



ASSOCIATION OF CONSULTING  
ENGINEERING COMPANIES  
ONTARIO

# 2024 PRE-BUDGET SUBMISSION

ASSOCIATION OF CONSULTING  
ENGINEERING COMPANIES-ONTARIO  
(ACEC-ONTARIO)

JANUARY 2024





ACEC-ONTARIO  
MEMBER FIRMS  
EMPLOY MORE THAN  
25,000 INDIVIDUALS  
AND CONTRIBUTE  
NEARLY \$10 BILLION  
TO THE ONTARIO  
ECONOMY.

## ABOUT ACEC-ONTARIO

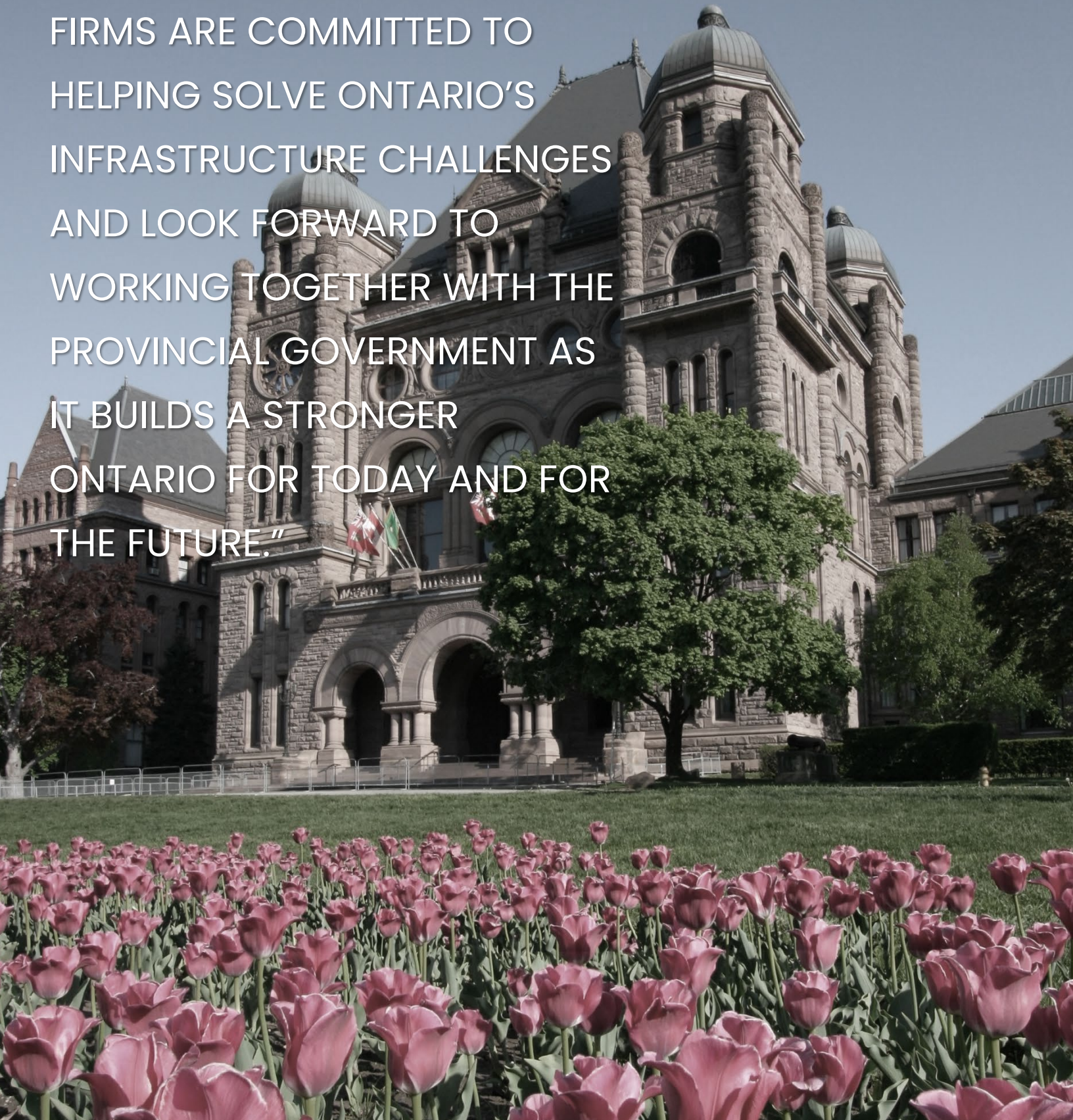
Founded in 1975, the Association of Consulting Engineering Companies-Ontario (ACEC-Ontario) is proud to be the non-profit industry advocacy association representing the business interests of nearly **140** consulting engineering firms.

Our member firms make Ontario's public infrastructure viable and sustainable by providing project designs, preparing environmental and social studies, and supervising and inspecting construction work, among other crucial tasks. The work of Ontario's consulting engineering companies is deeply embedded in the fabric of our society.

Our member firms have over **400** offices, located in every corner of the province, often with deep ties to local communities and economies. They employ more than **25,000** individuals and contribute nearly **\$10 billion** to the Ontario economy.



"ACEC-ONTARIO MEMBER  
FIRMS ARE COMMITTED TO  
HELPING SOLVE ONTARIO'S  
INFRASTRUCTURE CHALLENGES  
AND LOOK FORWARD TO  
WORKING TOGETHER WITH THE  
PROVINCIAL GOVERNMENT AS  
IT BUILDS A STRONGER  
ONTARIO FOR TODAY AND FOR  
THE FUTURE."







## RECOMMENDATIONS

ACEC-Ontario applauds the Ontario government for its historic \$184 billion dollar investment in infrastructure. This investment supports economic growth and prosperity in such a way that it provides direct benefit to all Ontarians. For our member firms, this investment has resulted in unprecedented levels of activity not seen in generations. As a result, these firms are now looking to hire more Ontarians to meet the growing demand for the vital services they provide.

ACEC-Ontario member firms are committed to helping solve Ontario's infrastructure challenges and look forward to working together with the provincial government as it builds a stronger Ontario for today and for the future.

To that end, ACEC-Ontario and its member firms have identified a series of recommendations that would enable the government to:

- Deliver more projects on-time and on-budget;
- Reduce repair costs and keep the economy moving forward;
- Ensure a strong, diverse workforce able to meet challenges; and,
- Protect the public interest.



## **DELIVER MORE PROJECTS ON-TIME AND ON-BUDGET**

### ***Standardized Contracts***

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To ensure the smooth delivery of infrastructure projects, sound, well-structured contracts are essential. This is why we promote professional services agreements based on a collaborative approach as they foster a healthier and more competitive business environment. They respect client pressures, such as cost control and project delivery, along with the needs of firms.

The consulting engineering industry has a long-standing history of working together with governments and stakeholders to develop these types of agreements. At the national level, ACEC-Canada is member of the Canadian Construction Documents Committee, which develops, produces, and reviews standard construction contracts, forms, and guides.

At the local level, ACEC-Ontario has worked in partnership with the Municipal Engineers Association to develop and maintain a Standard Client/Engineer Agreement for Professional Consulting Services. This agreement, which reflects industry standards and business practices, gives member firms and clients a clear picture of project timelines and budgets.

Having similar types of contracts available to ministries and agencies would help ensure there is a pool of high-quality competitive bidders with the experience and expertise needed to deliver critical projects. It would also assist in efficient project completion.

**Recommendation: The Ontario government should work with ACEC-Ontario to develop standardized contracts that include fair and reasonable terms and conditions.**





### ***Appropriate Risk Allocation***

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Consulting engineering firms carry professional liability insurance to cover claims that may arise from an error or omission in the provision of their services. While there are differences in the exact terms and conditions of each firm's policy, there are some conditions and exclusions that exist in all professional liability policies that insurers are not willing to change. The challenge consulting engineering firms face is when project owners try to force firms to accept risks and assume additional liability that would not be covered by the consulting engineering firm's professional liability insurance.

In recent years, ministries and agencies have procured projects trying to shift all the risk from themselves to consulting engineering firms 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 high-quality bidders, 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.**

### ***Procurement Models***

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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 Project Engineering and Design***

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When it comes to building infrastructure, consulting engineering firms play a critical role, 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 \$184 billion investment in infrastructure is maximized.**

### ***Providing Transparent and Timely Project Pipelines***

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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.**

### **Qualifications Based Selection**

When it comes to procuring consulting engineering services, ministries and agencies traditionally choose the lowest bid, resulting in firms reducing their fees to secure the assignment. This is not sustainable as firms will not be able to stay in business if they are required to consistently reduce their fees.

Moreover, when firms cut prices to win work, it reduces the engineering effort invested at the critical early stages of a

project prior to tendering / construction. This 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.

In September 2023, the Ontario Chamber of Commerce released its report on procurement modernization "Power of the Purchase Order". In this report, the Chamber noted:

*"One version of collaborative procurement is qualifications-based selection (QBS), an approach increasingly used to procure professional services such as architecture and engineering. With QBS, the buyer will select providers based on their qualifications and only then negotiate contract terms – similar to how employees are typically hired based on their qualifications for a job. QBS ensures contracts are awarded to the most qualified providers, while avoiding a race to the bottom on pricing, and ensures project specifications are*





*developed by and with experts.  
Evidence suggests QBS leads to  
fewer project delays and cost  
overruns, and better outcomes.”*

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 work with ACEC-Ontario to explore how Qualifications-Based Selection practices can be established within each ministry/agency.**

## **REDUCE REPAIR COSTS AND KEEP THE ECONOMY MOVING FORWARD**

### **Resilient Infrastructure Funding Program**

Ontario is vulnerable to climate impacts and in recent years we've seen flooding, fires, and extreme winds increase the risk to public safety and cause significant damage to infrastructure across the province. Investing in resilient infrastructure design will reduce disruptions to Ontario's economy. Resilient infrastructure facilitates continued movement of people and goods during extreme weather events and supports economic growth. Incorporating resilience

into infrastructure design will help improve performance and save costly repairs during climate related failures that can be avoided.

When incorporated at the design stage the incremental costs are not significant compared to the cost of repair after failure. To help design more resilient infrastructure, current codes and standards that were developed using historical climate data must be updated to reflect future climate conditions. This will enable engineers and designers to comply with regulatory requirements and develop resilient designs. Updating codes and standards will take time to complete, in the meantime, there are various industry



standard tools and methods based on ISO (International Organization for Standardization) standards that can be used to support resilient design such as, but not limited to, the Public Infrastructure Engineering Vulnerability Committee (PIEVC) Protocol. Additionally, the United Nations Office for Disaster Risk Mitigation has published the Principles of Resilient



Infrastructure Design Framework that is being used by jurisdictions around the world to help plan and incorporate resilient infrastructure design.

Examples of resilient infrastructure include roads that manage heat better or that allows for better drainage with connected natural features, decentralized renewable energy sources, back-up power for businesses, water conveyance, treatment and distribution systems updated to reflect more extreme precipitation events and help prevent flooding.

**Recommendation: To help provide a reliable and economically stable future, Ontario should 1) consider a funding program (either as a requirement to funding or a top up, similar to the Build Back Better pilot project) to support resilient infrastructure design and 2) update the associated building codes and standards to reflect the changing climate.**

### ***As-built Records***

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One of the challenges that governments face when looking to upgrade existing infrastructure is the lack of as-built records. As-built records are vital as they are the records of the building after construction has been completed, including all changes to work scope, materials installed, measurements, and so on. When these records are not available, particularly at the design stage, projects could be subject to schedule delays and additional costs.

**Recommendation: To help ensure projects can be delivered on-time and on-budget, ministries and agencies should update their as-built records. This could be done by strengthening the requirements in RFPs for these records to be provided at project close and by allocating a reasonable amount of the construction cost to the preparation of such records.**

### ***Sustainability and the Energy Transition***

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Ontario's power generation, transmission and distribution system is world-class and well positioned to become a North American leader in the energy transition, which is a shift from carbon-based energy sources for electricity and transportation to zero-carbon sources such as solar, wind, hydropower, and hydrogen. The energy transition will ultimately provide a more



sustainable energy sector, but it will take years to complete the transition since Ontario will have to increase energy storage capacity to meet peak demand. Forecasts have demonstrated that as the



energy transition progresses, Ontario will require additional power generation and improved transmission and distribution. To help improve the reliability of power across Ontario, the reduction of energy consumption through increased energy efficiency of buildings, equipment and processes should be implemented. Enhancements to energy infrastructure (resilience and efficiency) can also safeguard power plants, energy storage and distribution systems, to reduce the impact of extreme climate related events.

Ontario can further develop programs to help support the energy transition by leveraging success from other jurisdictions such as a requirement for solar panels for new buildings or encouraging geothermal systems or wastewater energy transfer (WET) to support district energy systems for communities to transition to a cleaner and more sustainable economy. Ontario's cleantech sector is well positioned to provide these solutions by Ontario based companies, further delivering economic growth, and driving innovation across Ontario.

**Recommendation: To help support sustainable power generation and more efficient electricity use, more renewable power generation and energy storage is required in Ontario as are programs to support peak energy demand improvements and incentivize energy efficiency programs.**

## **ENSURE A STRONG, DIVERSE WORKFORCE ABLE TO MEET CHALLENGES**

### ***Social Procurement***

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Ensuring our STEM workforce reflects the diversity of the citizens strengthens our ability to provide innovative solutions to pressing public infrastructure challenges. To achieve this, we need to address the challenges that currently exist in STEM workplace culture.

Minority groups experience a variety of barriers to belonging and progressing in STEM careers. In male-dominated STEM industries, male traits are often favoured (in dress codes, leadership styles, language, etc.). This culture creates workplace environments where some employees are "othered". Those in the "othered" group often report being doubted, questioned on their competence, and feel a general lack of belonging in the industry. This can have serious, negative impacts on their confidence, health, and general well-being.

Researchers note females also experience what is called the "in/visibility paradox" which points to their visibility in the workplace as a female, but invisibility as engineers. It is because of this higher visibility as females that their work is under increased examination. This experience ultimately leads to behaviours that tokenize females and other minority



groups in the workplace. Ultimately, this can cause risks to their relationships and career progression.

These influences are only some of the obstacles faced by minority groups in STEM careers, creating difficulties in staff recruitment and retention. Making improvements to the workforce and culture of our industry is important, however, interventions that focus on mechanisms such as quotas can often result in social backlash, leading to an increase in unsafe work environments. Finding a solution that focuses on improving workplace culture provides the best path to a safe, welcoming, and innovative industry.



Across Ontario, project owners are increasingly adding social procurement and equity clauses to procurement contracts. Harnessing our collective purchasing power is an influential path we should explore that will help create measured, system-level change.

**Recommendation: The Ontario government should strengthen the STEM workforce by working together with the consulting engineering industry to develop a framework around the use of social procurement for infrastructure projects.**

### ***Increasing Diverse Engagement in STEM Education and Careers***

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In 2022, there were 101,247 licensed engineers in Ontario. Of that total, 14,469 were women and 10 were non-binary. While men comprise nearly 50% of the population, they make up 86% of licensed engineers in Ontario. Moreover, in the consulting engineering industry,

companies face ongoing concerns with talent recruitment. To design the most innovative, sustainable solutions to our public infrastructure challenges, the consulting engineering industry needs to ensure they have adequate staff resources to support these projects. All Ontarians need to be encouraged to engage in STEM and see it as a viable, rewarding career choice.

This encouragement needs to begin in early education. This is especially important when we encourage young girls to engage in STEM, as research shows their interest declines early in elementary school. Industry research has also identified a few additional points along the educational journey where high rates of attrition in girls and women occur - during

high school and after graduating from post-secondary engineering programs. Therefore, it is important to focus our resources on encouraging and supporting STEM as a career choice along the entire educational journey.

As an industry, engagement in STEM is encouraged through various avenues of support, including scholarship opportunities to improve access to education throughout the province, along with mentorship opportunities to continue this support into the workforce. Various coalitions exist between industry and



educational institutions, which create programs such as National Engineering Month, held in March annually, whereby engineering excellence is showcased and celebrated across various specializations.

This support can also come in the form of government funded educational programming. The Let's Talk Science program, for example, exists to combat disengagement in STEM by designing

programs and other resources for educators to use in their classrooms, improving the quality of STEM education. Visions of Science is another program which focuses on removing barriers specific to low-income, racialized youth in the GTA at every step of the "STEM Pathway" from elementary school to workforce entrance. The First Robotics program offers hands-on programming through competitions, Girls and Allies Youth Summit events, and other accessible resources for educators.

Also, other pathways exist for the government to raise the profile of STEM in elementary and secondary school. Providing funding directly to local schoolboards would allow each region the flexibility to design their STEM intervention programs to the needs of their own, unique student demographics. Adjustments to the curriculum can also be considered to increase engagement, such as dedicating a week in early elementary school to STEM

themed activities. For students who need extra guidance, providing increased access to tutoring support services for children in low-income families would be a valuable investment in their future.

In 2020-21, Ontario saw one of the largest increases in newly licensed women engineers (from 504 to 533) across Canada. This speaks to the valuable investment the Ontario government has



begun making to support an increase in gender diversity in the trades and STEM industries. As such, an increase in government-funded programs and exploring new opportunities in the Ontario educational curriculum in the coming years would strengthen and increase this momentum.

The government has committed approximately \$184 billion over the next 10 years to public infrastructure. To ensure this is a high-value investment, government, academia, and industry collaboration is essential to encouraging and creating a respectful, safe, and welcoming environment for all talented engineers.

**Recommendation: The Ontario government should develop and implement a strategy to increase diverse engagement in STEM and encourage STEM as a valuable career choice. The strategy should include options such as funding for school boards, schools, and community organizations, along with changes to the curriculum.**

## PROTECT THE PUBLIC INTEREST

### ***Enhancing Professional Liability Requirements***

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The practice of professional engineering carries significant public interest risks. Professional engineers have a duty to safeguard the public welfare, and any failure in that duty can have dire consequences for the people of Ontario. The *Professional Engineers Act* (“the Act”) endeavours to create a regulatory framework to manage and mitigate those risks.

A key element in that framework is the requirement for entities that offer and provide professional engineering services to the public to carry minimum levels of professional liability insurance. Such insurance is a risk transfer mechanism that protects the client against the consequences of negligence on the part of the entity providing the engineering services. Professional engineers may work to high standards, but they are still human, and mistakes can happen.

Unfortunately, there is an exception contained in the regulations under the Act which negates that protection and allows engineering entities to operate without insurance. The exception allows for disclosure by the entity to the client that they are not insured in accordance with the Act, and receipt of written authorization from the client to carry out the work





regardless. The disclosure does not require the entity to identify or quantify the risks or consequences of uninsured engineering practice. As a result, the client is not providing informed consent. The risks are not managed or mitigated in any way.

The exception was introduced with major Act revisions in 1984, at a time when professional liability insurance was deemed prohibitively expensive for very small engineering firms. Nowadays, affordable professional liability insurance is available to firms of any size and should be viewed as part of the cost of doing business. ACEC-Ontario has two dozen member firms with fewer than 10 staff, and all carry professional liability insurance.

The public interest risk created by this exception is not small. In 2018, the regulator, Professional Engineers Ontario, reported that of the 5,673 entities that were authorized to provide engineering services to the public, **1,290 of them – more than 20%** – were operating without professional liability insurance by relying on this exception. The risk is not borne only by the project owner or client. The risks of negligent professional engineering work continue long after the work is completed and can impact the welfare of countless people across the province.

There is no other regulated profession in Ontario that allows its practitioners to offer and provide services at arm's length without insurance. An exemption like this in the field of medicine, or any of the related

health professions, or in the legal profession, would be untenable.

**Recommendation: The Ontario government should repeal subsections 74(2)(d) and 74(3) from Regulation 941 under the *Professional Engineers Act*.**

## CONCLUSION

On behalf of the Board of Directors and the member firms of ACEC-Ontario, we would like to thank you for the opportunity to comment, both in person at the Ministry of Finance consultations and through this submission. Should you have any questions, or would like additional information, please do not hesitate to contact Doug DeRabbie, Director of Government and Stakeholder Relations at [dderabbie@acecontario.ca](mailto:dderabbie@acecontario.ca).