WORLD PORTS SUSTAINABILITY PROGRAM

IAPH WORLD PORTS SUSTAINABILITY AWARDS 2020

MONTREAL PORT AUTHORITY

Presentation of the
Grand Quay of the Port of Montreal
Project

December 2019
TABLE OF CONTENTS

INTRODUCTION .............................................................................................................................................3

PROJECT OVERVIEW .....................................................................................................................................4

OBJECTIVES ......................................................................................................................................................7

VISION AND LEADERSHIP ............................................................................................................................9

STAKEHOLDER ENGAGEMENT ....................................................................................................................11

INNOVATION ....................................................................................................................................................12

RESULTS AND IMPACT: SUSTAINABILITY .................................................................................................14

COMMITMENT TO UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS ......18
INTRODUCTION

The Montreal Port Authority (MPA) is pleased to submit this application to the International Association of Ports and Harbors for the World Ports Sustainability Awards, under the themes Community Outreach and Port-City Dialogue, Climate and Energy, and Resilient Infrastructure.

The MPA is an autonomous federal agency that administers the Port of Montreal, a major international port located in Montreal, Quebec, Canada. The port is situated 1,600 kilometres inland from the Atlantic Ocean, on the St. Lawrence River. It handles each year more than 2,000 ships carrying some 40 million tonnes of all types of cargo to and from all parts of the world and welcomes international cruise vessels and their guests.

Sustainable development is a value inherent to the MPA’s mission. Our organization is committed to protecting the environment, to our neighbouring communities and to our contribution to the economic development of Montreal, Quebec and Canada. The port authority constantly strives for excellence in these three pillars of sustainable development.

The Grand Quay of the Port of Montreal, formerly known as Alexandra Pier, is a new urban space developed by the MPA. Located between the river and the city in the heart of Old Montreal, it features a contemporary cruise terminal, new greenspaces open to the public and a Port Centre. It stands out for its positive impacts in terms of sustainable development, its landscape planning, its electric shore power technology for cruise vessels and its approach to connecting with the community.

The Grand Quay revitalization project clearly demonstrates the port’s desire to get closer to the community, offer the public better access to the river and integrate as harmoniously as possible into its surroundings, environment and the urban fabric of Old Montreal. It reduces the port’s environmental footprint, meets the operational needs of cruise lines and their guests, and contributes to the port’s growth and the economic prosperity of the region, Quebec and Canada.

The Grand Quay of the Port of Montreal was inaugurated for cruise passengers in May 2017 and opened to the public on June 3, 2018.

A video overview of the project is available at: www.youtube.com/watch?v=n8YAjapH0nk
PROJECT OVERVIEW

The Grand Quay project includes:

- Renovation of the port’s cruise terminal;
- Development of Promenade d’Iberville, a large green roof atop the cruise terminal featuring an immense wooden terrace and 24,000 flowering and aromatic plants;
- Development of the Port Centre and a brand-new exhibition;
- Lowering of one end of the pier for development of Commencement Square, a vast lawn area on the edge of the water that offers exceptional access to the river;
- Installation of electric shore power technology.

Other works include the renovation of Mariners’ House of Montreal, a home away from home for seafarers whose ships are docked in Montreal, the development of unique reception venues suitable for all types of events and improvements to the parking areas.

The final stage of project will be an observation tower, reminiscent of a lighthouse, located at the south end of the pier. Construction of foundations began in summer 2019 and will be followed by subsequent works in 2020. The tower is scheduled to open in 2021.
The final concept for the Grand Quay was designed following open houses with citizens and numerous meetings with key partners from the economic, tourism and political sectors, along with stakeholders committed to Montreal’s harmonious development.

The rehabilitation of the former Alexandra Pier was carried out over several years, beginning with preparatory work in November 2015. This phase covered geotechnical and seismic studies, then development of a functional and technical program followed by the design phase. The main infrastructure, construction and development phases followed.

The Grand Quay buildings were designed with sustainability in mind. Based on a century-old structure, the MPA preserved and rehabilitated as much existing infrastructure as possible. For example, the steel structure that supports ramps and sheds on two storeys was sandblasted and repainted.

Natural light was favoured in all spaces, most notably in the cruise terminal and the Port Centre, with the installation of five huge skylights.

