

Decision Making and Investment Planning



Selecting a Professional Consultant

This document is the eleventh in a series of best practices that transform complex and technical material into non-technical principles and guidelines for decision making. For titles of other best practices in this and other series, please refer to <www.infraguide.ca>.

National Guide to
Sustainable Municipal
Infrastructure



NRC · CNRC FCM Canada
Federation of Canadian Municipalities
Fédération canadienne des municipalités

Selecting a Professional Consultant

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INTRODUCTION

InfraGuide® – Innovations and Best Practices

Introduction

InfraGuide –
Innovations and
Best Practices

Why Canada Needs InfraGuide

Canadian municipalities spend \$12 to \$15 billion annually on infrastructure but it never seems to be enough. Existing infrastructure is ageing while demand grows for more and better roads, and improved water and sewer systems responding both to higher standards of safety, health and environmental protection as well as population growth. The solution is to change the way we plan, design and manage infrastructure. Only by doing so can municipalities meet new demands within a fiscally responsible and environmentally sustainable framework, while preserving our quality of life.

This is what the *National Guide to Sustainable Municipal Infrastructure (InfraGuide)* seeks to accomplish.

In 2001, the federal government, through its Infrastructure Canada Program (IC) and the National Research Council (NRC), joined forces with the Federation of Canadian Municipalities (FCM) to create the National Guide to Sustainable Municipal Infrastructure (InfraGuide). InfraGuide is both a new, national network of people and a growing collection of published best practice documents for use by decision makers and technical personnel in the public and private sectors. Based on Canadian experience and research, the reports set out the best practices to support sustainable municipal infrastructure decisions and actions in six key areas: decision making and investment planning, potable water, storm and wastewater, municipal roads and sidewalks, environmental protocols, and transit. The best practices are available online and in hard copy.

A Knowledge Network of Excellence

InfraGuide is a national network of experts and a growing collection of best practice publications for core infrastructure, offering the best in Canadian experience and knowledge of core infrastructure. With our founders — the Federation of Canadian Municipalities, the National Research Council and Infrastructure Canada, and our founding member, the Canadian Public Works Association — we help municipalities make informed, smart decisions that sustain our quality of life.



Volunteer technical committees and working groups—with the assistance of consultants and other stakeholders—are responsible for the research and publication of the best practices. This is a system of shared knowledge, shared responsibility and shared benefits. We urge you to become a part of the InfraGuide Network of Excellence. Whether you are a municipal plant operator, a planner or a municipal councillor, your input is critical to the quality of our work.

Please join us.

Contact InfraGuide toll-free at **1-866-330-3350** or visit our Web site at www.infraguide.ca for more information. We look forward to working with you.

The InfraGuide Best Practices Focus



Decision Making and Investment Planning

Current funding levels are insufficient to meet infrastructure needs. The net effect is that infrastructure is deteriorating rapidly. Elected officials and senior municipal administrators need a framework for articulating the value of infrastructure planning and maintenance, while balancing social, environmental and economic factors. Decision-making and investment planning best practices transform complex and technical material into non-technical principles and guidelines for decision making, and facilitate the realization of adequate funding over the life cycle of the infrastructure. Examples include protocols for determining costs and benefits associated with desired levels of service; and strategic benchmarks, indicators or reference points for investment policy and planning decisions.



Potable Water

Potable water best practices address various approaches to enhance a municipality's or water utility's ability to manage drinking water delivery in a way that ensures public health and safety at best value and on a sustainable basis. Issues such as water accountability, water use and loss, deterioration and inspection of distribution systems, renewal planning and technologies for rehabilitation of potable water systems and water quality in the distribution systems are examined.



Environmental Protocols

Environmental protocols focus on the interaction of natural systems and their effects on human quality of life in relation to municipal infrastructure delivery. Environmental elements and systems include land (including flora), water, air (including noise and light) and soil. Example practices include how to factor in environmental considerations in establishing the desired level of municipal infrastructure service; and definition of local environmental conditions, challenges and opportunities with respect to municipal infrastructure.



Storm and Wastewater

Ageing buried infrastructure, diminishing financial resources, stricter legislation for effluents, increasing public awareness of environmental impacts due to wastewater and contaminated stormwater are challenges that municipalities have to deal with. Storm and wastewater best practices deal with buried linear infrastructure as well as end of pipe treatment and management issues. Examples include ways to control and reduce inflow and infiltration; how to secure relevant and consistent data sets; how to inspect and assess condition and performance of collections systems; treatment plant optimization; and management of biosolids.



Transit

Urbanization places pressure on an eroding, ageing infrastructure, and raises concerns about declining air and water quality. Transit systems contribute to reducing traffic gridlock and improving road safety. Transit best practices address the need to improve supply, influence demand and make operational improvements with the least environmental impact, while meeting social and business needs.



Municipal Roads and Sidewalks

Sound decision making and preventive maintenance are essential to managing municipal pavement infrastructure cost effectively. Municipal roads and sidewalks best practices address two priorities: front-end planning and decision making to identify and manage pavement infrastructures as a component of the infrastructure system; and a preventive approach to slow the deterioration of existing roadways. Example topics include timely preventative maintenance of municipal roads; construction and rehabilitation of utility boxes; and progressive improvement of asphalt and concrete pavement repair practices.

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EXECUTIVE SUMMARY

“It is unwise to pay too much, but it is worse to pay too little. When you pay too little, you sometimes lose everything because the thing you bought was incapable of doing the thing you bought it to do.”

John Ruskin (1819-1900)

This quotation captures the reality faced by public officials engaged in commissioning the services of professional consultants. Often, cheapest price gets mistaken for *best value*. The need to re-introduce the concept of value to consulting procurement was the impetus for this document.

