

# **Financing Local Government Capital Investment**

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## **Financing Local Government Capital Investment**

Growing concern over the state of local government infrastructure in both developing and developed countries has highlighted the importance of municipal capital investment (spending) and the way in which it is financed. As municipalities expand and grow older, more resources must be devoted to the expansion, rehabilitation, or replacement of local capital stock. Water plants and sewage treatment systems, solid waste facilities, cultural and recreational complexes, transportation, public transit, and communication networks – all must be updated and expanded. Brownfield remediation must be addressed, and ‘blighted’ areas of cities revitalized and redeveloped.

The importance of capital investment or spending cannot be understated. It plays an important role in the quality of life for local residents and it enhances a municipality’s capacity for creating a more competitive business environment. Likewise, financing this investment cannot be treated lightly. The choice of financing instrument and the way it is used could have an impact on both the level of services provided by infrastructure and the size and range of the infrastructure itself. Local government capital financing, then, is the subject of this paper.

Part A defines capital expenditures and distinguishes them from operating expenditures. Part B notes the importance of creating clearly articulated and informed capital budgets and discusses a number of problems and constraints often encountered in developing these budgets. The capital budget, it must be emphasized, is a critical step in making decisions on capital spending and capital financing. Part C describes and evaluates a number of instruments that are used for financing capital expenditures. This section does not catalogue where each instrument is used or the frequency with which it is used in different countries. Instead, it evaluates the appropriateness of each instrument as a tool for financing capital projects. This evaluation will be completed within the analytical framework of the benefits based model of local government finance – a model that emphasizes responsible and accountable local decision-making. Part D briefly discusses the importance of setting correct user fees or prices or local taxes for services provided by capital investment (infrastructure). Unfortunately, this is an issue that is often over-looked in discussions of capital financing. Part E discusses the accounting framework that should be put in place to trace the revenue and expenditure flows from capital projects. Part F summarizes the paper.

### **A. What is a Capital Expenditure?**

Capital expenditures differ from operating expenditures in two important respects. First, capital expenditures tend to be lumpy in nature. Large expenditures in one year may preclude similar expenditures in subsequent years with little, if any, consistent trend or pattern. Second, financing of capital expenditures frequently differs from that for operating expenditures. Operating expenditures are generally financed from locally raised revenues or grants from senior governments, while capital expenditures may be financed from these sources in addition to monies generated from special assessments, development charges, reserves and borrowing.

The way in which the term capital is interpreted and applied at the municipal or local level may vary from country to country and from municipality to municipality, within a country. Some types of expenditures defy ready classification by displaying characteristics of both operating expenditures and capital expenditures. Although there may be varying definitions of capital expenditures, it is generally agreed that capital expenditures include the following:

- acquisition and construction of new buildings, structures, facilities, equipment, rolling stock, furnishings, studies, development and purchase of land, and all associated items to bring the foregoing into operation; or
- major rehabilitation of the above;
- normally has a useful life of more than one year.

Table 1 distinguishes between expenditures on capital assets and expenditures that would typically be included in a municipality’s annual operating budget.

**B. Capital Budgeting**

A capital budget should be a multi-year (generally five or ten years) financial plan that lays out the construction or acquisition timing for capital projects. At the same time, this plan should indicate how all capital expenditures are to be financed (own source revenues, borrowing, grants and so on). The capital budget is distinguished from the annual operating budget in that the latter provides for ongoing expenditures such as salaries, wages, benefits, heat, hydro, maintenance of buildings and infrastructure and so on; whereas, the former lists the costs associated with the acquisition or rehabilitation of capital assets.

***B.1 Problems with Capital Budgeting***

While some cities and some countries have become more sophisticated in capital budgeting techniques, the following types of problems continue to exist in many cities and smaller municipalities. These problems, by the way, are not restricted to a particular country – they tend to be worldwide. First, future annual operating and maintenance costs are often ignored in making decisions on the wisdom of spending on capital projects. This happens most frequently when capital expenditures are made in response to the availability of grants from senior governments or when decisions are made without the aid of a carefully developed and detailed capital budget.

Second, municipalities almost never consider opportunity costs (the value of forgone alternatives if a municipality chooses this project) in their capital budget, although many now take into consideration debt costs.

Third, municipalities all too frequently ignore depreciation or asset replacement costs in determining annual operating costs. This is especially important for those projects that are funded from user fees (water, sewers and so on) and whose fee should include all

Table 1 Sample Guide to Distinguishing Capital Budget items from Operating Budget Items		
Facility	Capital Improvement	Operations and Maintenance

Streets and Parkways	<ul style="list-style-type: none"> <li>• Street paving</li> <li>• Alley resurfacing</li> <li>• Physical alteration of street capacity or design</li> </ul>	<ul style="list-style-type: none"> <li>• Paving repair, even though rideability may improve</li> <li>• Sealcoating and other maintenance</li> </ul>
Sidewalks	<ul style="list-style-type: none"> <li>• Sidewalk replacement, new sidewalks, sidewalk intersections</li> </ul>	<ul style="list-style-type: none"> <li>• Routine repair/patching</li> </ul>
Traffic	<ul style="list-style-type: none"> <li>• New or upgraded signal equipment or other physical improvements that enhance safety or system capabilities</li> </ul>	<ul style="list-style-type: none"> <li>• Equipment repair or replacement to maintain system operations</li> <li>• Lane marking and delineation</li> <li>• Meter replacement</li> </ul>
Street light fixtures	<ul style="list-style-type: none"> <li>• Conversion of street lights to new luminaries or fixtures</li> </ul>	<ul style="list-style-type: none"> <li>• Replacement or repair of damaged lights</li> </ul>
Parking	<ul style="list-style-type: none"> <li>• Major repair to structure</li> <li>• Physical design or capacity improvements</li> <li>• New construction</li> <li>• Computerized revenue control and other operating improvements</li> </ul>	<ul style="list-style-type: none"> <li>• Sealing floors to prevent chloride intrusion</li> <li>• Preventative maintenance and minor repair</li> </ul>
Public buildings	<ul style="list-style-type: none"> <li>• Major remodelling and structural alterations to improve space utilization or capacity</li> <li>• Major replacement or upgrading of design of major building components (roof replacement, major heating system improvements)</li> <li>• Energy related physical improvement programs</li> <li>• New construction</li> </ul>	<ul style="list-style-type: none"> <li>• Preventative maintenance repairs that do not significantly upgrade the structure or increase its previously estimated useful life (for example, minor roof repair)</li> </ul>
Water Treatment	<ul style="list-style-type: none"> <li>• Rehabilitation of major treatment facility components (for example, reservoir repair) to extend useful life</li> <li>• Reservoir connections, new sludge beds, other projects to upgrade treatment capacity, flexibility or quality</li> <li>• New construction</li> </ul>	<ul style="list-style-type: none"> <li>• General repair or maintenance of equipment or facilities to continue operations (for example, wall and ceiling repair, cone motors and controls, sludge bed cleaning)</li> </ul>
Water and sewer mains	<ul style="list-style-type: none"> <li>• Large water mains (replacement)</li> <li>• Sewer separation (sewer modifications)</li> <li>• Flood prevention projects (sewer modifications)</li> <li>• Correction of low-pressure areas (small mains)</li> <li>• Other sewer or water main replacement in conjunction with street paving</li> <li>• Gates and manholes to improve system flexibility</li> <li>• New construction</li> </ul>	<ul style="list-style-type: none"> <li>• Repair of isolated section of broken or collapsed sewer or water mains, catch basins, sewer outlets, and repair fixtures as needed to maintain operations</li> </ul>
Parks	<ul style="list-style-type: none"> <li>• Boulevard reforestation</li> <li>• New park land development, major upgrading of park or park facilities, major park or park building rehabilitation</li> <li>• New park buildings</li> <li>• Physical improvements, lakeshore modifications or other facilities required for lake pollution control</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of diseased trees from boulevards or parks</li> <li>• Repair or replacement of furnishings, equipment or landscape planting that do not substantially upgrade the park</li> <li>• General maintenance and repair of parks, park facilities and buildings</li> </ul>

Source: Excerpt taken from Government Finance Officers Association (GFOA), "Capital Improvement Programming – A Guide for Smaller Municipalities, GFOA, 1996"

costs (including those to replace the asset or facility) associated with the operation of the facility.<sup>1</sup>

<sup>1</sup> Patrick C. Mann (1999), "Financing Mechanisms for Capital Improvements for Regulated Water Utilities", a report prepared for The National Regulatory Research Institute, Ohio State University,

Fourth, capital programs are often not integrated with growth management objectives. For example, capital programs and budgets are often drawn up or altered without the consent or involvement of all local departments or officials. Lack of coordination between local departments and local government enterprises and special purpose bodies such as utility commissions creates situations where capital maintenance or construction of a specific project may not be coordinated with other capital projects. This is often observed where roads, streets and sidewalks are often torn up shortly after rehabilitation or construction so that water and sewer mains may be replaced or rehabilitated. Uncoordinated efforts of this sort prove to be costly and difficult to justify.

Fifth, problems abound if capital projects represent political compromise and compliance with legal approval dates (calendar) rather than well thought-out plans for community improvement. The notion that capital projects flow smoothly from well-organized community plans to implementation is often not borne out. Among the reasons for this is the likelihood that a number of development or management decisions are made in a public forum (public meetings, for example) or influenced by public input from special interest groups. These forums or the public input, however, seldom consider all aspects of community planning such as the maintenance, renewal, and construction of new projects. Even though municipal government may include an integrated approach to capital programs and growth management objectives, this objective is often paid only lip-service. The sheer numbers of people involved and their interest in only selected aspects of the overall plan place constraints on the actual achievement of this objective.