The wooden terrace on the green roof was built with red cedar from Western Canada; it is regarded as one of the most durable Canadian woods and known for its long lifespan. It is naturally rot-resistant and does not need to be treated. All of the plants chosen for the green roof are adapted and resilient to extreme weather conditions (heat, cold and drought) and half of them are indigenous to Quebec. Living walls were planted along the length of certain building facades.
The MPA introduced shore power for cruise ships as part of the Grand Quay project. A video of the port’s shore power project technology is available at: www.youtube.com/watch?v=zgMVpYS5aKQ

Properly equipped vessels can now shut down their marine diesel engines and plug in to the electric power grid supplied by renewable energy sources to receive necessary power while they are docked at the cruise terminal.

To provide a sufficient power supply for cruise ships, Hydro-Québec, which manages the generation, transmission and distribution of electricity in Quebec, installed a new 25-kV line to supply the new substation at the cruise terminal.

Major works had to be carried out to install the necessary infrastructure (the substation, electrical conduits, power and control cables, dockside connections and other elements required for a complete and functional system) in order to ensure sufficient electric power supply for two cruise ships docked simultaneously.
OBJECTIVES

The Grand Quay project’s objectives were threefold.

Operational
Revitalize a century-old site into a modern cruise terminal to ensure a quality welcome for cruise ships and the more than 100,000 passengers and crew members who visit Montreal annually.

Despite significant maintenance investments over the past decade, Alexandra Pier’s infrastructure showed marked signs of aging and operational obsolescence. This hindered its ability to keep providing the type of services that cruise lines and their guests expect.

Montreal has long been a popular departure, arrival or stopover port for international cruises, mainly on the Canada-New England route, as well as for domestic cruises to the Magdalen Islands. More recently, it has become home to an increasing number of cruises on the St. Lawrence River and to the Great Lakes.

With the cruise market continuing to grow in Montreal, the MPA clearly understood that it needed to upgrade its cruise facilities.
**Social**
Respond to a wish expressed on numerous occasions by Montrealers to provide better access to the river.

Previously closed to the public and reserved for cruise ships, the Grand Quay is now a quality urban space on the river open to the public in the heart of the Old Port, offering breathtaking views of the river and the city. It is part of the port’s commitment to fulfil its role as a responsible corporate citizen and reinforce its presence and ties with its neighbouring community. The Grand Quay represents a new era in the port’s relationships with citizens.

**Environmental**
Reduce the port’s environmental footprint.

The Grand Quay is equipped with a shore power system that will lead to a major reduction in greenhouse gas (GHG) emissions from cruise ships that are equipped accordingly or will be equipped in the future while they are docked in port. Greenspaces have been created where before there was only concrete. The entire area has been rethought in terms of active transportation and greening.

The project aligns economic development with sustainable development and reduces the port’s environmental footprint while improving its service offer.
VISION AND LEADERSHIP

Sustainable development is at the heart of the MPA’s activities. The MPA is committed to fulfilling its mission by continuously working to maximize the economic, social and environmental benefits of its activities through effective governance.

Our commitment to take concrete and lasting sustainable development measures is set out in a policy where involvement, cooperation and accountability serve as our guiding principles.

Our priority is to reduce the environmental footprint of our activities through responsible consumption and by efficiently managing our environmental heritage. We adopt working practices that respect the environment and use technologies that improve performance and reduce environmental impacts.

Our vision and our leadership role were crucial to the success of the Grand Quay project. Indeed, the opening of the Grand Quay represents a major change in culture for the Port of Montreal. By opening its spaces to the public for the first time, the MPA has embarked on a change of course in the management of its infrastructures, which required the establishment of a new approach with regard to its regulations and personnel.

We had to adapt to a new reality and rethink the management of the site to balance the high-level security requirements involved with cruise-ship handling and the fact that visitors can now move freely around the area.
We also had to create several positions within our team in order to ensure the Grand Quay’s new mission. The Director, Grand Quay, ensured the planning and development of the site and implemented a visibility strategy to make the site better known and promote it to the public. The Manager, Corporate Sales and Business Development, promotes the rental of our unique spaces for corporate, private and public events. The Coordinator, Grand Quay, manages the free outdoor programming that we offer at the site during the summer season. We hired maintenance personnel and security guards to ensure the effective operation of the entire site, in particular for the exterior areas and the Port Centre. Working hours were rethought in accordance with the new public opening hours.

The Grand Quay staff now includes 13 permanent security employees and six permanent housekeeping employees, as well as casual employees for special events, three on-call logistics personnel for events, four employees for administration and six employees for the Port Centre.