The best practice was written for four primary audiences:

Decision-makers — senior staff responsible for administrative policy and processes;

Technical staff — those responsible for implementing policy and administrative processes;

Procurement Staff and Auditors — staff responsible for conducting or monitoring procurement processes; and

Policy-makers — primarily elected officials.

Adaptation of this best practice will create a common ground of understanding between professional consultants and governments seeking their services. The knowledge that a fair and transparent process is being used, in which all proponents are given proper consideration, should contribute to reducing the tendency for consultants to seek advantage by lobbying senior and elected officials.

There is a large body of knowledge on worldwide practices to select professional consultants. The most common method recommended is qualifications-based selection (QBS). This procedure facilitates selection of professional consultants based on their qualifications, experience and competence as it relates to a particular assignment.

The United States *Brooks Act*, enacted in 1972, requires all federal procurement of architectural and engineering services to incorporate QBS. Forty-seven states and many local jurisdictions have adopted similar legislation since.

Several US studies are also referenced that support QBS over traditional price-based methods, including professional consulting services.

In Canada, many professional bodies recommend qualifications-based methods, but the process is not widely used. Federal, provincial and local governments primarily use price-based methods.

The procurement of goods and services in the Canadian public sector is most often obtained through a public tendering process. Government purchases are guided by policies designed to ensure transparency and value. The product or service is described in detail in a tender document and sealed bids are invited. The lowest bid normally receives the contract.

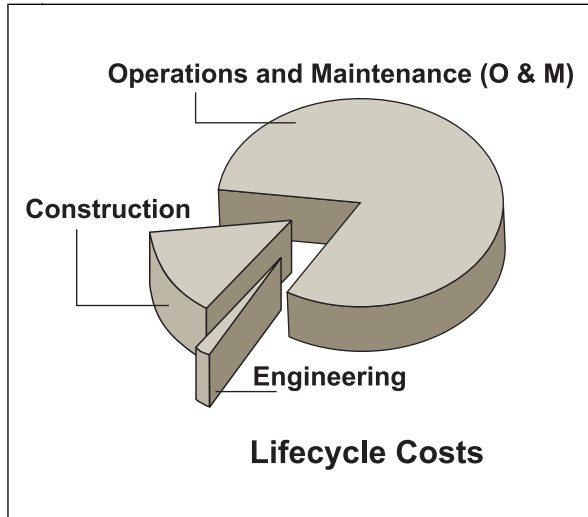
This approach is not appropriate for professional consulting services because it is frequently not possible to provide sufficient detail about the services required to ensure that all firms are bidding on equal footing. This is because part of the undertaking may be an exploration for the most appropriate solution.

The most appropriate solution is not necessarily the cheapest design solution. Furthermore, the consultant’s ability to devise the most appropriate solution depends on expertise, training and, most importantly, experience. It follows that purchasers wishing to identify the most appropriate solution should implement a selection process that:

- Leads to the selection of the individual or team that is best qualified to undertake the particular assignment, and
- Employs the experience of this team to develop the scope of services to ensure that all opportunities for adding client value are provided for within the project.

Executive Summary

The knowledge that a fair and transparent process is being used, in which all proponents are given proper consideration, should contribute to reducing the tendency for consultants to seek advantage by lobbying senior and elected officials.



The recommended method encourages clients to view consultants as “trusted advisors” who share their priorities and interest in achieving the best outcomes for their project.

This approach does not preclude the consideration of price in the process. Rather, it encourages consideration of price within a more meaningful context by bringing the fee into the equation after the scope of work has been jointly established and agreement reached with the top-ranked firm.

Understanding the relative contribution to overall costs of 1) engineering required to solve a problem, 2) the cost of construction, and 3) the future operation and maintenance costs of the solution, underlines why it is so important to start with the “right” or “best” consultant.

“Engineering design” typically represents 1 to 2 percent of the overall lifecycle cost of a project, with construction accounting for approximately 6 to 18 percent of the cost. All the rest—80 to 93 percent of the lifetime asset cost—is accounted for by operations, annual and capital maintenance and decommissioning.

This cost relationship is apparently well understood by engineers working in the public sector, but its consequences may not be applied during the tendering process. The appeal of the *lowest-price* design solution appears to override the value that can be gained from considering lifecycle costs.

Best Practice Principles

This Best Practice incorporates principles that ensure a sound and fundamentally fair process and one that will achieve the goal of adding the greatest value for the client.

Recommended Best Practice

The recommended consultant selection practice is a competitive qualifications-based process that is principle-based and meets the following objectives:

- selecting a consultant who is best qualified for a specific project, and
- providing a client the benefit of the consultant’s skill, knowledge and experience to jointly develop a scope of services that considers all opportunities for adding value.

BEST PRACTICE PRINCIPLES
Qualifications
Quality
Innovation
Relationships
Fairness
Respect for Intellectual Property
Efficient and Effective
Flexibility
Non-Predatory Pricing
Sustainability

The recommended method encourages clients to view consultants as “trusted advisors” who share their priorities and interest in achieving the best outcomes for their project.

The best practice diverges from price-based selection practices in that it frees consultants to demonstrate how they can add maximum value to a client’s project rather than focusing on how to minimize their fees to ‘win’ an assignment.

Implementation Challenges

Municipal engineers and other practitioners knowledgeable in the long-term implications of selecting the most qualified consultant for technical assignments generally support the recommended best practice intellectually and philosophically. They understand that selection on the basis of lowest price may not achieve the best outcome. However, when working in government, it is much easier to justify objectivity on the basis of quoted fees (lowest price) than on the basis of qualitative assessment (qualifications-based selection).