Sixth, the largest proportion of capital spending tends to be devoted to short-term rehabilitation and renewal projects even though longer-term projects may generate greater net gains for society. Emphasis on short-term projects as opposed to longer-term projects arises for two reasons. First, the relatively short term of office for municipal politicians means that they are generally more interested in short term projects because they coincide with their term of office and provide visible signs of political initiatives. Second, municipal decision makers are reluctant to become locked into long-term projects without guarantees of future funding and concern about the impact of future annual interest and debt repayment charges on local budgets.

### **C. Financing Capital Expenditures**

Municipalities pay for capital expenditures from internal revenue sources and from external revenue sources. Internal revenue sources may include current operating revenues, reserves, a variety of special charges and a miscellaneous collection of other locally generated revenues. External sources may include grants from senior governments, borrowing, and public-private partnerships.

The specific choice of a revenue source for financing capital projects is dictated by a variety of factors. It depends on a number of things including the location and size of the municipality or the province/state/region wide agency that may borrow on behalf of all municipalities, their credit rating, their fiscal capacity for meeting capital expenditures out of current revenues, and their anticipated future expenditures. Each of these instruments

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Columbus, Ohio, at 5.

and their applicability for financing different assets is discussed below. This is preceded, however, by a discussion of the analytical framework used for this evaluation.

### ***C.1 Criteria for Evaluating Financing Instruments***

Municipalities in federations<sup>2</sup> are creatures of the state, province, region with spending responsibilities and revenue sources controlled by the latter through various legislation and regulation.<sup>3</sup> Within this constitutional framework, the principal-agent model<sup>4</sup> of intergovernmental fiscal arrangements provides an appropriate context for matching financial instruments to funding local infrastructure or capital investment. In this model, the province is the principal and municipalities are the agents. The principal has the power to change the agents' jurisdictional boundaries, their revenue sources, and their expenditure responsibilities; it can also change the fiscal arrangements between itself and its agents in order to reconcile its objectives with their objectives. The agents' role is to provide and fund services that benefit local constituents; consequently, all financing instruments should be addressed on the basis of benefits received.

The underlying principle of the benefits received<sup>5</sup> model of local finance is straightforward: those who benefit from services provided by capital assets (physical infrastructure) pay for it. Although simple in principle, the application of correct prices and taxes in funding infrastructure is sometimes difficult. The ability or capacity to set correct prices, taxes or user fees depends on the nature of the asset. For assets such as water and sewer where specific beneficiaries can be identified, income redistribution is not a goal, spillovers are unlikely to exist, and all operating and capital costs can be measured and recorded, setting a fee or charge per litre of water consumed should be relatively easy. For physical assets such as local streets and roads where it is impossible to identify specific beneficiaries and where some local spillovers may exist, correctly setting local tax rates to capture local benefits is not so easy. In spite of measurement difficulties and notwithstanding frequent political opposition (notably at the municipal level) to taxes and charges based on benefits received, there are arguments in favour of the benefits-based model of public finance. These arguments are based on the ability to satisfy five important criteria: efficiency, accountability, transparency, fairness, and ease of administration.

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<sup>2</sup> A federation has three levels of government – central or federal; state/provincial/regional; and local or municipal.

<sup>3</sup> Harry Kitchen (2001), "Models of Decision Making and Collaboration for Local Government in Federalist Systems", mimeograph.

<sup>4</sup> For a discussion in the provincial-municipal context, see Richard M. Bird and Duan-jie Chen (1998), "Federal Finance and Fiscal Federalism: The Two Worlds of Canadian Public Finance", *Canadian Public Administration*, 1 (Spring): 50-74; and Harry Kitchen, (November 2000), "Municipal Finance in a New Fiscal Environment", *Commentary*, (Toronto: C.D. Howe Institute) at 5-6.

<sup>5</sup> For a detailed discussion of benefit-based taxation see David G. Duff (2003), "Benefit Taxes and User Fees in Theory and Practice", research paper 45 prepared for the Panel on the Role of Government in the Province of Ontario, Canada, available at <http://www.law-lib.utoronto.ca/investing/index.htm>.

*Economic (allocative) efficiency*<sup>6</sup> is achieved when the user fee or tax per unit of output (service received) equals the extra cost of the last unit consumed. This is the well-known marginal cost pricing principal. The price or fee, by definition, indicates what consumers are willing to pay for this service and marginal cost, by definition, measures the cost of resources used up in producing that service. Perhaps this can be illustrated by reference to a simple example. Suppose the extra (marginal) cost of producing the last litre of water is 10 cents and customers are willing to pay 15 cents for it. This is not an efficient level of output because the value that customers place on this litre is greater than the cost of producing it. In other words society is the beneficiary of a net gain of 5 cents for this unit. Collectively, society would be better off if water consumption increased as long as the price paid for each additional unit exceeded the cost of producing that unit; that is, for each of these units, marginal benefit would exceed marginal cost - a net gain. If, on the other hand, the marginal cost of producing the last litre is 10 cents and customers are only willing to pay 5 cents for it, this is not an efficient level of output either. The benefit that customers get from this unit is less than the cost of the resources used up in producing it and society is worse off – worse off by 5 cents for this unit. As long as the extra cost of producing the unit is less than its price, society is devoting too many resources to its production. It follows, then, that resource efficiency is achieved where marginal cost equals price because this is the point where society secures the greatest net gain from the consumption of this service.

This illustration should make it clear that the main economic reason for imposing correctly designed user fees or prices or taxes on recipients (individuals or businesses) of public services is to provide the public sector with incentives for using its resources in the most efficient manner possible. The goal of maximizing efficiency in a local government's provision of services is not an objective dreamed up by some economist. It is simply common sense. Any local or municipal government should allocate its scarce resources to those services that provide its people with as large a bundle as possible of services that they want. That is all that is meant by efficient resource use.<sup>7</sup>

*Accountability* is another important criteria. It is enhanced when the design of a tax or user fee is clear to taxpayers. Furthermore, the closer the link between the beneficiaries of a government service and payment for that service, the greater is the degree of accountability. When taxes and user fees are directly matched to beneficiaries, the latter can determine whether the benefit from the last unit consumed is worth the price or tax paid for its consumption. They are then in a position to apply pressure on politicians to improve the efficiency with which services are provided or to not provide the service at all.

<sup>6</sup> Economic efficiency is more than technical efficiency- the latter is a necessary but not sufficient condition for economic efficiency. Technical efficiency exists when a producing unit (firm, government, commission) operates in a way such that it is not possible to secure any additional output given the available inputs (labour, material and capital) and level of technology. In other words, technical efficiency is achieved when the output per unit of input is maximized or the cost per unit of output is minimized. This, it should be noted, is not concerned with whether one good or service generates more or fewer net benefits than another good or service. It simply concentrates on the efficient employment of inputs in the production of a specific good or service. Finally, as the level of technology advances, a technically efficient production process leads to increased output with the same inputs.

<sup>7</sup> Richard M. Bird (2001), "User Charges in Local Government Finance", in *The Challenge of Urban Government: Policies and Practices*, edited by Mila Freire and Richard Stren (Washington, D.C.: The World Bank), 171-182; and Richard M. Bird and Thomas Tsiopoulos, (1997) "User Charges for Public Services: Potential and Problems", *Canadian Tax Journal*, Vol. 45, Number 1, p. 35-37.

*Transparency* is an extension of the accountability argument. Transparency is enhanced when citizens/taxpayers have access to information and decision-making forums so that the general public is familiar with the way in which local tax rates and user fees are set. Emphasis on transparency is intended to mitigate the risk of corruption by making information available and by ensuring that all public policy decisions are made in an open and transparent manner.<sup>8</sup>

*Fairness* within the benefits model is achieved because those who consume public services pay for them, just as someone who benefits from a private good pays for it. Concerns about the tax burden on low-income individuals should be addressed through income transfers from the provincial or federal government and social assistance programs targeted to individuals in need. It is far more equitable and efficient to handle income distribution issues through income transfers or targeting<sup>9</sup> by senior levels of government than to tamper with charging or taxing mechanisms to accommodate these concerns.

Finally, the *easiest financing system to administer* is one that is not confusing for taxpayers to understand and does not require an unnecessary amount of time and effort in administering it.

## ***C.2 Range of Financing Instruments***

World wide practice suggests that municipal governments fund capital expenditures from their own revenues and from external revenues; that is, external to the municipality or local government. Each of these sources is discussed and evaluated below.

### **1. Internal Revenue Sources**

Internal revenue sources consist of general operating revenues from local taxes and user fees, earmarked taxes, reserves, and special charges.

#### ***i) General Operating Revenues***

Local taxes and user fees when compared with borrowing generally fund proportionately more of all capital spending in rural municipalities, towns and smaller cities. This is so, because in part, capital markets view smaller municipalities as being a higher risk when compared with larger cities and city-regions, hence making it more costly for the former to borrow. In addition, the relative importance of grants and greater reliance on pay-as-you-go financing for capital projects tends to be more predominant in small municipalities.

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<sup>8</sup> This corresponds to the “Code of Good Practices on Fiscal Transparency” (March 23, 2001), (Washington, D.C.: International Monetary Fund).

<sup>9</sup> For a discussion of programs that could be used, see Robin Boadway and Harry Kitchen (1999), *Canadian Tax Policy*, third edition (Toronto: Canadian Tax Foundation), chapters 8 and 9.

Under the benefits-based model of municipal finance, the use of annual operating revenues to finance capital spending is desirable to the extent that the benefits accrue to current users. Municipalities often use current operating revenues for assets with a short life expectancy (such as police cars and sometimes fire engines) or recurrent expenditures (such as the maintenance and upgrading of sidewalks, roads, street lighting, and parks). For non-recurrent expenditures (such as expenditures for libraries, museums, buildings, and other large fixed assets) or assets with a long life expectancy (such as sewer lines and water works), annual operating revenues are inappropriate because current taxpayers will fund projects that benefit future users - a violation of intergenerational equity.

