrille Mainguy, Director,  
Service de protection contre l'incendie,  
140, rue St. Jean,  
Quebec, P.Q., G1R 1N7.  
Telephone: (418) 694-6158

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Municipality: Winnipeg, Manitoba Population, 560,874  
Date of Innovation: 1978 Service: Fire Equipment Reduction

(Reference #113)

The Fire Department, in an effort to reduce false alarms, as well as the overall cost of fire protection, has decided to drastically change the fire alarm box system in the City. Under the proposal the existing street fire alarm boxes would be taken out of service and the building alarm systems currently connected to the street box system would be connected to another alarm network. The City currently maintains 700 fire alarm boxes. Under the proposal now being considered by the council these would be replaced by 75 additional emergency telephones. These will cost \$600 each to install and utilize the standard 911 emergency number.

Advantages of the current street box system include the ability to save \$55,000 per year in property by decreased response time, and, two lives over a 10 year period with the economic value of that life estimated at \$250,000, or an average of \$50,000 per year. (Special note: this method of evaluating human life was taken from a publication by S.J. Melinek, Fire Research Note #950, November 1972, entitled, "Method of Evaluating Human Life for Economic Purposes"). Therefore, the City saves \$105,000 per year for a street box system that costs \$616,516 to maintain. This is based on the fact that the fire alarm boxes must be checked on sight three or four times a year, as well as checked and rewound after they have been used. Telephones, on the other hand, can be checked very easily at the central switchboard to determine if they are operational.

Other advantages of using a telephone include the ability to more accurately locate a fire, as well as doing it faster and explaining the nature of the fire. In the case of the fire alarm box, a tape with punched holes is received at the fire station. It is double checked to determine the location of the fire alarm box which has been activated, and the exact address of the fire is not known until the fire fighters arrive on the scene. A more detailed analysis can be found as Appendix 2. (Also refer to Appendix III).

For more information, contact: J. T. Coulter, Fire Chief,  
City of Winnipeg,  
151 Princess Street,  
Winnipeg, Manitoba, R3B 1L1.  
Telephone: (204) 942-7070

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Municipality: Borough of Scarborough, Ontario Population: 380,931  
Date of Innovation: 1974 Service: Personnel Only Fire Trucks

(Reference #22)

The Fire Department has purchased two light personnel only vehicles, carrying five men each. This project was initiated to augment manpower requirements at the fire scene without also committing additional apparatus or other heavy equipment. One of these units is dispatched with a first response team of two pumpers, one aerial truck, and the district chief.

The Borough has been able to reduce the manpower of various companies such as ladder companies from five men to three because the personnel vehicle brings sufficient manpower to the fire. Also, equipment requirements are reduced as additional pumpers do not need to be sent to each fire when only manpower is needed. These personnel only vehicles cost \$6,000 as compared to \$85,000 for a pumper and \$138,000 for a ladder truck and have the added advantage of being smaller and faster to the scene than regular fire trucks.

The Borough has been able to increase the level of service to the community by making better use of available manpower. The Borough has realized an annual saving of approximately \$180,000, which represents a combination of reduced staffing and equipment requirements.

For further information, contact: G. Painter, Deputy Fire Chief,  
Borough of Scarborough,  
740 Markham Road,  
Scarborough, Ontario,  
Telephone: (416) 438-1232

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Municipality: Quebec City, Quebec      Population: 177,082  
Date of Innovation: 1974      Service: "Mini-Pumper" Purchase

(Reference #148)

The City's fire department has purchased a "mini-pumper" to respond to minor calls such as automobile fires where only a hint of smoke has been detected. The City feels that it is important to keep its major fire fighting equipment available in case of a major conflagration. In actual practice, the mini-pumper has been able to reduce, by 6%, the runs usually made by normal sized pumpers and ladder trucks. The three vehicles originally purchased by the City in 1975 have exceeded their expectations and officials rate the programme as highly successful. The Fire Chief has not segregated the figures for each individual innovation implemented by his department but does report that fire service spent 14.71% of the City's budget in 1970 compared to 9.06% of the budget in 1978. He estimates an actual savings to the taxpayers over the past 7 years more than \$6,000,000 due to all innovations implemented in the fire department.

For further information, contact: Mr. Cyrille Mainguy, Directeur,  
Service de protection contre l'incendie,  
140, rue St. Jean,  
Quebec, P.Q.,  
Telephone: (418) 694-6158

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Municipality: Vancouver,  
British Columbia.      Population: 410,188  
Date of Innovation: 1972      Service: Police Car Data Terminals

(Reference #53)

The Engineering Department in co-operation with the Police Department is installing individual data terminals in police vehicles to permit officers access to the City's data base without involving a dispatcher.

Utilizing a mini computer, the City hopes to decrease substantially (by \$100,000 annually) its requirements for full-time dispatchers. The units costing \$6,100 each, will be installed in 60 of 120 police cars and be controlled by a central mini computer costing \$200,000. Additional costs include \$3,200 per month for maintenance of the equipment and \$12,500 per year as partial cost of a computer operator. The City anticipates that more radio air time will be available for emergencies and that the number of arrests for crimes such as burglary, car theft, etc., will be increased considerably.

The City examined several similar installations in major U.S. cities that have been successful and indicate that the estimated cost savings are very realistic and that the level of service to the community can be expected to increase. The project is slated for implementation in 1979 after seven years of decision and debate.

For further information, contact: Mr. P. Vanderwood, City Engineering,  
Engineering Department,  
453 West 12th Avenue,  
Vancouver, British Columbia, V5Y 5V4.  
Telephone: (604) 873-7289

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Municipality: Brandon, Manitoba      Population: 34,901  
Date of Innovation: 1976      Service: Modular Ambulance Chassis

(Reference #110)

The Fire Department has developed a unique approach to building ambulance and rescue vehicles aimed at reducing overall costs while maintaining a high level of service effectiveness. The City re-uses the ambulance portion of the vehicle while replacing the chassis every three years. Named modulance, this unique approach to building ambulance and rescue vehicles allows the City to save an average of \$30,000 per unit over the 3-year period. This estimated savings is based on the replacement cost for smaller vehicles and takes into account all costs associated with rebuilding. An ambulance costs approximately \$40,000 while a chassis costs about \$8,000, and the ambulance part of the vehicle has a life expectancy of 9-12 years. It takes only 8 hours to complete the transfer of the ambulance unit to a new chassis and old chassis are then placed on rescue vehicles that are used much less frequently, thereby allowing for optimal use of all equipment. The level of service to the community has actually increased since the project was implemented in 1977. Public reaction to the programme has been very positive. Some units that are not re-serviceable as emergency units are

are transferred for use to other departments, such as Parks, where there may be limited use for an ambulance-type vehicle.

For further information, contact: E. C. Polnick, Fire Chief,  
Fire Department,  
#1 Fire Station,  
637 Princess Avenue,  
Brandon, Manitoba.  
Telephone: (204) 727-2371

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Municipality: Borough of Scarborough, Ontario      Population: 380,931  
Date of Innovation: 1976      Service: Fire Staff Assignment

(Reference #20)

The Fire Department, in an effort to provide more effective utilization of manpower in addition to increased coverage and productivity, has decentralized departmental staff by posting inspectors to fire halls within their assigned areas. Fire prevention is then carried out from the individual fire halls rather than the central administrative headquarters. The Borough's 12 inspectors used to cover 70 square miles from the main station spending considerable time travelling to and from inspection assignments. Through this decentralization more inspections can be carried out, with a much closer liaison with fire fighters, thus improving overall knowledge of problem areas as well as fire fighting capability. At the same time, inspectors can be more fully utilized when fires occur. The project was implemented in 1976 after thorough planning and with the co-operation of the employees involved. The level of service to the community was increased and public reaction, although not formally measured, has been positive where knowledge of this change was known. The Department estimates that \$60,000 has been saved on an annual basis as a result of this re-assignment of personnel.

For further information, contact: Mr. J.J. Ball, Director,  
Scarborough Fire Department,  
Borough of Scarborough,  
740 Markham Road,  
Scarborough, Ontario,  
Telephone: (416) 438-1228

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Municipality: Winnipeg, Manitoba      Population: 560,874  
Date of Innovation: 1976      Service: Communications - Integration

(Reference #112)

The Fire Department, in an effort to improve radio and dispatch facilities in three emergency services has integrated communications into one facility with fire, police, ambulance dispatch and radio communications all located in a computer-aided central dispatch center. The City has been able to reduce personnel requirements in addition to substantially reducing capital finance requirements. In capital financing alone, the City will be able to save 2 million dollars by having a central facility compared with the cost of setting up three separate communication centres. This highly successful project was implemented in 1977 and it has increased the service which has, in turn, created a very positive public reaction.

For further information, contact: J. T. Coulter, Fire Chief,  
Fire Department,  
City of Winnipeg,  
151 Princess Street,  
Winnipeg, Manitoba, R3B 1L1  
Telephone: (204) 942-7070

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Municipality: Borough of Scarborough, Ontario      Population: 380,931  
Date of Innovation: 1975      Service: Fire Staff Assignment

(Reference #21)

The Fire Department, in an effort to increase the level of service especially to commercial buildings while not incurring a corresponding increase in cost, has implemented a comprehensive fire inspection programme. The programme calls for the assignment of fire fighters to periodically inspect stores, service stations, etc. The fire fighters inspect homes one year and commercial establishments the next year. No extra vehicles are required for the programme and training for inspection work occurs as a natural function of the decentralized inspectors programme (ref. no. 20 of this report). Higher productivity is just one of many benefits of the programme.

It is estimated that the cost of providing this service with special inspection teams, (non-fire fighters) would be in excess of \$100,000 per year. By utilizing fire fighters who are kept in contact with their station by radio, the Borough not only saves the costs of hiring additional inspectors but also is provided with a vastly improved information system that is extremely helpful in fighting fires when occurring in the buildings that have been inspected. Additional benefits accrue from a potential reduction in the number of fires in the community as these inspection teams are able to identify problem areas and recommend remedial action. It is extremely difficult to quantify the savings realized of such a prevention programme.

For further information, contact: Mr. J. J. Ball, Director,  
Scarborough Fire Department,  
Borough of Scarborough,  
740 Markham Road,  
Scarborough, Ontario,  
Telephone: (416) 438-1228

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Municipality: Regina, Saskatchewan      Population: 149,593  
Date of Innovation: 1977                      Service: Equipment Innovation

(Reference #108)

The City's Fire Department decided to shift from the purchase of double jacket fire hose to the purchase of synthetic fire hose in 1977. This change was made in order to reduce the man-hours required to dry apparatus before putting it back into service after fires, to reduce the costs of repairs, as well as reducing the cost of fire hall construction by eliminating hose drying towers. This particular innovation was implemented as a result of information received from other municipalities that had changed over to synthetic hose. The City estimates that between \$30-\$40,000 will be saved in the construction of future fire halls as a result of not needing hose drying towers. Also, the City has substantially reduced the time that it takes to put apparatus back into service. There has been no cost savings established for the reduction of repairs to broken hose, as a longer period of time will be required to make such an evaluation. This successful project has only encountered one difficulty according to City officials; that is, that the hose drying cabinets purchased have not come up to expectations. This doesn't appear to be a major problem that would reduce the City's planned conversion to synthetic hose, but they are looking for improved hose drying equipment.

For more information, contact: E. C. Allin, Assistant Deputy Chief,  
Fire Department,  
1630 - 11th Avenue,  
Regina, Saskatchewan.  
Telephone: (306) 523-2606

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TRANSPORTATION

Municipality: Metropolitan Toronto,  
Ontario.                                      Population: 2,154,279  
Date of Innovation: 1976                      Service: Express Service

(Reference #128)

The Toronto Transit Commission has implemented an express bus system which combines an express feature with a standard operating procedure after a certain stop. It is felt that such a programme will help to reduce the overall spread of hours while generally improving service. By reducing the trip time of certain bus routes there can be an increased utilization of personnel which can not only increase productivity in an eight hour shift, but also reduce the overall staff complement. Schedules can be rearranged to combine certain A.M. and P.M. schedules that could not previously be combined due to longer running times. Actual estimates for the amount of money saved in the 1978 budget placed at \$333,000. This project was initiated to save money as part of the 1976 labour negotiations and some of the savings will be shared with the employees. It should be mentioned that the combined express service is helpful to certain riders while being a slight inconvenience for some riders located close to the various bus terminals.

For further information, contact: Mr. J. H. Sansom,  
Manager, Transit Planning,  
Toronto Transit Commission,  
1900 Yonge Street,  
Toronto, Ontario,  
Telephone: (416) 534-9511, Ext. 650

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Municipality: Edmonton, Alberta      Population: 469,917  
Date of Innovation: 1974                      Service: Computerized Schedules

(Reference #78)

The Transit Department has computerized all bus route schedules in order to speed up the production of schedules, public information, and internal management information. The City normally provides for five major sign-ups by transit users each year in order to determine the location and consistency of bus routes. The manual paper work involved in the procedure was considered to be excessive, and even though there was some resistance to this technological change, the programme has been implemented with a high degree of success.

While the major benefits can be seen in the overall management efficiency of Edmonton transit, there were two very specific advantages realized. Firstly, public reaction has been very favourable due to the increased availability of public information. The other major advantage is an estimated cost savings of \$150,000 per year, which results from the system not requiring an additional ten employees at \$15,000 each to manually produce a schedule of public information data. This is based on a cost comparison between the last year that the information was compiled manually - 1975, and the first year of the new programme - 1976.

The original idea for this project was drawn out of an overall cost benefit analysis of the City's computer system. Officials indicate that the \$150,000 per year savings is not an exact net figure, as some expense is incurred in additional key punching and programming costs. However, indications are that this is a minimal amount. The availability of implementation funds appears to have been a critical factor in the successful implementation of this project.

For more information, contact: Mr. Hartmut von Gaza, Computer Systems Development Supervisor, Transit Department, 10426 - 81st Avenue, Edmonton, Alberta, Telephone: (403) 428-5620

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Municipality: Metropolitan Toronto, Population: 2,154,279  
Ontario. Service: Computerized Surface  
Date of Innovation: 1972 Transit Time

(Reference #134)

The Toronto Transit Commission has installed specially designed communications and computer hardware in 100 buses to experiment with the possibility of speeding up the operation of surface transit and to obtain a data base for management information reports on efficiency of operations and schedules.