Satisfaction with present price-based methods in Canada suggests leadership to adopt this best practice will not generally come from within municipal or other governments. Only when some jurisdictions begin to use the best practice, and promote its benefits, will others do so. The first step to convincing municipal

RECOMMENDED BEST PRACTICE
Request for Qualifications
Evaluate and Rank Consultants
Request for Proposals
Select Highest-Ranked Consultant
Define Scope
Negotiate Fee Agreement
Award Assignment

and other governments of the benefits of applying the recommended method will be a broad initiative that enlists the support of those jurisdictions that have used and benefited from its use, as well as industry, professional and educational leaders.

Executive Summary

Satisfaction with present price-based methods in Canada suggests leadership to adopt this best practice will not generally come from within municipal or other governments. Only when some jurisdictions begin to use the best practice, and promote its benefits, will others do so.

1. General

1.1 Introduction

This is one of a number of best practices being developed under the auspices of the National *Guide to Sustainable Municipal Infrastructure (InfraGuide)*. Several of these best practices describe activities that, for many municipalities, will be undertaken by professional consultants.

Planning and Defining Municipal Infrastructure Needs (InfraGuide, 2003), for example, is a best practice that gives municipalities the basic tools for defining municipal infrastructure needs and for developing strategic plans to address them. Best practices include such issues as:

- Exploring new and innovative methods for continuous improvement, and
- Linking capital expenditures with operations and maintenance costs over the lifecycle of the asset.

Identifying those best qualified to address such issues is one of the most important tasks related to hiring a professional consultant.

The method used should:

- Ensure the selection of the most qualified and competent consultant to perform the work at a fair and reasonable price.
- Be fair, transparent, clearly understood by all parties and supportable by those using the method.

This best practice defines a process to achieve those objectives.

1.2 Purpose and Scope

This best practice is written for those public sector officials responsible for selection of professional consultants. It will assist them to select the most appropriate consultant for a given assignment.

While it is primarily an administrative tool, this guide should also foster an appreciation among elected officials and policy-makers of the long-term value of selecting the most

qualified and competent consultant, rather than the lowest-cost consultant.

The best practice is also intended for professional consultants who respond to government requests for proposals. It will help them understand the processes being used to select a successful proponent.

Following the best practices highlighted will gradually bring uniformity to methods used by various levels of government. It should also foster uniformity within organizations, where multiple individuals may be responsible for selecting or recommending professional consultants.

1.3 How to Use This Document

This best practice should be applied with a clear understanding and appreciation that its practices and methodologies are intended to guide the achievement of best outcomes from the selection of professional consultants for engineering/infrastructure projects.

1.3.1 General

This guide was written for four primary audiences:

Decision-makers — Senior staff responsible for administrative policy and processes to reinforce how high-quality engineering services add value in the form of innovation, sustainability and lifecycle analysis.

Technical staff — Those responsible for implementing policy and administrative processes; to assist in their selection of the most appropriate individual or firm for a given project.

Procurement Staff and Auditors — Staff responsible for conducting or monitoring procurement processes that: ensure fiscal responsibility and best value for taxpayers, and adherence to established procurement policies.

1. General

1.1 Introduction

1.2 Purpose and Scope

1.3 How to Use This Document

Identifying those best qualified to address such issues is one of the most important tasks related to hiring a professional consultant.

1. General

1.3 How to Use This Document

It is expected that the knowledge that a fair and transparent process is being used, in which all proponents are given proper consideration, will remove the perception of bias that leads consultants to seek advantage in this manner.

Policy-makers — Primarily elected politicians; to foster an appreciation of the long-term value a client receives when the best qualified and most competent consultant, not the lowest-cost consultant, wins the bid.

It will also help professional consultants understand government procurement processes. Knowing that procurement processes give all proponents proper consideration will allay fears that the process is biased and belie the contention that direct lobbying is the best way to win bids. Consultants engage in marketing activities to expand their businesses similar to most corporate entities. They will seek opportunities to engage clients and potential clients to help them understand the role of the professional consultant, the areas of expertise they have and how value can be added to a client's project if the most appropriate consultant is selected using a fair and transparent selection process.

Occasionally, consultants who feel they are being unfairly managed within a selection process may attempt to influence the selection through direct representation to senior or elected officials. They may believe resorting to such tactics is necessary to ensure they receive fair consideration in the selection process. Lobbying in this fashion undermines the process and often creates resentment between the parties.

It is expected that the knowledge that a fair and transparent process is being used, in which all proponents are given proper consideration, will remove the perception of bias that leads consultants to seek advantage in this manner.

This document is organized into four sections as follows:

1.3.2 Research

The Research section describes fact-finding undertaken for the writing of the guide. Research included review of printed publications, web reviews and searches, surveys of municipal engineers and consulting engineers, and interviews with selected practitioners. In addition, members of the working group and other stakeholders, including the Royal Architectural Institute of Canada, provided information on methodologies currently in use or being proposed.

The **municipal survey** sought input from all geographic regions of Canada and from a cross section of small, medium and large municipalities. The **consultant survey** targeted firms from all geographic regions working primarily in the public sector. Detailed stakeholder interviews were conducted with a representative sample from each group and from several external agencies.

Summaries of findings are reported in the appendices.

1.3.3 Rationale

The Rationale section provides justification for this best practice and describes benefits to be achieved by its application.

1.3.4 Methodology

The Methodology section describes *what* needs to be done and *how* to use the recommended best practice. The guide provides details of how to apply the methodology.

1.3.5 Limitations

The Limitations section describes potential limitations associated with the application of the recommended methods described in this guide.