Sometimes, municipalities generate revenues for capital projects through a “capital levy”. This is generally done by assigning revenue from a few percentage points (two, three or four) of the local tax rate (generally where there is a property tax) to a capital fund. The capital fund is called a reserve or reserve fund.

### *ii) Earmarked Taxes*

An earmarked tax or user fee, which is benefit based, is one whose revenue is dedicated to a specific expenditure or project; for example, revenues from a municipal fuel tax – as in some cities in the United States - could be earmarked for road construction and public transit.<sup>10</sup> Earmarking<sup>11</sup> can be efficient, accountable and fair for local public sector services, especially those that resemble privately supplied services in that each taxpayer’s consumption can be recorded, the extra cost of providing the service can be measured, correct tax prices or user fees can be charged, and non-users excluded. Earmarking can also be a disaster, channeling funds into activities that do not have high public priorities. It may, like some conditional grants, distort local preferences, provide wrong incentives for efficient behaviour at the municipal level and connect expenditures with revenue sources in totally illogical ways.<sup>12</sup>

Earmarking is generally supported, however, where there is a close link between the cost of a good or service provided by a capital asset and the revenue for funding it including its capital cost. This permits a citizen to associate more closely the benefits received as reflected in the price paid with the costs of providing the good or service and decide for himself or herself whether the good or service is worth the price or fee (benefits received principle for funding municipal services). This, in turn, leads to a greater likelihood that efficiency and accountability in local service responsibility will be achieved. In addition, more optimal and efficient investment decisions will likely ensue if the tax charged is based on marginal cost pricing or multi-part pricing as may be the case.<sup>13</sup> In summary, the “interdependence of pricing and investment decisions, and the potentially important role of

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<sup>10</sup> Harry Kitchen and Enid Slack (2003), “Special Study: New Finance Options for Municipal Governments”, *Canadian Tax Journal*, Vol. 51, No. 6, pp. 2215-2275, at 2243-2247.

<sup>11</sup> For an extensive discussion and analysis of earmarking, see Richard M. Bird (1997), “Analysis of Earmarked Taxes”, *Tax Notes International*, at 2096-2116.

<sup>12</sup> Richard Bird (1994), *Decentralizing Infrastructure: For Good or Ill?*, Policy Research Working Paper 1258, (Washington, DC: World Bank).

<sup>13</sup> Harry Kitchen (2003), “Physical Infrastructure and Financing”, research paper 44 for the Panel on the Role of government in Ontario, available at <http://www.law-lib.utoronto.ca/investing/index.htm>.

earmarking in linking revenues and expenditures deserves careful consideration when it comes to financing local infrastructure.”<sup>14</sup>

### ***iii) Reserves***

Financing capital projects through reserves (funds that are set aside in a separate fund for capital spending) is essentially the reverse of financing through borrowing. Instead of borrowing to finance capital expenditures and repaying this debt in the future, reserves or reserve funds reverse that timetable. A portion of current revenue is set aside annually in a special account(s) and allowed to accumulate until it is eventually withdrawn and used to finance or partially finance a specific capital project or projects. These reserves, while they are accumulating, are deposited in interest earning accounts.

Reserve funds may be either obligatory or discretionary. An obligatory reserve fund is created whenever a statute requires that monies be segregated from the general revenues of the municipality. In Canada, examples include revenues received under provisions of the *Development Charges Act*, *Planning Act* or *Municipal Act*. Similar legislation exists in many countries. A municipal council may also establish discretionary reserve funds to earmark revenues for specific projects in the future.

Capital reserves are created for future acquisitions. As well, in most developed countries, municipalities have moved towards greater reliance on reserves for replacing assets such as buildings, facilities, vehicles and equipment. While the use of reserves is growing, they tend to violate the principle of intergenerational equity because current users and taxpayers pay for capital expenditures that will be used by future generations.

### ***iv) Special Charges***

In some countries, there is a range of special charges that may be imposed on properties to pay for local infrastructure. These include special assessments and local improvement charges which can be characterized as property related specific benefit levies; development charges or lot levies which are prepayments for growth-related capital requirements; and other exactions that include density bonusing, linkage fees, and parkland dedication.

#### ***a) Special Assessments and Local Improvement Charges***

A special assessment or local improvement charge is a specific levy added to the existing property tax on residential and/or commercial/industrial properties to pay for additional or improved capital facilities that border on these properties. The value of the charge is based on a specific capital expenditure in a particular year, but the costs may be spread over a number of years.<sup>15</sup> Examples of capital projects often financed in this way include the construction or reconstruction of sidewalks, the initial paving or repaving of streets, and the installment or replacement of water mains, sanitary sewers, or storm sewers. In each

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<sup>14</sup> Bird (1994), supra footnote 12, at 20.

<sup>15</sup> Almos Tassonyi (1997), “Financing Infrastructure in Canada’s City-Regions” in Paul A.R. Hobson and France St-Hilaire *Urban Governance and Finance: A Question of Who Does What* (Montreal: Institute for Research on Public Policy, pp. 171-200 at 185-193.

instance, the abutting property is presumed to benefit from the local improvement and expected to bear a portion or all of the capital costs.

Special assessments do not generally contribute large sums of revenue to local budgets; they are, nevertheless, an important means of financing local improvement projects. Their structure may be designed so that project costs are allocated according to some measure of benefits received. Several types of special assessment for apportioning local charges among benefiting properties may be used. The correctness of the apportionment depends on the choice of the assessment base. The most common base is the foot frontage of each benefiting property. This is appropriate for financing projects whose cost per property increases with the width of the lot. For projects such as neighbourhood parks, whose benefits largely accrue to particular areas or blocks within a community, the best approach to apportioning costs may be zone assessment, under which all properties in the serviced area pay the same share of total costs.

Other possible bases for special assessments are less satisfactory than foot frontage and zone assessment. Lot size has been suggested as a proxy for the depth of the lot in cases where the distance of the house from the street affects the cost of the service. Lot size, however, is neither a close proxy for lot depth nor does it necessarily bear a close relationship to the actual costs of constructing or replacing local services as they pass through or by abutting properties. A combination of foot-frontage charges and connection fees would more accurately reflect the capital costs of service provision in this situation

Where local governments rely on property taxes, efficiency, accountability and the remaining criteria for responsible infrastructure financing could be satisfied if the charge on each property equaled the value of benefits that each property received from a local improvement project. In practice, however, calculating the increase in property values attributed to this project would require extensive checking and record keeping. In fact, this calculation would be extremely difficult, probably impossible.

Another approach fraught with difficulties is assigning charges according to the assessed values of properties that abut on local improvement projects. Other than ease of administration, there is no justification for this method. Assessed values are not likely to be highly or directly correlated with increases in value attributed to specific projects.

Accurate apportionment of costs is especially difficult in the case where improvements are shared between an abutting property and the public at large. For example, a common approach in Canada to financing the capital costs of sidewalk construction or replacement is to charge the bordering properties between 40 per cent and 60 per cent of the total construction costs, leaving the municipality with the responsibility for raising the balance. Similar policies exist for other local improvement projects. Whether the percentage assigned to abutting properties truly measures the benefit of the project to those properties is a matter of conjecture. The important point, however, is that municipal governments are operating on the right principles when they assign some of the costs of most local improvements to abutting properties.

#### ***b) Development Charges***

Development charges are widely used by municipalities in Canada and the United States. The development charge is an important financing instrument for capital projects required to accommodate growth. A development charge is fixed at a specific dollar value per lot (or per hectare or acre) and is imposed on the developer to finance the off-site, growth-related capital costs<sup>16</sup> of new development. The charge is applied to the capital costs of capital projects needed for new development, but under certain circumstances it may also apply to additional capital costs required to service redevelopment. Historically, charges have been levied to finance the so-called hard services such as water supply systems, sewage treatment plants, trunk mains and roads.

Within the benefits received model, a development charge is fairest when it is easy to identify the beneficiaries of services provided by physical infrastructure; that is, when one can determine the cost of the eligible infrastructure for each property and all benefits from the infrastructure are confined to that property. Watermains, sewers, and local streets are examples of capital expenditures whose beneficiaries are fairly easy to identify.<sup>17</sup>

An efficient development charge must include the full capital cost of the asset. For municipal capital expenditures, this charge should consist of a capacity component that covers the capital cost of constructing the facility, plus a location or distance/density charge that covers the capital cost of extending the service to particular properties or neighbourhoods.<sup>18</sup> Ideally, a charge on an individual property or on a neighbourhood should be designed to capture the extra cost of the capital facility required by that property or neighbourhood. Where the extra cost of providing services to different properties differs because of the location or type of property or the nature of the capital asset provided, the charge on each property or neighbourhood should differ if resources are to be allocated in an efficient, accountable, and responsive manner. The general practice in Canadian municipalities with a development charge, however, is to impose an identical charge on all properties of a particular type (single residential, for example) regardless of the location of the property within the community or neighbourhood in which it is located. While this practice has been adopted for administrative simplicity, it creates problems on efficiency grounds because residential dwellings in low density neighbourhoods are levied the same charge as residential dwellings in high density neighbourhoods, yet it is apparent that the

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<sup>16</sup> In Canada, on-site services such as local roads, sidewalks, street lighting, sewers, and water are the responsibility of the developer in most municipalities and are funded in subdivision approval plans that must be submitted, by developers, to municipal governments for approval prior to development.