We took numerous efforts to promote the Grand Quay to the public and reiterate our desire to give back the site to Montrealers. The public inauguration, held on June 3, 2018, kicked off this new relationship between the port and its citizens. This free event featured outdoor games, a photo exhibition, contests, workshops related to the maritime industry, and other fun activities for all ages. Some 13,000 people attended.
On September 8, 2018, the port held its annual Port in the City Day on the site. Some 2,000 visitors enjoyed free cruises on the St. Lawrence River and activities related to the maritime world.

The Grand Quay also offers free programming all summer long. Nautical picnics, fireworks evenings, yoga and swing dance courses, and the telling of maritime tales and legends are among the activities that help make the Grand Quay one of the city’s must-see recreation and tourism attractions.

The Grand Quay project allowed us to clearly show that the port wants to get closer to the community and that we had listened to Montrealers who had asked for better access to the river. We also demonstrated that the port was an important player in the development of the city, and that it continues to be a vital cargo logistics and tourism hub and a strategic tool for economic development: port activity in Montreal is responsible for $2.6 billion annually in added value to the Canadian economy and supports 19,000 direct and indirect jobs.

**STAKEHOLDER ENGAGEMENT**

We believe that by building long-term relationships, maintaining constructive dialogue and taking concrete action in sustainable development, our port is more efficient, secure and environmentally friendly, and better integrated into the city, in harmony with communities and the environment.

Our leadership role alongside our stakeholders helps secure their buy-in with regard to sustainable development principles.

For the Grand Quay project, the MPA held numerous meetings with key partners from the economic and tourism sectors, as well as with political and social stakeholders and stakeholders committed to Montreal’s harmonious development.

The MPA met with its loyal cruise line partners that have been calling the port for many years and whose repeated visits contribute substantially to the local economy. We solicited their advice with regard to the design and operations of the new cruise terminal and how to best offer international-calibre facilities that provide a top-quality welcome to their cruise guests. We also worked closely with the cruise lines and Hydro-Québec to devise the strategy for the implementation of shore power technology.

The port is proud of its ties with its neighbouring communities and fosters a spirit of communication, openness and transparency with the public and, as such, reached out to the public regarding the project. As part of a public consultation phase, we held open houses over a three-day period to present the project to residents, listen to their comments, gather their input and answer their questions. About 100 people met at the
site of the passenger terminal for the public information and exchange process. Public perception of the project was very positive.

The extensive Grand Quay rehabilitation project was undertaken with numerous partners including Pomerleau (contractor), the Provencher_Roy multidisciplinary firm (interior design), NCK (structure), Pageau Morel (electromechanics), NIPaysage (landscape architects) and WSP Group (civil engineering and maritime infrastructure).

**INNOVATION**

Many aspects of the Grand Quay project are original and innovative in character with regard to sustainable development.

From an operational standpoint, the innovative architectural concept of the new cruise terminal allows the MPA to offer cruise guests a superior welcoming facility using sustainable development best practices.

The green roof atop the cruise terminal is an original design and a tool to help combat heat islands. Plants were arranged in longitudinal strips as a tribute to the farmers’ fields of Western Canada and a reminder of the materials that had been stacked on the pier during a bygone era. The unique concept includes perennial edible plants such as oregano, chives, Monarda (leaves in salads) and yellow chamomile. The flowering of the 24,000 perennial plants alternates throughout the summer to ensure flowering for as long a period as possible. The green roof has a trickle irrigation system linked to an onsite weather station in order to ensure continuous watering.
Innovation is also present at the social level. The Grand Quay contributes to reinventing port spaces and rethinking port-city relations. Previously, port spaces were inaccessible and port activities were generally unknown to the public. By opening its doors to the public for the first time, the Grand Quay has allowed the port to get closer to the community. Through the Port Centre, the first of its kind in Quebec, the port is working to enhance public perception about the port and make better known its rich history and the role it plays in people’s everyday lives.

The port’s shore power project is the first green initiative of its kind in Quebec. Three central elements clearly illustrate the innovative aspect of the system.

The installation of a bank of automated capacitors based on contract power allows us to reach power factors exceeding Hydro-Québec standards. The electric power supply had to be able to accommodate cruise ships of various sizes, as Montreal welcomes 250- to 2,500-passenger cruise ships. Our capacitor bank system automatically adjusts according to the power required by ships, the type of vessel and the technology used.

This new technology ensures safe connections for ships with receptacles of 400A to 600V, which allows us to welcome larger ships that require greater electrical capacity. Each of the power boxes is equipped with an intelligent control and metering system ensuring user safety and automatic billing of connection fees for system users.

We are using a 16-tonne mobile reel, the first installation of its kind in North America. This ‘extension’ allows for a power transfer of more than 5 mVA by using cables, five in parallel, with connectors that are about six to eight inches in diameter. This reel allows cables to be manipulated with little effort, and a remote control ensures the unrolling and rolling according to the tension on the cables. The system offers connection flexibility of 30 metres to the left and 30 metres to the right of the connection point, which allows us to meet the various needs of cruise ships based on their size and positioning at dock. Moreover, it is designed to respond to future needs; it will allow us to connect four cruise ships instead of the current two.

An automatic peak voltage control system allows for the adjustment of voltage levels according to the type of ship and maintains proper voltage while the vessel is connected. The system controls are completely digitized and automated through the use of a Supervisory Control and Data Acquisition system.

Our connection systems are similar to those of charging stations for electric cars and can be used in all types of weather conditions, 24 hours a day, 365 days a year.
RESULTS AND IMPACT: SUSTAINABILITY

The Grand Quay project has had a significant impact on the sustainability of the port and its environment. Since its official opening, the Grand Quay has met the objectives set by the MPA at all levels.

Environmental
The impact of the Grand Quay on the environmental front is evident in many ways. The shore power system allows properly equipped cruise ships to shut down their marine diesel engines while they are in port, an average of about 10 hours per visit. Reducing air emissions from these marine diesel engines leads to better ambient air quality.

The electric power maintains air-conditioning, refrigeration, security and other service systems. This new technology reduces noise, vibrations, smoke fumes, and GHG emissions of about five tonnes with each connection.

Electric shore power for cruise ships is expected to lead to a reduction of 1,300 tonnes of GHG emissions per year through the port. Eliminating up to 1,300 tonnes of GHGs annually is comparable to reducing the distance driven by passenger vessels by more than five million kilometres or replacing almost 50,000 incandescent light bulbs with LEDs, according to the Greenhouse Gas Equivalencies Calculator. By using a renewable energy source, our system offers a clean solution, unparalleled on the international scene.

Shore power responds to the current evolution of the transport industry toward cleaner energy and falls within the intent of the International Maritime Organization to reduce GHG emissions from the world’s fleet by 50% from now until 2050.

The results of a study by Oxford Economics for CLIA (Cruise Lines International Association) indicate that 88% of cruise ships under construction (or on order) will be equipped to benefit from shore power. This project, therefore, allows us to contribute concretely to the green shift that the industry wants to take. With this type of innovation, the port can adapt itself to the evolution of the maritime fleet and will be ready to handle the new generations of ships to come.

We reduced the number of parking spaces to create greenspaces. Previously, Alexandra Pier’s large parking lots could accommodate 800 cars. This number has been reduced to 400. Part of a former parking lot is now the Commencement Square lawn area.

The site promotes greater fluidity and the outdoor amenities encourage Montrealers and visitors to visit the Grand Quay on foot or by public transport. Cyclists can safely park their bikes on-site. The reconfiguration of taxi and bus lanes at the ground level contributes to a reduction in GHG emissions. Charging stations for electric cars have been installed on-site.
Cultural
The Grand Quay is part of the historic, cultural and social heritage of the city. The former Alexandra Pier was at the heart of the first port activities and the origin of the foundation and development of the city. It is also where a countless number of immigrants, ancestors of today’s Montrealers, first set foot in Quebec and Canada. Through this project, the port has given back to Montrealers this symbol of their history.

The Port Centre opens a cultural window on the port and the maritime industry. It hosted the free History of Ships exhibition, which showcased the rich history of the Port of Montreal and its pivotal role in regional and national socioeconomic development. The exhibition included ship models and a huge mural with textual, visual and video information highlighting the history of goods transportation. The Port Centre has been a huge success. Nearly 100,000 people have visited since its opening, including many school groups.

The Port Centre has been enriched with the opening of a new, free, permanent interactive exhibition, All Aboard!, on December 21, 2019. It invites visitors on a physical and digital adventure to discover the shipping cycle of goods from their point of departure to their point of destination. Further information about the exhibition is available at: https://www.port-montreal.com/en/all-aboard.html.
Social
The opening of the Grand Quay has been welcomed favourably. Some 13,000 people attended its official inauguration on June 3, 2018. A video of the event is available at: www.youtube.com/watch?v=uh6XUjXSEjw&feature=youtu.be.

The Grand Quay organizes free events and activities each summer for the public and has enjoyed two very busy summer seasons. Its wide range of programming includes fireworks evenings, introduction to sailing, tales and legends of seafarers and nautical knots workshops. Also on-site are a public piano and a small library with free access to books. More than 366,000 people visited the Grand Quay of the Port of Montreal during the summer of 2019.

Indeed, the site is free to the public and open year-round, responding to the wishes of Montrealers to have better access to the river. The Commencement Square lawn area, at the end of the pier, was lowered to allow the public to get as close as possible to the water, and the green roof atop the cruise terminal offers unparalleled views of the river and the city.

There is more space for pedestrians than in the past. The new cruise terminal now welcomes passengers at ground level rather than on an upper level, which rationalizes vehicle movements and frees up space for pedestrians. The promenade on the green roof is part of the Old Port pedestrian walkway, extending it along the waterway and enhancing links between the city and the river.

It is worth noting that the port’s social media pages have gained in popularity since the opening. The number of followers on the port’s Facebook page increased by 40% in the first three months after the opening, to more than 11,000 from 8,000, and now stands at 14,300.
Economic
The new cruise terminal enhances the welcome that cruise passengers receive as well as Montreal’s reputation as an international tourism destination. Montreal welcomed a record 130,000 passengers and crew members in 2018. Among the cruise vessels that called in 2019, five were making their inaugural visits to Montreal.

The interests of sustainable development and economic development are well aligned in the Grand Quay project. The cruise sector, which continues to grow in Montreal, generates considerable economic benefits, with each cruise guest spending an average of $500 per night. By enhancing the experience for tourists with its new terminal, the port helps consolidate Montreal’s tourism reputation on an international scale.

Recognition
In April 2019, the MPA received high accolades for the Grand Quay at Montreal’s gala event honouring excellence in the environment and sustainable development, Gala Montréal durable. The MPA won the prestigious Corps Public sustainable development award, recognizing the Grand Quay and the port authority’s efforts and involvement to integrate environmental and social objectives into its activities. An independent selection committee, established by the Regional environment council of Montreal, selected the winners from 68 projects carried out and submitted by partner organizations in the Sustainable Montréal 2016-2020 Plan.

Also in April 2019, the MPA won a Gold Quill Award of Merit from the International Association of Business Communicators in the Special and Experiential Events category for the public opening of the Grand Quay.

In December 2018, the port won the Tactical Excellence/Event silver award for the public opening of the Grand Quay from the Société québécoise des professionnels en relations publiques. The event was recognized for its media coverage, rigorous organization and its symbolic value.

In September 2018, the port won the Marine Environment Protection Award for 2019 in the port category from the North American Marine Environment Protection Agency (NAMEPA). The port was recognized for its recent sustainable development initiatives, notably for certain projects including the Grand Quay.

In June 2018, the port was awarded the Grand Prize for Excellence in the Environment category by Quebec’s road transportation association, the Association québécoise du transport et des routes (AQTR), for its shore power project. It was recognized for its innovation, its positive impact on the environment and the competitive advantage that it represents for the city and the region.

The shore power project is also receiving international recognition, with coverage in specialized maritime industry publications. Numerous news organizations have covered
the Grand Quay and its positive impact on the public. For example, the TVA television station and the Journal de Montréal newspaper reiterated the willingness of the port to return access to the river with the new Grand Quay (issue of June 3, 2018.)

The Grand Quay green roof has been singled out as a reference with regard to urban landscape design. Montréal Centre-Ville magazine featured a story about it in its special on the city’s green roofs in September 2018.

**COMMITMENT TO UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS**

The MPA is committed to supporting the attainment of United Nations Sustainable Development Goals (UNSDGs) by 2030.

Among the UNSDGs that are relevant to the Grand Quay of the Port of Montreal project are:

- 3: Good Health and Well Being
- 7: Affordable and Clean Energy
- 8: Decent Work and Economic Growth
- 9: Industry Innovation and Infrastructure
- 11: Sustainable Cities and Communities
- 12: Responsible Consumption and Production
- 13: Climate Action
- 15: Life on Land
- 17: Partnerships for the Goals