1.4 Glossary

The following words and terms are used in the document and are defined for clarity only, not to add any judgmental component.

Best Practices — State-of-the-art methodologies and technologies for municipal infrastructure planning, design, construction, management, assessment, maintenance and rehabilitation that consider local, economic, environmental and social factors.

Budget Method — The client supplies a budgeted figure for consultant fees to short-listed firms within the terms of reference for the project. Consultants are expected to respond with a proposal priced at or below this upset. Consultant selection is based on the best quality proposal that best meets the needs of the client.

Design Competition — A small group of pre-qualified consultants is invited to participate in a design competition. The consultants are requested to submit a “concept design”, estimates of construction cost and their fee proposal to complete the overall project. Competing consultants are either paid for their concepts at cost or (more commonly) paid a set fee established in the competition’s terms of reference. The concept that best meets the needs of the client is usually accepted as the “winner”. Ownership of the unsuccessful design submissions should be addressed in the competition guidelines.

Consultant — See “Professional Consultant”.

Lifecycle — The lifecycle is the full life of a project from planning through design, construction, operation, annual and capital maintenance, rehabilitation, and eventual disposal or decommissioning.

Lifecycle costing — A method of expressing cost that includes the anticipated costs associated with the construction, operation, annual and capital maintenance and possibly decommissioning. It can be expressed as a “present worth” that represents the current

investment that would have to be made at a specific discount (or interest) rate to pay for the initial and future costs of the works.

Operations and Maintenance (O&M) — The process of running an infrastructure asset, including consumable resources such as labour, equipment, energy, chemicals and other materials; and all actions necessary for retaining the asset as near as practicable to a condition that will continue to provide the service required, but excluding rehabilitation or decommissioning.

Price Negotiation — A small group of pre-qualified consultants are invited to participate in a project as defined by the owner. Design fees for the completion of a project are negotiated with each consultant independently. The consultant offering the lowest negotiated price is successful.

Professional Consultant — Includes professional project managers, architects, engineers, construction managers, geoscientists, land surveyors, engineering surveyors, landscape architects, contract administrators etc.

Qualifications — “Qualifications” include both technical and non-technical considerations such as local knowledge, past performance, long-term relationships and availability of resources that a client may consider when qualifying a consultant for selection.

Qualifications-based Selection — QBS is a competitive process for the procurement of professional consulting services based on professional qualifications. Qualifications are submitted to an owner, who evaluates and selects the best-qualified firm or individual(s) for the proposed project, based on technical qualifications. The selected firm and the owner then jointly develop the final scope of work for the project. The consultant’s fee is then negotiated based on the agreed-upon scope of work and the consultant’s submitted rate schedule.

1. General

1.4 Glossary

1. General

1.4 Glossary

RFP with Prices — A selection method requiring proponents to respond to a request for proposals and include their proposed fee as part of their submission. The owner's evaluation process addresses the submitted fee as one of the weighted evaluation criteria. (Also referred to as; qualifications cost-based selection, QCBS, cost-weighted method, value-based or price-based selection).

Scope of Service/Scope of Work — A detailed description of the work to be undertaken by a consultant in the fulfillment of a consulting assignment.

Sole Source/Direct Appointment — An owner selects a professional consultant based on its knowledge of the consultant's abilities, usually through previous working relationships.

Sustainability — Conditions that meet current needs without compromising the needs of future generations. Sustainability considers environmental, social, and economic factors together. The term sustainability and sustainable development can have varying interpretations, depending on perceptions, values, priorities, and perspectives.

Two Envelope Method — A selection method in which consultants are requested to submit a priced proposal in two sealed envelopes. The first envelope contains the technical proposal including corporate and key personnel qualifications, methodology, schedule and any other technical requirements of the proposal call, exclusive of price. The second contains the proposed fee for the services. The second envelope containing the price is only opened for the highest ranked firm from the technical evaluation.

Value — The cost savings a client will accrue over the lifetime of a project or facility, calculated by comparing the lifecycle costs of alternative design solutions and selecting the lowest-cost solution that meets the client's needs.

Whole lifecycle costing — A costing methodology that includes engineering costs, construction costs, operations and maintenance costs, decommissioning costs to the public and sustainability costs.

2. Research

2.1 Literature Review

The **References** section, at the end of this report, provides a synopsis of the documents reviewed to write this best practice.

There are many Internet references to methods of selection for professional consultants. Most references support a qualifications-based selection process, (QBS), particularly when the scope of services is not readily definable. In cases where the scope of work can be definitively established at the outset, a fee-based request for proposals (RFP) or qualifications cost-based system (QCBS) is referenced.

The most notable references relate to the United States *Brooks Act* enacted in 1972. This requires all federal architectural and engineering services procurement to follow “qualifications-based selection.” Forty-seven states and many local jurisdictions have adopted similar legislation.

Most professional engineering associations throughout Canada and the rest of the world recommend the qualifications-based selection method.

Two of the referenced studies provide particularly strong arguments for qualifications-based selection:

1) The American Institute of Architects:
Selecting Architects and Engineers for Public Building Projects: An Analysis and Comparison of the Maryland and Florida Systems (AIA, 1985).

This 1985 study compares the experience of Maryland’s Department of General Services, which used a qualifications/price-based selection process, with that of the Florida Department of General Services and the State University System, both of whom used qualifications-based selection processes, exclusive of price. Data were collected on projects over \$50,000 in fees awarded by both states from 1975 to 1983. Conclusions reported were:

- Maryland’s process was significantly more expensive than Florida’s from an administrative perspective and took considerably longer to complete.
- Florida selected on the basis of technical competence, Maryland on the basis of both price and technical competence but price was becoming the dominant factor (of 40 contracts studied, 83 percent were awarded to low bidder).
- User agencies in both states were generally satisfied with their respective processes, but most architectural and engineering firms in Maryland were resentful of the system and viewed work for the state to be “work of last resort”.

