ASSOCIATION OF CONSULTING ENGINEERING COMPANIES ONTARIO

Association of Consulting Engineering Companies-Ontario (ACEC-Ontario)

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About ACEC-Ontario

For more than 45 years, the Association of Consulting Engineering Companies-Ontario (ACEC-Ontario) has been the non-profit industry advocacy association representing the business interests of **140** engineering firms employing **25,000** individuals across the province and contributing nearly **$10 billion** to the Ontario economy.

ACEC-Ontario relies on over **150** volunteers to help advance our collective mission. This work is conducted through five chapters (Grand River, London, Simcoe, Ottawa, and Niagara) and ten committees. Additionally, ACEC-Ontario delegates represent the association on numerous joint industry committees.

Our volunteers are employees of ACEC-Ontario member companies and affiliated organizations and offer a wide variety of expertise to inform our decision making at the Board of Directors, local engagement through ACEC-Ontario Chapters, and continuously strengthening industry relationships through the work of our committees.

Ontario's Consulting Engineers

Where "engineering" is a profession, "consulting engineering" is a business that makes public infrastructure viable and sustainable. Consulting engineers offer professional engineering services and expertise to both public and private sector organizations. Consulting engineers also act as independent agents and advocates for their clients and are responsible for finding innovative solutions to technical problems and providing strategic advice to business and management.

In Ontario and across the country, these licenced professionals offer a wide array of services and expertise in areas not only related to engineering and science, but also in economic sectors such as energy, resource development, environmental protection, and manufacturing. Firms that specialize in consulting engineering are responsible for designing and building much of our public infrastructure. The solutions and services that consulting engineers provide include:

- pre-feasibility and investment studies;
- social-impact and environmental-impact studies;
- preliminary and final designs for construction or engineering work;
- supervision and inspection of construction work, including on-site project management;
- technical assistance and advice; and,
- asset-management studies.

Consulting engineering services are usually offered by companies, though some are also offered by sole practitioners. Most firms in the industry are privately owned enterprises, operating at the community level and employing only a few dozen people; a smaller number are large integrated firms, with over a thousand employees nationally or internationally, providing a wider range of services.

Engineers in consulting companies come from virtually every discipline and specialty and they usually work in teams within their firms. Their roles may range from purely scientific or technical, to coordinating or managerial, or any combination-depending on the type and size of the client's project. In many cases, consulting engineers will be responsible for coordinating the efforts and activities of team members: other disciplines and professions that work in the field include natural scientists, technologists, planners, surveyors, architects, ecologists, geoscientists, archaeologists, economists, construction specialists, property negotiators, and a range of other specialties-whatever is needed to deliver the project services most effectively. Other engineers may specialize entirely in their own sphere of expertise.

The gross revenues of such firms contribute nearly **$10 billon** to the Ontario economy every year, with over **$4 billion** supporting the livelihood of families through wages and benefits from the engineering services industry. The industry boasts an increasing number of small, medium, and large firms that compete successfully at the international level: Canada is now the **fifth-largest** exporter of engineering services in the world.

Introduction

Infrastructure planning and investment is a powerful driver of economic growth, activity, and job creation; it must not be seen as an expense. Good infrastructure that delivers the best life-cycle value, is a function of sound planning and consistent investment, both as part of initial construction and in support of refurbishment. Ontario's core infrastructure of roads, bridges, transit, water, wastewater, and storm water systems are important public assets that require proper management and investment.

Indeed, the procurement and management of infrastructure is a complex and multi-facetted process requiring nuance and flexibility. To be executed effectively, government needs a clear and well-defined vision of what it seeks to achieve – it must define what success looks like; both for Ontario and the people that the infrastructure will serve.

How government defines value of investment for its citizens is essential. It is well-established that project award based on lowest price is not the answer. We believe that it is in the best interests of consumers of engineering services that those services be procured based on demonstrated competence and qualification, and that contracts for such services be fair and reasonable with respect to terms, conditions, and prices. The "fair and reasonable" approach

facilitates discussion on key issues such as risk allocation, insurable indemnification, and the impact of design on the life-cycle cost of infrastructure assets.

To that end, ACEC-Ontario has developed **five** recommendations that will help the province make the best possible decisions regarding infrastructure priorities and investment for the benefit of all Ontarians.

Recommendations

Appropriate Risk Allocation

Consulting engineering companies carry an appropriate level of professional liability insurance to cover the risks associated with the scope of the services they provide. The challenge becomes when project owners try to force consulting engineers to accept risks that runs afoul of the terms, conditions, and limitations of that insurance.

In recent years, ministries and agencies have procured projects trying to shift all the risk from themselves to consulting engineers and other members of the project team. This is a concern for a couple of reasons. First, consulting engineers do not have the financial or legal resources needed to bear a high or disproportionate level of uninsured risk. Second, ministries and agencies could be left holding the cost, risk, and liability that was previously believed to be transferred. Instead of managing risk, ministries and agencies are simply contributing to shrinking pools of qualified professional proponents, resulting in higher costs and schedule delays.

Recommendation: All Ontario government ministries and agencies must ensure that the level of risk transferred is appropriate and allocated to the member of the project team best able to handle, and that no risk is transferred that is not covered by insurance.

Fair and Reasonable Procurement Terms and Conditions

When it comes to procuring consulting engineering services, ministries and agencies traditionally choose the lowest bid, even going so far as to pressure firms to reduce their fees. This approach is not sustainable and does not result in the best lifecycle value for the ministry or agency.

Selecting professional services based on competency and qualifications, at prices that are fair and reasonable, ensures a greater likelihood of successful project outcomes. This approach, also known as Qualifications-Based Selection (QBS), offers several benefits, including:

- Reduced cost overruns and schedule delays;

- More innovative designs; and,
- Optimal performance of projects for years to come.

This best practice has been mandated by law in the USA since the 1970's, and more recently in the City of Calgary and Province of Quebec. BC's Ministry of Transportation and Infrastructure uses an acceptable variation of QBS.

Recommendation: The Ontario government should establish fair and reasonable contracts, terms, conditions, and fees for the procurement of consulting engineering services.

Procurement Model Framework

To procure infrastructure projects, provincial ministries and agencies currently use a limited set of models, such as design-bid-build (DBB), design-build (DB), or Public-Private Partnerships (P3s). However, there is a need for additional, more appropriate procurement options for those projects that are more unique, complex, and long-term.

For efficient and effective project delivery, the selection of the most appropriate model is essential, however there is no set criteria informing this decision. Using the wrong model, or taking too long to select the appropriate model, will lead to schedule delays and cost overruns. It is therefore vital that there be a framework in place that highlights all the available procurement models, along with an appropriate decision-making process.

Recommendation: The Ontario government should develop a Unified Procurement Model Decision Making Framework that helps provincial ministries and agencies select the most appropriate procurement model for a project.

Early Integration of Engineering and Design

Consulting engineers play a critical role in the construction chain by supplying the design and professional services necessary to move a project forward. However, provincial and municipal governments rarely commit sufficient resources to pre-project planning and design. This leads to negative impacts that arise during the construction and maintenance of projects.

According to a 2021 study published by the Construction and Design Alliance of Ontario (CDAO), public sector clients need to incorporate greater pre-project planning at the RFP and design stages, along with more upfront investment. Doing so will help reduce schedule delays and cost overruns. For example, an error that would cost $10,000 to address during construction would only cost $100 to address during pre-planning, or $1,000 to address during the design phase.

Recommendation: All Ontario government ministries and agencies should adopt the early integration of engineering and design for all projects to ensure that the value of the government's $158 billion investment in infrastructure is maximized.

Providing Project Pipeline Information

Knowing what projects are coming to market and when is a critical tool for consulting engineering firms to be able to effectively respond to government RFPs.

Infrastructure Ontario (IO) is an example of a government agency that provides relevant and timely information on its pipeline, specifically for Public-Private-Partnership (P3) projects. Per IO, pipelines "help potential local and global private-sector partners organize their time and resources to make sure Ontario gets robust, innovative, and competitive bids for its P3 infrastructure projects." Indeed, it is in the government's best interests to have as many high-quality bids as possible on a project.

In addition, by knowing what projects are on the horizon, firms can ensure that they are fully staffed to meet project demands. Finally, early identification of opportunities provides member firms with the required time to properly investigate the opportunity to understand what is required to address the needs and challenges of the project in hand to prepare a better response when the RFP is released.

Unfortunately, other government agencies and ministries have been reluctant to share information on future projects with the industry. Not knowing when projects are coming to market means that consulting engineering firms will be hard pressed to meet RFP deadlines, which in turn will jeopardize the government's ability to deliver projects on-time and on-budget.

Recommendation: All Ontario government ministries and agencies should provide the consulting engineering sector with project pipeline information on a regular basis and in a timely manner to enable consulting engineering firms to help the government successfully implement its infrastructure plan.

Conclusion

ACEC-Ontario looks forward to working with the Ontario government as it implements its infrastructure agenda and supporting policies. Its' ten-year, $158 billion investment will certainly support economic growth and prosperity in such a way that it provides direct benefit to Ontarians in every corner of the province. By valuing the services that consulting engineering firms provide, and working collaboratively with them, the government can maximize this benefit for today and for the future.