The programme uses radios in combination with micro and mini computers programmed to track and display time and location of surface vehicles, and record information regarding operating performance. The project might also be used as part of the safety warning system to alert headquarters as to any mechanical or security difficulties being experienced by various surface transit vehicles. This would allow for speedier reply to distress calls, minimize down time of vehicles, as well as minimize inconvenience to passengers.

The real value, however, is seen in the system's ability to more closely correlate bus scheduling with passenger load at various times during the day. Estimated cost for the project is \$2,000,000 for the 100 buses and includes consultants, equipment, and software development. As the project is in the pilot stage, there is currently no additional information available; however, interested parties may contact:

Mr. Michael Warren,  
General Manager,  
Toronto Transit Commission,  
1900 Yonge Street,  
Toronto, Ontario  
Telephone: (416) 481-4254

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Municipality: Metropolitan Toronto,  
Ontario. Population: 2,154,279  
Date of Innovation: 1977 Service: Route Criteria Study

(Reference #127)

The Toronto Transit Commission has developed a set of measures that can be used to judge the performance of existing services in order to provide more information upon which decisions can be made regarding new and improved services in the future. There are two sections to the service standards evaluation process. One section involves the application of vehicle loading standards to all routes at all times to improve both route efficiency and effectiveness. Under the other section, existing poor performing routes are compared to new service requests. This comparison is done annually. The Commission reports that while the level of service in some areas has been reduced, others have been increased and some new routes have been established. Therefore, while the Commission has reported a savings of 1.5 million dollars in 1977, this does not necessarily represent the net savings due to the reduced service in some circumstances. These measures are used exclusively for the evaluation of new and existing routes to ensure optimum utilization of Transit vehicles and has not been considered as a model for the evaluation of other government operations. An evaluation of the impact of reducing service on the overall ridership is now underway. (Refer to Appendix III).

For further information, contact: Mr. J. H. Sansom,  
Manager, Transit Planning,  
Toronto Transit Commission,  
1900 Yonge Street,  
Toronto, Ontario,  
Telephone: (416) 534-9511

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Municipality: Metropolitan Toronto,  
Ontario. Population: 2,154,279  
Date of Innovation: 1975 Service: Repairs Reduction

(Reference #122)

The Department of Roads and Traffic, in an effort to reduce the cost of inspecting and repairing high bridges, has purchased a special bridge crane truck. This truck allows the Department to inspect and repair bridges without constructing expensive and time-consuming scaffolding. Also, because of the improvement in the amount of time required for each inspection, the Department has been able to substantially increase the frequency of inspections. It is felt that this will substantially decrease repair costs over the long term. Although a detailed cost analysis has not been conducted, department officials feel that annual savings are in the tens of thousands of dollars just on the elimination of scaffolding construction.



There are 20 bridges in Metro Toronto that are more than 100 feet in height and the average construction time for building scaffolding to inspect just one small area of a bridge is about 3 days. The cost of one inspection could exceed \$1,000 while the cost of operating the special truck is about \$35 per hour, which includes amortization, personnel, and operating expense. In addition, potential savings from preventive maintenance could help Metro to realize even greater savings. The truck was purchased from Paxton Mitchell Co. of Omaha, Nebraska and costs approximately \$90,000. While the purchase price may be too high for many municipalities with only a few high bridges, co-operative arrangements among several municipalities could be feasible.

For further information, contact: Mr. T.H. Johnston,  
Chief Maintenance Engineer,  
Roads & Traffic Department,  
Metropolitan Toronto,  
30th Floor, 401 Bay Street,  
Toronto, Ontario, M5H 2Y4.  
Telephone: (416) 367-8310

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Municipality: Metropolitan Toronto, Ontario. Population: 2,154,279  
Date of Innovation: 1971 Service: Reserved Lane Service

(Reference #129)

The Toronto Transit Commission, in an effort to maintain the existing level of service while reducing overall cost, has implemented a system of reserved bus lanes. Under a non reserve lane operation a particular bus run took 60 minutes to complete with ten minute headway between buses, this means six buses were required. By introducing reserved bus lanes the run could be reduced to 50 minutes, thus requiring only five buses to provide the same service. It should also be mentioned that a major advantage of this system is that it has also reduced travel time by TTC patrons. Actual user surveys have confirmed that transit patrons perceived a real time travel savings as a result of the express lanes. While Metro has managed to save \$130,000 per year as a result of this innovation, there has been some negative reaction from local businessmen and politicians who complain that bus service now by-passes many important stops. However, the programme is sufficiently successful that the Commission has been considering expanding this concept. Another area of complaint has been from the Metro Roads Commissioner who argues that traffic congestion has increased because of the loss of those on certain key arterials.

For further information, contact: Mr. J.H. Sansom, Manager,  
Transit Planning,  
Toronto Transit Commission,  
1900 Yonge Street,  
Toronto, Ontario,  
Telephone: (416) 534-9511, Ext. 650

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PUBLIC WORKS

Municipality: Winnipeg, Manitoba Population: 560,874  
Date of Innovation: 1975 Service: Route Appraisal

(Reference #46)

The Department Works and Operations, in an effort to improve overall refuse collection productivity, has implemented a number of modern management techniques. It analyzes the work load of each collection crew with regard to the number of households serviced for a specific period of time, and with respect to the tons collected. The City has been able to create a more balanced and efficient system.

One of the other major components of this revamped refuse collection system is the introduction of heuristic routing, which attempts to establish collection routes in such a way as to minimize travel distance and time and so reduce the cost of providing service to a given area.

This system takes into account street patterns, location of dumping facilities, truck capacity and volume of garbage per street. The project was made possible by thorough planning, co-operation from employees, as well as the availability of information on similar innovations in other municipalities. The City estimates that over \$500,000 was saved in 1977 and approximately \$800,000 in 1978.

For more information, contact: Mr. N.P. Feschuk, Staff Engineer,  
Operations Division,  
Civic Centre, 6th Floor,  
510 Main Street,  
Winnipeg, Manitoba, R3B 1B9.  
Telephone: (204) 946-0281

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Municipality: Windsor, Ontario Population: 196,526  
Date of Innovation: 1974 Service: Sludge Composting

(Reference #104)

The Department of Public Works, in an effort to recycle sewage sludge, a previously unused product, has implemented a composting system using wooden chips as a bulking agent. Previously, the sludge was hauled to the county landfill consuming scarce landfill space, and creating unsightly and bothersome conditions on city streets.

The programme has not only eliminated these two problems, but also has assisted the agricultural areas in the tri-county region. While the cost of composting actually exceeds the cost of conventional haulage and disposal, there are off-setting gains to the City, which makes this a profitable venture.

For example, the Parks Commissioner has estimated that approximately 150 cu. yards of topsoil would be required for establishing seed beds for grass and for planting trees. This topsoil, to meet the City's requirements for the next 10 years, would cost approximately \$100,000 per year. Instead the City plans to use its new compost material to meet much of the topsoil requirement. As well, there may eventually be a lucrative agricultural market for this product. Currently, City officials estimate annual net savings of \$37,000 per year. (Refer to Appendix III).

For more information, contact: Mr. John Faust, B.Sc.,  
Pollution Control Officer,  
West Windsor Pollution Control Plant,  
P.O. Box 1607,  
Windsor, Ontario, N9A 6S1.  
Telephone: (519) 253-7217

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Municipality: Borough of Etobicoke, Ontario      Population: 293,464  
Date of Innovation: 1970      Service: Recycling

(Reference #135)

The Works Department, in an effort to balance the work load generated by twice a week garbage collection, has instituted a newspaper pickup on Wednesday of each week. This is possible because the first collection of the week usually comprises 60 - 65% of the week's garbage, so that the second collection was a very light work load for collection crews. This paper collection has evened out the imbalance. It has also allowed for the recycling of a fairly important resource material.

Due to the considerable fluctuation in the price of recycled paper, the Borough is never sure whether they will make any money on the sale of this paper. For example, in 1975 prices dipped to a low of \$1.00 per ton, and yet, have risen to \$73.00 a ton in the beginning of 1978. As a result, this may be the first year a profit was actually made.

The Borough cites other benefits which make the project worthwhile:

- (1) A health community attitude regarding recycling;
- (2) A reduced demand for disposal space; and
- (3) The aforementioned increased productivity by collection crews.

(Refer to Appendix III).

For more information, contact: Mr. Douglas T. Day,  
Deputy Commissioner of Works,  
Works Department, Civic Centre,  
Etobicoke, Ontario, M9C 2Y2.  
Telephone: (416) 626-4248

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Municipality: Borough of York, Ontario.      Population: 139,612  
Date of Innovation: 1972      Service: Refuse Collection

(Reference #27)

The Department of Works, in an effort to reduce costs and improve productivity, reduced refuse collection crews from three to two men. Both members of the new 2-man crews were re-classified as driver/loaders. This replaces the old system which had a driver and two loaders. Under the new system, each member of the crew has an equal workload because they share the driving and loading responsibilities. Instead of the driver merely sitting and waiting for the truck to be loaded, he now must perform a loading function. The pay for the loader/drivers was increased to the driver level as an incentive and older drivers have not had to convert. Their jobs are being changed as retirements occur. The City has been able to decrease the number of permanent employees from 75 to 60 but has had to incur an overtime cost equivalent to five employees on an average to make an actual net decrease in staff of ten. The City estimates actual annual savings of \$57,613 which takes into account salary increases for each of the years since the new programme was initiated in 1973.

For further information, contact: Mr. W. R. Hamilton,  
Commissioner of Works,  
Department of Works,  
Borough of York,  
2700 Eglinton Avenue West,  
Toronto, Ontario, M6M 1V1.  
Telephone: (416) 653-2700

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Municipality: Regina, Saskatchewan      Population: 149,593  
Date of Innovation: 1977      Service: Refuse Routing System

(Reference #160)

The City of Regina implemented a comprehensive reorganization and redesign of their garbage collection system. The project, initially undertaken in 1977, featured time and motion studies of the collection process, an evaluation of contracts for commercial collection, a special plan for collection in the downtown core, as well as the introduction of an incentive plan. These changes were initiated to improve the overall cost benefit of providing this service and has been rated as highly successful by City officials.

The plan was carefully co-ordinated with the co-operation of employees, and used the experience of other municipalities. Collection routes were rearranged to provide a more equal work load for each crew and to ensure minimum travel time to disposal sites by having trucks reach load capacity at a point within the route area as close as possible to the disposal site.

The City estimates that approximately \$250,000 per year has been saved with the introduction of this new procedure while maintaining the same level of service as was previously provided. Employees share the benefits of this innovation by virtue of the fact that they are now allowed to go home after their particular area has been serviced.

For more information, contact: Mr. Ed Thornhill, Division Engineer, Public Works and Engineering, P.O. Box 1790, Regina, Saskatchewan, S4P 3C8. Telephone: (306) 569-7654

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Municipality: Sudbury, Ontario      Population: 97,604  
Date of Innovation: 77              Service: Municipal Maintenance Management System

(Reference #161)

The Department of Works and Parks wished to improve their ability to monitor the increasing costs of road and parks maintenance in order to find methods of increasing efficiency and effectiveness. The system prior to 1977 featured manual reporting and processing of information relating to the municipal maintenance management system. This method was cumbersome, inaccurate and provided information much too late to take any remedial or preventative action. As a result, the City in January 1977 converted this system to an on-line interactive computerized system which processes all municipal maintenance information, as well as payroll and equipment costings. With the co-operation of politicians and the employees involved, the City has been able to substantially improve the management information necessary to allow closer scrutiny of the Parks and Public Works Department. Department heads and politicians now have a full range of statistics on every aspect of roads and park maintenance which has helped considerably in identifying areas where a high priority should be established for increased maintenance. Also, the system provides accurate cost comparisons which have helped to pinpoint those operations which could be improved in the way they are organized or operating when their unit costs are substantially above the average. The City has been able to provide an increased level of maintenance at the same cost because of the improved efficiency and effectiveness with the new system.

A specific amount saved as a result of this program has not been determined because other changes in the Department's operation were made concurrently with this change, and there has not been an accurate segregation of the cost benefit in each of the programmes implemented.

For more information, contact: Mr. R. Boucher, Director, Department of Systems and Procedures, 200 Brady Street, P.O. Box 1000, Sudbury, Ontario, Telephone: (705) 674-3141, Ext. 524

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Municipality: Winnipeg, Manitoba      Population: 560,874  
Date of Innovation: 1974              Service: Building Maintenance

(Reference #45)

The Civic Properties Division, in an effort to reduce the maintenance and operating costs associated with the civic buildings, implemented a computer-controlled building monitoring system. The system, which is hooked up by telephone, monitors equipment operation, security and fire alarm systems, electrical load and energy conservation activities in buildings. The City has been able to reduce its maintenance and security force as a result of these measures. Also response times to breakdowns have been improved considerably. The combined savings of energy and reduced personnel were estimated at \$150,000 annually. These savings were due primarily to reduced requirements for maintenance and security staff, but the system has also saved energy and allowed for faster response to emergency situations. Initially, only new buildings have been involved in this programme, therefore, it is difficult to develop an accurate measurement of before and after savings. Gradually the City's older buildings are being converted and it is estimated that the City can realize 10 to 15 times the current estimated savings if all of the City's buildings are placed under this programme. The City plans to pay for capital cost of the equipment required for this programme over a 2-year period.

For further information, contact: Mr. H. Haak, P. Eng., Manager, Operations Branch, Civic Properties Division, Department of Works and Operations, City of Winnipeg, Civic Centre, 510 Main Street, Winnipeg, Manitoba, Telephone: (204) 946-0588

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Municipality: Saskatoon, Saskatchewan      Population: 133,750  
Date of Innovation: 1974              Service: Mercury Vapour Lights

(Reference #67)

The Electrical Department, in an effort to cut costs and save energy converted all street lighting luminaires from incandescent to the mercury

vapour variety. Not only has the City been able to realize a savings of \$54,600 per year, it also has increased substantially the foot-candles of light in most sections of the City. The savings are made possible by the fact that mercury vapour lights require less wattage while producing increased lighting. Actual savings amount to 281.148 kilowatts. An added benefit from installing mercury vapour lights have been a decrease in vandalism as well as a decrease in maintenance and replacement costs. The poles for both types of lights are the same, with the mercury vapour fixture costing approximately \$75 more than the incandescent. The saving really occurs because of the different life span of the two lights, with incandescent lasting only four months on average, while mercury vapour lights have a four year life expectancy. The reduction in vandalism occurs simply because the mercury vapour lights have a bulb cover and the incandescents do not. While the maintenance staff has been cut, there have been no lay-offs, as employees were merely transferred to other duties and departments. Public reaction to this successful innovation has been positive, which is due not only to the increased illumination level but also because the frequency of burn-outs has been decreased to 1/10th of the previous level and the general appearance of the new lighting fixtures is superior.

For further information, contact: M. W.J. Bunn, P. Eng.,  
 City Electrical Department,  
 City of Saskatoon,  
 414 Avenue B Street,  
 Saskatoon, Saskatchewan, S7M 1M8.  
 Telephone: (306) 244-8900

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Municipality: Corp. of the District  
 of Burnaby, B.C. Population: 131,599  
 Date of Innovation: 1974 Service: Refuse Collection

(Reference #61)

The Engineering Department, in an effort to provide more efficient refuse collection and disposal, up-graded vehicles and equipment in terms of increased capacity and allowed for a change from a 3-man system to a 2-man system. In the 2-man system there is no distinction between driver and collector, as both employees can either drive or collect and are paid the same. This eliminates the previously unproductive driver only category. This programme was initiated to prevent cost escalation of a municipal service in order to remain competitive with refuse companies in the private sector. In addition to purchasing modern increased capacity equipment, there were adjustments made in the routes and a new contract drawn up with the labourers which provided bonuses for increased productivity even though the crews were reduced from three to two and the total work force cut from 45 to 35 through attrition. The level of service has increased and public reaction to the changes has been positive. Annual savings are estimated at \$150,000.

This is a net figure, as it takes into account the cost of advertising the newly purchased equipment and other expense items estimated at approximately \$50,000 per year. The reduction of 10 labourers has produced a savings of approximately \$200,000 per year. The per household cost of collecting refuse has dropped from \$38.00 per household in 1976 to \$34.50 per household in 1978.

For further information, contact: Mr. W. Mackenzie Ross,  
 Assistant Municipal Engineer,  
 Engineering Department,  
 Corporation of the District of Burnaby,  
 4949 Canadian Way,  
 Burnaby, British Columbia, V5G 1M2.  
 Telephone: (604) 294-7466

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Municipality: Hamilton, Ontario Population: 312,003  
 Date of Innovation: 1973 Service: Combine Inspection Duties

(Reference #12)

The Department of Buildings has instituted measures to streamline inspection procedures and improve the efficiency of the inspection force. Under the programme, inspectors are given special training whereby they are qualified to inspect all construction and mechanical installations in the building and perform inspections under all other by-laws within the jurisdiction of their department. Under past conditions, each building would require three inspectors: one for construction, one for mechanical and one for heating. The obvious advantages of combining these inspection services include reduced transportation costs, more efficient coverage and a reduced requirement for personnel. Actual savings are estimated at \$70,000 per year. At least a portion of these savings have been shared with the employees in terms of a re-classification of the pay range for inspectors and also a stabilizing of the permit fee structure. The co-operation of the politicians and the employees involved was instrumental in the successful implementation of this programme. Service to the community has actually increased and public reaction has been positive. (Refer to Appendix III).

For further information, contact: Mr. Paul Kuppe, P.Eng.  
 Building Commissioner,  
 Department of Buildings,  
 City of Hamilton,  
 City Hall, 71 Main Street West,  
 Hamilton, Ontario, L8N 2T4.  
 Telephone: (416) 527-0241

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Municipality: Regional Municipality of Hamilton-Wentworth, Ontario. Population: 409,331  
Date of Innovation: 1977 Service: Consolidate Maintenance

(Reference #7)

The Department of Engineering, in an effort to provide a more economical maintenance system for water and sewage functions, integrated two maintenance groups into one. This integration permitted a reduction of 12 employees from the maintenance staff, for an annual savings of \$207,896. The region originally employed 150 workers and now has 138 to maintain 843 miles of water mains and almost 900 miles of sewer lines. Also the region has 8700 fire hydrants, 8900 valves, 3 sewage plants, 1 water plant, 40 pumping stations, 16 reservoirs, 20 wells, and 97,000 water accounts. By combining the maintenance groups the region saves on centralized training, coordinated crew assignment and increased productivity. In addition to the savings realized by a reduction in the employees, the Region has been able to reduce other operating expenses such as the need for less equipment and actually improve their response time to correct failures in the water and sewage system. The programme began in 1977 as a result of a recognized need to save money in an area where costs were rising constantly. The level of service in terms of total inspections and maintenance calls has remained about the same even though there are 12 less employees.

For further information, contact: Mr. J.R.G. Leach,  
Director of Environmental Engineering,  
Department of Engineering,  
Regional Municipality of Hamilton-Wentworth,  
City Hall, 6th Floor,  
Hamilton, Ontario, L8N 3T4.  
Telephone: (416) 526-4170

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Municipality: Edmonton, Alberta Population: 469,917  
Date of Innovation: 1975 Service: Stone Crusher

Reference #71)

The Department of Engineering, in an effort to salvage large amounts of usable aggregate from road and sidewalk repairs, has purchased a large jaw stone crusher. This new equipment has enabled the City to crush and stockpile approximately 50,000 cubic yards of concrete to a size suitable for re-use as premium road aggregate. Besides saving the City an estimated \$20,000 on the purchase of stone aggregate, there is less space taken up in the garbage dumps by concrete and much less expense involved in transporting the stone aggregate. The City has identified only one problem to date with the programme and that is the need to rigidly control the quality of the stone aggregate to reduce clay contamination as well as eliminating the presence of large reinforcing steel pieces.

For further information, contact: Mr. G.P. Heaney,  
Director of Construction,  
Department of Engineering,  
City of Edmonton,  
Century Place, 11th Floor,  
9803 - 102A Avenue,  
Edmonton, Alberta.  
Telephone: (403) 428-5789

\*\*\*\*\*

Municipality: London, Ontario Population: 247,065  
Date of Innovation: 1975 Service: Paper Recycling Equipment

(Reference #28)

The Engineer's Department in an effort to improve sludge disposal and reduce the quantities of natural gas needed to operate sludge incinerators, developed a new system of incineration using waste paper. Under the new system new waste paper pulping equipment was installed, as well as pulp and polymer feeding equipment for the sludge conditioning system. Initially, it was estimated that 60 tons of waste paper per week would be necessary to insure that the system operated efficiently. Reliable figures on any cost savings will not be available until late 1979 as the project was only implemented in August of 1978.

Some of the side benefits from the project will obviously include reduced requirement for landfill sites and reduced expense because of less requirements for natural gas to help burn the sludge.

For more information, contact: Mr. G. R. Robertson,  
Engineer's Department,  
City of London,  
P.O. Box 5035,  
London, Ontario, N6A 4L9.  
Telephone: (519) 679-4585

\*\*\*\*\*

Municipality: Regional Municipality of Sudbury, Ontario. Population: 97,604  
Date of Innovation: 1975 Service: Energy Conservation

(Reference #103)

The Department of Public Works, in an effort to conserve energy thus reducing the costs of heating and cooling the new Civic-Regional Building, has installed an H.V.A.C. system. The system consists of additional building insulation, a heat pump, a thermal reservoir, and a chilling tank. The H.V.A.C. system was recommended by the consulting engineer and architect in charge of designing the new Civic-Regional Building.

Preliminary estimates indicate that heat and energy consumption will be reduced by one third compared to a conventional heating system. The heat pump and thermal storage tank allows heat to be stored until needed and distributed in such a way as to fully utilize the natural heat flow of the building. The 180,000 gallon storage tank and the other components of the system should allow for a savings of 2 million kilowatt hours per year, or approximately \$38,000, based on current hydro rates.

Public reaction to the project has been very positive. In fact, support from politicians, the public, and the media was instrumental in having the new system installed. (Refer to Appendix III).

For more information, contact: Mr. H.R. Akehurst, Regional Engineer, Department of Public Works, P.O. Box 370, Civic Square, Sudbury, Ontario, P3E 4P2. Telephone: (705) 673-2171

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Municipality: Calgary, Alberta Population: 469,917  
Date of Innovation: 1976 Service: Median Light Replacement

(Reference #89)

As the result of a suggestion submitted through an employee suggestion programme, the City's Electrical Department is now using a new type of street light fixture. The old cement based median lights have been replaced with a detachable steel plate variety. When a vehicle hits a median light, it is now a simple operation to install a new pole without digging up the pavement and having to replace the complete unit.

The average replacement cost for the concrete type pole is \$160, whereas the detachable steel plate variety can be replaced for only \$38. The majority of the cost differential involves the labour cost for digging up the old cement base and replacing it. In terms of maintenance cost it is reported that costs are the same for both cement and steel plate type poles.

The innovation, implemented in 1976, is considered highly successful and allows for not only the speedy replacement of median lights, but also an annual savings in excess of \$3,500. Public reaction has been positive, and more information can be obtained from:

Ms. Sue Blair, Administrator,  
Suggestion Program,  
Personnel Department,  
P.O. Box 2100,  
Calgary, Alberta, T2P 2M5.  
Telephone: (403) 268-2228

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COMMUNITY SERVICES

Municipality: Metropolitan Toronto,  
Ontario. Population: 2,154,279  
Date of Innovation: 1975 Service: Day Care Facilities

(Reference #125)

The Department of Social Services decided to emphasize, when possible, the establishment of day care facilities in private homes rather than constructing special day care centres. Under the home care system, costs are approximately \$10 per day, whereas the equivalent cost in municipal facilities is approximately \$15 per day.

The primary differential is in the fixed costs of day care centres, such as cooks, janitors and specifically, trained supervisors, as well as administrative expenses. The private home centres eliminate, or at least, greatly minimize these items.

The above figures are for operating costs only and in no way reflect the capital cost of constructing the day care centres. If this figure were added in, the cost saving would no doubt be somewhat higher. The annual savings is approximately \$300,000; however, since the provincial government provides 80% of the funding for day care, only \$60,000 is saved by Metro tax payers directly, while the remaining \$240,000 accrues as a savings to the total population of the province.

Social Service representatives indicate that additional advantages include more flexible hours of care, and the system can react more readily to changing demographic patterns in the community. Public reaction has been positive and the level of service has increased over the years.

For more information, contact: Mr. R.R. Tomlinson, Commissioner,  
Department of Social Services,  
4th Floor, East Tower, City Hall,  
Toronto, Ontario, M5H 2N1.  
Telephone: (416) 367-8578

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Municipality: Borough of York,  
Ontario. Population: 139,612  
Date of Innovation: 1972 Service: Access to Health Services

(Reference #26)

The Department of Health has evaluated the availability of integrated medical, legal and social services to serve an ever increasing ethnic community and found them to be sorely lacking. They have, therefore, established a programme to provide full range of core services readily available to the community which include counselling services, mental health

services, medical services, legal services, information and referral services and community outreach services. The programme has been made possible through the co-operation and funding of the Provincial Ministry of Health; therefore, much of the cost savings in the programme accrue to the Provincial Government as the primary funding agency. The City estimates its savings of \$20,000 per year based on reduced time spent on referrals, as well as the substantial indirect savings which accrue to the Borough as a result of preventative health measurements. Service to the community has increased greatly because of this programme which began in 1974 and which has been received very positively by the public.

For further information, contact: Dr. A. Egbert,  
Medical Officer of Health,  
Department of Health,  
Borough of York,  
2700 Eglinton Avenue West,  
Toronto, Ontario, M6M 1V1.  
Telephone: (416) 653-2700

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Municipality: Regional Municipality of Niagara, Ontario  
Date of Innovation: 1971  
Population: 69,423  
Service: Social Service Records

(Reference #97)

The Department of Social Services, in an effort to provide improved accounting controls, placed various records and accounting procedures on a computer. Not only has the handling of records become faster and improved in terms of the accuracy of statistical information, but the Region has also been able to reduce overpayments, improve the delivery of welfare payments, and assist the case workers in their case load management through the provision of more accurate client profiles. Also, supervisors are now able to monitor and control more closely the workload of case workers. This system has allowed the Region to reduce its staff in the records department from 7 to 2 which does not reflect the additional 3 people that would have been needed to handle the increased workload of 35%. Actual savings then amount to a reduced total staff load of 8. Taking into account the increased costs of computer hardware and software, the average net savings to the Region per year is \$60,000. With service increasing and the costs decreasing, it is not surprising that public reaction to this project has been positive.

For further information, contact: Mr. M. Fraser, Director,  
Department of Social Services,  
Regional Municipality of Niagara,  
125 Welland Avenue,  
St. Catharines, Ontario.  
Telephone: (416) 685-1701

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Municipality: London, Ontario  
Date of Innovation: 1977  
Population: 247,065  
Service: Emergency Welfare

(Reference #32)

The Department of Community Services, in an effort to eliminate or at least minimize the issuance of emergency general welfare assistance, has redefined the emergency welfare programme in order to more fully utilize other community resources as an alternative to daily issues of cash. Under this new procedure, the Department has been able to reorganize delivery of emergency welfare, as well as increasing staff participation, eliminating some duplication and shifting valuable resources to respond to increasing work load in other areas. Thorough planning by the Department and the development of an excellent evaluation model has allowed the City to realize a savings of \$60,000 per year. While there has been somewhat of a reduction in the level of service through transfers to other agencies, this has not yet offset the amount of money that has been saved.

For further information, contact: Mr. M.C. Engels,  
Commissioner of Community Services.  
Mr. H.G. Howlett, Director of Social  
Administration & Development,  
Department of Community Services,  
P.O. Box 5035,  
London, Ontario, N6A 4L9.  
Telephone: (519) 679-5493

\*\*\*\*\*

Municipality: London, Ontario.  
Date of Innovation: 1977  
Population: 247,065  
Service: Revise Welfare Visits

(Reference #33)

The Community Services Department of the City of London was faced with a significant increase in case load of welfare recipients, necessitating the hiring of an additional three to four case workers. Before deciding to go ahead with the hiring of these employees, the City decided to examine its supervisory techniques and its criteria for required visits by case workers to welfare recipients.

As a result of this examination two major findings resulted. Firstly, it was decided that case workers could be given a much higher level of responsibility for determining their own work load and making decisions about which welfare recipients actually needed visits. Secondly, as a guideline for this increased responsibility, case workers were advised that recipients could be divided into three classifications: those requiring monthly visits, those requiring bi-monthly visits, and those requiring tri-monthly visits.

The programme has only been in effect since April 1978, but is seen by City officials as already being fairly successful. Thorough planning, excellent evaluation models and co-operation from the employees are seen as the major reasons why the programme has been successful. An estimated \$50,000 is going to be saved annually as a result of this innovation. Productivity can be said to have increased on the one hand because more recipients are being handled by the same number of case workers, but on the other hand, many recipients are receiving less attention than in the past. The City is monitoring the overall effects of this new system and should have a much more detailed analysis after the first full year of operation.

For more information, contact: Mr. H.G. Howlett, Director,  
Social Administration & Development,  
Department of Community Services,  
P.O. Box 5035,  
London, Ontario, N6A 4L9.  
Telephone: (519) 679-5493

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CONCLUSION

OVERALL ASSESSMENT OF PHASE I:

In reviewing the overall goals established for Phase I of this project, it is important to keep in mind the limitations under which this exercise was initiated. With very little prior research having been done in Canada in the area of cost saving innovations, we had to depend almost exclusively on the U.S. model. Also, due to the lack of a comprehensive Canadian information system, it was difficult to determine whether or not municipalities would be in a good position to provide examples of meaningful cost saving innovations for review and analysis.

Probably the most positive factor of the study was the timing of our approach to municipalities. Generally, there appears to be a prevalent feeling among municipalities that now is indeed the time to look for ways of becoming more efficient and effective.

Secondly, it is probably wise that the questionnaire to municipalities was kept rather brief. There is a general tendency to be intimidated by a long questionnaire, and the excellent response rate was probably partially due to the ease of completing the questionnaire.

Also a positive factor was the decision to concentrate on larger municipalities. We had several replies from smaller municipalities saying that they were interested in the survey results, but had little to contribute at this time. In terms of information from jurisdictions outside

Canada, it was fortunate that we were able to identify two central information sources which cut down considerably on the time needed to search out and document non-Canadian experience in cost saving innovations.

Sending out questionnaires to Canadian jurisdictions addressed to the Chief Administration Officer or Clerk was also a wise decision, as questionnaires to political representatives might not have received the same attention.

In general, most of the goals established for Phase I of this cost saving innovation report have been met. While it may be true that very few truly significant technological or management breakthroughs have been identified, this was not the primary purpose of the exercise. What has been accomplished is firstly a central compilation of some cost saving innovations which are now in place in Canadian municipalities. Secondly, while many politicians and local civil servants have heard of these ideas, the publication of this material will serve as a timely and significant reminder that certain municipalities report having been able to cut costs in certain areas of municipal service while maintaining an acceptable level of service to the public.

One of the more significant factors emerging from this study is the evidence that most innovations are transferrable to some degree and that there is perhaps not the risk involved in introducing these new concepts as was originally thought to be the case. A very high percentage of those innovations submitted in our estimation did actually produce cost savings while maintaining or improving the level of service.

While the information contained in Phase I will provide an important first step for many municipalities in terms of thinking about implementing a few of the documented innovations, Phase II of our project should be equally significant. Phase II is to provide a more in-depth analysis of a few selected innovations. These case studies will enable us to far better understand the complex political, economic, and social interworkings that contribute to the success or failure of a given innovation. Hopefully, through such an analysis, we will be able to gain valuable insight which will be helpful in developing a checklist or model to be used by Canadian municipalities as they plan and implement various cost saving innovations.

Local government is on the verge of one of the most significant transitions that may be witnessed. Never before has there been such an overwhelming and unified cry for fiscal accountability in government and yet only a few cities seem to be able to respond. Perhaps the seriousness of the current fiscal crisis has not sunk in or perhaps the system is just unable to respond to such a drastic cry for change. Whatever the reason, there appear to be very few options available for local governments in the future. The traditional means of meeting the increased cost of government, namely raising taxes or cutting services, just are not acceptable any more. The only thing left for municipalities is to change the way they do "business".



The word business is the key to the whole discussion about how local governments will have to operate in the future. The impetus to become more businesslike is here in the form of an ever growing taxpayers revolt. The movement is fragmented and at various stages of development around the world, but it is nonetheless unmistakably present.

Municipalities in Canada, the U.S., and around the world are beginning to respond to the pressure for more fiscal accountability, but the wheels of change move slowly in our governmental systems. The diffusion of innovation must speed up and municipal officials must become more receptive to innovative ideas developed in other cities if they are to meet the important challenge facing them. Many of the cost saving innovations developed in the past few years are starting to be documented and passed from one city to another. However, the problem of motivating more municipalities to change persists.

Experience in the U.S. is encouraging and, together with knowledge gained from other foreign experience, Canada has an excellent base from which to begin its own campaign for cost effectiveness in local government. The fact that the Canadian effort has already begun can be seen in the 161 innovations submitted for review in conjunction with this study. It is important now to share this valuable information and move on to the development of a continuing effort to gather and share cost saving ideas. In addition, we must thoroughly examine the factors that help to determine whether innovations are introduced at the local level and what measures can be taken to improve the rate of innovation implementation. And, finally, we must endeavour to examine the various innovations that are being touted here and abroad to ensure that the claims of cost savings are accurate and worthy of consideration in other jurisdictions.

To assist us in this important task we will utilize a newly developed model for evaluating individual productivity improvement efforts. Excerpts from this model shown in Appendix 1 will give some indication of the methodology which we will utilize in Phase II of our study and can also be extremely helpful to Canadian municipalities as a tool for evaluating their innovation efforts.

FOOTNOTES

1. Robert K. Yin, Karen A. Heald and Mary A. Vogel, Tinkering with the System, (Massachusetts: 1977) p. 1.
2. Committee on Economic Development, Improving Productivity in State and Local Government, (New York: 1976) pp. 32, 36, 37, 52.
3. The Urban Institute, The Struggle to Bring Technology to Cities, (Washington, D.C.: 1970) pp. 15-17; Yin et al, op. cit., pp. 4-5.
4. Committee on Economic Development, op. cit., p. 61.
5. Ibid., p. 36.
6. Brian Usilaner, "Productivity - A Management Tool for Controlling Government Spending," Public Productivity Review, (New York: 1978) p. 26.
7. The Urban Institute, op. cit. pp. 1, 2.
8. Ibid., pp. 52, 53; Committee on Economic Development, op. cit., p. 76.
9. Yin et al, op. cit., p. 1; The Urban Institute, op. cit., p. 55.
10. Committee on Economic Development, op. cit., p. 46.
11. Ibid., p. 53; The Urban Institute, op. cit., pp. 52, 53.
12. Committee on Economic Development, op. cit., pp. 34-36.
13. Federation of Canadian Municipalities, Puppets On A Shoestring, (1976).
14. League of Women Voters Newsletter, Pub. No. 241, "Urban Briefs," (1978).
15. Yin et al, op. cit.
16. The Urban Institute, op. cit., pp. 17, 18.
17. Ibid., p. 55-57
18. The Urban Institute, How Effective Are Your Community Services? Procedures for Monitoring the Effectiveness of Municipal Services, (Washington: 1977) p. 240.

EXHIBIT I

POPULATION: MUNICIPALITIES RETURNING INNOVATION QUESTIONNAIRES

Province	Under 50,000	Cities or Municipalities		1,000,000+
		50,000 - 100,000	100,000 - 1,000,000	
Ontario		Reg. Sudbury St. Catharines Township Nepean	Corp. Hamilton Reg. Munic. of Hamilton/Wentworth City of London Reg. Munic. of Niagara City of Windsor City of Ottawa City of Toronto Bor. North York Bor. Scarborough Bor. York Bor. Etobicoke City of Thunder Bay	Metro Toronto
Manitoba	City of Thompson City of Brandon		City of Winnipeg	
Saskatchewan	City of Moose Jaw		City of Saskatoon City of Regina	
Alberta			City of Calgary City of Edmonton	
British Columbia		City of Richmond City of Kelowna	City of Vancouver Munic. of Burnaby	
Yukon Territory	City of Whitehorse			
Nova Scotia		City of Halifax		
New Brunswick		City of Saint John		
Quebec			Ville de Quebec	

EXHIBIT II

INNOVATIONS SUBMITTED BY MUNICIPALITIES

<u>Name of Municipality</u>	<u>Innovations Submitted</u>
BRANDON, Manitoba.....	2
BURNABY, British Columbia.....	3
CALGARY, Alberta.....	7
EDMONTON, Alberta.....	17
ETOBICOKE, (Borough of), Ontario.....	1
HALIFAX, Nova Scotia.....	5
HAMILTON, Ontario.....	5
HAMILTON-WENTWORTH (Regional Municipality of), Ontario.....	6
KELOWNA, British Columbia.....	1
LONDON, Ontario.....	6
MOOSE JAW, Saskatchewan.....	1
NEPEAN (Township of), Ontario.....	4
NIAGARA (Regional Municipality of), Ontario.....	6
OTTAWA, Ontario.....	3
PEEL, (Regional Municipality of), Ontario.....	4
REGINA, Saskatchewan.....	5
RICHMOND, British Columbia.....	1
SASKATOON, Saskatchewan.....	4
SCARBOROUGH, Ontario.....	6
ST. CATHARINES, Ontario.....	2
SUDBURY, Ontario.....	6
THOMPSON, Manitoba.....	1
THUNDER BAY, Ontario.....	1
TORONTO, Ontario.....	23
VANCOUVER, British Columbia.....	6
VILLE DE QUEBEC, Province of Quebec.....	9
WHITEHORSE, Yukon.....	1
WINDSOR, Ontario.....	5
WINNIPEG, Manitoba.....	11
YORK, Ontario.....	6

EXHIBIT III

COST SAVING INNOVATIONS IN LOCAL GOVERNMENT

Questionnaire

This questionnaire is an effort to document the many various management improvements, be they hardware or software, that have resulted in cost savings for Canadian municipalities. We are especially interested in cost saving innovations that have maintained or improved the level of service delivered while causing costs to be substantially reduced. It is our intention to distribute this information to municipalities across Canada in order that they may share the valuable experience and knowledge which can be so helpful in reducing the pressure on limited local government financial resources. Please complete the following questionnaire as thoroughly as possible and do not hesitate to call the Bureau of Municipal Research office if there are any questions relative to the provision of this information.

1. Name of Municipality \_\_\_\_\_
2. Department \_\_\_\_\_
3. Specific service affected \_\_\_\_\_
4. Why was the project undertaken? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. When was this particular innovation first discussed? (Date) \_\_\_\_\_
6. When was the project implemented? (Date) \_\_\_\_\_
7. Is the innovation still in effect? Yes \_\_\_\_\_ No \_\_\_\_\_
8. What specifically was done or is being done? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
9. Would you rate the particular cost saving innovation as:  

_____ (a) highly successful	_____ (d) not too successful
_____ (b) fairly successful	_____ (e) a failure
_____ (c) successful	

cont..

EXHIBIT III cont.

10. A. If you rated this innovation generally a success, please list in descending order the factors contributing most to the success of this project (1 being the highest in importance):  

_____	(a) co-operation from the public
_____	(b) co-operation from employees
_____	(c) co-operation from politicians
_____	(d) co-operation from other departments
_____	(e) support from the media
_____	(f) thorough planning on the part of your department
_____	(g) a dire need to save money
_____	(h) pertinent information on the experience of other municipalities;
_____	(i) an excellent evaluation model
_____	(j) the availability of implementation of funds
_____	(k) other _____
- B. If you rated this innovation as generally a failure, list those factors in descending order which contributed most to the failure of this project (1 being the highest in importance):  

_____	(a) lack of co-operation from the public
_____	(b) lack of co-operation from employees
_____	(c) lack of co-operation from politicians
_____	(d) lack of co-operation from other departments;
_____	(e) little support from the media;
_____	(f) insufficient prior planning on the part of your department
_____	(g) no financial crisis in your community
_____	(h) lack of pertinent information on the experience of other municipalities
_____	(i) an inadequate evaluation model
_____	(j) unavailability of implementation of funds
_____	(k) other _____
11. In your estimation, is there one item which, if handled differently, might have changed the outcome of this project in terms of making it much more successful?  
Please elaborate: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
12. What happened to the level of service in the department under examination after implementation of this cost saving innovation?  

_____ (a) increased	_____ (c) remained at the same level
_____ (b) decreased	

EXHIBIT III cont.

13. What percentage of the departmental budget and the total city budget was saved as a result of this cost saving innovation?

Department Budget \_\_\_\_\_ Amount Saved \_\_\_\_\_  
 City Budget \_\_\_\_\_

14. Was there any effort or were there any plans to share these cost savings?

\_\_\_\_\_ (a) with the employees in the form of benefits  
 \_\_\_\_\_ (b) with the public in the form of tax cuts

Please elaborate: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

15. Has there been any attempt to determine the actual or potential negative impact of this cost saving innovation on other services or departments? (For example: a one armed mechanical garbage truck may be breaking curbs or damaging hydro lines. It would cause a savings in the cost of garbage collection but increase the cost of the streets department and PUC.)

Please elaborate: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

16. The public reaction to this project has been:

\_\_\_\_\_ (a) very positive \_\_\_\_\_ (d) very negative  
 \_\_\_\_\_ (b) positive \_\_\_\_\_ (e) hard to determine  
 \_\_\_\_\_ (c) negative

17. Is written documentation (reports, studies, etc.) available? (If so, we would very much like to receive copies. Please enclose with this questionnaire.)

Documentation is (a) \_\_\_\_\_ available  
 (b) \_\_\_\_\_ not available  
 Number of pages \_\_\_\_\_ Cost \_\_\_\_\_

For additional information about this project, interested municipalities can contact the following person by ( ) mail, ( ) phone. (Please check both if appropriate.)

NAME: \_\_\_\_\_ TITLE: \_\_\_\_\_  
 DEPARTMENT: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_

BUREAU OF MUNICIPAL RESEARCH,  
 2 Toronto Street, Suite 306,  
 Toronto, Ontario, M5C 2B6.  
 (416) 363-9265

EXHIBIT IV

SUMMARY TABLE  
 COST SAVING INNOVATION QUESTIONNAIRE

Quest. #	Local Government	# Ideas	Population	Innovation	Date	Success Factors				\$ Savings
						Column A	Column B	Column C	Column D	
						Success Rate	Level Service	Public Reaction	Success Factors	
110	Brandon, Man.	2	34,901	Modular ambulance chassis	1976	a	b	a	f, g, h, i, j, b, d, f,	30,000
111	"	"	"	Power conservation	1976	c	c	e		na
60	Burnaby, B.C.	3	131,599	Computerization base maps	1975	a	a	a	f, i, g, j, b	320,000
61	"	"	"	Refuse collection	1974	a	a	b	k, b, f, c, d	150,000
62	"	"	"	Construction management	1974	c	c	e	g, f, c, d, b	-
89	Calgary, Alta.	7	469,917	Median light replarement	1976	a	a	b	k, g, f, b, d,	3,500
90	"	"	"	Material substitution	1976	a	a	b	k, g, f, b	80,000
91	"	"	"	Labour measurements	1977	b	c	e	b, k, l	120,000
136	"	"	"	Waste removal	1976	a	-	e	f, d	na
137	"	"	"	Overtime reduction	1971	a	c	b	h, a, g, b, c	na
138	"	"	"	Crew productivity	1971	a	a	b	b, f, h, d	na
139	"	"	"	Road reconditioning	1972	a	a	b	j, f, i, b	700,000
71	Edmonton, Alta.	17	469,917	Stone crusher	1975	b	c	e	b, j, c	20,000
72	"	"	"	Monitored tests	1977	-	-	-		-
73	"	"	"	Productivity documentation	1977	c	a	e	f, i, g, j, h	-
74	"	"	"	Computerized transactions	1975	c	a	b	c, k, g, b, j	-
75	"	"	"	Records consolidation	1967	a	a	b	b, f, i, j	-

Public Reaction  
 a - co-operation from public  
 b - co-operation from employees  
 c - co-operation from politicians  
 d - co-operation from other departments  
 e - support from media  
 f - thorough planning on the part of your department

Level Service  
 a - very positive  
 b - positive  
 c - negative  
 d - very negative  
 e - hard to determine

Public Reaction  
 a - a dire need to save money  
 h - pertinent info on other municipalities' experience  
 i - excellent evaluation model  
 j - availability of implementation funds  
 k - other

EXHIBIT IV (cont.)

Quest. #	Local Government	# Ideas	Population	Innovation	Date	A Success Rate	B Level Service	C Public Reaction	D Success Factors	\$ Savings
76	Edmonton, Alta.	17	469,917	Word reduction	1978	c	a	-	f, b, j, g, i	14,000
77	"	"	"	Inter-industry relations	1977	a	a	a	g, f, a	14,000
78	"	"	"	Computerized schedules	1974	a	a	b	j, g, b, d, f	150,000
79	"	"	"	Supplementary income plan	1976	a	a	-	k, d, g, b	464,804
80	"	"	"	Probability insurance	1970	a	a	-	k, d	-
150	"	"	"	Budgetary simplification and summarization	1977	c	c	e	b, j, f	10 hrs/month
151	"	"	"	One man collection crews	1972	a	c	b	b, f, i, j, g	100 hrs/year \$2,299,499 labour costs or \$393,249.83/yr 80,000 per yr.
152	"	"	"	Sludge recycling (renewal)	1978	a	na	b	f, j, b, a, h	na
153	"	"	"	Controlled computer modelling	1976	a	a	e	g, i, f, j, b	25%
154	"	"	"	Bulk aluminum storage	1977	a	c	b	d, b, f, a, e	na
155	"	"	"	Cost-service allocation	1977	a	a	e	i, f, b, h, j	20,000
156	"	"	"	Performance control system	1979	b	a	e	b, f	-
135	Etobicoke, Ont.	1	293,464	Recycling	1970	c	-	b	-	180,000
63	Halifax, N.S.	5	117,882	Personnel decentralization	1975	a	c	b	g, f, j, b	na
64	"	"	"	Saltng units	1976	b	a	a	b, g, h, j, f,	25%
65	"	"	"	Salt storage dome	1973	a	a	e	h, f, g, d, h	na
66	"	"	"	Stone-chip-spreader	1974	a	a	e	h, d, g, f	50%
92	"	"	"	Evaluation process	1974	a	a	a	i, b, f, d, h	-
12	Hamilton, Ont.	5	312,003	Combine inspection duties	1973	b	a	b	c, f, b, g, k	70,000
13	"	"	"	Capital cost sharing	1974	a	a	a	c, b, a, j	16,000
14	"	"	"	Microfilm property files	1973	c	a	e	k, j	3,000
15	"	"	"	Consolidate application forms	1972	a	a	a	a, b, f	2,500
96	"	"	"	Budget reviews	1976	a	c	b	c, b, d, f, g	na
5	Hamilton-Wentworth, Ont.	6	409,331	Cost accounting system	1977	b	a	e	f, i, b, j	15%
6	"	"	"	EDP Aerial mapping	1974	a	a	e	g, k, j	na
7	"	"	"	Consolidate maintenance	1977	b	c	-	a, f, c, d, b	207,896
9	"	"	"	EDP welfare accounts	1974	b	b	a	f, b, d, c, a,	na
10	"	"	"	EDP sick pay reports	1974	c	a	-	f, b, d	na
11	"	"	"	Water bill collection system	1975	b	a	b	f, c, k, d, g	25,000

EXHIBIT IV (cont.)

Quest. #	Local Government	# Ideas	Population	Innovation	Date	A Success Rate	B Level Service	C Public Reaction	D Success Factors	\$ Savings
88	Kelowna, B.C.	1	51,955	Contract procedure	1976	a	a	a	g, f, c, a	-
28	London, Ont.	6	247,065	Paper recycling equipment	1975	-	-	b	-	-
29	"	"	"	EDP zoning information	1974	a	a	a	f, d	na
30	"	"	"	Hydrostat equipment	1974	a	a	-	b, c, f, g	2,000
31	"	"	"	Staff reduction	1977	c	c	b	b, f, i, c	70,000
32	"	"	"	Emergency welfare	1977	b	b	b	f, i, b, c, h	60,000
33	"	"	"	Revise welfare visits	1977	b	a	e	f, i, b, c, h	50,000
83	Moose Jaw, Sask.	1	32,581	Equipment maintenance	1978	h	a	-	k, b,	na
49	Nepean, Ont.	4	76,208	Report procedures	1977	a	a	na	k, g, b, f, d	10,000
50	"	"	"	Tree residue recycling	-	-	a	e	b, d, c, f, i	5,000
51	"	"	"	Fuel dispenser	1977	b	a	e	b, d, c, f	10,000
52	"	"	"	Tele-inspection	1966	b	a	e	f, b, c, d	5,000
34	Niagara, Ont.	6	362,388	New equipment	1978	na	a	a	i, j	na
35	"	"	"	Monitoring bank accounts	1975	a	a	a	f	309,000
36	"	"	"	Tendering - co-operative	1975	a	a	a	f, c	na
37	"	"	"	Computerized debentures	1976	a	a	a	b, h	na
38	"	"	"	Inventory system	1975	na	a	na	d	na
97	"	"	"	Social Service records	1971	a	a	b	b, f, d, c, h	160,000
93	Ottawa, Ont.	3	304,462	Citizen participation	1976	b	a	b	a, b, c, d	4,000
94	"	"	"	Citizen involvement	1977	na	c	b	a, b, c, f, k	na
95	"	"	"	Bulk buying methods	1959	a	a	b	d, f, h, g	na
99	Peel, Ont.	4	377,013	Billing procedure	1977	b	a	e	f, d, b, c, i,	15,000
100	"	"	"	Equipment liquidation	1976	a	na	e	k	na
101	"	"	"	Water control	1976	b	a	c	g	66,000
102	"	"	"	Shift changes	1977	c	a	e	b, f, d, g	20,000
106	Regina, Sask	5	149,593	Mag card II documentation	1977	-	-	-	-	-
107	"	"	"	Recreational Superv.	1976	b	c	b	g, f, c, b, a,	100,000
108	"	"	"	Equipment innovation	1977	c	c	e	f, g, b, d	40,000
109	"	"	"	Selection techniques	1965	a	a	a	f, g, b, d, c	-
160	"	"	"	Refuse routing system	1977	a	c	a	f, b, h, g, c,	250,000/yr.

EXHIBIT IV (cont.)

Quest. #	Local Government	# Ideas	Population	Innovation	Date	A Success Rate	B Level Service	C Public Reaction	D Success Factors	\$ Savings
59	Richmond, B.C.	1	20,034	Numerical code	1960's	a	a	b	f,k,a,e,d	-
67	Saskatoon, Sask.	4	133,750	Mercury vapour lights	1974	c	a	b	g,f,j,i,h	54,000
68	"	"	"	Heat conservation	1978	-	-	-	-	-
69	"	"	"	Variable speed control	1975	c	-	e	f,c,i	-
70	"	"	"	Advance bookings	1977	a	c	e	h,i,b,d,f	19%
18	Scarborough, Ont.	6	380,931	Energy conservation	1976	a	c	e	g,f,j,c,d,k	200,000
19	"	"	"	Consolidate files	1978	c	a	-	b,j	na
20	"	"	"	Fire staff assignment	1976	b	a	b	b,f,k	60,000
21	"	"	"	Fire staff assignment	1975	b	a	b	a,b,d,f,g	120,000
22	"	"	"	Personnel only fire trucks	1974	b	a	b	f,g,k	180,000
23	"	"	"	Building inspection	1968	b	a	b	b,f,	na
16	St. Catharines, Ont.	2	123,351	Microfiche court records	1977	-	-	-	-	-
17	"	"	"	Upgrade clerks office	1977	-	-	b	-	12,000
1	Sudbury, Ont.	6	97,604	Budgeting model	1977	c	a	na	g,j,b,f,d	100,000
2	"	"	"	Computer work records	1975	c	c	na	d,f,b,h	na
3	"	"	"	Computer finance model	1976	a	na	b	g,d,c,f,i	200,000
4	"	"	"	Water billing frequency	1975	b	b	e	g,b,a,c	na
103	"	"	"	Energy conservation	1975	b	c	a	k,c,a,e,j	38,000
161	"	"	"	Municipal maintenance management system	1977	a	a	e	c,b,f,i,h,j,	na
82	Thompson, Man.	1	17,291	Talk session	1978	a	a	a	b,c,d,f,e	na
98	Thunder Bay, Ont.	1	"	Telephone systems chg.	1973	a	a	a	g,f,b,a,d	31,274
114	Toronto, Ont.	23	2,154,279	Vandalism reduction	-	c	c	e	f,i,g,h,i	na
115	"	"	"	Filtration system	1963	a	c	na	a,f	na
116	"	"	"	Vandalism reduction	1960	a	c	e	j	na
117	"	"	"	Energy conservation	1975	c	c	na	f,b	na
118	"	"	"	Water purification system	1963	b	b	na	f,h,j	na
119	"	"	"	Refuse collection	1967	a	a	b	g,f,d,h	na
120	"	"	"	Sludge disposal	1971	a	-	c	f,h,c,j	2,500,000
121	"	"	"	Construction materials	1960	c	c	na	j	-
122	"	"	"	Repairs reduction	1975	a	a	e	g,f,i,j,c	na

EXHIBIT IV (cont.)

Quest. #	Local Government	# Ideas	Population	Innovation	Date	A Success Rate	B Level Service	C Public Reaction	D Success Factors	\$ Savings
123	Toronto, Ont.	23	2,154,279	Maintenance system	1973	a	-	e	b,f,i,h	na
124	"	"	"	Preventive maintenance	1976	a	a	e	f,g,h,b	na
125	"	"	"	Day care facilities	1975	b	a	b	h,f,c,j,g	na
126	"	"	"	Streetcar operation	1976	c	c	c	g,d,b	232,000
127	"	"	"	Route criteria study	1977	c	a	e	k,d,f,b	1,528,000
128	"	"	"	Express service	1976	c	c	e	g,f,d,b	338,000
129	"	"	"	Reserved lane service	1971	c	-	b	d,h,b,e,c	130,000
130	"	"	"	Foto-cards	1977	c	a	b	b,a	750,000
131	"	"	"	Express service	1976	a	c	e	b,f,d,a	320,000
132	"	"	"	Computer scheduling	1960's	c	c	e	k,i,h,g	na
133	"	"	"	Energy conservation	1975	c	-	-	-	-
134	"	"	"	Computerized surface transit time	1972	c	a	na	-	na
24	"	"	"	Employee hours	1974	a	a	e	b,d,f,h	85,326
25	"	"	"	Document retrieval	1974	a	a	b	f,c,d,b,g	130,000
53	Vancouver, B.C.	6	410,188	Police car data terminals	1972	-	-	-	-	-
54	"	"	"	Discontinuing impounding	1978	a	c	e	k,b	15,500
55	"	"	"	Form identification	1978	b	c	e	k,b,f	-
56	"	"	"	Comparison vehicles	-	c	-	e	f,d,b	-
57	"	"	"	Alternative motor cycles	1977	c	c	e	f,d,b,h	na
58	"	"	"	Conservation modifications	1975	a	c	e	g,f,d,j,b	40,000
140	Ville de Quebec, P.Q.	9	177,082	Cleaning cost reduction	1971	a	a	a	g,j,b,c	17,000
141	"	"	"	Communications organiz.	1978	a	a	-	g,j,b,c	4,000
142	"	"	"	Contract procedure	1969	a	a	e	g,f,c,i	35,000
143	"	"	"	Contract procedure	1974	a	a	b	f,g,a,h	200,000
144	"	"	"	Operations reduction	1971	a	a	b	f,i,j,b	100,000
145	"	"	"	Corrosions reduction	1974	c	a	e	d,h,b,i	na
146	"	"	"	Fire station reduction	1966	a	c	b	f,b,j,c	5,000,000
147	"	"	"	Street box reduction	1975	a	c	e	k,f,h,d	60,000
148	"	"	"	Mini-pump purchase	1974	a	a	e	b,f,h,i,j,	na
149	"	"	"	Pump control	1967	a	na	e	j	na
81	Whitehorse, Yukon	1	13,311	Billing procedure	1975	a	-	-	-	-

Quest. #	Local Government	# Ideas	Population	Innovation	Date	A Success Rate	B Level Service	C Public Reaction	D Success Factors	\$ Savings
39	Windsor, Ont.	5	196,512	Sign manufacturing	1974	a	a	e	f, g, b	na
104	"	"	"	Sludge composting	1974	c	c	e	f, i, c, b, a	37,000
157	"	"	"	Mechanized collection system	1976	d	a, b	b	na	nil
158	"	"	"	10 hour work schedule	1977	b	c	e	g, b, f, i, e	50,000
159	"	"	"	Sewage sludge composting	1978	c	c	e	f, i, c, b, a	37,000
40	Winnipeg, Man.	11	560,874	Court attendance	1976	c	c	a	f	50,000
41	"	"	"	U.I.C. controls	1978	a	a	na	f, b, i	na
42	"	"	"	Computer equipment rental	1977	a	c	e	f, g, c, d	210,000
43	"	"	"	Computerized assessment	1974	c	a	b	f, d, b, g	na
44	"	"	"	Tunnel pipe replacement	1975	a	c	e	k, f, g, i, c	500,000
45	"	"	"	Building maintenance	1974	a	a	e	f, g, b, d	150,000
46	"	"	"	Route appraisal	1975	b	c	e	f, b, h	800,000
47	"	"	"	Collection cycle	1975	-	c	b	c, e, a	140,000
48	"	"	"	Standardization crews	1974	c	c	-	f, h, g	na
112	"	"	"	Communications - integration	1976	a	a	a	d, c, f	2,000,000
113	"	"	"	Fire equipment reduction	1978	c	a	e	g, f, d, c	500,000
84	York, Ont.	6	139,612	Sewer operations	1968	a	a	e	h, j, f	na
85	"	"	"	Sewer monitorization	1976	a	a	e	k, b, f	-
86	"	"	"	Equipment ratings	1971	a	c	e	h, c, g, f	-
87	"	"	"	Diesel engine substitute	1971	c	c	e	h, f	-
26	"	"	"	Access to health services	1972	b	a	b	i, a, j, b, c	20,000
27	"	"	"	Refuse collection	1972	c	c	e	f, g, h, b	57,613

## APPENDIX I

EVALUATING PRODUCTIVITY IMPROVEMENT EFFORTS  
BY THE URBAN INSTITUTE, WASHINGTON, D.C.

August, 1977

To improve the productivity of government services, each level of government (federal, state and local) on occasion either supports or actually undertakes projects aimed at such improvements.

In order to gain the most utility from such efforts, it is highly desirable that those governments provide for a comprehensive and objective evaluation of the efforts to identify the degree of their success and, to the extent possible, the reasons for success, or lack of it. Such information seems vital both for the governments testing these projects (in order to determine whether they should continue, expand, modify, or terminate them), and for other governments to help them determine whether it is in their best interest to implement, or encourage others to implement, a programme begun elsewhere.

The attached checklist is intended to provide suggestions as to the information that seems needed for a comprehensive, objective, evaluation of productivity improvement efforts. The checklist provides only general guidance as to specific procedures that a government should use for such evaluations. There are numerous publications on programme evaluation which can provide some additional guidance. However, ultimately, the evaluation of each particular productivity programme will need to be hand-tailored to the particular local circumstances and will have to be planned carefully by the sponsoring agency.

CHECKLIST OF TYPES OF INFORMATION NEEDED FOR A COMPREHENSIVE  
EVALUATION OF INDIVIDUAL PRODUCTIVITY IMPROVEMENT EFFORTS<sup>1</sup>

## I. Identification of the Specific Nature of the Productivity Improvement Effort

What was the productivity improvement that was actually tested? It is vital that all changes introduced during the trial period which could have a significant effect on the productivity changes observed should be identified, even though not part of the productivity improvement effort as originally defined. A project as it is actually implemented is often quite different from that which is originally envisioned when the project was proposed. The timing of these changes as well as the time covered by the evaluation should also be clearly identified. Subsequently, the evaluators should summarize the evidence as to the likely contribution of each of these major changes to the observed productivity impacts.

1. This checklist was prepared for the Office of Policy Development and Research of the U.S. Department of Housing and Urban Development.

Also Identify the Major Elements of the Implementation Process Itself

Increasingly recognized is that it is often not only what specific procedures are changed that count, but also how the changes are made. Thus, in addition to documenting the new procedures, it is also important to document the major elements in how the changes were introduced. This should include such factors as: (a) what major steps were undertaken to introduce the changes to employees; (b) what major problems were encountered; and (c) what steps were undertaken to alleviate these problems.

It will probably be difficult, if not impossible, to isolate the effects of the implementation process from the effects of the procedural changes (unless some type of systematic experimental approach is used). Nevertheless, it still remains highly desirable to identify the characteristics of the implementation effort so that judgments can be made as to the degree to which the implementation steps would also be necessary if the same productivity improvement changes were introduced by another jurisdiction.

II. Findings as to Changes in Productivity

This is the "bottom line" for productivity improvement efforts. There are two major classes of productivity impacts:

(1) Effectiveness/quality of service/level of service

This category is concerned with those service effects that will be of direct concern to the clients of the service. The examination of effectiveness should consider not only intended effects but also unintended (and often detrimental) effects that sometimes occur, such as added pollution from various types of capital improvement projects or increased delay times to citizens if employee time is cut back as part of the productivity improvement effort.

The term "client" may refer to the general citizens of a jurisdiction (for such services as solid waste collection, police, and fire protection), or it may refer to some specific recipient group (such as for public assistance programmes), or for internal support services (such as data processing, purchasing and personnel) it may refer to personnel in other parts of the organization that receive these support services. In cases where the general public is the client, consideration should be given to techniques such as citizen surveys, to measure the public reaction to the quality of service provided, before and after the changes are introduced.

1. Two illustrative compendiums of such indicators are included in: the Urban Institute-ICMA report, "Measuring the Effectiveness of Basic Municipal Services: Initial Report", February 1974, and the ICMA Management Information Service Report, "Measuring Effectiveness of Municipal Services", August 1970

In general, each government service will have its own set of appropriate indicators of the effectiveness and quality of the service.

Note that tracking the quality and level of service is also a necessary ingredient to assessing efficiency (#2 below). That is, if output per unit of input increases but at the expense of the quality of the output or the level of service, this should not be considered a real efficiency improvement. (For example, a speedup of work activity such as for road maintenance, waste collection, eligibility determination, or any government activity can be accomplished by reducing the quality of that effort.)

(2) Efficiency, including total cost

Efficiency is generally defined as the ratio of the amount of output obtained per unit of input such as the number of employee-hours or number of dollars expended.

However, it is also important to track changes in the total costs expended. Changes to actual costs are, of course, a major concern in improvement efforts. Efficiency ratios can at times be misleading as to actual impacts on cost if total costs are not also presented.

It is important to distinguish between (a) actually realized cost reductions, (b) those cost reductions that are projected but not yet actually realized, and (c) those costs which are believed to have been avoided. Each of these represents significantly different evidence problems. Ultimately, of course, a jurisdiction wants to have real cost reduction or real cost avoidance; evidence that the productivity improvement effort has actually reduced the total cost to the jurisdiction is important evidence of productivity improvement impacts. Cost savings which are not yet realized but are claimed for the future need documentation as to the realism of the estimated savings. Future cost savings are often over-estimated by not adequately considering difficulties in implementing the cost savings. For example, improvements in efficiency may not actually lead to immediate cost reductions because the jurisdiction has decided to reduce staffing by attrition rather than by layoffs. This may considerably delay the cost savings. If the government does not in the meantime increase the effectiveness, quality, or level of service, real productivity improvements may not actually occur at least until attrition has occurred and real cost reductions have been achieved.

It is necessary to include the initial start-up costs for implementing the productivity improvement effort - for example, purchase of new equipment required for the effort, initial training of employees in the new procedures, and installation of any added record-keeping that may be needed (such as for new work standards programmes).

However, costs that are associated with the particular trial or demonstration effort that are not likely to be required by other jurisdictions (such as special evaluation or procedure development activities that would not be needed in the future) should be distinguished so that they can be deleted from estimated start-up costs for other jurisdictions.



Appendix I (cont.)

Costs or services which may have been paid for or subsidized by the federal government, but which would likely have to be incurred by another government in implementing the productivity improvement effort, should be identified.

III.

Findings as to Effects on Employees and Labour-Management Relations

An important side effect of a productivity improvement effort is likely to be its impact on the jurisdiction's employees and its labour-management implication - both because it is felt that governments should be concerned about the welfare of their employees and because employee problems can cause a government numerous short term difficulties as well as possible leading to counter-productive results over the long run (even though this is not immediately observable during the early stages of the introduction of the productivity improvement effort).

The following effects on employees should be examined:

- (1) Changes in morale and job satisfaction. Surveys of employees can be used to generate this information. Preferably, employee surveys would be undertaken both before the new project was introduced and after it had been in existence for a number of months.
- (2) Changes in various indicators of "counter-productive" behaviour such as: rates of absenteeism, injuries, disciplinary actions, and tardiness.

These effects on employees should be considered not only for non-supervisory employees but also first-line supervisors and higher level management. Certain projects may add perceived problems for supervisors and add to later difficulties.

To assess the change in quality of labour-management relations from before the project's introduction, changes in such factors as the following should be considered:

- (1) The number and character of the grievances;
- (2) The number and character of incidents of strikes, work stoppages, or disruptions;
- (3) The extent of employee organization; and
- (4) The "healthiness" and amiability of labour-management relations as perceived by management officials and employee leaders.

IV.

Degree of Satisfaction of the Jurisdiction with the Productivity Improvement Effort

Principal indicators of a jurisdiction's satisfaction would come from such sources as the following:

Appendix I (cont.)

- (1) Evidence that the jurisdiction is continuing to use the productivity improvement effort. Expansion of the use of the new procedures, perhaps to other parts of the organization not covered in the original productivity improvement effort, would be a particularly strong indication.
- (2) Expression of satisfaction by the jurisdiction officials. Such information should be obtained in a systematic way through interviews of public officials in the jurisdiction. Special care needs to be applied here both to:
  - (a) Cover a representative section of management (including various levels of management) and not only those who have the greatest self-interest in the project; and
  - (b) Undertake the interviews using procedures that maximize the likelihood that the opinions expressed represent the real viewpoints of the respondents (rather than, for example, presenting a public relations image).

Evidence of a jurisdiction's satisfaction should, in general, be considered as a less satisfactory indicator of productivity improvement than the direct indicators of productivity changes. Without evidence of improvements in service effectiveness or efficiency, expressed satisfaction may well be based on factors other than improved productivity. If there has not been significant evidence of improved effectiveness or efficiency, but the jurisdiction is continuing the project, public officials should be questioned for reasons for the retention. This may identify side-benefits that have occurred or at least indicate that their retention is based on subjective feeling that productivity improvement will result in the future.

Non-continuation of, or dissatisfaction with, the productivity improvement effort, accompanied by evidence of little or negative effects on productivity, would add to the evidence that the productivity improvement effort has not succeeded. Non-continuation or dissatisfaction with the effort, even though productivity appears to have improved, would suggest the existence of other factors; the evaluators should attempt to probe public officials for the reasons for discontinuation (in the face of apparent productivity improvement) to uncover possible negative side effects of the effort. (A government might not continue a project - even though there was evidence of substantial improvement in productivity - for a variety of reasons, perhaps "political" in nature, which might or might not also be a problem for other jurisdictions.)

In general, however, project continuation or stated satisfaction by public officials should not be considered sufficient evidence by themselves that a productivity improvement effort has indeed led to improved productivity.

Appendix I (cont.)

V. Comparison of Achievements Against Project Objectives/Targets

At the beginning of a productivity improvement effort, specific objectives with specific targets may be set by the sponsoring government. If so, an additional evaluation task is the comparison of actual achievements against those targets.

Such targets should be as specific as possible. They should cover efficiency, effectiveness (quality-of-service), and impacts on employee and labour-management relations (as discussed in III).

However, setting targets in innovative projects can be precarious, and targets can vary widely depending on such factors as the perspectives and personalities of the target setters at the time they are set. Viewpoints as to what is "adequate" improvement may also change by the time the results are in. Therefore, the comparison of actual performance versus targeted performance should probably be considered as secondary to the assessment of actual levels of performance (as discussed in II). Ultimately, public officials will probably want to focus on the extent to which the improvements that are actually achievable are worth the cost, regardless of any earlier established targets.

VI. Identification of Special Conditions that may be Associated with the Project Effects

There are potentially many factors associated with a jurisdiction's introducing a productivity improvement effort that may substantially affect the impacts of the productivity improvement effort. Some may have substantial effects on the degree of transferability of the productivity improvement effort to other governments. Thus, such conditions need to be identified and, to the extent possible, their effects on the observed productivity impacts estimated. Section I above considered the introduction by the jurisdiction of unexpected government procedure changes that could affect the productivity improvement effort. In this section, other types of factors, particularly factors external to the government (and, in some cases, out of the government's control) are considered. Such factors should be identified.

The following is a list of some of the types of factors that could make it significantly more or less difficult for another jurisdiction to duplicate the success of the trial jurisdiction:

- (1) Differences, or changes, in the magnitude or character of the incoming workload. These can cause costs and efficiency to increase or decrease, perhaps because of economies-of-scale effects or because the workload has become more difficult (or easier) than in the baseline period. Because of such possibilities, it is important to compare the magnitude and character of the workload in the baseline period to that of the demonstration period.
- (2) Unusual characteristics of the period before introduction of the productivity improvement effort such as:

Appendix I (cont.)

- (a) A prior level of performance (on either efficiency, effectiveness, or employee morale) which was unusually high or low. (If the starting position is extremely inefficient, almost any change might improve productivity. Conversely, if the starting position of the service happens to be very efficient or very effective, it may be very difficult to make substantial further improvements.)
- (b) The existence of previous actions which substantially reduce the costs or other problems to the jurisdiction undertaking the productivity improvement effort. For example, a government with a substantial computerized management information system might be able to avoid added data collection costs associated with a productivity improvement project requiring computerized management information procedures.
- (3) Unusually good or poor environment for making changes.
- (4) Unusual physical characteristics of the jurisdiction such as particularly bad weather or narrow streets.
- (5) State or local legal constraints to implementation.

VII. Consideration in Assessing the Validity of the Findings

The previous sections have identified the major items of information that are needed to make the assessment. Here are enumerated a number of factors that evaluators should consider both when planning the evaluation (at the beginning of a productivity improvement effort) and which they should examine at the end of the trial effort to obtain a proper perspective on the quality of the evaluation information that is obtained:

- (1) Has a comprehensive and relevant set of criteria for evaluating the innovation been identified:
  - (a) Are all essential criteria included? Is data being collected on all possible major impacts - both detrimental as well as beneficial effects (such as changes in the error rate accompanying an effort to increase the output for a certain activity)?
  - (b) Are inappropriate criteria excluded?
  - (c) Are both efficiency and effectiveness (including quality of service/level of service) indicators considered?
- (2) Are all significant and relevant costs included in the cost estimates (e.g. capital costs, planning and scheduling costs, associated materials costs, operating and maintenance costs, necessary special training of personnel, variable overhead costs)?

- (3) Are the data collection procedures and resulting data of acceptable quality? For instance:
- (a) Does the data come from reasonable reliable sources?
  - (b) If samples are used, have they been appropriately selected?
  - (c) If survey questionnaires were used, have they been adequately pre-tested to minimize biases and ambiguities? Do the questions used seem unbiased?
  - (d) Have consistent definitions of cost and effectiveness data elements been used between the baseline period and the trial period?
- (4) Has sufficient time been allowed for a reasonable test of the impacts of the productivity improvement effort? Generally, at least a few months are needed before an effort can be assumed to have shaken down sufficiently that subsequent months can be assumed to represent a real test of the changes. If there has not been sufficient time to represent the long-term impacts, the evaluation should at least attempt to identify the likely consequences of the overly short evaluation period.
- (5) Can the findings found be attributed with confidence to the changes being tested? For example:
- (a) To what extent could other internal (governmental) factors or programmes have been responsible for the results (e.g. other procedural changes introduced during the test period - see Section I)?
  - (b) To what extent could external (non-governmental) factors have been responsible for the results (e.g. see Section VI)?

In both these cases, it is important for the evaluation to attempt to assess, if only by judgment, but using whatever information is available (such as by relating the timing of the introduction of other procedural changes to changes in the observed productivity). Unless some type of formal experimental design (using control and experimental groups) is used, the evaluators will often need to be very restrained in their claims as to the cause of the observed productivity changes.

- (6) Could a simpler and less expensive variation of the productivity improvement effort have been used that would likely achieve most of the productivity improvements? The evaluation should provide an assessment of whether simpler, less expensive, procedures might have achieved most of the gains identified. Conversely, it should also consider whether significantly greater productivity gains may be possible if other steps, not undertaken in the trial, were undertaken in other jurisdictions.

State and Local Government Research Programme,  
The Urban Institute, Washington, D.C.

APPENDIX II

Solid Waste Collection-Measures of Efficiency

- Type 1: Output in units of workload - input
- \* Tons collected per dollar.
  - \* Number of curb-miles of streets cleaned per dollar.
  - \* Number of large items hauled away (such as abandoned autos, refrigerators, etc.) per dollar.
  - \* Number of residential (or commercial) customers served per dollar.
- Type 2: Output in units of "effectiveness" - input
- \* Estimated number of total households and commercial customers satisfied with their collection services (as estimated from responses to a citizen survey and survey of businesses) per dollar.
- Type 3: Utilization measures
- \* Average percentage of vehicles out of commission at any one time (during working hours).
  - \* Percentage of crew-shifts with shortage of personnel.

Solid Waste Disposal-Measures of Efficiency

- Type 1: Output in units of workload - input
- \* Number of tons disposed per dollar.
  - \* Number of tons disposed per acre (or per cubic yard of fill used). (Note: Here an input measure, other than dollars or employee-hours, that is, acreage, is used. Any scarce resource, in this case land, can be used as the input unit.)
- Type 2: Output in units of "effectiveness" - input
- \* Estimated number of site-days of environmental-hazard-free disposal per dollar.
- Type 3: Utilization measures
- \* Percentage of working hours that major equipment is available.
  - \* Number of days that same-day cover was not achieved because of equipment failure or shortage of personnel.
  - \* Net revenues from recycling (for example, total value from products sold and heat recovered minus recycling operation costs).

Recreation-Measures of Efficiency

- Type 1: Output in units of workload - input
- \* Acres (or square feet of facility) maintained (mowed, cleaned,

Appendix II (cont.)

etc.) per dollar, for various types of facilities<sup>1</sup> (If comparisons are made between facilities, adjustments are likely to be needed to account for differences in terrain, use levels, or other characteristics that lead to different maintenance requirements at different locations. If work standards are developed for different locations, the form "ratio of standard hours accomplished per employee-hour actually applied" would be appropriate.)<sup>2</sup>

\* Number of hours of operation per dollar, for individual programmes or facilities.

Type 2: Output in units of "effectiveness" - input

- \* Attendance (or visit) days per dollar, perhaps for individual
- \* Estimated number of different households using recreation services (at least once a year) per dollar, perhaps for individual programmes or facilities (these estimates could be based on the participation rates obtained in an annual citizen survey).
- \* Estimated number of total households satisfied with recreation services (as estimated by data from the annual citizen survey) per dollar.

Type 3: Utilization measures

- \* Major-equipment in-commission rates (perhaps calculated as the total number of equipment-days in commission divided by the total potential number of equipment-days).
- \* Percentage of time facilities are closed for maintenance (percentages should be calculated for individual facilities, such as swimming pools and tennis courts, as well as to provide an overall percentage).

Library Services-Measures of Efficiency

Type 1: Output in units of workload - input

- \* Number of items circulated (books, records, and other items) per dollar, perhaps including in-library circulation.
- \* Number of items cataloged per employee-hour.
- \* Number of items shelved per employee-hour.
- \* Number of hours of operation per dollar.

Type 2: Output in units of "effectiveness" - input

- \* Number of individual uses of library (including attendance counts plus telephone requests for information) per dollar.
- \* Estimated number of different households (or persons) using library services at least once (as estimated from an annual citizen survey) per dollar.

- 
1. This can be further split into more detailed work components to provide measures as "acres of grass mowed per employee-hour, "number of trees maintained per employee-hour", "tons of litter removed per employee-hour," and "pieces of playground equipment maintained per dollar."
  2. Work standards can be applied to many of the Type 1 measures illustrated in this section.

Appendix II (cont.)

- \* Estimated number of households satisfied with library services (as estimated from the citizen survey) per dollar.

Type 3: Utilization measures

- \* None identified (but "usage" measures have already been included as Type 1 or Type 2 measures).

Crime Control-Measures of Efficiency

Type 1: Output in units of workload - input

- \* Number of service calls responded to per hour of police-officer time -- by type of call.
- \* Number of investigations conducted per hour of police-officer time -- by type of case.
- \* Number of arrests per hour of police-officer time (but see Measure 2-1 below).

Type 2: Output in units of "effectiveness" - input

- \* Number of felony arrests that pass preliminary hearing per police officer-hour -- overall and by type of category. (Ideally, Measure 1-3 should be replaced by this measure because of the strong potential for abuse in the use of that measure.)
- \* Estimated number of households reporting a reasonable feeling of security in walking their neighbourhood at night (as estimated from citizen survey findings) per dollar.
- \* Estimated number of nonvictimized households and commercial establishments per dollar. (The citizen survey could be used to provide estimates of the number of crime incidents not reported.)

Type 3: Utilization measures

- \* Percentage of total potentially available police-officer-time that is spent on "productive" purposes (productive time to exclude such time as waiting for car repair, waiting in courts, etc.).
- \* Average percentage of police officers available for "productive" purposes.
- \* Percentage of cases not investigated at all, by type of case.

Fire Protection-Measures of Efficiency

Type 1: Output in units of workload - input

- \* Number of households and business establishments "protected" per dollar.
- \* Number of fire prevention inspections per dollar -- perhaps categorized as to whether inspections and costs are residential or commercial.

Type 2: Output in units of "effectiveness" - input

- \* Number of fires fought for which less than a target amount of spread occurred per suppression dollar spent. (Target amount of

Appendix II (cont.)

spread occurred per suppression dollar spent. (Target amount of spread would be defined relative to the size of the fire on arrival and possibly other relevant variables, such as occupancy type.)

- Type 3: Utilization measures  
\* Percentage of downtime of major fire equipment.

Local Transportation Services-Measures of Efficiency

Street Maintenance

- Type 1: Output in units of workload - input  
\* Number of miles (or lane-miles) of street maintained per dollar.  
\* Number of repairs made (or number of square yards of repairs made) per employee-hour. (Individual street and maintenance activities might be distinguished separately as for example, "pothole repair with cold patch," "pothole repair with asphalt concrete," and "curb and gutter repair." If work standards are developed, the form "ration of standard hours accomplished per employee-hour actually applied" would be appropriate.)  
\* Number of square yards of street surface constructed per dollar.
- Type 2: Output in units of "effectiveness" - input  
\* Number of streets maintained in rideability-condition "x" or better per dollar.  
\* Number of repairs made satisfactorily (for example, "patches lasting at least "x" months after repair") per dollar.
- Type 3: Utilization measures  
\* Proportion of time that crews are "non-productive" (for such reasons as being in transit or waiting for materials).

Traffic

- Type 1: Output in units of workload - input  
\* Number of signs installed per dollar.  
\* Number of signals installed per dollar.  
\* Number of feet of street markings laid per dollar.  
\* Number of signs or signals repaired per dollar.
- Type 2: Output in units of "effectiveness" - input  
\* Number of signs or signals maintained in acceptable operating condition per dollar.
- Type 3: Utilization measures  
\* Percentage of traffic signal time that signals were known to be defective.  
\* Downtime of traffic signals from time signals were reported defective.  
\* Average time to restore to service failed traffic signs or signals.

Appendix II (cont.)

Public Transit-Measures of Efficiency

- Type 1: Output in units of workload - input  
\* Number of vehicle-miles per dollar.  
\* Number of transit vehicle-hours of operation per dollar.
- Type 2: Output in units of "effectiveness" - input  
\* Number of passenger-trips per dollar.  
\* Number of passenger-miles per dollar.  
\* Estimated number of "satisfied" users (perhaps as estimated from an annual citizen survey) per dollar.  
Utilization measures  
\* Average percentage of time transit vehicles are available as a percentage of potentially available hours, by type of vehicle.  
\* Percentage of scheduled arrival times that are late or missed because of unavailable personnel or equipment.  
\* Load factor: Ratio of actual passenger-miles to capacity, with capacity perhaps defined by seat-miles (this could be derived from a sampling of load factors at a representative cross section of times of day, days of the week, and seasons).  
\* Amount of net operating deficit (or surplus) over costs (revenues would include fares and possibly subsidies; note that this measure has to be considered in relation to the jurisdiction's subsidy policy). This measure, as well as Measures 3-2 and 3-3, would be especially useful if the data can be calculated by route.

Water Supply-Measures of Efficiency

- Type 1: Output in units of workload - input  
\* Number of gallons distributed per dollar.  
\* Number of gallons treated per dollar.  
\* Number of customers served per dollar (perhaps divided by residential and commercial customers).  
\* Number of repairs completed per employee-hour, by type and size of repair.  
\* Number of meters read per employee-hour.  
\* Number of meters inspected per employee-hour.  
\* Number of meters repaired per employee-hour.
- Type 2: Output in units of "effectiveness" - input<sup>1</sup>  
\* Estimated number of customers indicating satisfaction with their water (as obtained from the annual citizen survey) per dollar.

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1. Clearly, the amount of improvement between the quality of the incoming, untreated water and quality of the water supplied to consumers is a vital indicator of water supply effectiveness. We have not been able to identify a satisfactory efficiency measure covering this element. We hope others will be able to do so.

Appendix II (cont.)

Type 3: Utilization measures

- \* Average percentage of downtime for major equipment as a percentage of total, potentially useful, equipment hours, by category of equipment.
- \* Percentage of water distributed that generates revenue or is otherwise used productively (such as for government uses, including fire fighting) as distinguished from leakage or other losses.

Handling of Citizen Complaints and Requests for Services and Information - Measures of Efficiency

Type 1: Output in units of workload - input

- \* Number of complaint requests for services and information handled per employee-hour or per dollar. (Note: It does not seem sufficiently useful to attempt to distinguish the dollar costs for complaints from those for services and information, but this distinction could be feasible for employee-hours.)

Type 2: Output in units of "effectiveness" - input

- \* Number of complaints and requests for services and information resolved satisfactorily (as estimated from an annual citizen survey, from a survey of complainants, or from examination of government records -- see the data collection procedures discussed in Chapter 11). As in Type 1-1, because of difficulties in distinguishing dollar costs for each activity, it may not be feasible to distinguish complaints from requests for services and information.

Type 3: Utilization measures

- \* None identified.

APPENDIX III

INNOVATION EVALUATIONS

1) Computerized Text Processing Department of the City Clerk - Toronto, Ontario

The City of Toronto has been involved in computerized text processing and information retrieval for approximately four years. The report on the City's program details the type of information that is processed and the actual procedures that are followed as information is generated and placed into the system. There is a brief summary of how this type of information was dealt with in the past and the problems that were incumbent with this system. Information is also provided on the initial demonstration project that was undertaken in 1974 to determine the feasibility in implementing a text processing system. The demonstration included a three-phased process to analyze the problems encountered in implementing the new system including both technical and human factors. Finally, there is a brief discussion of the City's plans to expand the existing system into other areas of the City's operation. (See Reference #25, page 32).

2) Recommendations for the Street Box and Auxiliary Protective Signalling System - Winnipeg, Manitoba

This report, prepared by the Fire Department of the City of Winnipeg, details the rationale for discontinuing the use of street fire alarm boxes. There is a detailed explanation of the existing system, how it is utilized and the problems that are encountered due to the excessive expenses of maintaining a system that is not properly utilized. In addition to the economic feasibility of discontinuing the system, there is also a detailed discussion on the effect on loss of property and life with and without the existing system. (See Reference #113, page 42).

3) Energy Conservation Features of a Civic Regional Building - Sudbury, Ontario

The City of Sudbury expects to reduce heating energy consumption by two-thirds in their new civic building through the introduction of a new system featuring heat pumps and thermal storage tanks. There is a brief description of how the equipment accomplishes the savings, as well as estimates on the actual kilowatt hours to be saved. (See Reference #103, page 61).

4) Composting Sewage Sludge by Means of Forced Aeration - Windsor, Ontario

The report details the City's difficulty in finding adequate sanitary landfill sites and the discovery of a system developed in the U.S. which involves an aerated rapid composting process. There is a great deal of explanation of the various components of this highly sophisticated equipment, as well as a very detailed monitoring system necessary to ensure safe bacterial levels. There is a cost break-down which compares conventional disposal methods with the new composting system, including a description of the alternative uses for the end product of this process. (See Reference #104, page 53).

5) Solid Waste Recycling  
- Etobicoke, Ontario

The Borough of Etobicoke began experimenting with recycling in the early 1970's. Their experience since that time is documented both in terms of quantity of materials collected, as well as variations in cost due to market fluctuations. The report makes little effort at analyzing the overall success of the program and does not indicate the likelihood of the Borough continuing this program. (See Reference #135, page 54).

6) Transit Service Standards Analysis  
in Metro - Toronto, Ontario

The report reviews a special set of standards that was developed in 1977 for evaluating existing and proposed transit routes. The evaluation includes such factors as route economics, access, transit dependency, transit travel time, land use planning and physical constraints. A number of summaries of route evaluations are included to indicate how the system operates. There is a summary of the system's 110 routes with a complete break-down of revenues and costs for each route, as well as an estimate of the total impact of this program on the transit system. (See Reference #127, page 51).

7) Reorganization of the Department of Buildings  
Inspection Division - Hamilton, Ontario

The report features several organizational charts for the existing building department as well as the proposed new organizational scheme. There is a brief description of how duties and responsibilities will be shifted in order to accomplish a consolidation of the inspection procedures. The City's effort to train inspectors to perform a wide range of building plumbing and heating inspections is discussed and concludes with a series of recommendations for action by the City Council. (See Reference #12, page 59).

8) Risk Management and the Municipality  
- Edmonton, Alberta

The City undertook a complete review of their risk management procedures for the dual purpose of assuring that adequate coverage was being provided in all categories of insurable risk and that this coverage was being provided at an acceptable cost. By carefully examining their various policies and the actual experience of claims over the past several years, the City was able to suggest the introduction of self-insurance. Using insurance policies for risks under a certain amount, the City proves its ability to self-insure the deductible and initial claims in most areas of risk. There is also a general discussion of the philosophy of the insurance and risk management at the municipal level. (See Reference #80, page 35).

MEASURING LOCAL GOVERNMENT PERFORMANCE

An important component of any programme designed to introduce new innovative techniques and technology at the local level is a comprehensive and accurate measurement system. Although municipal services have long been considered among the most difficult items to measure and quantify, significant strides have been made in the past several years. Motivation for this change has come from two sources, the first being the ready availability of new measurement devices, and, secondly, a stronger push for accountability in the public sector. In any discussion of performance measurement, it is crucial to understand the basic difference between measuring effectiveness as opposed to measuring efficiency.

Measures of Effectiveness:

This is an attempt to measure the extent to which the goals and objectives of a particular service are being met. Of the two, effectiveness and efficiency, effectiveness is usually considered the more subjective in that it deals with the perceived quality and quantity of the services provided, generally in relation to the community's needs, desires and willingness to pay.

Efficiency Measures:

Efficiency measures attempt to relate the amount of service output produced to the amount of input required. A common word associated with efficiency measures is productivity, although a broader definition to encompass both effectiveness and efficiency concerns has been emerging.

Every municipality that has implemented cost saving innovations or is considering doing so should have a thorough understanding of the methods of measuring efficiency and effectiveness and the problems associated with these measures. Therefore, using material produced by the Urban Institute, Washington, D.C., we will now highlight some of the more significant criteria for measuring effectiveness and efficiency.

DEALING WITH EFFICIENCY<sup>18</sup>

(a) Classifying Various Efficiency Measures:

There are four basic types of efficiency measures which any municipality can employ as part of their measurement programme. They are as follows:

Appendix IV (cont.)

- (1) Output-input ratio measures using workload accomplished as a measured output. These types of measures work particularly well under two circumstances: (i) where the service is particularly receptive, and (ii) where the service is provided to persons or households. For example, solid waste collection can be measured using workload accomplished without greatly jeopardizing the accuracy of the level of service provided. This is one of the most popular types of measurement in dealing with long-term trend analysis in a particular municipality or between and among a group of municipalities.
- (2) Output-input ratio measures using effectiveness data as a measure of output. This type of measure is not commonly used by local government both because it is not well known and because effectiveness data is not readily available. However, in the future, this type of measurement criteria should become more popular since it has the potential to be one of the more accurate and useful measurement devices. Instead of merely measuring the amount of money or personnel required to collect a certain number of tons of garbage or repair a certain length of road, this measure can also determine whether the job was well done or not so well done. For example, police productivity based on arrests is not quite as helpful as police productivity based on convictions.
- (3) Equipment and personnel utilization rates. This is one of the more common types of efficiency measures simply because the information necessary is more readily available. This measure merely establishes a ratio between the amount of the resource (equipment or personnel) actually used to the amount that was potentially available. There are a number of variations of this type of measure, all of which utilize an average availability, utilization rate or the measure by percentage of total available hours for various types of equipment and personnel. This type of measure does not deal with the desirability of maintaining a certain level of service but rather serves as an indication of how existing resources are being utilized.
- (4) Measures of relative change: "Productivity Indices". This is another commonly used measurement technique whereby a base year or figure is established and percentage increases are measured over a given period of time. This type of measurement requires that certain figures such as manpower or equipment available remains constant thereby providing an accurate measure of productivity improvement over time.

While each of the above types of measures can provide important efficiency information, in actual practice it is usually a combination of two or more of these types of measures that makes up an efficiency measurement programme. Care should always be taken whether using one or a combination of efficiency measures to ensure that the user is getting the type of information he wants and getting it accurately.

Appendix IV (cont.)

(b) Problems Associated With Efficiency Measures:

- (1) Input figures should be a reflection of the total impact as opposed to a selection of the more readily available inputs. If the accounting system will not yield the necessary information, this should be stated and care should be taken in developing projections from such data.
- (2) Care should be taken in developing procedures to segregate costs which may be allocated loosely between and among various departments. Assignment of costs to a certain function should be made prior to the development of any measurement programme and should remain constant over time.
- (3) A policy is needed to deal with capital and investment costs. Many municipalities exclude capital costs from measurement programmes while others choose to amortize costs over the life of the equipment. Once again, prior determination and consistency are the important factors.
- (4) When comparing costs over time, it is important to take inflation into consideration. As prices change, adjustments should be made in order that comparisons are made on a consistent basis.
- (5) Municipalities should be careful not to over-emphasize current performance measurement at the expense of future performance. That is to say that cuts in spending made at a given point in time may have undesirable side effects some time in the future.
- (6) The interpretation of efficiency data may be affected by variables such as a substantially increased workload or other unforeseen variables but rather each municipality must be on a constant lookout for items that will affect the accuracy of their efficiency measures.
- (7) Finally, municipalities should be cautioned to avoid becoming obsessed with efficiency measures. They are merely a tool that can be helpful if properly utilized. Excessive data collection is time-consuming and may not yield a proportionate return.

(c) Criteria for the Use of Efficiency Methods by Local Government:

Each local government must assess the desirability of using any efficiency or effectiveness measure against the following important criteria:

- (1) Do the measures collectively cover all important aspects of the service activity? If not, what improvement or deterioration in those aspects that are being measured should be kept in perspective. Users of efficiency measurement data should consider



unmeasured aspects and not, for example, reward or penalize personnel solely on aspects that can be quantified.

- (2) To what extent can the government affect the measured values? Particularly with measures that use effectiveness estimates for output calculations (Type 2 measures), a government will not have complete control over the measured values. If a government has little or no control, the measure will probably not be useful to it.
- (3) Is the measure understandable to users? The combination kind of measures (Type 4) are particularly likely to pose a comprehension problem, but other types of measures can as well.
- (4) Are the costs and personnel requirements to collect the data reasonable? Two problems are particularly worth noting: (i) for Type 2 measures, unless the government has an ongoing effectiveness-measurement system (for example, regular citizen survey procedures), it may not be practical to collect such measurements solely for efficiency measurement; and (ii) it may be tempting, especially for Type 1 measures, to measure activities in increasing detail. If extensive daily activity reports are required, the costs of data processing can quickly become excessive.
- (5) Is there provision for analyzing the findings from the measurement process? The government should provide for the examination of changes in measured values. The following possibilities, among others, should be considered:
  - (i) The change may have occurred primarily because of an increase in workload without an accompanying increase in personnel or dollars; or
  - (ii) The apparent improvement was achieved at the expense of reduced level or quality of the service.

Types of Efficiency Measures by Service:

And finally, over the past several years, various standardized and acceptable measurement criteria have been established for the various operating departments at the local level of government. Some of the more common and acceptable measures of efficiency are shown in Appendix IV.

DEALING WITH EFFECTIVENESS:

Using the extensive research of The Urban Institute, the following guidelines have been designed to assist local managers in the development of a successful effectiveness measurement.

(a) General Guidelines for Use of Effectiveness Measures:

- (1) Involve the operating agencies in the development, implementation, and use of the measurement procedures.
- (2) Use effectiveness measurement in a positive, constructive manner; make effectiveness measurement as rewarding and unthreatening as possible to government managers.
- (3) Provide specific incentives to government managers to participate constructively in evaluation-oriented activities.
- (4) Provide central staff leadership and management support to assist operating agencies in the development and use of measurement procedures.
- (5) Give considerable attention to maximizing the usefulness and application of the data produced by measurement procedures.
- (6) Work out a balance between client-oriented measures and more agency-oriented activity, (i.e. workload) measures.
- (7) If measurement resources are scarce, exclude, at least initially, government "support" services such as personnel, finance, purchasing, data processing, and motor vehicle repair.
- (8) Plan to make permanent measurement activities.
- (9) If measurement data are used to develop employee incentives, provide in advance for comprehensive discussion of the measures and measurement procedures.
- (10) Publish the results - show that use is being made of data if people have been asked to contribute time and effort in the collection.

(b) Checklist for Implementing an Effectiveness Measurement Programme:

The aforementioned guidelines are important in carrying out any effectiveness measurement programme but they do not provide a step-by-step procedure for implementing such a system. However, once again, The Urban Institute has provided a most helpful 10-point implementation programme as follows:

- (1) Establish a working group consisting of a central staff and at one member of each operating agency covered in the initial effort to:

Appendix IV (cont.)

co-ordinate efforts, identify desired measures, develop measurement procedures, and follow through on implementation of the appropriate effectiveness measurement procedures.

- (2) Identify service objectives and an associated set of measures appropriate to each service area. The measures identified in this report can be used as a starting point.
- (3) Review existing data and data collection procedures for those that might be easily incorporated into the measurement effort. Consider new procedures such as use of trained observers, citizen surveys, and on-site surveys of users for those measures that are not obtainable from existing data.
- (4) Select a trial set of effectiveness measures and data collection procedures that appear to be feasible with the expectation that data on these measures will be obtained and tested for a period of two to three years.
- (5) Develop and implement the selected procedures, including necessary design of forms, selection of survey and sampling methods, training of personnel (such as trained observers), and pre-testing of new procedures for clarity, feasibility, and reliability.
- (6) Develop a plan to use the data collected. This should include establishment of procedures for review, analysis, and presentation of findings. Establish links with continuing decision-making processes such as the preparation of the operating and capital budget, any management-by-objectives or other kind of performance assessment process (especially those for government managers), and any formal programme evaluation or programme analysis efforts.
- (7) Provide the measurement findings annually to management.
- (8) Prepare information on the costs of the measurement efforts including data collection and analysis.
- (9) Undertake collection of data on the measures for at least two to three years. Conduct annual reviews of the procedures after each of these years to determine significant problems and make necessary modifications, but do not expect full utility during this developmental period.
- (10) At the end of the three-year period, review the utility of the individual measures and the set as a whole. Review those procedures displaying significant deficiencies; drop procedures that appear to have little use. Move toward institutionalization of the procedures that have proved their value so that collection will proceed without special go-ahead decisions each year.

## CORPORATE

Allstate Insurance Company of Canada  
Bank of Montreal  
Bank of Nova Scotia  
Bell Canada  
Board of Trade, Metro Toronto  
Bramalea Consolidated Development  
Brascan Limited  
Cadillac Fairview Limited  
Canada Malting Co. Ltd.  
Canada Packers Foundation  
Canada Permanent Trust Co.  
Canadian Imperial Bank of Commerce  
Commonwealth Holiday Inns of Canada Limited  
Confederation Life  
Consumers' Gas Company Ltd.  
Cestain Limited  
Crown Life Insurance Co.  
Dofasco Ltd.  
Donlee Manufacturing Industries Ltd.  
Dominion of Canada General Insurance  
Four Seasons Hotel Limited  
General Mills Canada Ltd.  
Group R  
GSW Limited  
Guaranty Trust Co. of Canada  
Gulf Realty Co. Ltd.  
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