2) Polytechnic University:
Qualifications-Based Selection (QBS) For the Procurement of Professional Architectural-Engineering (A/E) Services.

This study (undated — 2001/2002), reviewed the arguments for and against a proposed initiative in the City of New York to require a qualifications-based selection process in line with state policy, rather than the current qualifications/price-based process.

The conclusion stated:

“...it can be concluded that QBS offers significant advantages over competitive bidding and it should be the preferred method for the procurement of A/E services. QBS not only ensures that the most qualified firm is selected for each project, but it is also cost-competitive and has the best potential to reduce long-term project costs.”

2.2 Stakeholder Surveys and Interviews

Two surveys were undertaken to obtain input from a representative sample of municipal engineers and consulting engineers. The municipal survey solicited input from a broad geographical base of small, medium and large communities across Canada. The consultant

2. Research

2.1 Literature Review

2.2 Stakeholder Surveys and Interviews

The United States Brooks Act, enacted in 1972, requires all federal architectural and engineering services procurement to follow “qualifications-based selection.” Forty-seven states and many local jurisdictions have adopted similar legislation.

2. Research

2.2 Stakeholder Surveys and Interviews

Lifecycle asset management achieves business requirements of safety, environment protection, and service delivery at minimum cost of ownership (Kennedy, 1993).

survey was also geographically diverse and targeted firms that were active in the municipal infrastructure field.

Summaries of the municipal and consultant surveys are contained in **Appendix A**.

A summary of interview key points is contained in **Appendix B**.

Following is a summary of the outcomes:

2.2.1 Municipal Survey

- The RFP with prices and the sole sourcing method are the most commonly used by respondents. Price represents on average 22 percent of the evaluation criteria.
- Qualifications-based selection methods are not well understood, particularly with respect to how price is treated.
- The value of lifecycle costing, while understood, is seldom applied.
- 92 percent of respondents expect consultants to consider innovative and alternative design solutions. 73 percent of respondents said that their terms of reference specifically require this. These statements are “at odds” with data received in the consultant survey.

2.2.2 Consultant Survey

- Qualifications-based processes, including sole source, are considered to be two to three times as likely to add value for the client as price-inclusive processes.
- QBS is well understood by consultants, as is the value of jointly establishing the scope of services.
- The value of lifecycle costing and innovative and alternative design reviews is similarly well understood. However, 93 percent report that they are “seldom or never” required to consider lifecycle costs when responding to RFPs.
- 80 percent also report that terms of reference typically do not specifically require the investigation of innovative and/or alternative solutions.

2.2.3 Stakeholder Interviews

In-depth interviews of a cross-section of respondents were undertaken to further explore emerging issues. The results:

- There is a need for a faster selection method, with less paperwork involved.
- The larger the municipality, the more likely it is to view consulting services as a **commodity**.
- Municipalities have become overly prescriptive; a too-well-defined scope of service can limit innovation and creativity.
- **Best value** for the client is achieved by a selection method focused on qualifications and joint scope development.
- There is an identified need for education at all levels.
- Price-based selection methods often lead to an adversarial relationship between client and consultant. The objective should be a **team relationship**.
- The best practice should provide for the reality that some engineering/infrastructure projects might appropriately use a price-based selection method. For example: less-complex projects, where scope can be readily defined, and work such as materials testing, traffic data gathering, water quality testing, etc.
- Recognition that lifecycle costing provides value, but is seldom asked for.
- Whole lifecycle costing goes beyond project lifecycle costing and considers cost to the public and sustainability costs. Recent emphasis on green buildings may drive an appreciation for lifecycle costing.
- Risk transfer to the consultant is an outcome of joint development of the scope of service that can directly benefit to the client.

3. Rationale

3.1 Background

The public sector buys most commodities through a public tendering process designed to identify the vendor with the lowest price. Public tendering is cost-effective for materials and equipment that are readily described, and for construction contracts with clearly specified deliverables.

Consulting services, however, are not commodities and their procurement cannot effectively be obtained in this fashion. For this reason it is commonplace to use a request for proposals (RFP) process to evaluate candidate credentials to identify the best-suited consultant. Generally, the RFP process requires submission of a fee component for the proposed work. The fee component is often allocated considerable weight in the evaluation, with the result that the lowest-priced proposal is often accepted on the assumption that it represents best value for the client. The literature reviewed does not support this assumption. In the USA, the federal and most state governments have legislated against this method (Federal *Brooks Act*, 1972 and others).

The general wisdom is that **best value** for a client is most likely achieved when the focus is on finding the most effective, long-term solution to a problem, not the cheapest design. As in most professions, expertise varies, based on an individual's training and often more importantly, their experience. Therefore, to meet the goal of identifying the most effective, long-term solution, a selection process must result in the selection of the consultant best qualified to undertake the assignment and consequently bring the most **added value** to the project.

Selecting a consultant is aptly compared to the task of selecting a technically trained, temporary employee for a specific assignment. The focus at the time of selection will be the training, experience, and skill of the individual

being considered, with the objective being to identify the most suitable candidate, not the cheapest.

Selecting a consultant based on qualifications **does not** preclude consideration of price. It simply removes it from the consultant evaluation phase and introduces it once the scope of service has been determined.