<sup>17</sup> For a more detailed evaluation of development charges, see Harry Kitchen (2002), *Municipal Revenue and Expenditure Issues in Canada* (Toronto: Canadian Tax Foundation), at 196-200; Ray Tomalty and Andrejs Skaburskis (1997), "Negotiating Development Charges in Ontario: Average Cost versus Marginal Cost Pricing of Services", *Urban Studies*, vol. 34, Issue 12; Enid Slack (1994), *Development Charges in Canadian Municipalities: An Analysis* (Toronto: Intergovernmental Committee on Urban and Regional Research); Enid Slack (1990), *An Economic Analysis of Development Charges in British Columbia and Ontario* (Vancouver: Laurier Institute); Enid Slack and Richard Bird (1991), "Financing Urban Growth Through Development Charges (1991), vol. 39, no. 5 *Canadian Tax Journal*, 1288-1304; and Richard M. Bird and Enid Slack (1993), *Urban Public Finance in Canada*, (Toronto: John Wiley and Sons), 105-110.

<sup>18</sup> Paul P. Downing and Thomas S. McCaleb (1987), "The Economics of Development Exactions" in James E. Frank and Robert M. Rhodes, eds., *Development Exactions*, (Washington, D.C.: Planners Press, American Planning Association), 42-58 at 51-52.

marginal cost per property of infrastructure projects in low density areas is higher when compared with the marginal cost per property of identical projects in high density areas (more pipe, more asphalt, more cement, and so on, will be necessary to service the same property in a low density neighbourhood). This may lead to over-development of low density housing (urban sprawl) and under-development of high density housing relative to what is economically efficient.<sup>19</sup>

Similarly, it is more expensive to provide some services to certain parts of the city than to other parts of the city (it will be more expensive to provide infrastructure in hilly terrain versus flat areas or to provide these same facilities in different soil types, for example). The application of the same charge to all properties falling in the same property category, regardless of geographic location, is allocatively inefficient because some properties are over charged while others are under charged. This has led to urban sprawl and more investment in physical infrastructure than is allocatively efficient.

A more efficient pricing policy, in terms of securing correct prices for the provision of capital facilities, would allocate the costs of infrastructure, via the development charge, to new properties actually benefiting from these services. Although it may be impractical to expect local government officials to calculate the infrastructure cost for each new property site, there is no reason why these costs could not be calculated for each new development area or neighbourhood. In this way, development charges in each area could more closely approximate the true costs of providing infrastructure for that area and provide a disincentive to create sprawl.

### *c) Other Exactions*

Exactions consist of money, land or construction projects provided to a municipal jurisdiction by a developer. Examples include density bonusing, linkage fees, value capture levies, and parkland dedication.

***Density Bonusing:*** Municipal density bonusing schemes exist where developers, through arrangements with municipal governments, are granted increased density allocations or density transfers in return for creating subsidized housing, daycare centers, restoring historic buildings and other services.

Without legislation controlling the use of bonusing schemes, decisions are likely to be made on an ‘ad hoc’ basis, leading to different decisions at different times and for different people. Allowing height or density bonuses may create inequities and inefficiencies. Planning principles that were used in establishing zoning legislation to restrict height and density are presumably designed to control urban development, servicing, and transportation. If these height and density restrictions are exchanged for “facilities, services or matters”, one may very well ask why zoning legislation was enacted in the first instance. If a municipal statement with regard to maximum densities is defensible by a sound planning rationale, why should the need for a local day care center, additional subsidized housing, and restoration of historic facades alter that rationale? Trade-offs of this sort may throw all future planning principles into question and lead to further abuses.

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<sup>19</sup> Enid Slack (2002), “Municipal Finance and The Pattern of Urban Growth”, *Commentary* (Toronto: C.D. Howe Institute).

**Linkage Fees:** Linkage fees are used in a number of cities in the United States but not used in Canada. Linkage fees are charged to commercial developments with revenues used to assist in the funding of affordable housing. They are sometimes used where there is a presumed link between the growth in commercial space and the impact on the supply and demand for affordable housing. For example, it has been argued that the construction of commercial space reduces the supply of housing either through the demolition of existing housing or indirectly through higher land prices created by this development and the subsequent difficulty or inability of developers to provide affordable housing. On the demand side, low wage service jobs created by the commercial development will result in increased demand for affordable housing.

In some cases, the linkage fee is a mandatory requirement for project approval; in others, it applies only to extra density that a developer requests through an application for a zoning amendment. Linkage fees resemble development charges in being a charge on a developer to cover municipal costs created by the new development. In this case, however, the developer on whom the fee is levied neither creates the need for the service in question nor enjoys the benefits from that service. Hence the rationale that links these fees with low cost housing is questionable. A more plausible rationale is one based on the economic rents that arise from public investment in infrastructure or public approval of increased density. According to this rationale, the investment generates windfall profits to the developer, and the municipality can appropriately tax away some of these profits without generating any inefficiency in the allocation of resources. Determining the size of these rents, however, is very difficult.

**Value Capture Levies:** Municipal spending on public infrastructure and subsequent zoning decisions may increase the commercial value of holdings of private landowners. Value capture levies permit the municipality to capture some of these economic rents.

One way to capture the value added is to have the developer provide various facilities and infrastructure, or cash, in return for being permitted to undertake the development that the new municipal infrastructure makes possible. Value-added may also be captured through the taxation of commercial revenues generated by property that abuts the infrastructure. Alternatively, the municipality could levy a special annual tax on the property that has acquired value added.<sup>20</sup>

Value-capture levies may be particularly suitable for mega-projects such as subway (underground) or rapid transit expansion. There are, however, a number of questions that any proposal to use value-capture levies must address. For example, who are the real beneficiaries of the capital asset or infrastructure project? Are they already being taxed for the project twice through higher annual property taxes (because market value has risen)? What disincentive effects will the use of value-capture levies create for private development?

**Parkland Dedication.** In some countries, developers may be required to set aside land within the development or elsewhere, for parks. For example, the Provincial Planning Act in the province of Ontario, Canada, permits (but does not require) municipalities to enact

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<sup>20</sup> Tassonyi (1997), Supra footnote 15, at 191-192.

local legislation requiring developers to set aside up to 5 percent of the area of land for new residential development and up to 2 percent of the area of land in the case of new commercial/industrial development. In the province of Alberta, Canada, dedicated parkland amounts to 10 percent of the land area for new development. In-lieu of this land requirement, however, the developer and municipality may agree to a cash payment equal to the market value of the stipulated amount of land. These funds, however, may be spent in whatever fashion the municipality chooses. In the province of British Columbia, land must be dedicated for elementary and secondary schools.

Since parkland dedication is a charge on developers to pay for the costs of growth related capital projects, its equity and efficiency effects are similar to those of development charges.

## **2. External Revenue Sources**

The discussion here concentrates on grants from senior levels of government, borrowing and public-private partnerships.

### ***i) Grants***

Grant assistance from senior levels of government for capital infrastructure may be economically sound if the projects for which funds are provided generate spillovers or if they are projects in which donor governments have a specific interest or need. Here, conditional grants could be justified for partial or full funding with the funding rate set to match the proportion of benefits deemed to be in the form of spillovers or the rate could be set to match the proportionate interest of the donor government. If grants are used to fund more than this, they often create problems as the following notes.

First, transfers can distort local decision-making. Conditional transfers require municipalities to spend the funds they receive according to the guidelines of senior governments and often require matching funds on the part of the recipient municipality. A matching transfer, by lowering the price of some services, encourages municipalities to spend more on these services. This may mean that municipalities are spending in areas that may not be a priority for them.

Second, funding from senior governments can also lead to inefficient local revenue decisions. In particular, there is no incentive to use proper pricing policies for services provided where grants cover a large proportion of capital costs. Large grants for capital projects such as water and sewage treatment plants, for example, may remove all incentives to use volumetric pricing to reduce the demand for water. As well, they have removed the incentive to set up carefully thought out asset management and asset cost recovery programs. In other words, intergovernmental transfers may be working against any objective designed to set correct prices for delivering local services in an efficient and accountable manner.<sup>21</sup>

Third, transfers may encourage people to stay in communities at risk. Capital grants may prop up communities that simply cannot survive on their own. Some small, rural, and

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<sup>21</sup> Kitchen (2003), supra footnote 13.

remote communities, for example, may be unable to provide adequate levels of service at reasonable tax rates<sup>22</sup> or at reasonable user fees. On the expenditure side, low population density leads to high per capita expenditures because these communities cannot take advantage of economies of scale in service provision. As well, expenditures on roads, water and sewer infrastructure may be higher because of harsh climatic conditions and terrain. On the revenue side, small rural and remote areas may not have sufficient capacity to finance local expenditures. The tax base is limited relative to local needs. The high cost of services means that user fees are less likely to cover the full cost of service provision. Under these circumstances, senior levels of government often provide capital grant assistance so these municipalities can deliver services provided by local infrastructure. If service provision is considerably more expensive and higher levels of financial assistance are required, there is a question about the use of senior government resources to artificially support remote communities.<sup>23</sup> An important issue is whether communities that cannot survive in the absence of disproportionate senior government funding (when compared to other urban areas) should exist at all.

The argument against subsidizing remote areas is based on efficiency. Reliance on grant funding reduces the incentive for residents of these municipalities to leave and move to areas where there are greater employment and educational opportunities. Politics sometimes leads to a different conclusion, however, because people form emotional attachments to communities and politicians are reluctant to move them even though the long-term costs of not moving them are high.

Fourth, a recent study on the effects of financing the metro in Santiago, Chile, from grants provided by the central government indicated that funding large metropolitan capital works from central government grants can lead to increased regional inequality and distorted metropolitan growth.<sup>24</sup>

Fifth, more generally, transfers reduce accountability. When two or more levels of government fund the same service, accountability problems arise. When users or taxpayers want to complain about the service, they are not sure which level of government is responsible for the problem. When the level of government making spending decisions (municipalities) is not the same as the level of government that raises the revenues to pay for them (a more senior level of government), accountability is blurred. There is little incentive to be efficient when someone else is responsible for funding. International

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<sup>22</sup> For a detailed discussion of the challenges facing these communities and the appropriate role for government, see Enid Slack, Larry Bourne and Meric Gertler (2003), "Small, Rural and Remote Communities: The Anatomy of Risk," research paper 18 prepared for the Panel on the Role of Government in Ontario, available at <http://www.law-lib.utoronto.ca/investing/index.htm>; and Harry Kitchen and Enid Slack (2002), "Providing Public Services in Remote Areas", a paper prepared for the World Bank Institute's (Washington, D.C.) project on 'Fiscal Federalism in Russia', available at [www.worldbank.org/wbi/publicfinance/decentralization/fiscalfederalism\\_Russia.htm](http://www.worldbank.org/wbi/publicfinance/decentralization/fiscalfederalism_Russia.htm)

<sup>23</sup> The issue is not whether taxpayers in remote communities should be excluded from paying for municipal services. Clearly, they should pay at least some of the costs of services if accountability, fairness, and efficiency are to be achieved.

<sup>24</sup> John F. Kain and Zhi Liu (2002), "Efficiency and Locational Consequences of Government Transport Policies and Spending in Chile", in Edward L. Glaeser and John R. Meyer (2002), *Chile: Political Economy of Urban Development* (Harvard University, MA: John F. Kennedy School of Government).

experience tells us that governments are more likely to carry out their operating and capital expenditure responsibilities in a responsible, efficient, transparent, and accountable manner if they are also responsible for raising their own revenues to pay for these services.<sup>25</sup>

Economic arguments in support of capital grants are often not strong. Their use, where they are prevalent, should be conditional on recipient governments setting efficient user fees, prices and local taxes for services provided by the funded or partially funded physical infrastructure<sup>26</sup> This should include the proper use of asset management programs and the inclusion of asset replacement costs in the charge or price for services provided.<sup>27</sup> Indeed, this should be compulsory regardless of whether or not the asset is financed by grants. The practice of fully expensing capital expenses in the year of acquisition and subsequent failure to depreciate the value of capital assets and to include this as cost to be recovered leads to under-pricing of services provided and over-investment in the size of the capital asset or local infrastructure.

## **ii) Borrowing**

Borrowing for capital projects can be justified as long as the benefits from the project fall on future users. This matches the financing term with the asset's life span. Here, the project is financed by borrowed funds with principal and interest charges repaid out of future operating revenues.

Borrowing plays an important role in financing local government capital projects even where local government access to capital markets is controlled by senior governments. Indeed, local access to capital markets is often heavily restricted in both developing<sup>28</sup> and developed countries.<sup>29</sup> These controls are in place because the latter do not want to be responsible for unlimited municipal borrowing and possible repayment of municipal debt. As well, unrestricted municipal access to capital markets may in some circumstances crowd out private sector borrowing. The following methods are used to control municipal borrowing in Canada and similar, if not identical restrictions are used in other countries.<sup>30</sup>

- Borrowing is only permitted for capital projects approved by a senior level of government – the province, state, region, and so on.

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<sup>25</sup> Richard Bird (2001), "Subnational Revenues: Realities and Prospects", (Washington: World Bank Institute).

<sup>26</sup> As discussed in parts D and E in this paper.

<sup>27</sup> GeoEconomics Associates Incorporated, Jeff Harris, Don Tate, Steven Renzetti, and Acres Associated Environmental Limited (2002), "Economic Principles and Concepts as Applied to Municipal Water Utilities", a Study completed for the Ontario SuperBuild Corporation (Toronto: the Corporation), Appendix 6.1: "Capital Cost Accounting, Utility and Cash Based Accounts".

<sup>28</sup> Jonathan Rodden, Jennie Litvack, Gunnar Eskeland, eds, (2003), *Fiscal Decentralization and Hard Budget Constraints*(Cambridge, MA: MIT Press).

<sup>29</sup> Richard M. Bird and Enid Slack (2004), "Fiscal Aspects of Metropolitan Governance" International Tax Paper 0401 (Toronto: Institute for International Business, University of Toronto), at 43.

<sup>30</sup> For a discussion of municipal borrowing regulations across Canada, see David Amborski (1999), *Review of the Regulatory Environment of Municipal Capital Borrowing*, (Toronto: Intergovernmental Committee on Urban and regional Research).

- Prior approval by local taxpayers (through a referendum) is required for borrowing above a specific limit.
- The amount of annual debt financing is restricted to some percentage of municipal revenues.
- Borrowing is permitted from a province or region-wide ‘municipal fund’.

The way in which long term municipal debt is issued varies across countries and across municipalities within countries. In some jurisdictions, province-wide, state-wide, or region-wide agencies issue debt for all municipalities. In Canada, the Municipal Finance Authority in the province of British Columbia and the Municipal Finance Corporation in the province of Nova Scotia are probably the best known province-wide agencies. In other jurisdictions, municipalities are responsible for raising their own debt.

Issuing debt through province-wide, state-wide, or region-wide agencies generates significant benefits when compared with municipalities issuing their own debt. These organizations permit municipalities to pool their debt under a single umbrella, thus lowering interest costs. One Canadian study<sup>31</sup> compared the cost of municipal borrowing for pooled versus stand-alone issues using data for municipalities in the province of Ontario. The findings indicated that pooled financing through a hypothetical municipal financing corporation or authority lowered costs significantly to municipal borrowers compared to the actual cost of capital for municipal issues in that province. The authors concluded that the benefits of participating in a municipal finance authority that issues ten-year debentures through investment dealers varied inversely with population size and credit rating. Issue size was not a factor.

Province, state, and region-wide authorities often issue bonds on a regular basis; some only for municipal units but others issue bonds for schools, hospitals, utilities, and other municipal bodies. Administrative costs are funded by a senior level of government, by earnings on reserve funds, by participants, or by a combination of these. Loans are sometimes guaranteed by a senior level of government – thus, lowering interest rates.

Borrowing costs may also be lowered by adding credit enhancements at the provincial level and by the ability to issue debt in national and international markets. The lower borrowing cost reflects the reduced cost of capital but also lower administration costs to issue debt. A municipal finance authority substitutes one contract with an underwriter for separate contracts between each borrower and debt issuer. As such, it economizes on transactions costs because it issues bonds more frequently than individual municipal borrowers and it operates in volatile capital markets that are subject to uncertainty. Finally, it can exercise a greater degree of flexibility over issue terms and costs to municipal clients.

#### ***a) The Decision to Borrow***

Borrowing is generally favoured<sup>32</sup> when current revenues (local taxes and user fees) are insufficient to fund large expenditures on a “pay-as-you-go basis.” Because capital

<sup>31</sup> M. Gilbert and R. Pike, “Financing local government debt in Canada: pooled versus stand-alone issues – an empirical study”, *Canadian Public Administration*, vol. 42, pp. 529-552.

<sup>32</sup> For arguments in support of and against borrowing, see J.E. Peterson, *Subnational Debt, Borrowing Process, and Creditworthiness*, (New York: World Bank, 2001).

expenditures are lumpy, a municipality may need millions of dollars to finance an infrastructure project in one year and nothing for a number of years. In addition, all infrastructure or capital spending must be completed before any benefits are derived. Borrowing smooths out the repayment of debt and permits municipalities to synchronize the costs and benefits of infrastructure over time. A project built today may provide benefits for the next 25 years. If funds are borrowed, the project is paid for over the next 25 years through annual repayment of principal and interest. This means that those who benefit from the facility (the users over the next 25 years) pay for the costs of the project. These charges are generally paid out of revenues from local taxes and user fees. Here, borrowing is more equitable and efficient because those who benefit from the infrastructure or project pay for it. Finally, since inflation reduces the cost of borrowing, it may be favoured because debt repayment is made with funds that are worth less than the value of the funds initially borrowed.

Arguments against borrowing and in support of “pay as you go” financing include savings in interest costs (available for spending on other projects); creation of debt capacity for more important future projects; and avoiding situations where future users have no say in the issuance of to-days debt yet they must pay for projects approved by today’s policy makers.

### ***b) Types of Bonds***

There are a variety of borrowing instruments that are in use in different countries. These include general obligation bonds (often called debentures), revenue bonds, tax-exempt bonds, and the creation of tax incremental financing districts.

#### ***1. General Obligation Bonds***

In Canada, municipalities may only issue general obligation bonds - often called serial or sinking fund debentures. In Italy, by comparison, municipalities are not permitted to use general obligation bonds. In the United States, municipalities may use these bonds as well as other types of bonds.

Serial debentures are issued for a fixed number of years with a certain number reaching maturity and being redeemed by the municipality or provincial agency each year. Serial debentures may take different forms including annuity serials, straight serials, and irregular serials.

Annuity serials are similar to a home mortgage in that the total interest and principal repayment is roughly the same throughout the life of the security. In the early years, the interest portion of the payment is higher and in later years the principal portion is higher. Straight serials require annual principal payments of approximately equal amounts. Interest payments are higher in the early years and decline as the securities approach maturity. Irregular serials involve a “balloon maturity” date, that is, a significant portion of the principal is postponed until the full term of the issue is reached.

In choosing a particular type of serial debenture, a number of considerations must be weighed. Annuity serials may be favoured in instances where capital projects must be built

with a capacity large enough to service additional users in the future. Examples of municipal projects that may be financed in this way include water and sewage plants, fire stations, and police stations, all of which are constructed on the basis of meeting a current and potentially expanding population base. Under this financial arrangement, a municipality is able to avoid heavy debt service charges in the early years of the project and to redistribute the costs in a more equitable and manageable way.

Straight serial debentures carry heavier debt charges in earlier years than in later years (see Table 2 for a comparison of debt charges on straight versus annuity serials). As far as the municipality is concerned, this has the advantage of lowering interest charges and freeing up the municipality for future borrowing without increasing annual debt servicing costs. For most capital projects, however, this method of financing violates the rationale of equating those who receive the benefits from the capital project with those who bear the cost. Indeed, acceptance of this criterion provides a stronger basis for utilizing annuity rather than straight serials for most capital projects. Unfortunately, financing to equate future beneficiaries with those who pay the costs is seldom part of the decision-making once a municipality has decided to borrow through serial debentures. Instead, simplicity and ease of marketing along with minimizing the debt servicing charge are of prime importance. To meet these objectives, straight serial debentures have a simpler maturity schedule, are easier to understand, and quicker to market than annuity serials. As well, the nature of the money market may dictate the issuance of straight serials rather than annuity serials if debt service charges are to be minimized. For example, the interest rate on straight serials may vary with their maturity dates. If longer-term interest rates are noticeably lower than shorter-term interest rates, then the issuance of straight serial debentures provides a means of lowering interest charges by bringing a larger proportion of the principal under the lower interest rate. On the other hand, if the demand for short-term money is abnormally high, there is little advantage in competing for it, unless of course, the municipality assumes that interest rates are going to rise in the future in which case it may wish to finance through borrowing now rather than later.

Irregular serials, known as "balloon issues", are used occasionally where there is uncertainty as to future requirements for servicing the debt after construction costs have been met. When combined with the creation of reserve funds, these serials can be justified as an adequate basis for funding certain local capital projects.

By comparison, sinking-fund debentures are issued to mature at a fixed future date. Each year the municipality pays an agreed sum of money to a trustee who, in turn, invests the portion that is not immediately applied toward paying the debt or discharging the obligation.

Where these debentures are permitted, municipalities or their borrowing agencies generally place greater reliance on serial rather than sinking fund debentures. Sinking funds are more expensive and more difficult to administer because they require expert advice on the investment of funds along with frequent actuarial computations to ensure

Table 2: A Comparison of Debt Service Charges on One Million Dollars over Ten Years Using Straight and Annuity Serial Debenture Financing
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Payable at end of year	Straight Serial Debentures				Annuity Serial Debentures			
	Outstanding principal	Principal Repayment	Interest payment <sup>a</sup>	Annual debt charges	Outstanding principal	Principal Repayment	Interest payment <sup>a</sup>	Annual debt charges <sup>b</sup>
	\$	\$	\$	\$	\$	\$	\$	\$
1	1,000,000	100,000	100,000	200,000	1,000,000	62,745	100,000	162,745
2	900,000	100,000	90,000	190,000	937,155	69,020	93,726	162,745
3	800,000	100,000	80,000	180,000	868,236	75,921	86,824	162,745
4	700,000	100,000	70,000	170,000	792,314	83,514	79,231	162,745
5	600,000	100,000	60,000	160,000	708,800	91,865	70,880	162,745
6	500,000	100,000	50,000	150,000	616,936	101,051	61,694	162,745
7	400,000	100,000	40,000	140,000	515,884	111,157	51,588	162,745
8	300,000	100,000	30,000	130,000	404,727	122,272	40,473	162,745
9	200,000	100,000	20,000	120,000	282,455	134,499	28,246	162,745
10	100,000	100,000	10,000	110,000	147,956	147,949	14,796	162,745
Total	---	1,000,000	550,000	1,550,000	---	1,000,000	627,456	1,550,000

<sup>a</sup> 10 percent of outstanding principal.  
<sup>b</sup> Total debt charges = Principal\*[i(1+i)<sup>n</sup>]/[(1+i)<sup>n</sup>-1] where i = interest rate and n = number of years

that adequate funds are available to cover the principal repayment at maturity. As well, types of securities that can be held in sinking funds are often closely restricted by senior government regulations and they frequently generate less revenue than can be earned on other safe securities. The inflexible maturity dates of sinking-fund debentures seem to create more difficulties in marketing these securities when compared with serial debentures.

Sinking funds, however, provide at least one benefit and that is the opportunity for municipalities or their debt-issuing agencies to sell their own securities to the sinking fund. This is especially advantageous when market conditions do not favour the public issuance of new debentures; however, it appears that this advantage may not be sufficient to outweigh the substantial administrative costs associated with the operation of sinking funds.

## 2. Revenue Bonds

Revenue bonds are permitted in the United States but not in Canada. They are the only type of bonds that Italian municipalities are permitted to use. They finance infrastructure that generates a revenue stream and where the beneficiaries (consumers of the service provided by the asset) can be identified such as in water and sewer consumption. These bonds are backed by future revenue (raised by user fees, for example) generated by the funded project. To be marketable, revenue bonds are secured by revenue streams that are adequate, predictable, and spread over the project's life. Their credit quality depends on the financial strength of the underlying capital asset. Where revenue bonds are secured by specific revenue sources and not by the local governments' unlimited taxing power, their credit quality is sometimes viewed as lower than that of similarly rated general government bonds and hence, higher interest rates are needed. To eliminate possible interest rate differentials on revenue and general government bonds, municipal governments may guarantee them. Within the benefits based model for financing local capital infrastructure, revenue bonds are an important instrument. They are fair, efficient, and accountable because those who benefit from the service pay for it.

### **3. Tax-Exempt Bonds**

Many municipalities in the United States issue tax-exempt bonds and only one Canadian province (Ontario) permits them.

Tax-exempt bonds pay interest income that is not subject to income taxation. For the issuing agency (municipality or agency), bonds have interest rates that are below market rates. For example, a potential bond buyer in a 40 percent marginal tax bracket (personal income tax) may be indifferent between buying a taxable bond paying interest at the rate of 7.5% and a tax exempt bond paying interest at the rate of 4.5% assuming that both bonds are equally risky or riskless. If, however, the interest rate affixed to the tax-exempt bond were above 4.5%, the municipal bond would be more attractive to the investor when compared with the alternatives.

Tax-exempt bonds have been criticized, however, because they are inequitable; that is, they provide more income tax relief to higher income taxpayers than they do to lower income taxpayers, and because they distort capital markets.

### **4. Tax Incremental Financing District**

Tax incremental financing districts (TIFs) are currently used by cities in forty-three states in the United States where they play an increasingly important role in brownfield remediation and infill development.<sup>33</sup> They are not permitted in Canada, however. TIFs are intended to stimulate private sector investment in urban areas that need revitalization<sup>34</sup> so that these areas may compete with suburban and exurban areas.

Although U.S. state laws vary in detail, all have the same basic approach. For a specific period of time (long enough to recover all costs of public funds used to redevelop the property), tax incremental financing divides property tax revenue from the area into two categories. Taxes based on the pre-developed assessed value of property are retained by the municipality for general use. Taxes on increased assessed values arising from redevelopment are deposited in a special increment fund with revenue from this fund used to repay bonds that have been issued to finance public improvements in the redeveloped area. In other words, increases in property tax revenue from the redevelopment of an area are dedicated to financing public improvements in that area.

Typically, tax incremental finance-backed bonds are sold to provide up-front financing for the purchase and reclamation of the land, and for installation of public infrastructure such as streets, streetlights, water and sewer lines, curbs, gutters and landscaping. Once the property is prepared, the land is sold to a private developer at a price that is lower than the

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<sup>33</sup> B.S. Onyschuk, M.G. Kovacevic, and P. Nikolakakos, *Smart Growth in America: New Ways to Create Liveable Communities*, (Toronto: Canadian Urban Institute, 2001), at 26-27.

<sup>34</sup> For a review of the U.S. experience, see Robert Wassmer (1994), "Can Local Incentives Alter a Metro City's Economic Development?" *Urban Studies*, 1251-1278; John Anderson (1990), "Tax Increment Financing: Municipal Adoption and Growth", *National Tax Journal*, 155-164; and Robert L. Bland (1989) *A Revenue Guide for Local Government*, (Washington: International City Management Association, 1989), at 165-180.

local government's cost of preparing the land – a technique known as a land cost write-down. All predevelopment and land-write down costs are funded by bonds that are repaid from the special increment fund.<sup>35</sup>

Supporters of TIFs argue the following.<sup>36</sup>

- There is no transfer of funds from a local government to subsidize a business nor any transfer of tax dollars from one business to subsidize another business. Development is financed from increases in tax revenue that it generates, not from a subsidy from other areas of the city.
- Unlike bonuses or tax abatements where taxes are reduced or forgiven on a particular property, property owners in a tax increment district (TID) incur the same local tax rate as property owners outside the district. Preferential treatment is granted only in that taxes from the increased assessment base of the TID are dedicated to financing the public improvements in the area. Once this period of time expires, tax revenues from the expanded assessment base go into the general fund of the taxing authority
- Dedicated tax dollars reduce the risk and uncertainty facing the private sector and give it greater assurance that its investment will contribute to a revitalized district.
- If used to stimulate downtown development (infilling) or brownfield remediation, TIFs could discourage urban sprawl.<sup>37</sup>

On the other hand, opponents of TIFs have listed some problems. For example;

- TIFs may only accelerate development that would have occurred anyway or they may serve as a windfall for developers if the latter were about to develop the project in the absence of a TIF.
- If tax increment funds do not materialize as planned, the city must find other sources of funds to prevent a bond default.
- TIF supported spending may receive less public scrutiny than other spending by local government.
- TIFs have been criticized because they target funds to specific areas at the expense of the periphery or overall municipal growth.

While there are supporters and critics of TIF bonds, their implementation could benefit municipalities in many countries, especially cities and for projects that are controlled so that abuses noted in some cities in the United States are not repeated; for example, for major sports facilities or for a larger geographical area than is necessary for remediation or infilling.. The introduction of TIF bonds could be an important instrument in helping resolve growing urban problems such as those associated with revitalizing the urban core; developing brownfields; and controlling urban sprawl.

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<sup>35</sup> Bland (1989), supra footnote 34, at 165-166.

<sup>36</sup> For a further discussion of support and criticism, see Slack (2002), supra footnote 19, at 20-21; and Bland (1989), supra footnote 34, at 167.

<sup>37</sup> Onyschuk et. al. (2001), supra note 33, at 26-27.

To prevent situations where TIF-backed debt could be subsidized by senior levels of government through reduced income tax revenues, TIF-backed debt should not be in the form of tax-exempt bonds.

### *iii) Public-Private Partnerships*<sup>38</sup>

In recent years and in many countries, local governments have expressed growing interest in public-private partnerships as a way of financing costly infrastructure projects. To illustrate, eighty-five percent of government respondents to a survey by the Canadian Council for Public-Private Partnerships noted that their government was increasing its reliance on public private partnerships.<sup>39</sup> Similar trends have been noted in other countries.<sup>40</sup> The way in which the two partners share the risks of the capital project depends on which form the partnership adopts.<sup>41</sup> The greater is the private sector's share of risk, the greater will be its expected rate of return. The private sector may also be concerned that the government could change the 'rules of the game' in midstream because of changes in regulation or in the political climate. Further private sector risk arises because the public sector may terminate contractual arrangements without compensating private sector partners.

Public-private partnerships provide some advantages. First, the private sector offers new sources of capital and hence the possibility of freeing up government revenues for other purposes, reducing current debt and increasing debt capacity.<sup>42</sup> The opportunity to gain new sources of capital is especially important when it is necessary to modernize crumbling or deteriorating local infrastructure.<sup>43</sup> The use of private sector financing for this purpose means that all risks associated with this project fall on the private sector.<sup>44</sup>

Second, public-private partnerships enable the public sector to draw on private sector expertise<sup>45</sup> and skill to minimize costs. This advantage may be especially important for small municipalities who may have greater difficulty than large ones in attracting

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<sup>38</sup> Public-private partnerships are also discussed in another paper prepared for this workshop. See Harry Kitchen, "Delivering Local/Municipal Services".

<sup>39</sup> Stephen Martin (2001), "Public-Private Partnerships: An Effective Tool for Providing Best Value" a paper presented at a conference on Managing the New Realities of Municipal Amalgamation, sponsored by Insight Information, Toronto, February 13-14.

<sup>40</sup> Akos Szalai (2001), "New Models of Privatizing Public Utilities: Highlights of Reform in Post-Soviet Countries", in *Local Government Brief: The Quarterly Journal of Local Government and Public Service Reform Initiative* (Budapest, Hungary), 18-24, at 19.

<sup>41</sup> Tassonyi (1997), *supra* footnote 15, pp. 195-196; and Martin (2001), *supra* footnote 39.

<sup>42</sup> L. De Luca (1997), *Labour and Social Dimensions of Privatization and Restructuring – Public Utilities, Water, Gas, Electricity: Part II Europe*, (Geneva: International Labour Organization, Interdepartmental Action Program on Privatization, Restructuring- and Economic Democracy).

<sup>43</sup> Mel Huang (2001), "From Monopolies to Markets: Privatizing Public Utilities in the Baltic States" in *Local Government Brief: The Quarterly Journal of Local Government and Public Service Reform Initiative* (Budapest, Hungary), pp. 1-3 and pp. 6-12, at 3.

<sup>44</sup> The Conference Board of Canada (2003), *Defining the Canadian Advantage*, (Ottawa: The Board), at 14 and 129.

<sup>45</sup> Huang (2001), *supra* footnote 43.

expertise. Third, private sector involvement may lead to more innovative and efficient operations than if the public sector provides the service on its own.

Like most options, public-private partnerships have disadvantages. First, there may be some uncertainty whether the private sector will be able to carry through its role, especially if there is a risk of private sector bankruptcy in providing essential local services. Second, there is a potential loss of control to the private sector. Third, there may be a trade-off of upfront capital costs for future operating costs; for example, the annual cost of private sector financing of a project may turn out to be greater than what the cost of public sector financing would have been.<sup>46</sup> Finally, if private sector financing includes government financial or credit backing, a potential burden on the public sector may continue and the benefits of the partnership might not materialize.

Experience with public-private partnerships suggests that, in general, most have produced cost savings<sup>47</sup>, efficiency improvements, and expanded services with the most notable improvements occurring in the presence of meaningful competition.<sup>48</sup> Even where competition has not been prevalent and service provision has remained largely monopolistic, the evidence suggests that where the private sector bears the risk, private participation delivers better results than any credible public sector alternative.<sup>49</sup> It is also apparent that public-private partnerships are more appropriate for infrastructure that provides services with ‘private goods’ characteristics.

#### **D. Pricing of Municipal Services Provided by Capital Assets**

Consideration of capital financing instruments up to this point has concentrated on the appropriateness of different instruments for financing capital assets – when each should be used and why. Nothing has been said about the way in which municipal taxes and local user fees, charges, or prices should be structured if services provided by these capital assets are to be funded in an efficient, accountable, transparent and equitable manner. Although a discussion of pricing is beyond the scope of this paper, it cannot be ignored entirely; hence, the following comments. If the per unit user fee, charge, price, or tax for services provided by local infrastructure is less than the real cost of their provision as is frequently the case for services provided by local physical infrastructure, over-consumption and subsequent, over investment in this infrastructure is a probable outcome. In fact, the few studies that have been completed on the quantity and quality of physical infrastructure have identified

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<sup>46</sup> De Luca (1997), supra footnote 42.

<sup>47</sup> Roy Hrab, (2003), “Privatization: Experiences and Prospects”, research paper 22 prepared for the Panel on the role of government in Ontario, available at <http://www.law-lib.utoronto.ca/investing/index.htm>; Roy Hrab (2003), “Private Delivery of Public Services: Public Private Partnerships and Contracting-Out”, research paper 21 prepared for the Panel on the role of government in Ontario, available at <http://www.law-lib.utoronto.ca/investing/index.htm>; Enid Slack, “Financing Infrastructure: Evaluation of Existing Research and Information Gaps”, CMHC: Ottawa, 1996; and Mann (1999), supra footnote 1, at 25.

<sup>48</sup> Clive Harris (2003), “Private Participation in Infrastructure in Developing Countries: Trends, Impacts and Policy Decisions” (Washington: World Bank), at. 27-28; Hrab, (2003), supra footnote 47.

<sup>49</sup> Harris (2003), supra footnote 48, at 28.

under-pricing and subsequent over-investment in physical infrastructure as a serious problem.<sup>50</sup>

Setting correct user fees/charges/prices and taxes will not always be easy, but it can and should be done. Municipalities should adopt efficient demand management and conservation pricing and taxation structures for all services before undertaking any infrastructure investment.<sup>51</sup> These prices/charges/ and taxes will have an impact on consumption or use and on the size of the capital asset demanded and hence on the need for capital funds.

### **E. Accounting Framework for Capital Financing**

All capital and operating costs of a project should be recorded and accounted for. Unfortunately, asset replacement costs (the value of the asset used up in a particular accounting period, generally a year) in most municipalities are excluded. This omission is attributed to a number of things, but the major reason is that much of the local infrastructure in many countries has been funded historically by grants from senior governments. In other words, municipalities received previous grants for these projects and treated them as ‘free money’. Further, they felt no need to recover this money through annual asset replacement charges. This is not peculiar to any particular country. The practice is wide spread. At the moment, few countries include asset replacement or depreciation expenses in the computation of operating costs.<sup>52</sup> This has led to at least two serious consequences. First, failure to record a major cost component means that prices or taxes are lower than they should be, further leading to over-investment and more capacity that could otherwise be justified. Second, as the infrastructure deteriorates and needs to be replaced, there are no own source revenues set aside for this replacement.

Recent trends towards greater reliance on ‘pay as you go finance’ and less reliance on grants from senior levels of government for capital projects in many countries have highlighted these problems. In turn, this has led to increased concern over the way in which asset replacement costs are treated and incorporated into pricing and taxing decisions. Fund accounting is particularly appropriate for this task because it features self-balancing, double-entry accounts from which a balance sheet and statement of operations can be prepared. The fund basis of accounting recognizes that most physical infrastructure is not fungible - that is, it is not available for purposes other than those budgeted - and that data on budgeting compliance are an important part of a municipality’s stewardship responsibility.

Within the fund accounting framework, there are three bases that may be used – cash, accrual, and modified accrual accounting.<sup>53</sup> Cash accounting records expenditures and revenues when funds are actually disbursed or received. This approach is not really

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<sup>50</sup> For a discussion of under-pricing of local services and over-investment in physical infrastructure, see Harry Kitchen (2003), *supra* footnote 13.

<sup>51</sup> *Ibid.*

<sup>52</sup> Mann (1999), *supra* footnote 1, at 5.

<sup>53</sup> For more discussion, see GeoEconomics Associates Incorporated et al. (2002), *supra* footnote 25, Appendix 6.1; and Kitchen (2003), *supra* footnote 17, at 242-247.

appropriate for physical infrastructure projects,<sup>54</sup> although it may be used for small scale and ongoing capital assets such as police cars and public service vehicles.

Accrual accounting records transactions when they occur regardless of when expenditures are made or funds received. For example, money to finance a fixed asset will be made in the initial year, but the associated expenses reported in the financial statement of operations will take the form of annual depreciation charges incurred over the life of the asset. Depreciation is a charge that is used to recover the original cost of an asset. It associates the annual flow of benefits with annual costs by spreading the cost of the capital project over its life.

Modified accrual accounting is somewhat different. It adopts the same principles and approach as accrual accounting except that depreciation and return on capital are not included as costs. Instead, interest costs and principal repayments on debt are recovered directly in the year in which they are due from revenues generated by the asset. Modified accrual accounting often generates revenue in excess of expected operating, maintenance, and debt service costs, resulting in operating surpluses that are transferred to a capital fund to finance ongoing investments or into reserves or reserve funds to finance planned future investments. Because principal repayments are recovered directly each year as chargeable expenses, enterprises are less likely to face cash flow problems.

Interest in full accrual-based accounting has generally been motivated by concerns about the state of aging infrastructure and a lack of reliable information that could be used to evaluate this concern. This was a major reason why the federal government in Canada recently implemented a full accrual accounting system that requires the depreciation of all federal government capital assets over the life of the asset. Unfortunately, this has not been adopted by any of the provincial governments or by municipalities even though it would make considerable economic sense.<sup>55</sup> By way of comparison with other countries, New Zealand requires local governments to adopt fixed asset accounting and to prepare and approve a long-term financial strategy every three years, thereby creating long-term financial and asset management plans.<sup>56</sup> Under the act, depreciation charges are estimated and funded through locally generated revenues. The depreciation charge provides an estimate of the decline in the service potential of assets, while its funding assures that users of the service pay its real cost.<sup>57</sup> Currently, local authorities are allowed to use the long-run average cost of asset renewals as an alternative to depreciation charges. To make this approach work, local authorities must develop a 20-year capital plan. In the case of long-life assets, the 20-year plan has not provided a realistic estimate of the average annual renewal cost. Conversely, where a realistic depreciation charge is set and funded, local

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<sup>54</sup> The Cadmus Group, Inc., KPMG LLP, NuWater Ltd. (2002), “A Study of Best Practices in the Water and Wastewater Sector for the Ontario SuperBuild Corporation”, (Toronto: The Corporation) at 63

<sup>55</sup> Richard M. Bird and Thomas A. Wilson, (2003), “A Tax Strategy for Ontario”, research paper 32 prepared for the Panel on the role of government in Ontario, available at <http://www.law-lib.utoronto.ca/investing/index.htm> at 24.

<sup>56</sup> June Pallot (2001), “Local Government Reform in New Zealand: Options for Public Management as Governance”, available at <http://www.willamette.org/ipmn/test/papers/pallot.htm>.

<sup>57</sup> Office of the Controller and Auditor General of New Zealand (1999), *Report to Parliament*, Second Report for 1999.

authorities have complained that extremely large reserve funds will accumulate long before they are needed.

Accounting reforms in the United States are similar.<sup>58</sup> The requirement for full accrual accounting by local governments was established by the U.S. Government Accounting Standards Board (GASB), which concluded that reporting information on infrastructure assets is essential for assessing municipalities' financial position and changes in their financial position and for reporting the costs of programs or functions.<sup>59</sup> Governments may choose to report expenses for repairing and maintaining infrastructure instead of depreciation expenses for that infrastructure if they manage the infrastructure using a suitable asset management system, including an assessment of the assets' physical condition every three years, and if they establish a minimum condition level for those assets and demonstrate that they are maintaining those assets at or above that condition through appropriate investments.<sup>60</sup> As well, recent changes in legislation in Australia and Brazil require water and wastewater utilities to recover a portion of capital costs from users.<sup>61</sup>

Asset management is concerned with asset inventory, condition, performance and valuation; investment appraisal; delivery and monitoring.<sup>62</sup> Recent increases in 'pay-as-you-go' financing for municipal physical infrastructure may have a tendency to inhibit and prevent optimal asset management, especially where municipalities postpone investment decisions until they can afford the project rather than undertaking the investment when it is required. Good asset management schemes at the municipal level are lacking in many countries but they do figure prominently in both New Zealand and the United States.

In New Zealand, asset management schemes are mandatory, and in the United States they are mandatory if depreciation is not charged for infrastructure. As a source of information on the condition of infrastructure, asset management planning goes well beyond fixed asset accounting, because it requires an assessment of the physical condition of the infrastructure and includes a strategy and financing plan for asset maintenance and replacement. Municipalities everywhere could benefit a great deal from adopting similar practices.

## F. Summary

Growing concern over the state of local government infrastructure in both developing and developed countries has highlighted the importance of municipal capital spending and the

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<sup>58</sup> International City/County Management Association (2000). *GASB: What It Means for You*. Service Report Vol. 332, No. 12, Washington, D.C.

<sup>59</sup> L.E. Johnson and D. R. Bean (1999), "GASB Statement No. 34: The Dawn of a New Governmental Financial Reporting Model", *The CPA Journal*, vol 69, No. 12, at 14-24

<sup>60</sup> Government Accounting Standards Board (2001), *New Rules for Reporting Infrastructure Information Enacted for State and Local Governments*, available on: <http://www.rutgers.edu/Accounting/raw/gasb/repmodel/infrastructure.html>; and T.K. Patton and P. S. Wardlow (1999), "Why Infrastructure Reporting?" *GASB Action Report* - Vol. 16, No. 5, available on: <http://www.rutgers.edu/Accounting/raw/gasb/repmodel/viewpoints.html>.

<sup>61</sup> Mann (1999), *supra* footnote 1, at 5.

<sup>62</sup> The Cadmus Group et al. (2002), *supra* footnote 54, at 1.

way in which it is financed. As municipalities expand and grow older, resources must be devoted to the expansion or replacement of their capital stock. Water plants and sewage treatment facilities, cultural and recreational facilities, transportation and communication facilities – all must be updated and expanded. Brownfield remediation must be addressed, and ‘blighted’ areas of cities revitalized and redeveloped. Capital spending on these facilities, however, should not be initiated by a local or municipal council until it has carefully and thoroughly articulated a multi-year capital budget that lays out current and future capital expenditure requirements and the way in which these expenditures are to be financed.

Capital expenditures differ from operating expenditures in two important respects – they are lumpy in nature and are financed by a wider range of revenue sources. Capital funds may be drawn from a variety of internal sources including operating revenues (local taxes and user fees), earmarked taxes, reserves, special charges consisting of specific assessments, development charges, and other exactions made up of density bonusing, linkage fees, value capture levies, and parkland dedication. External capital funding may come from grants, long-term borrowing in the form of general obligation bonds, revenue bonds, tax-exempt bonds and special consideration for tax incremental financing districts, and public private partnerships.

The choice among these financing instruments is not always easy. It may depend on a number of factors including the interest cost of borrowing money; the availability of grants for capital projects; the availability of accumulated capital reserves; the acceptance of current tax increases to finance capital expenditures; the desire to tie payments for capital expenditures to the beneficiaries of these expenditures; and a number of other political and/or economic factors including a willingness or lack of to enter into public-private partnerships.

Recent trends in many countries indicate that grants have fallen in relative importance as a source of capital financing for local government; borrowing has also declined in many countries; and own source revenues, especially reserve created by development charges and capital levies, have become more important. This points to an increased emphasis on ‘pay as you go’ financing for capital projects – a practice that is contrary to financing on the basis of benefits received.

The evaluation of these financing instruments has been completed by reference to the benefits received model of public finance. The principle of this model is straight-forward: those who benefit from infrastructure pay for it. Whenever a direct link is made between the users of a service and its’ funding, one observes a more efficient use of resources, better accountability, increased transparency, and improved fairness. Unfortunately, many of the instruments currently used by municipalities - annual property taxes, special assessments, development charges, user fees, reserves, borrowing, and grants – are either used in an inefficient way or at the wrong time. For example, borrowing tends to be used less frequently than in the past in many developed countries, even though it makes more economic sense to borrow for infrastructure that benefits future generations than it does to pay for it up-front. As well, the current application of development charges does not lead to an efficient allocation of local resources because properties that cost less to service (in terms of the cost of capital assets required) subsidize properties that are more expensive to service. Switching from a uniform development charge for a specific property type within a

municipality to development charges that vary by cost of servicing would remove this subsidization and lead to better matching of payment for services with the capital costs of the assets provided. Likewise, the current application of user fees leaves much to be desired. Failure to vary charges by time of day, season of the year, when capacity constraints exist, when second best considerations are prevalent, when externalities are observed, and furthermore, failure to include all costs (asset replacement costs and a variety of opportunity costs) in charging and pricing structures has led to a demand for services and subsequently, a demand for physical infrastructure that is not allocatively efficient or optimal. In general, inefficiently set development charges and user fees have led to over-investment and larger plants or facilities than would be justified if more efficient pricing practices were adopted.

Of the bonds that might be considered for implementation, revenue bonds are generally preferred on economic efficiency grounds for financing local capital or infrastructure projects that produce a reliable annual revenue stream – water and sewer systems, for example. General obligation bonds are appropriate for financing capital projects that do not generate annual revenues – roads and streets, for instance. Creating tax incremental tax financing districts for brownfield remediation and urban redevelopment and infillling could be beneficial. Tax-exempt bonds may be less desirable because they tend to be inequitable and may create distortions in capital markets.

Regardless of the bonds used by municipalities, savings in interest and administrative costs along with greater flexibility in the timing and issuing of bonds have been experienced where municipalities borrow through a province, state, or region-wide financing authority.

Finally, since public infrastructure has a long life, municipalities everywhere should move to a system of full accrual accounting where all capital assets are amortized over their expected life rather than expensed in the year of purchase. Including depreciation expenses as an annual cost that is recovered through prices or taxes charged for services provided by the capital asset would be a distinct improvement over a system where depreciation costs are often ignored and hence services are under-priced.