

# Gordie Howe International Bridge

Environmental Management  
and Compliance Program



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# Project Summary

AECOM, as a member of Bridging North America (BNA), is lead designer on the Gordie Howe International Bridge working on behalf of Windsor-Detroit Bridge Authority (WDBA). It will be the longest cable-stayed bridge in North America and one of the largest in the world. Together with

WDBA and BNA, AECOM's environmental team developed an award-winning, ISO Certified Environmental Management System that meets Canadian and American regulatory requirements—it is one of the first P3 projects in Canada to achieve this certification.



# 1. Innovation

As a member of BNA, AECOM is responsible for design and environmental management on the Gordie Howe International Bridge Project. Delivered by Windsor-Detroit Bridge Authority (WDBA), this \$5.7 billion public private partnership (P3) is four projects in one. Once complete, the bridge will be 2.5 kilometres long with a main span of 853 metres, making it the longest cable-stayed bridge in North American and one of the largest in the world.

Working with WDBA and BNA, AECOM's environmental management team (EMT) developed an award-winning, cross-border, ISO 14001:2015 Certified Environmental Management System (EMS) that integrates with the project's quality, health and safety, security and sustainability systems. It is among the first P3 projects in Canada to achieve ISO certification.

Used during design and construction to mitigate environmental impacts and drive compliance, the EMS features monthly reporting to WDBA and discipline-specific management and monitoring plans that address site, project and regulatory details from several jurisdictions. It includes an interdisciplinary Environmental Management Plan (EMP) that provides the framework for environmental management activities throughout design and construction.

This EMP includes customized checklists that were communicated to design leads early and monitored throughout the project for seamless integration and to minimize design changes. Comprehensive constraint maps were developed for both countries to characterize environmental features, and environmental obligation matrices were created to ensure that regulatory and project agreement commitments were incorporated into environmental plans and procedures. These matrices act as an EMS

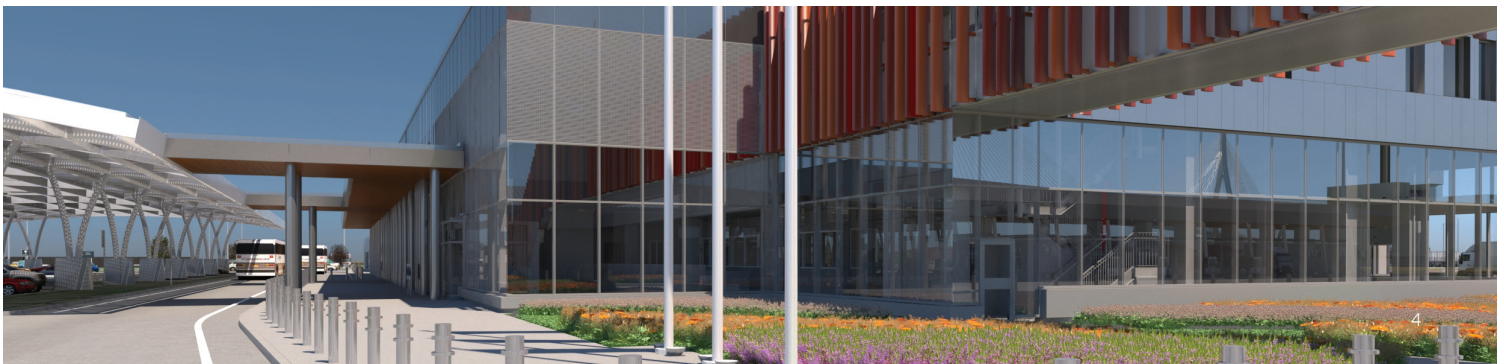
roadmap to outline requirements and define how they will be managed through training, monitoring, inspections, audits and Environmental Management and Mitigation Plans (EMMPs). There are 22 discipline-specific EMMPs as part of the EMS that specify:

- roles, responsibilities, and authorities;
- training, competencies, and resources;
- equipment, procedures and operational controls; and
- all monitoring, compliance, mitigation, notification, reporting and record keeping requirements.

EMS technical reporting is interconnected among the project's many Technical Working Groups (TWGs) through a unified BIM 360 platform where field data is collected and made available in real-time using tools like ProjectWise, SharePoint, eBuilder and the Project's Environmental Performance Trackers. These innovative collaboration tools enable simultaneous interdisciplinary reviews to promptly identify issues, inform decision-making and drive quality and compliance throughout design and construction.

To date, the project has been recognized with the following environmental awards:

- National Association of Environmental Professionals – 2021 Best Available or Innovative Technology;
- Institute of Sustainable Infrastructure – Envision Platinum Award; and,
- P3 Awards – 2021 ESG Performance of the Year.





## 2. Complexity

Establishing the EMS was in its entirety a complex process. AECOM's EMT needed to develop a system that satisfies environmental regulations from Canada, the U.S, Ontario and Michigan. Additionally, the project not only encompasses the bridge, but also the Canadian and U.S. Ports of Entry and the Michigan I-75 Interchange. In addition to the complex regulatory framework, the EMS follows the requirements of various environmental assessments that were completed in the project planning stage which spanned over a decade. Consolidation of the requirements was achieved through the development of the obligations matrices as described under Innovation.

Given the complex regulatory nature of this international project, the audit program was intricate. To simplify and optimize the process, compliance audits were phased across the assessment period

with site tours scheduled to allow observations when the most relevant field activities were underway.

A further complexity is the size and location of the design project team which is located across 36 offices with over 20 subconsultants and a globally dispersed team of over 500 staff. To manage the potential for various groups to work in silos, a Technical Working Group (TWG) meetings plan was developed and implemented to ensure that various environmental commitments were incorporated as design progressed. The EMT participated in all TWG meetings.

With the outbreak of Covid-19, the team quickly adapted to accommodate work from hundreds of home offices and implemented virtual audits to ensure there was no gap in the EMS implementation and associated compliance program.



### 3. Social and/or Economic Benefits

Developing this corridor in a socially and economically responsible fashion will support economic growth through tourism, trade and the creation of local jobs. Federal, provincial, state, regional and local regulatory/permitting agencies, along with stakeholders and the public, benefit from a project that honours and complies with environmental mitigation, permitting and other commitments to achieve environmental protection and minimize/mitigate construction and operational impacts.

While the EMS regulates and monitors environmental impacts during construction and mitigates disruption to local communities, it also addresses areas of cultural significance. It involved archaeological studies to prevent impacts to cultural heritage resources, a form of environmental justice that is important to stakeholders and communities.

A Crossing Agreement, signed in 2012 by the Government of Canada and the State of Michigan required the incorporation of a Community Benefits Plan on the project that:

- includes direct stakeholder input and continued community involvement, and
- partners with local unions and higher education organizations that focus on job training and job development.

WDBA engaged and empowered local communities in all stages of the Community Benefits Plan and BNA joined this consultation process after Financial Close in September 2018. Between 2015 and 2019, a two-phase consultation approach was undertaken with Ontario and Michigan residents, Indigenous Peoples, business owners and community and municipal leaders, resulting in over 230 unique suggestions for community benefits and engagement that fell within five priority areas:

- Local economic, workforce and training strategies;
- Construction and operation effects on the community;
- Community safety and connections;
- Aesthetics and landscaping; and
- Community development.





## 4. Environmental Benefits

The EMS was established to benefit the environment. Its EMMPs provide:

- aspect-specific overviews of physical setting;
- applicable legal context;
- mitigation, management and monitoring requirements;
- tracking/reporting obligations; and
- competency/training requirements.

The Canadian EMMPs cover:

- Air Quality - Provides for management of air quality to control fugitive emissions potentially generated during construction and addresses ongoing air quality monitoring.
- Noise and Vibration - Addresses construction noise and vibration levels for sensitive receptors. Procedures are provided to support compliance with relevant noise guidelines. Vibration monitoring includes pre-construction, construction and post-construction monitoring requirements.
- Hazardous Materials and Waste Management EMMP and the Spill Prevention and Response EMMP address use/handling of materials to manage and/or reduce human health and/or ecological risks during construction.

- Sediment and Erosion Control EMMP, Groundwater and Dewatering EMMP and Excavated Materials EMMP address sedimentation, erosion and contamination controls to protect the Detroit River and nearby resources.
- Vegetation and Invasive Species EMMP, Wildlife and SAR EMMP, and Aquatic Resources EMMP provide information/protocols to address protected aquatic and terrestrial species, contain and control weeds, and minimize natural heritage impacts during construction.
- Archaeology EMMP defines protocols if unanticipated archaeological material or human remains are discovered during construction, while the Cultural Heritage Resources EMMP outlines measures for protecting known cultural heritage resources.

This project also provides leadership in sustainable infrastructure by incorporating the latest technological, materials and environmentally sound innovations, aimed at meeting Envision and LEED Silver requirements while also meeting prescribed energy targets during the 30-year O&M period.



## 5. Meeting Client's Needs

WDBA required BNA and AECOM to establish an EMS for this major infrastructure project and the team successfully completed the work. The program includes 40 environmental plans in 10 disciplines and provides the mechanism to manage and monitor all environmental works. It assures agencies, stakeholders and the public that WDBA will meet its environmental commitments throughout design and construction.

Recognition of the project's Environmental Compliance and Management Program by the National Association of Environmental Professionals as the 2021 Best Available of Innovative Technology demonstrates the team's success and alignment with WDBA's commitment to ESG principals. By earning a prestigious Envision Platinum Award, the project achieved the Institute for Sustainable Infrastructure's highest distinction for its sustainable development and environmental performance standards at every stage from design to construction and implementation.

AECOM's environmental responsibilities on the project include facilitating interagency, interdisciplinary consultation and coordination, compliance with Canadian and U.S. environmental obligations, securing environmental permits and obtaining environmental approvals from key federal, provincial, state, regional and local agencies. The EMT led the development and ISO Certification of the project's EMS and oversaw the complex Institute of Sustainable Infrastructure Envision Certification application process. The EMT also leads and supports agency, public and stakeholder engagement efforts and works with WDBA to implement the program during construction.

The project will enable cross-border travel, more efficient movement of goods and services, and job creation on both sides of the border. BNA estimates 2,500 overall jobs will be created during construction and additional future employment opportunities through border crossing operation.