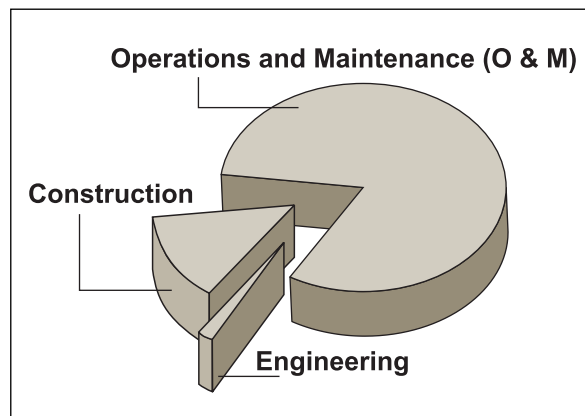
3.2 Lifecycle Costs

Best value is achieved for the client when design alternatives are evaluated based on their lifecycle costs. It is during design that both construction and operations/maintenance cost savings are most easily achieved.

This is a complex process and the desired outcomes are seldom achieved through hiring the consultant offering the lowest fee. Emphasis on lowest lifecycle cost drives a different process than one designed to ensure the cheapest design fee.

Lifecycle costing is critical because public infrastructure projects are long-term investments, paid for with public funds. Best value for the taxpayer means the asset is delivered with the least financial impact in the long-term. Best value is not achieved by deferring costs for later payment.

Figure 3–1: Lifecycle Costs



3. Rationale

3.1 Background

3.2 Lifecycle Costs

Figure 3–1
Lifecycle Costs

*The general wisdom is that **best value** for a client is most likely achieved when the focus is on finding the most effective, long-term solution to a problem, not the cheapest design.*

3. Rationale

3.2 Lifecycle costs

Figure 3–2

Lifecycle Savings through Design Innovation

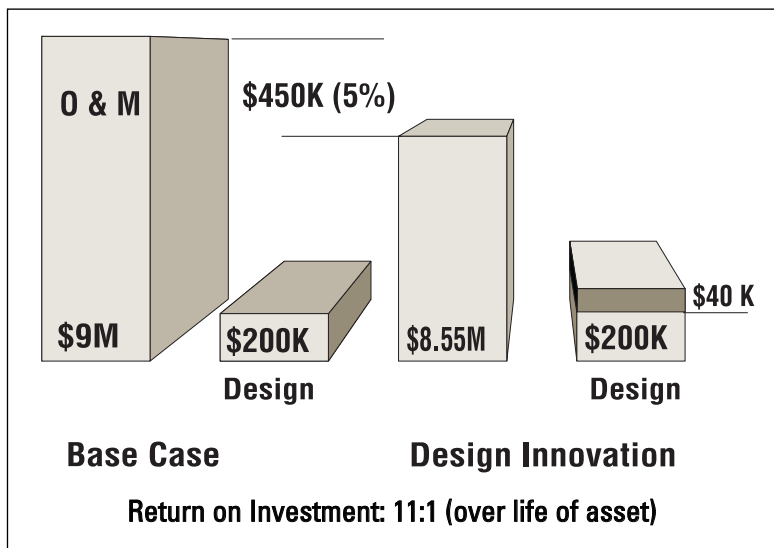
“It is unwise to pay too much, but it is worse to pay too little. When you pay too little, you sometimes lose everything because the thing you bought was incapable of doing the thing you bought it to do.”

John Ruskin (1819-1900)

It follows that lifecycle costing is an integral part of municipal sustainability analysis and essential for Integrated Community Sustainability Plans hoping to qualify for Government of Canada funding under programs that require real, measurable progress towards sustainability.

The key to understanding and ultimately implementing this best practice is making a clear distinction between cost and value. In the context of selecting professional consultants, cost refers to the cost of the consulting services to be provided. Value refers to the savings the client will receive over the life of the project; from construction through the entire lifecycle of the particular asset, to its decommissioning. **Best value** is achieved with the design solution that produces the lowest lifecycle cost, measured as the sum of consulting, construction and operations/maintenance (O&M) costs. The method recommended in this best practice focuses on achieving the lowest lifecycle cost and hence the “best” value for the client.

Figure 3–2: Lifecycle Savings through Design Innovation



Professional consultant services account for a small percentage of direct project cost but their impact on both construction costs and operations/maintenance costs is significant. Canadian and USA studies report that engineering/design typically represents 1 to 2 percent of project lifecycle cost.

Construction accounts for 6 to 18 percent of lifecycle cost and the remainder is taken up by operations, maintenance, refurbishment and ultimately, decommissioning costs. Actual percentages will vary by project and discipline but trends are the same.

The **Figure 3–1** illustrates the rationale for evaluating design alternatives with rigorous reviews. For a project with the following costs:

Engineering:	\$200,000
Construction:	\$2,000,000
O&M:	\$9,000,000

If a 5 percent reduction in the O&M costs can be achieved through design innovation on this project, the municipality would save \$450,000 over the life of the asset.

Assume this saving is achieved for an additional design cost of \$40,000 or a 20 percent increase in project consultant fees. This increase is more than offset by the lifecycle savings—an increasing investment from 1.8 to 2.1 percent of lifecycle cost, returns savings in the ratio of 11:1 (almost twice the total engineering design fee). Not a hard business case to make!

Without a detailed review of design and construction alternatives it is impossible to assess the long-term advantages that might be gained for this small increase in consulting fees.

Most professionals and municipal engineers understand the principle of minimizing lifecycle costs through value engineering. However this principle is infrequently applied.

The potential for long-term savings achieved by placing an emphasis on selecting the consultant with the qualifications, skill, creativity and experience to analyze all design alternatives will generally far outweigh potential savings from a low-bid selection.

“It is unwise to pay too much, but it is worse to pay too little. When you pay too little, you sometimes lose everything because the thing you bought was incapable of doing the thing you bought it to do.”

John Ruskin (1819-1900)

3.3 Selection Methods

There are several methodologies available for selecting professional consultants. Most evaluate and compare capabilities to rank the proponents. Selection practices and their benefits and shortcomings are outlined in the **Table of Selection Methods** found in **Appendix C**. The table defines common practice, but many variations exist.

Selection processes are primarily distinguished by how the scope of services is created and how fees are treated within the evaluation process.

RFP and Price Negotiation — These methods include fees within the initial evaluation, based on a scope of services established by the client.

Two Envelopes — This method is based on the evaluation of qualifications and experience relating to a client-defined scope of services, with fees considered after the technical evaluation has been completed.

Budget and Design Competition — These methods require the consultant to write or finalize the scope of services:

- In the budget method, the consultant identifies the services proposed (to be undertaken) for the budget amount.
- In the design competition method, the consultant provides a conceptual design for evaluation.

In both cases the client chooses the proposal that provides the best solution for their application.

Qualifications-Based Selection and Sole Sourcing — These methods determine the preferred consultant based on qualifications and experience. They provide the opportunity to jointly establish the scope of services before bringing the fee into consideration.

3.3.1 Request for Qualification (RFQ)

Since many consultants will have the qualifications necessary to undertake most assignments, the owner is faced with the challenge of deciding who is **most** or **best**

qualified for the assignment. If the assignment is advertised for all interested parties to respond, evaluating request for proposals can entail a considerable (and inefficient) use of time and effort for the owner.

To prevent this waste, clients often use a request for qualifications (RFQ) or a request for expression of interest (RFEI) to develop a “short list” of three consultants who will be invited to respond to a detailed proposal call.

Municipalities can use the RFQ or RFEI process to:

- identify the three firms, which will be requested to submit a detailed proposal for a particular assignment; or
- create a list of pre-qualified firms that will be:
 - invited to bid on projects on a rotational basis; or
 - used in the selection of a sole-sourced consultant.

The RFQ typically requests proponents to provide information about the firm, the type of business entity, address, contact information, main areas of expertise, and recent project experience relative to the project at hand. It will also request information on key personnel who will be assigned to the project, if successful, their roles, qualifications, experience, and references for comparable projects. It should not require proponents to provide details on their approach to project design.

For relatively large assignments or complex projects, clients typically establish a technical evaluation team, consisting of two or three members of their engineering group who are familiar with the project and possibly a representative from their purchasing department. This team establishes the evaluation criteria and weighting, and evaluates the proponents. The three top-ranking firms are sent a detailed RFP for a specific project.

In some circumstances, special considerations apply to the pre-qualification process. An example is the cost of travel for projects in

3. Rationale

3.3 Selection Methods

3. Rationale

3.3 Selection Methods

3.4 Search for a Best Practice

3.5 Conclusions Regarding Process

While research indicates municipal engineers believe qualifications-based selection is more effective, there is a reluctance to challenge the oft-stated reality that the public is best served and receives best value through price competition.

small and/or remote communities where these costs may be an extraordinarily high percentage of the overall fee. These additional costs should be factored into the RFQ process. If the impact is considerable and one or more local firms have the expertise and experience necessary to undertake the work, consideration should be given to “sole-sourcing” the project or inviting local consultants only to respond to an RFQ. Conversely, in a “hot” economy, demand for services may exceed local supply. In this case, sole sourcing or the RFQ process may supplant the RFP process.

The cost (for both municipalities and consultants) of the request for proposal process underlines the importance of using pre-qualification (RFQs) to create a short list of firms and to limit the invitation to respond to a proposal call to three companies.

Several consultants reported that the cost of writing an RFP for a mid-sized project could be 8 to 10 percent of the value of expected fees. Municipal representatives also report that evaluation costs are considerable. Failing to acknowledge these costs results in higher costs to all clients, as consultants must ultimately recover these costs of preparing proposals.

An example taken from a recent municipal project illustrates this point:

Strategic study; value approximately \$110,000 in fees. Cost incurred by successful consultant to respond to RFP approximately \$10,400.

Municipality invited three firms to submit proposals, thus if each firm expended roughly the same amount of effort preparing their response to the RFP, their combined costs approached one-third of the value of the assignment. In addition, the municipality reported that staff time to evaluate the RFPs using a three-person team was approximately 45 hours.

The cost to respond to an RFP underlines the importance of using a pre-qualification process to create a short list of firms and limiting the number invited to respond to a proposal call to a maximum of three.

3.4 Search for a Best Practice

This guide seeks to identify the practice most beneficial to the needs of the client and worthy of the **best practice** designation. Research shows that a client’s needs are best met when the “*best suited*” consultant is selected by virtue of its qualifications, skills and experience to deliver a quality product. This ensures that the considerations most likely to add value for the client are thoroughly investigated.

3.4.1 Best Practice Principles

A best practice should incorporate principles that will ensure a sound and fundamentally fair process and one that will achieve the goal of adding the greatest value for a client. The principles shown in **Table 3–1** are reflected in the recommended best practice:

3.5 Conclusions Regarding Process

3.5.1 Price-Based Methods

Price-based methods usually require that fees be included in proposal responses. Justification for this requirement often refers to the common misconception that the public interest is best served when price competition is present. Some jurisdictions such as the Northwest Territories and Quebec require price to be a component of a competitive selection process. While research indicates municipal engineers believe qualifications-based selection is more effective, there is a reluctance to challenge the oft-stated reality that the public is best served and receives best value through price competition.

A requirement to bid fees in a proposal call does not achieve the expected outcomes. Inevitably it forces the consultant to focus on “how to minimize fees to win the assignment” instead of “how to deliver a service that will add the most value for the client.”

This is a serious problem, as it minimizes or even eliminates the “value-added” services that an owner should be seeking in all professional consulting assignments. Elements such as quality control and assurances, value analysis of design alternatives to minimize

Table 3–1: Principles of a best practice consultant selection process

#	Principle	Description
1.	Qualifications	Training, skill, and experience should be considered paramount in the selection process.
2.	Quality	The delivery of a quality service that includes identification of appropriate design alternatives and evaluation of lifecycle cost implications, and value-added services such as peer review, value analysis and value engineering.
3.	Innovation*	An assurance that new, innovative and creative opportunities will be considered.
4.	Relationships	Create an opportunity to expand internal team with external professionals
5.	Fairness	Ensure an open, transparent process that focuses on identifying the most competent professional for a particular project.
6.	Respect for intellectual property	Recognition that design ideas belong to the professional proposing them and should be respected.
7.	Efficient and Effective	The process should consider the input required to achieve the desired outcome.
8.	Flexibility	The process should be adaptable to different needs.
9.	Non-predatory pricing	The process should not encourage firms to under-cut competitors.
10.	Sustainability	The process should encourage identifying and incorporating practices into the design solution that consider issues of sustainability.

* Innovation is the process of converting knowledge and ideas into new and improved products and services that are valued by the community (i.e. construction industry) or into better ways of doing business (sustainable infrastructure). The innovation process incorporates research and development, commercialization, and technology diffusion. (Working definition of the National Round Table on Sustainable Infrastructure (NRTSI), 2005.)

3. Rationale

3.5 Conclusions
Regarding Process

Table 3–1
Principles of a best practice consultant selection process

construction costs and optimize sustainability, and lifecycle cost analysis to evaluate operating and maintenance implications are important value-added services that will yield savings far greater than any achieved through minimizing design fees.

Stakeholder surveys and interviews canvassed views on these points. Following are their comments in favour and against price-based competition:

Arguments for Price-Based

- To many in the public sector, fees are expected to be included in the selection process to ensure competitiveness.
- Purchasing/finance/internal auditor would not support a process that did not include price in evaluation process.
- In government, decisions tend to be made based on short-term costs; therefore not a lot of room to place emphasis on long term such as full lifecycle costs.

- Public sector engineers fear they may be at a disadvantage negotiating fees with a consultant who is a specialist.
- Perception that consultants who are qualified to undertake the work are essentially equal in their capabilities, therefore awarding to the low bid provides best value.

Arguments against Price-Based

- Process is very time-consuming.
- A great deal of input is required to develop scope of work with sufficient detail to ensure a sound comparison of fee proposals.
- Even after investing a lot of time and effort, scopes can still be somewhat “fuzzy” resulting in numerous claims for extras when assignment undertaken.
- “Fuzzy” scope will tend to favour consultant and lead to an adversarial relationship between client and consultant.

3. Rationale

3.5 Conclusions Regarding Process

- The consultant's experience is negated in the process of developing the scope thus depriving the client of a valuable resource.
- Consultant tendency not to include or consider creative or innovative solutions in proposal responses for fear of having ideas "shopped", likely to the detriment of the client.
- Price-based methods will not generally achieve the desired outcomes.
- The research indicates that price competition acts as a constraint to exploring options or innovations that may lead to reduced lifecycle costs.

3.5.2 Best Practice Methods

The research undertaken in the course of preparing this guide provided a clear vision of the elements inherent in a consultant selection best practice. Information from the United States, Europe, Australia and many other jurisdictions pointed to the most effective selection method as one that:

- Identifies the consultant that best demonstrates the training, skill and experience necessary to undertake a project; and
- Ensures that opportunities to add value are not only provided for but also encouraged.

In all cases, the method most often cited is qualifications-based selection (QBS). QBS facilitates the selection of consultant services based on qualifications, including technical competence, availability, methodology, local knowledge, long-term relationship, past performance and other factors of relevance to a specific project; and the subsequent determination of a fair and reasonable price, all relative to the scope and needs of the project.

Arguments for Qualifications-Based

- QBS is objective, fair and transparent, and ensures efficient, sustainable and cost-effective services.
- It embodies the previously stated principles and leads to the identification of the "best qualified" consultant to perform the work.

- The methodology encourages the development of a close working relationship with the client, which in turn ensures open exploration of project issues, needs and opportunities, all leading to the maximization of value and minimization of the risk of unforeseen costs for the owner.
- Client jointly develops the scope of services with the highest-ranked firm as determined through the technical evaluation process. This methodology:
 - Allows the consultant, through its proposal, to identify opportunities that may add value to the client's project, rather than seeking ways to minimize the fee.
 - Affords the opportunity for the client and the consultant to develop the scope of services jointly, thereby ensuring that all opportunities for adding value to the assignment are provided for and properly accounted for within the budget.
- The final fee or price responds directly to the jointly developed and agreed to scope of services, greatly minimizing future disagreements or misinterpretations.
- If the client and the top-ranked consultant are unable to finalize an acceptable scope and associated fee, the process gives the client latitude to negotiate with the second-ranked firm. The consultant is not selected until agreement is reached on scope and fee and the contract executed.
- The method is widely used in the United States and considerable process information is available regarding implementation, benefits, etc.
- It is well suited to work where scope of work has not yet been determined, such as when applying for grants; it supports the role of consultant as "trusted advisor."
- The method is commonly used by major industries in the form of sole-sourcing or direct appointment.

Arguments against Qualifications-Based

This best practice takes into account the interests of the client. The following points remain as concerns for some practitioners:

