Significant changes on the horizon

Letter from the Chair

Vicki Harnish

As Chairperson of Halifax Harbour Bridges, I am delighted to report on the progress we have made in the past year. It has been a year of preparation, with a lot of work happening behind the scenes .

Maintaining bridges is a complex and expensive undertaking, but it is a responsibility we take seriously. In the past year, we have initiated a variety of engineering and construction projects to advance our 10-year capital plan, adopting global best practices to ensure we take good care of and maximize the value of all our assets. This investment in our infrastructure will ensure that our bridges continue to be safe, reliable, and efficient for many years to come.

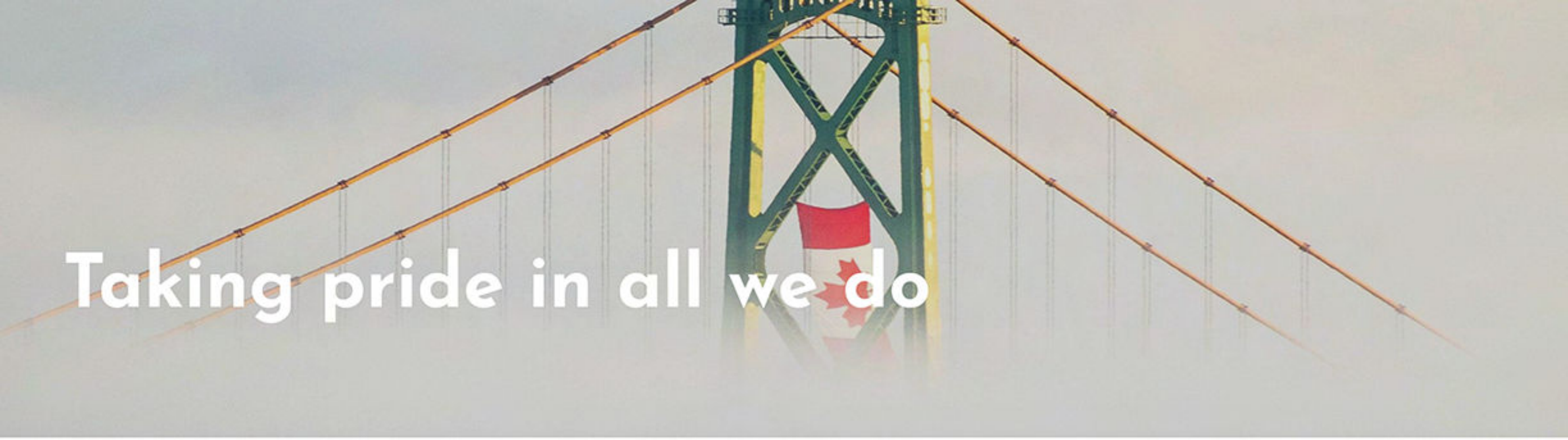
But maintaining our infrastructure is not just about steel, paint and asphalt. We have also prepared for the future, allowing us to take on new challenges.

In my role, I feel privileged to "get a look behind the curtain" and see the hard work that has taken place as staff prepare for fundamental changes that will reshape the organization for the benefit of our community. We have been publicly discussing the safety and environmental benefits of e-Tolling for eight years. Soon the results of those conversations and the considerable planning that has taken place, will bear fruit. As well, the Board and staff have been reviewing options for a new or rehabilitated MacKay Bridge, which we know from extensive evaluation will be required. Further studies to help inform our decision making between the options will be in the field later this year.

Two years ago, we went to the Nova Scotia Utility and Review Board (NSUARB) and were granted the first toll increase in a decade to support a $285 million 10-year capital and maintenance program. With inflation, supply chain issues, the rise in labour costs, it's clear we won't be able to complete all the required work within the existing budget. We reflected in our last application to the NSUARB that we expect to be going back to them within the next year or so with an updated capital plan and new rate categories to reflect e-tolling. Simply put, we need to continue to invest in the critical work needed to keep the bridges safe.

I was walking the Macdonald Bridge recently as part of HHB's annual Bridgewalk and was struck by the number of people crowding around our ASK AN ENGINEER table. They were asking our student engineers great questions about the strength of the deck, the number of bolts used in construction and yes, why the bridge was closed so often for repairs. It wasn't so much the questions they asked that surprised and impressed me, but the enthusiasm with which they were posed. For many people, the bridges are simply a conduit to get from one side of the harbour to the other. But there are people in the community who, like our staff and our Board, truly embrace the bridges as part of their life.

Vicki Harnish - Chairperson



Taking pride in all we do

Letter from the CEO

Tony Wright

In the months since joining Halifax Harbour Bridges, the support I have received from staff, the Board, stakeholders and the community at large has been gratifying. We have big challenges ahead, but there is a shared understanding that only by working together will we be able to fulfill our mandate of providing efficient and reliable cross-harbour transportation into the future.

I'm pleased to note a recent independent economic impact study found that our bridges deliver more than $120 million in benefits to the region annually. This is a testament to the important role HHB plays in the community, which we are committed to serve with excellence.

In response to an employee survey, we have implemented new policies that promote clear communication and transparency, creating a stronger culture that fosters a strong, engaged and diverse workforce. We recognize that to attract and retain workers in a tight labour market, we need to create a world-class workplace that prioritizes the well-being of our employees.

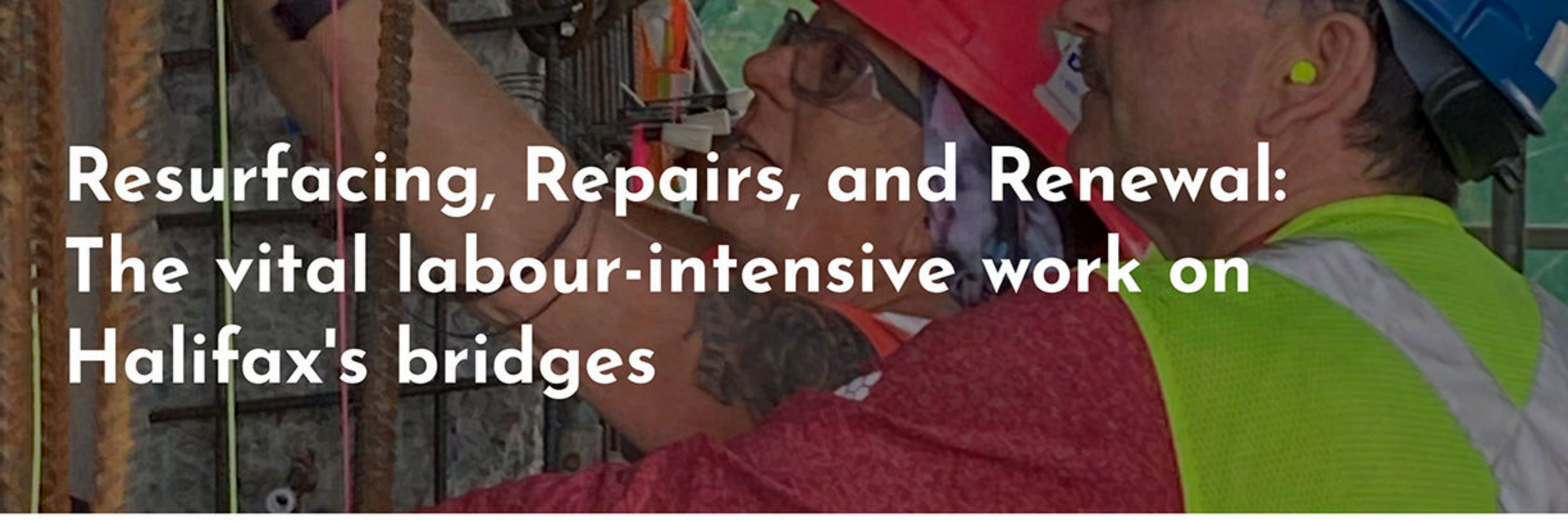
Equity, diversity and inclusion are essential elements of a strong and successful organization. Our efforts to recruit and retain talented individuals to ensure our workforce reflects the diversity of the community are ongoing, and we are making progress in building an equitable and inclusive workplace.

In addition to our commitment to our employees, we are also committed to providing our customers with exceptional service. We are focused on operating and maintaining our bridges to provide safe, convenient and efficient cross-habour transportation options for years to come. Now, as we close the year, we are just shy of five years without a lost- time accident. This is a testament to the hard work and dedication of our team. I am proud of the progress we have made.

Looking ahead, we are excited about the future of HHB and the role it will play serving HRM and the Province of Nova Scotia. There are large and exciting projects on the horizon – like e-Tolling - and it's vital to get them right. By working together, we will do that. We are committed to building on our successes and continuing to serve our community with excellence.

In closing, I would like to express my gratitude to our employees, board, community leaders and bridge users for their support. I am honoured to lead this organization, and I can't wait to see what we can achieve together in the coming years.

Resurfacing, Repairs, and Renewal: The vital labour-intensive work on Halifax's bridges



The engineering and maintenance work required to keep the MacKay and the Macdonald Bridges safe and efficient is labour-intensive. Halifax Harbour Bridges (HHB) staff can lean on the most innovative equipment available, but at the heart of the effort, there's always an employee or a contractor chipping stone, welding steel, scraping away paint, flattening asphalt or inspecting parts 90 metres in the air or deep within an anchorage.

"It's not high-profile glamourous work. There's a lot of preparation involved - and sweat in execution - but it has to be done right," says Chief Engineer Ahsan Chowdhury. "If we get it wrong, it could bring the local economy to a standstill. Halifax needs its bridges."

While planning for the future of the MacKay Bridge, next generation tolling, and advanced asset management systems pushed forward, it was the labour-intensive efforts that produced the most visible results.

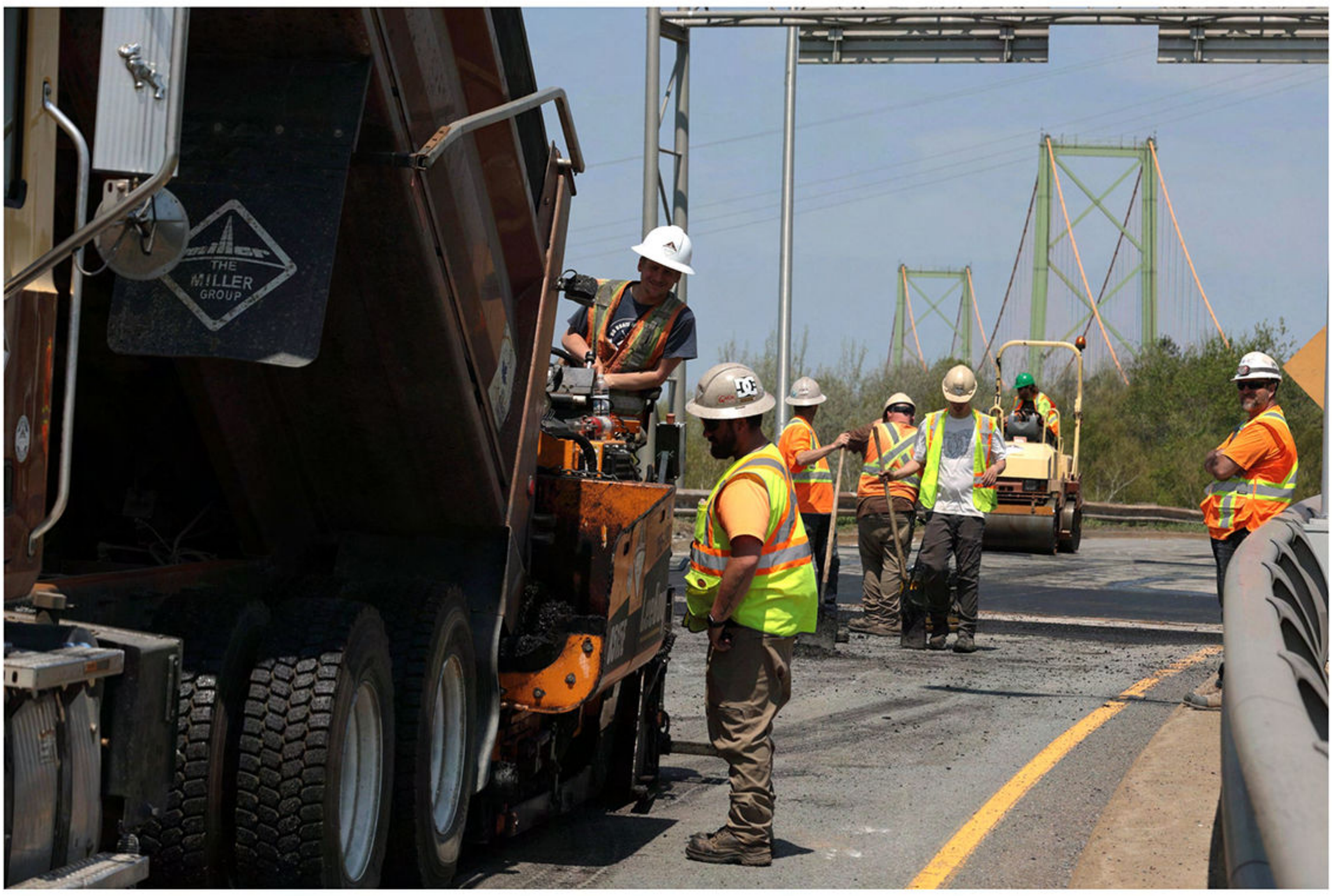
Paving was a big theme, with emergency and non-emergency resurfacing taking place on the MacKay span and the Dartmouth approaches. The walkway on the Macdonald Bridge was also resurfaced.

Concrete repairs were carried out on abutments and overpasses and the restoration of two Dartmouth piers was completed. Four bearings were replaced as part of a 10-year bearing renewal program. When the program is complete in 2024, all 52 of the original bearings will have been replaced.

As supply chain issues and skilled labour shortages sent prices skyrocketing, HHB revised its steel and paint plans, bringing together several projects under one tender with the hope of attracting international interest. Chowdhury and Maintenance manager Frank Robinson took that message on the road to two major trade shows in US. The result? Major American construction players inquiring about bidding opportunities on our projects.

While tens of thousands of man hours were logged on projects during the fiscal year, Safety Manager Dave Power proudly reports there was not a single lost time accident during fiscal 2022-23.

"We are approaching the five-year mark without a serious accident. That's quite an accomplishment for any organization, but we work hard to stay safe. It's embedded in our culture, and we are working to keep it that way."



Traffic and MACPASS on the Rise

As a user-pay operation, HHB keeps a close eye on the number of vehicles crossing the bridges

HIGHLIGHTS OUTBOX 2022-23

Total crossings
32,252,686

Passenger vehicles
31,302,414

Commercial vehicles
950,272

Days exceeding 100,000 crossings
141

Busiest day:
110,970 crossing
on Dec 16, 2022

Busiest day ever
123,904 crossings
on Dec 14, 2012

MACPASS usage
81.7 per cent. A record high!

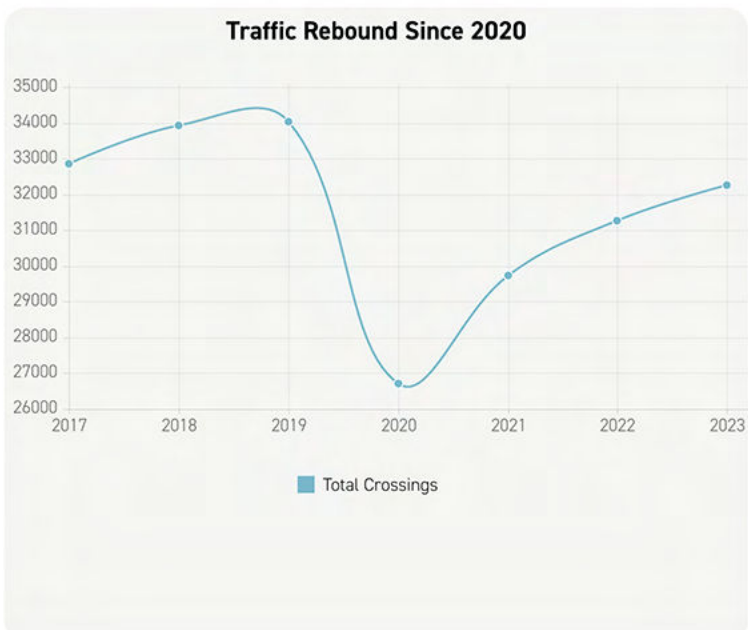
Traffic continues to rebound

The shadow cast by COVID on bridge crossings continued to fade in fiscal 2022-2023, with total vehicle traffic by the end of the year returning to 96.8% of the pre-pandemic levels.

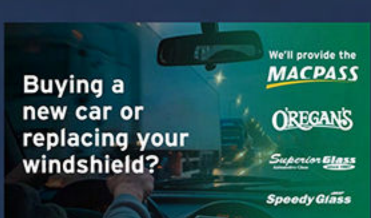
"We saw the growth return gradually throughout the fiscal year, moving from 91 per cent in April 2022 to almost 97 per cent in March 2023. This represents an increase in millions of crossings, but we are not all the way back," says HHB CEO Tony Wright.

Subtle changes in traffic patterns lead him to believe work-from-home opportunities sustained in the wake of the pandemic may be responsible. Those changes include robust weekend traffic that exceeds any pre-COVID levels and the flattening of peak traffic days, with fewer busy days overall.

A review of the annual traffic numbers shows commercial traffic volumes remained steady, the number of vehicles using MACPASS transponders continued to grow and flat tires, mechanical breakdowns and vehicles running out of gas are the top three reasons behind disabled vehicles snarling traffic.



MACPASS adoption hits record levels



MACPASS adoption gathered momentum in fiscal 2022-23 with a strong adoption rate throughout the year culminating in a record 8,032 transponders issued in March 2023, the final month of the year.

Mike McFeters, HHB's CFO responsible for the MACPASS office, said the growth can be attributed to several factors, including paid advertising campaigns, a beefed-up social media strategy and a new partnership with auto glass dealers that allows customers to order a new MACPASS transponder while sitting in the repair shop.

A more recent partnership that makes MACPASS sticker transponders available to new and used car buyers at O'Regans dealerships may also be making a difference.

"As we move toward next-generation tolling options, it's imperative we have as many of our customers – both commercial and passenger - using MACPASSes," he said. "Taking cash or billing people based on the address attached to their licence plates are much more labour-intensive processes."

In the last five months of the year, he said HHB also embarked on a swap program to move existing customers from hard-shell transponders to cheaper and more effective sticker transponders. The project targeted existing customers with known emails, but it is likely to expand to a larger audience in the next fiscal year.

As 2023 marks the 25th anniversary of the introduction of the MACPASS transponder, bridge staff are looking forward to the introduction of a new app that will allow customers to manage their account more effectively from their smartphones or desktop. That project is expected to launch by the fall of 2023.

An internal report detailing annual MACPASS Customer Service Centre metrics shows a relatively high volume of customer phone calls, with an average of almost 300 calls received per day. This highlights the importance of providing efficient and effective customer service to address inquiries and concerns. In concert with that, the statistics suggests the average wait times for customer phone calls was 90 seconds, an indication that the organization can effectively manage and respond to calls in a timely manner, ensuring a positive customer experience.

The Fight to Preserve an Aging Bridge

Over the past 60 years, Halifax Harbour Bridges (HHB) has experimented with a number of paints and coatings to protect its two suspension bridges.

Painting such large pieces of infrastructure by hand, using seasonal workers is a daunting task...and as the bridges age, an expensive one. In the HHB 10-year capital and maintenance plan deemed "necessary and appropriate" by the Nova Scotia Utility and Review Board in October 2021, more than $75 million has been earmarked for paint and steel work.

Early bridge painting efforts used to involve three coats of a lead -based oil alkyd mixture, but with the development of new options – and an increasing awareness of environmental and health concerns –coating systems that are safer for workers and better for the bridges have been adopted.

But for all of the care painters have taken, recent coating failures, rust issues and steel section losses clearly indicate the existing coating system is no longer effective.

"You can't just put layers upon layers of paint for 50 years and expect the kind of protection we need to guarantee the integrity of the bridge," says Ahsan Chowdhury, HHB's Chief Bridge Engineer.

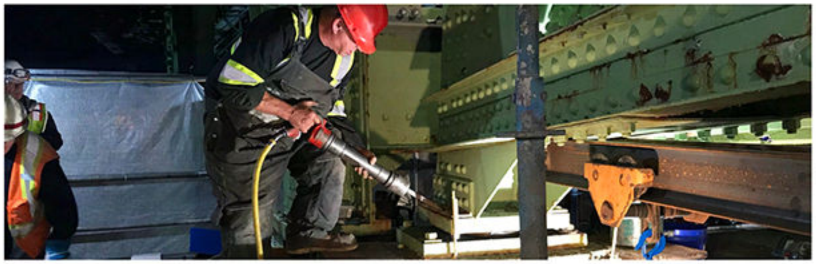
Future painting efforts will require the removal of the existing coatings system down to bare steel, the identification and repair of required steel work, and then using industry best practices, implementation of a new corrosion protection system.

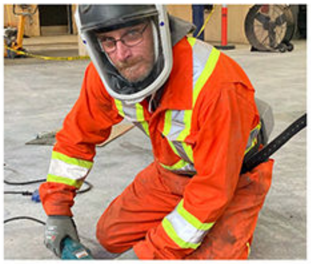
The coating work will require full containment, special access, environmental control, abrasive blasting, and the application of a three-coat system. The project must be conducted safely, with little or no impact on the environment, and minimal disruption to the neighbours.

"Environmental stewardship is an important consideration in all the projects we undertake. The changes we are making in the paint and steel program are indicative of that," says HHB CEO Tony Wright.

The next phase of work – the main towers and truss spans – will be detailed in a tender to be issued in mid- 2023. Combine that with expected tenders for the decking system, steel piers and approach spans and the 10's of millions of dollars of work is up for grabs.

We are looking for the most cost-effective way to protect the bridges and minimize future maintenance for the next 25 years," says Chowdhury.





A Great Job With an Even Better View

Gary Stoker's office has a spectacular view of Halifax Harbour.

The furnishings may be sparce and the Wi-Fi signal spotty, but for the 51-year-old and the team painting the underside of the A. Murray MacKay Bridge in Halifax, the natural air conditioning is awesome, even on the hottest summer day.

"There's always a breeze up here," he says in a clipped British accent as he gazes south across the harbour from wooden staging six-storeys above the water and 200 metres from the point where bridge meets the Halifax shoreline.

"You might not notice it from the ground, but it blows through from one side as the tide is coming in and blows through the other side when the tide is going out."

Stoker has been a painter with Halifax Harbour Bridges for five years. He's one of 14 unionized painters who spent the summer grinding away bits of rust, covering the bare metal spots with a white primer, followed by a grey primer and then a green enamel that's demonstrably lighter than the green familiar to the motorists rattling across the bridge just 18-inches above the painters' heads.

Melissa Lucas is one of two women on the paint crew. A millwright by training, she'd hoped to build a career in the oil and gas industry out west, but after repeatedly hearing she wasn't going to make it because she was a woman, she returned home in search of a different opportunity.

"My father Craig has been a painter of the bridge since the '70s. He encouraged me to try it out, and to my surprise, I love it. I can hold my own with the team and I'm recruiting anyone I can to join me."

Every year HHB goes through hundreds of litres of special, weather-resistant paint designed to inhibit rust. Teams work on everything from the 90-metre towers to the salt-covered footings beaten by harbour wake.

Contrary to public thinking, the work has more to do with maintaining the structural integrity of the bridges rather than contributing to their iconic look. A close peek beneath the bridge will show a camo-like patchwork quilt of touch-ups. It is only the towers that get a finish coat for colour uniformity.

Pneumatic systems, brushes and rollers are the tools of the trade. Spray painting launches too many droplets into the air that can land on houses, cars and businesses that operate beneath the bridges.

It takes seven years to paint the bridges from top to bottom and then it is time to start all over again, says Coatings Supervisor David MacFadden. A wash crew – workers who pressure-spray the steel frame to remove salt and dirt before it eats into the paint – was added in 2021 to try to get a longer life from the paint jobs.

That seven-year cycle may stretch to a decade as HHB, like other industries, struggles to find labourers in a climate when there are more jobs than people to fill them.

"We provide all the training required, but some people just aren't interested in working at heights. There's always one or two people who don't come back after walking the catwalks on the first day," says MacFadden.

Dion Curry, 54, is the most seasoned of the HHB painters. He's spent every summer since 1990 painting the Halifax bridges.

A welder by training, he was also recruited to the painting team by a family member – an uncle, who suggested he might get a kick out of it.

"He was right. There's not been a day I haven't enjoyed."

When he first started on the bridges, he said there was a different view of safety.

"We used unsecured ladders and had lap belts instead of harnesses. We came to work in sneakers and t-shirts and climbed around like monkeys."

Painters today get extensive safety training and are provided with all safety equipment from steel-toed boots and coveralls, to helmet, harnesses, and hearing and eye protection.

The painting season lasts from April to October, leaving the painters to use their off-months to pursue activities from travel to auto mechanics.

Stoker remembers one winter when he was asked to help with an engineering inspection and he had to remove multiple layers of paint to allow a bare steel inspection.

"I wasn't up there for four hours and I was an ice cube. I don't remember the result of the inspection, but my right hand gets numb just thinking about it. Painting under the bridge in February is not a place anyone wants to be."

A Peek Behind the Piers

Did you ever wonder what's going on behind the blue-green netting that is occasionally wrapped around piers on the Macdonald Bridge?

Over the past decade, HHB has been rehabilitating concrete surfaces to address deficiencies and cracking to enhance service life.

In 2012, a detailed inspection of the Macdonald Bridge substructure and foundations identified the majority of the concrete was experiencing alkaline-fueled deterioration, coupled with cycling freezing and thawing damage.

A mitigation plan was put in place and to date, 17 piers, along with portions of the Halifax and Dartmouth abutments have been rehabilitated. HHB plans to complete rehabilitation work on all piers by 2028.

Concrete restoration projects are a highly complex process, with the scope of the effort based on the location of the respective pier or abutment.

Environmental controls are a strict part of every tender issued by HHB. For concrete restoration, the green-blue netting serves to control dust, which is not only good for the environment, but also for the community that surrounds the piers.

All waste is disposed of in accordance with municipal guidelines. The chipping and blasting of the concrete "skin" can be loud, so HHB limits noise levels during inappropriate hours.

Learn more about pier repair

Driving Towards the Future

Halifax Harbour Bridges (HHB) is on the cusp of great change.

In our boardrooms and offices, plans are being meticulously crafted and strategies rigorously honed to provide safer, more efficient cross-harbour transportation.

While the 100,000 drivers that cross our bridges each weekday may not feel the impact for a while longer, efforts are underway to bring three significant projects to fruition: e-Tolling, the rehabilitation or replacement of the MacKay Bridge, and the execution of essential maintenance projects that preserve the integrity of the existing bridge structures.

e-Tolling

Electronic tolling has become the standard across North America in recent years, and HHB has been studying implementing its own electronic tolling options since 2017. HHB expects payments for crossing both bridges to shift exclusively to electronic tolls in the next few years.

e-Tolling will eliminate toll booths and prompt the reconfiguration of the roadways leading to both bridges to ensure the flow of traffic is uninhibited. The result will be quicker, safer, and more seamless travel.

The precise details of how the system will work are still being scrutinized, but HHB has invested significantly in IT resources, as well as a new customer service platform, to ensure our systems will be compatible with the e-Tolling solution that is selected.

The future of the MacKay Bridge

When the "new" bridge was constructed in the 1970s, it was built to accommodate a surge in industrial growth and help relieve traffic pressure on the Macdonald Bridge. New, specialized technology allowed the bridge to be built faster and "lighter."

That was fine at the time, but as the years rolled by, increased traffic volumes and heavier-than-projected freight traffic have taken a toll on the infrastructure. To continue safely accommodating millions of annual crossings, HHB will need to continue to invest significantly in maintenance and repairs. That essential work will also require increasingly frequent closures.

Pre-pandemic, consultants recommended a number of options for the future of the MacKay. HHB has been looking at those options in detail, consulting with government, stakeholders and bridge experts to develop a plan that will either extend the life of the MacKay Bridge, or recommend the construction of a new bridge to cross the harbour.

This implications are massive, and HHB is doing its due diligence to get it right.

Capital plan and maintenance

When you buy a new car, very little maintenance is required. You change the oil, rotate the tires, and the amount of time it spends in the shop is minimal. As the car ages, though, parts wear out and need to be replaced. The more kilometres you put on the car, the more likely it is to spend an increasing amount of time in the shop. The maintenance cycle for bridges is much the same.

After the Macdonald Bridge opened in 1955, the first few decades breezed by with very few issues. By the turn of the century, however, the structure required increased attention. A significant project in 1999 transformed the Macdonald from a two-lane to a three-lane bridge. Fifteen years later, HHB launched the Big Lift, an unprecedented, multi-year rebuild that saw the entire suspended span, including the road deck, floor beams, stiffening trusses and suspender ropes replaced - all while keeping the bridge open to traffic during the week.

The $205 million project extended the life of the key suspended span at the centre of the bridge for another 75 years, but work is continuing on approach spans, including items like the replacement bearings critical to the movement of the bridge that haven't been replaced since 1955. As you can read elsewhere in this report (link) steel and paint work is critical too and runs into millions of dollars.

Whether it's paving, inspections, main cable dehumidification efforts, concrete pier repairs, e-Tolling prep, or efforts to extend the life of the MacKay Bridge, the HHB team is driving hard toward a future that will offer bridge users an even safer more reliable crossing.

Building Bridges: Strengthening Community Ties

Harbour Bridges is responsible for the providing safe, efficient and reliable cross-harbour infrastructure. But our organization is more than just a management and engineering entity. HHB's core values and strategic plan state that to fulfill our mission, we need to be an active member of the community in a meaningful and impactful way.

HHB has demonstrated its commitment to the community in a number of different ways. It has hosted the MACPASS Miles community fun run and Bridgewalk for 40 years, giving residents an up-close and personal view of our unique workplace. We provide non-profit organizations and associations an opportunity to promote themselves and their events though banners on the Macdonald Bridge, and we recognize community milestones with rock gardens located near the MacKay. Our staff undertakes regular fundraising initiatives for food banks and homeless shelters, and we provide small donations on an ad-hoc basis to organizations with a connection to the bridge or our mandate and organizational values.

In 2023, HHB added an additional program to that suite of offerings. The new Key Partner Program is a one-year partnership that provides an opportunity for consistent and highly visible demonstrations of HHB's commitment to the community.

Key partners are selected based on the following criteria:

- They are a registered Canadian charity
- The charity's mandate is in alignment with HHBs Mission, Vision or Strategic Plan
- The partner has a positive reputation in the community
- The partner is willing to work co-operatively and contribute resources, if only staff time
- The partner has the time and administrative support to provide oversight and participate in both media planning and social media amplification

HHB's 2023 Key Partner is the Canadian Mental Health Association, Nova Scotia Division (CMHA NS). The selection builds on existing joint community initiatives that have included the 2022 bridge calendar and a Match-The-Donation contribution.

"HHB prioritizes psychological health as part of its strategic plan. We see this program as a great way to demonstrate to the community just how that commitment plays out in action," CEO Tony Wright said. "If we can help more Nova Scotians, this alone would be a valuable exercise – but we also want to learn from them to bolster our mental health supports for employees."

CMHA NS Executive Director, Karn Nichols, said the organization is delighted to partner with HHB.
"To us, this is more than a great fundraising initiative. It's a great example of an organization taking real steps to support their employees and our community's mental health."

As part of the Key Partnership Program, HHB is offering wellness education for staff, as well as more crisis training for emergency response teams. A series of monthly Mental Health Moments, done in partnership with CMHA are featured on the HHB website. Each year, a new organization will be selected by HHB to participate in the Key Partner Program. Details of the Key Sponsorship Program are posted on the Community section of HHB'S corporate website. There will be an annual call for submissions with a deadline of October 31 of each year.

Crowds flock to Macdonald Bridge for MACPASS Miles and Bridgewalk 2022

The Macdonald Bridge was bustling with a different kind of activity on Sunday July 31, 2022 as thousands of people took to the traffic lanes for MACPASS Miles and Bridgewalk 2022

MACPASS Miles 2022

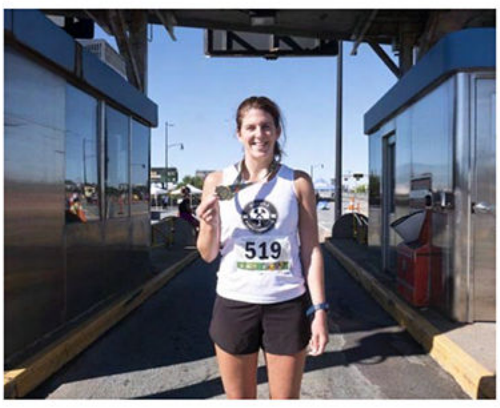
Hundreds of runners of all ages raced across the unique one-mile course, crossing the MACPASS Miles finish line for the first time since 2018.

The shortest course on the official on the Run Nova Scotia Race Series, MACPASS Miles is a favourite launching point for wanna-be runners interested in getting started in the sport but unsure of how far they can really run.

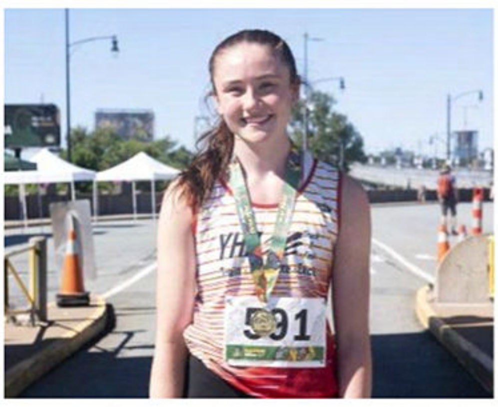
"It's my first medal," announced a proud three-year-old, joyfully showing off her medal to her brother just beyond the Dartmouth finish line. "Can we do that again?"

For those with longer legs and more experience, MACPASS Miles is a sprint when compared to races like the Blue Nose Marathon, which also crosses the bridge.

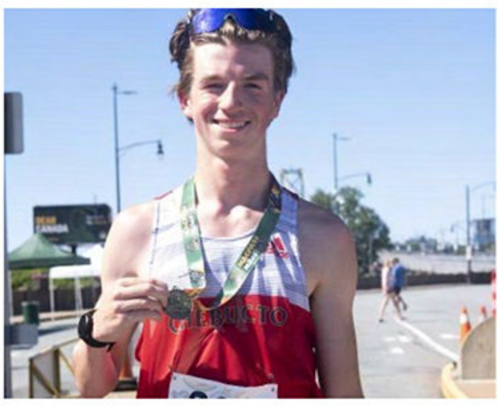
Halifax Road Hammers runners Hilary Rawding and Aaron Manning placed first in the mens' and womens' heats. Katherine Sneddon-Simons from YHZ Track took first place the girls' race and Mathew Lawton with Chebucto Athletics took the top prize in the boys' heat.



Hilary Rawding, winner of the MACPASS Miles 2022 Women's heat.

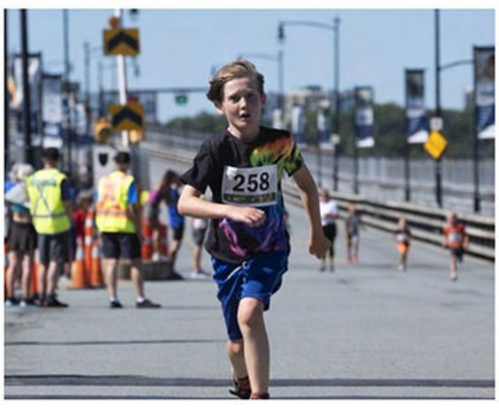


Kristen Snedden-Simons, winner of the MACPASS Miles 2022 girls' heat.



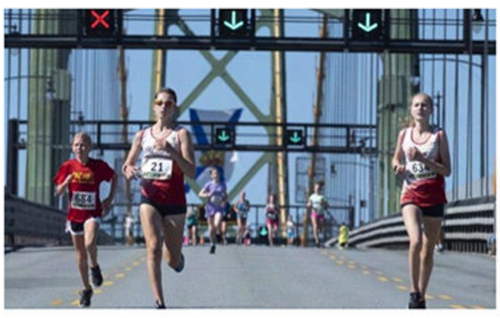
Mathew Lawton, winner of the MACPASS Miles 2022 boys' heat.

Aaron Manning, winner of the MACPASS Miles 2022 men's heat.

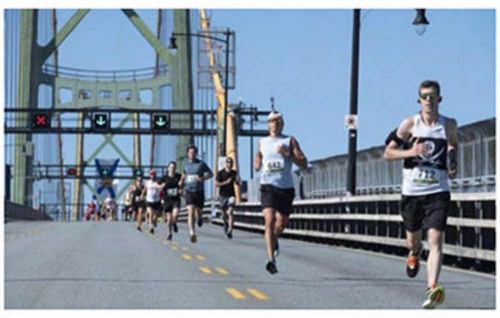


A child racing in the 2022 MACPASS Miles event.

A child crosses the finish line during MACPASS Miles 2022.



Runners cross the Macdonald Bridge during MACPASS Miles 2022.



Runners cross the Macdonald Bridge during MACPASS Miles 2022.

A child receives a medal after finishing the 2022 MACPASS Miles race.

Bridgewalk 2022

The excitement carried on into the afternoon with attraction ranging from circus performers dazzling visitors at centre span to performances by the Chebucto Big Band and the John Alphonse marching band that got people dancing.

The 2022 edition also featured some new activities including the Ask An Engineer station — where visitors learned fun facts and information about the bridges from our Halifax Harbour Bridges insiders – and our photo scavenger hunt which had people exploring and learning more about the Macdonald Bridge.

"This is an important community initiative that puts the Macdonald Bridge at the centre of some people's plans for the Natal Day weekend," says HHB CEO Tony Wright. "Whether you're are running or walking, it's the one day a year you can share our spectacular view of Halifax without a car on your bumper."

Interstellar Circus Arts performs in the middle of the Macdonald Bridge.

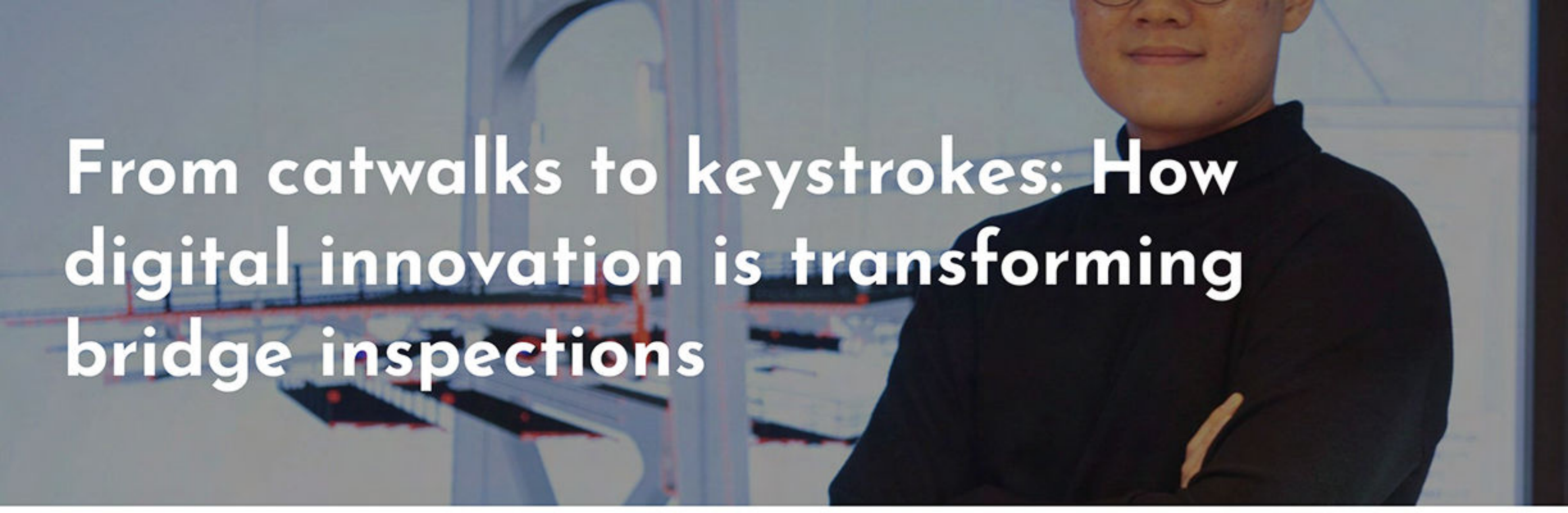
Halifax Harbour Bridges CEO Tony Wright welcomes visitors to the 2022 Bridgewalk.

Halifax Mayor Mike Savage speaks at the opening of Bridgewalk 2022.

Members of the John Alphonse band perform on the Macdonald Bridge.

HHB bridge engineers give bridge facts to a Bridgewalk 2022 visitor.

People wander the Macdonald Bridge during Bridgewalk 2022.



From catwalks to keystrokes: How digital innovation is transforming bridge inspections

Five years ago, if Ahsan Chowdhury wanted to know the condition of a hanger bolt on the Macdonald Bridge, he'd have to ask team members to strap on their safety gear and send them on the catwalks that run along the underside edges on the 1.2-kilometre bridge.

Depending on the time of day or location of the hanger, safety considerations might require a lane closure – or perhaps the temporary closure of the bridge.

With 40,000 vehicles a day depending on the bridge each day, the Halifax Harbour Bridges chief engineer understands bridge closures can only be done when absolutely necessary. As a regular bridge user himself, he has endured the traffic chaos that can come from even the best-planned closure.

But Chowdhury is conflicted. It's his job to make sure the aging bridges are structurally safe and in good working order to provide safe and efficient harbour crossings. That requires his team to understand the condition of the thousands of pieces that fit together to keep the suspension bridges safely in place 60 meters above Halifax Harbour.

"It is a very complex structural arrangement when the bridge deck is hanging from a cable, rather than sitting on a solid foundation," Chowdhury says. "Inspection, evaluation and maintenance of a suspension bridge is very challenging compared to other short- or mid-span bridges."

A mountain of paperwork

"We were doing inspections and had filing cabinets full of spreadsheets and memos about various parts. We knew what we were doing but we did not have a unified view of everything that was happening.

"I became concerned about what might happen if a member of the team moved on and we lost their institutional knowledge."

Since 2017, Chowdhury and his team have been working to digitally detail every part of the Macdonald Bridge by creating an image inventory with relevant data. Whenever they carried out an inspection, the part or system was photographed, its condition was noted, and a suggested re-inspection date was determined based on its condition and its role.

The information was loaded into a software program designed specifically for Halifax Harbour Bridges. It also logs the name of the inspector and the date and time of the inspection. Any time further work was carried out, the details were documented digitally and added to the system.

A half-decade in the making

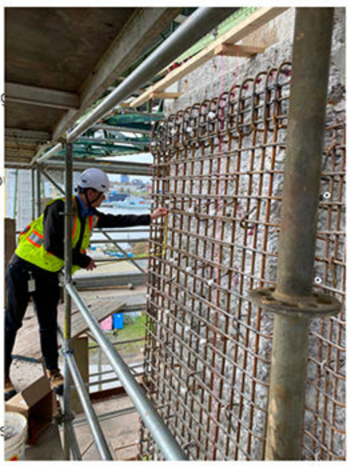
After thousands of inspections over five years, the engineering team now has a detailed digital model of the Macdonald Bridge engineering working with its Bridge Information Model and Management Systems – or BIMMS.

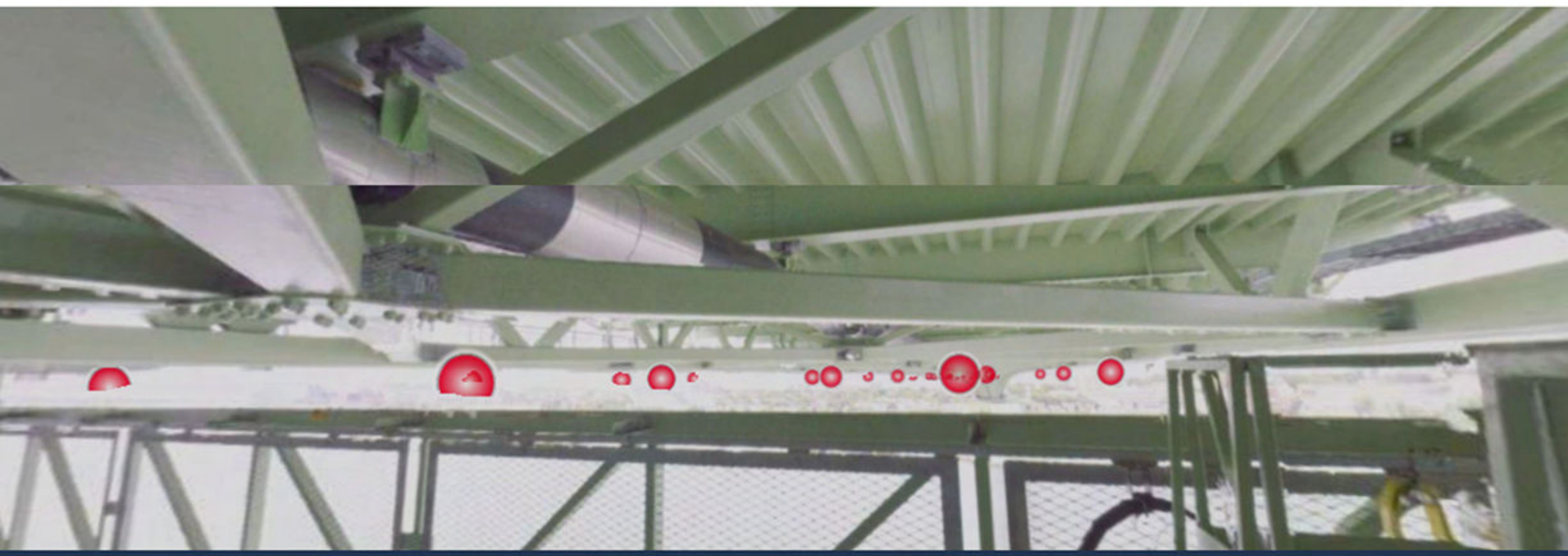
If there is a report of a problem in a section of the bridge, with a few keystrokes, any team member can zoom in on that section and get details abo parts and systems in the impacted area, look at the last recorded photo and call up the most recent inspection report.

"It is saving us considerable time and money as it allows us immediate access to information that was stored in separate locations previously," Chowdhury says.

"It also improves our inspection processes by creating a detailed schedule based on the information provided during the on-site visits."

There are daily, monthly, and annual inspections of bridge engineering works, but not all parts need to be part of every inspection, according to Chowdhury. Some bridge components that are critical and subject to wear and tear, or exposure to the elements, are inspected more frequently. As that are fixed in place or contained a bridge tower may only be inspected once every few years.





Next up: MacKay Bridge and some 3-D magic

With the digital model of the Macdonald Bridge now complete, the effort will be repeated with the MacKay Bridge. In addition, with the help of the bridge's IT department, the final phase of the BIMMS program will see all of the information incorporated to create a 3-D interactive model that will allow engineers to get a visual view that would otherwise be impossible to get.

"People may look at the bridges and see industrial-era engineering, but we are doing leading-edge work, Chowdhury said. "This is ground-breaking in bridge circles and HHB is asked to speak about it at conferences across the world."

Gateway to Growth: The economic and social impact of Halifax Harbour's Bridges

Halifax Harbour's two bridges are critical parts of the region's transportation network. Just how critical? A new study carried out by an independent transportation research organization suggests the MacKkay Bridge alone delivers more than $120 million in annual economic benefits to the region.

The HDR study calculated the iconic spans' impact by measuring their influence on the flow of goods and people as well as how the bridges facilitate public benefits like shorter commutes, reduced vehicle operating costs and reduced emissions.

"From an economic impact point of view, the bridges allow people to get to and from work and activities - enabling industries to flourish and drive economic growth," says HHB CEO Tony Wright. "But they also have a societal impact. By shortening possible commutes, there are savings in fuel costs, travel time, decreasing emissions and avoiding collisions."

For commercial traffic, the study found the MacKay Bridges provides a short and efficient way for commercial truckers to get their cargo to its destination. It also helps reduce congestion on other roads and shortens both the travel time, and mileage for operators.

With the shorter trip afforded by the MacKay, the study authors say the range of destinations and markets that can be reached in a one-day truck trip is widely expanded. Efficient commercial operations with a wider customer pool allow for greater employment and increased economic potential.

In the same way the MacKay Bridge provides a short and efficient way for commercial traffic to get to its destination, the two bridges present the same benefits for auto and transit traffic. They reduce congestion on other roads and shorten both the commuter's travel time and mileage expenses.

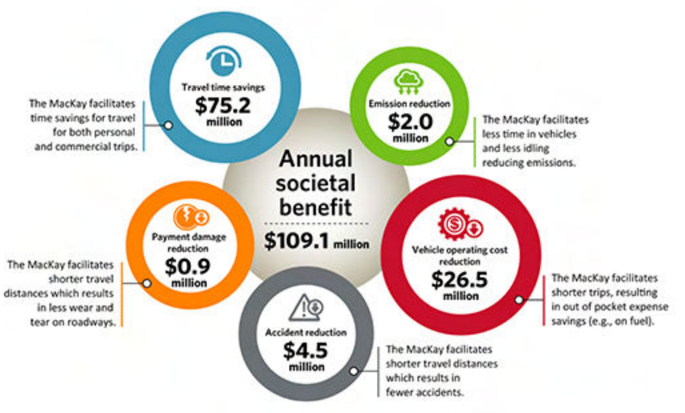
Since workers often factor commute time and expenses into their choice of where to work, a longer commute can translate into demands for greater compensation. Forced to pay higher wages, businesses might decrease their labour demand or, if they opted for lower-paid, less suitable employees, may experience a drop in productivity.

Economic impact snapshot

MacKay Bridge

The MacKay Bridge drives more than $120 million of economic benefits to the Nova Scotia economy annually by:

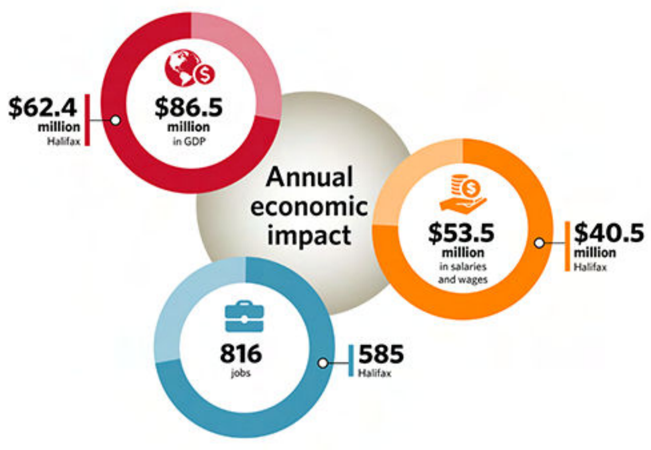
- Enabling **$73 million** in employment income
- Supporting **1,145 jobs**

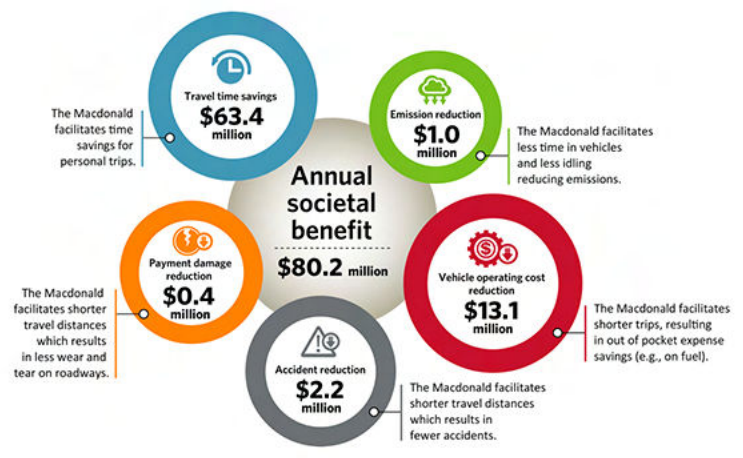


Macdonald Bridge

The Macdonald Bridge drives more than $86.5 million of economic benefits to the Nova Scotia economy annually, including:

- Enabling **$53.5 million** in employment income
- Supporting **816 jobs**





Public benefits

Without fully-operational bridges, the travel time for workers would jump significantly as would the number of kilometres drivers would need to put on their vehicles. More travel time on the road, means less time doing productive work, less time with family and friends, or lost opportunities to engage in other personal pursuits. Excess kilometres of driving also means that they will spend more money on vehicle operations (including fuel) and general vehicle depreciation. In addition, the report indicates an increase in traffic volume in the network will lead to broader social costs such as an increase in vehicle emissions, an increase in number of road accidents, and greater wear and tear of public roads.

Public Benefits snapshot

The MacKay Bridge drives more than $109 million in societal benefits annually by:

- Saving drivers $75.2 million worth of travel time on personal trips
- Saving drivers $26.5 million in fuel and out-of-pocket expenses
- Preventing $4.5 million in collision costs
- With less idling, $2 million is saved in emission costs
- Eliminating $900,000 of wear and tear on roadways

The Macdonald Bridge drives more than $80 million in societal benefits annually, including:

- Saving drivers $63.4 million worth of travel on personal trips
- Saving drivers $13.1 million in fuel and out-of-pocket expenses
- Reduction of $2.2 million in collision costs
- With less idling, $1 million is saved in emission costs
- Eliminating $400,000 of wear and tear on roadways

Traffic Impact

Not surprisingly, the study examined the bridges' impact on traffic. It concluded that a fully functioning MacKay Bridge enables motorists a five per cent decrease in travel distance and a 13 per cent reduction in car commute time. In general, it allows drivers to reach destinations seven per cent faster and reduces potential transit times across all routes by 63 per cent.

A fully functioning Macdonald Bridge enables a three per cent decrease in travel distance and a 10 per cent reduction in car commute time. It allows drivers to reach their destinations six per cent faster and allows buses to get to their destinations 24 per cent quicker.

The study concludes that MacKay Bridge and the Macdonald Bridge are not only critical pieces of transportation infrastructure to the Halifax Region and Atlantic Canada, but they play a significant role in facilitating economic activity and improving the quality of life for residents.

"The bridges serve important functions facilitating economic activity and improving the quality of life of residents in the Halifax Region and beyond, concludes study author Dennis Bruce. "Any sustained operational issue or capacity reduction on the bridges would have significant negative implications for both the economy and residents."

Year ended March 31, 2023

Annual Report – Financial Overview

Financial Highlights – Statement of Comprehensive Income

(In thousands of dollars)	2023 Budget	March 31, 2023 Actual	March 31, 2022 Actual
Revenue	37,631	37,250	29,823
Expenses			
Operations	5,245	5,009	4,488
Maintenance	4,886	4,022	3,487
Administration	3,427	3,159	2,782
Amortization of property and equipment	10,379	10,283	9,651
Total Expenses	23,937	22,473	20,408
Operating Income	13,694	14,777	9,415
Net Finance Costs	5,217	3,304	3,910
Comprehensive Income	8,477	11,473	5,505

HHB's 2022-2023 audited financial statements are found at www.hdbc.ca/publications

Halifax Harbour Bridges (HHB) was created in 1950 by a statute of the Province of Nova Scotia and is a Government Business Enterprise (GBE) as defined by the Public Sector Accounting Board recommendations. As such, HHB prepares its financial statements in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB).

Revenues

of HHB are 100% derived from tolls and fees based on traffic volumes on the Angus L. Macdonald and A. Murray MacKay Bridges. Toll rates increased 25% on January 3, 2022 following an application to the Nova Scotia Utility and Review Board (UARB) for an increase to fund future capital projects. Traffic volumes in fiscal 2022-2023 continued to improve following the COVID-19 pandemic. The budget assumed traffic levels at 95% of pre-pandemic levels and actual traffic levels finished at 94.6% for the fiscal year. As a result, toll revenues in fiscal 2023 increased over the prior year due to both the full year of increased rates and the increase in traffic. Toll revenue was slightly less than budget as traffic volume did not quite meet the budgeted level.

Operations

includes the costs to staff the toll facilities, bridge patrol, the MacPass customer service centre and maintain the tolling equipment and IT infrastructure. In fiscal 2023, costs were below budget due to staffing shortages leading to unfilled shifts and cost savings.

Maintenance expenses

include costs of maintaining the structural integrity and operational standards of the bridges along with upkeep of buildings and equipment. These costs include snow removal, corrosion protection through painting, consulting engineering fees and operational costs of buildings, vehicles and properties. Maintenance costs increased in fiscal 2023 with staff added to complete a greater number of projects and higher costs in building and equipment upkeep.

Administrative expenses

include insurance premiums, professional fees, property taxes and wages for accounting, treasury and public relations functions. In fiscal 2022, administration costs were lower than budget as planned spending on consultants for IT initiatives was included in capital costs. Administrative costs rose compared to prior year with increases in insurance and consulting and additional staff to support a larger organization.

Amortization of property plant and equipment

is a non-cash charge that represents the cost of HHB's long-term capital assets over their expected useful life. Amortization increased in fiscal 2023 as capital projects completed in the prior year are amortized.

Net Finance costs

consist of interest costs for HHB's long term debt offset by interest income earned on cash held in operating and loan reserve accounts. In fiscal 2023, net finance costs decreased compared to the prior year as principal repayments reduced interest expense. The budget assumed additional long term debt and related interest expense in fiscal 2023 which was not incurred, as a result net financing costs were lower than budget.

Outlook: Revenues and Expenses

For fiscal 2024, HHB has assumed traffic levels will average 100% of pre-pandemic levels. The assumed increase in traffic will generate higher revenues for fiscal 2024. Expenses are budgeted to also increase as HHB works to complete a large amount of capital works and maintenance projects as part of a ten-year plan. The financial plan includes additional long-term debt to finance the spending needed for these projects and a corresponding increase in interest expense.

Financial Highlights – Statement of Financial Position

(In thousands of dollars)	March 31, 2023	March 31, 2022
Current Assets	9,502	10,994
Restricted Funds and Property Plant and Equipment	296,577	289,871
Total Assets	306,079	300,865
Current Liabilities	19,504	17,728
Long term debt and other liabilities	130,000	138,035
Equity	156,575	145,102
Total Liabilities and Equity	306,079	300,865

HHB's 2022-2023 audited financial statements are found at www.hdbc.ca/publications

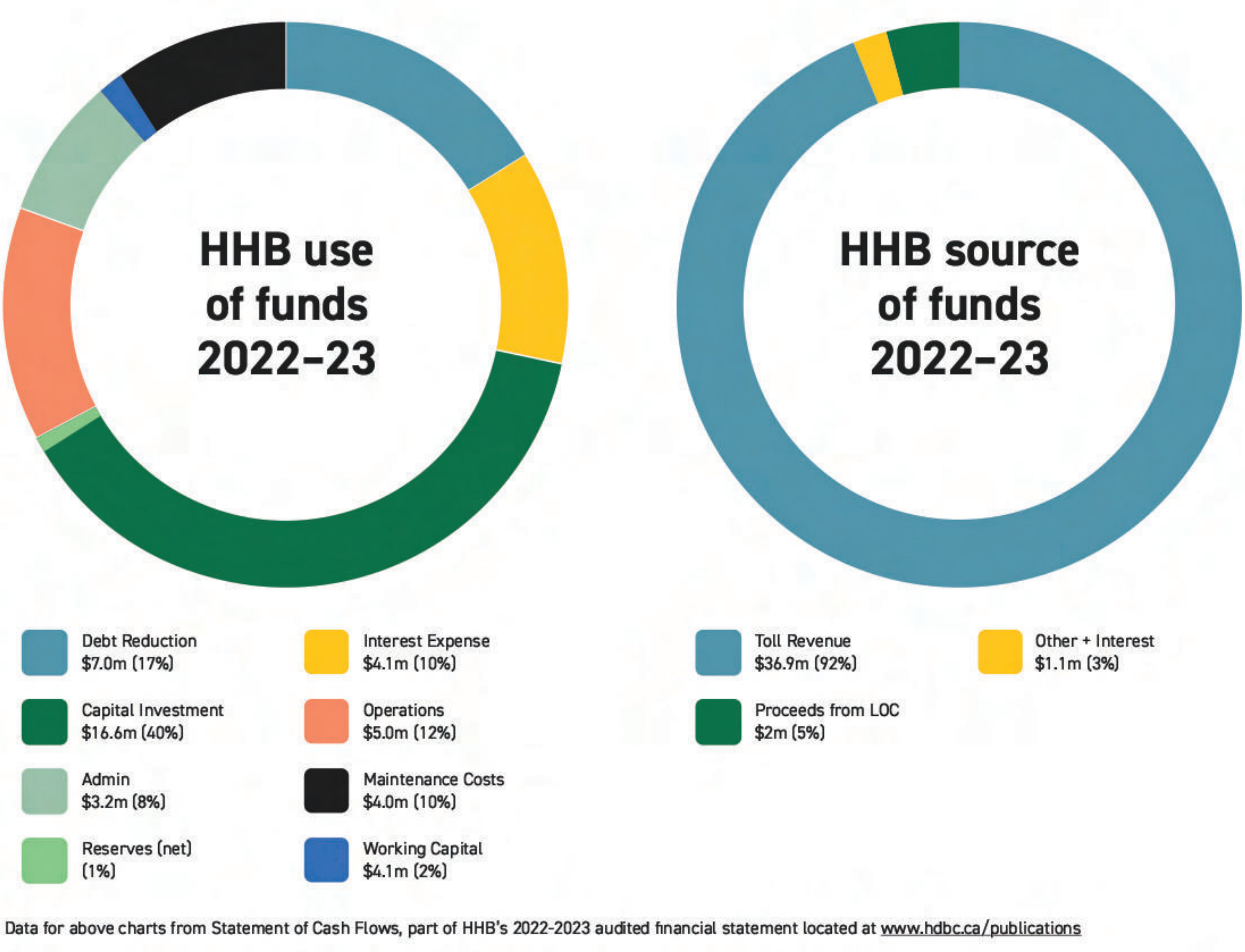
HHB's financial condition remained solid in fiscal 2023 as shown in the statement of financial position. Current assets consist primarily of cash at $8.5 million and current liabilities include deferred revenue of $4.7 million which represents customer deposits in their Macpass accounts. Total assets increased when compared to fiscal 2022 as property plant and equipment rose in value as the age of the bridges has necessitated investment in improvements.

Overall the sum of current liabilities and long term debt have decreased in fiscal 2023 with the repayment of maturing debt. Equity has increased in fiscal 2023 with positive comprehensive income recorded for the year. Approximately $15.8 million of the equity balance is recorded as a reserve for restricted assets, comprised of funds set aside under various loan agreement terms.

Outlook: Financial Position

HHB presented a ten year plan as part of the application to the UARB for a toll increase that included capital spending of $280 million over the ten years. The plan included additional long term debt of $155 million which, along with the increased toll revenues, will pay for the capital projects. It is expected that a portion of this additional debt will be incurred in fiscal 2024.

Financial Highlights – sources and uses of funds



Data for above charts from Statement of Cash Flows, part of HHB's 2022-2023 audited financial statement located at www.hdbc.ca/publications

The two charts above summarize data from the statement of cash flows included in HHB's audited financial statements. The charts illustrate how HHB obtained funding in fiscal 2023 and how the money was spent.

In fiscal 2023, the increase in traffic from prior year along with the full year of increased toll rates improved toll revenue to $36.9 million and provided 92% of the cash flow.

67% of the cash spent was Capital investments (40%), debt reduction (17%) and interest expense (10%). The Capital investment of $16.6 million is primarily improvements to the Bridges and related structures to extend their useful life. Significant projects included steel and coatings work on the Macdonald Bridge, concrete pier rehabilitation and expansion joint replacements. The cash requirements to fund the day to day work of HHB and bridge operations is represented by the categories of "Operations", "Maintenance" and "Administration" totaling $12.2 million as discussed in the review of the Statement of Comprehensive Income.

Financial Statements of

HALIFAX DARTMOUTH BRIDGE COMMISSION

Year ended March 31, 2022

Independent auditor's report

Grant Thornton LLP
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To the Chair and Commissioners of the Halifax Dartmouth Bridge Commission:

Opinion

We have audited the financial statements of the Halifax-Dartmouth Bridge Commission (the "Commission"), which comprise the statement of financial position as at March 31, 2022, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly in all material respects, the financial position of the Halifax-Dartmouth Bridge Commission as at March 31, 2022, and its financial performance and its cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRS).

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Commission in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with IFRS, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Commission's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Commissioner to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Commission's financial reporting process.

Auditor’s Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Commission’s internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Commission’s ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Commission to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Grant Thornton LLP

Halifax, Canada
June 27, 2022

Chartered Professional Accountants

HALIFAX DARTMOUTH BRIDGE COMMISSION

Statement of Financial Position

March 31, 2022, with comparative figures for 2021
(in thousands of dollars)

	2022	2021
Assets		
Current assets:		
Cash	$ 9,689	$ 12,609
Receivables	809	173
Prepaid expenses and inventory	496	357
	10,994	13,139
Restricted assets (note 5)	15,377	15,069
Property, plant and equipment (note 6)	274,494	271,279
	$ 300,865	$ 299,487
Liabilities and Equity		
Current liabilities:		
Accounts payable, accrued and other liabilities (note 7)	$ 6,324	$ 4,746
Deferred revenue	4,404	4,107
Current portion of long-term debt (note 8)	7,000	6,000
	17,728	14,853
Other liabilities (note 15)	35	37
Long-term debt (note 8)	138,000	145,000
	155,763	159,890
Equity:		
Reserve for restricted assets	15,377	15,069
Retained earnings	129,725	124,528
	145,102	139,597
	$ 300,865	$ 299,487

Commitments (note 17)
The accompanying notes are an integral part of these financial statements.

Approved on behalf of the Commission:

Vicki Harnish
Chair, Board of Commissioners

Jennifer LaPlante
Audit Committee

HALIFAX DARTMOUTH BRIDGE COMMISSION

Statement of Comprehensive Income

Year ended March 31, 2022, with comparative figures for 2021
(in thousands of dollars)

	2022 Budget (unaudited)	2022 Actual	2021 Actual
Revenue:			
Toll revenue	$ 30,099	$ 29,393	$ 25,246
Other rate revenue	193	169	174
Other income	319	261	284
	30,611	29,823	25,704
Expenses:			
Operating expenses	4,904	4,488	4,457
Maintenance expenses	3,761	3,487	4,494
Administration expenses	3,123	2,782	2,759
Amortization of property, plant and equipment	9,258	9,651	9,338
	21,046	20,408	21,048
Operating income	9,565	9,415	4,656
Finance costs (note 9):			
Finance income	(157)	(179)	(264)
Finance costs	4,089	4,089	4,187
	3,932	3,910	3,923
Comprehensive income	$ 5,633	$ 5,505	$ 733

The accompany notes are an integral part of these financial statements.

HALIFAX DARTMOUTH BRIDGE COMMISSION

Statement of Changes in Equity

Year ended March 31, 2022, with comparative figures for 2021
(in thousands of dollars)

		Restricted Assets				
	Retained earnings	Capital fund	Operations and maintenance (OM) fund	Debt service fund	Total restricted	Total equity
Balance, March 31, 2020	$123,491	$ 8,042	$ 3,144	$ 4,187	$ 15,373	$138,864
Comprehensive income	548	110	31	44	185	733
Transfers to (from)	489	(119)	(228)	(142)	(489)	-
Balance, March 31, 2021	$124,528	$ 8,033	$ 2,947	$ 4,089	$ 15,069	$139,597
Comprehensive income	5,389	66	21	29	116	5,505
Transfers to (from)	(192)	(70)	421	(159)	192	-
Balance, March 31, 2022	$129,725	$ 8,029	$ 3,389	$ 3,959	$ 15,377	$145,102

The accompany notes are an integral part of these financial statements.

HALIFAX DARTMOUTH BRIDGE COMMISSION

Statement of Cash Flows

Year ended March 31, 2022, with comparative figures for 2021
(in thousands of dollars)

		2022		2021
Operating activities:				
Comprehensive income	$	5,505	$	733
Amortization of property, plant and equipment		9,651		9,338
Interest expense		4,089		4,187
Investment income		(179)		(264)
		19,066		13,994
Net change in non-cash working capital balances (note 10)		1,098		(4,058)
		20,164		9,936
Investing activities:				
Purchase of property, plant and equipment		(12,866)		(6,915)
Proceeds from capital fund		4		9
Investment in OM fund		(442)		197
Decrease in debt service fund		130		98
Investment income received		179		264
		(12,995)		(6,347)
Financing activities:				
Proceeds from Big Lift promissory note		-		14,400
Long-term debt repayments		(6,000)		(5,000)
Interest paid		(4,089)		(4,187)
		(10,089)		5,213
(Decrease) increase in cash		(2,920)		8,802
Cash, beginning of year		12,609		3,807
Cash, end of year	$	9,689	$	12,609

The accompany notes are an integral part of these financial statements.

1. Reporting entity

The Halifax-Dartmouth Bridge Commission (the "Commission"), operating as Halifax Harbour Bridges, was created in 1950 by a statute of the Province of Nova Scotia (now the Halifax-Dartmouth Bridge Commission Act - Statutes of Nova Scotia, 2005, c.7) and is a government business enterprise as defined by Public Sector Accounting Board recommendations. The Commission's address and principal place of business is 125 Wyse Road, Dartmouth, Nova Scotia, B3A 4K9.

The principal activities of the Halifax-Dartmouth Business Commission is the operation and maintenance of two toll bridges spanning Halifax Harbour; the Angus L. MacDonald Bridge and the A. Murray MacKay Bridge.

The Commission is exempt from income tax under Section 149 of the income Tax Act.

2. Basis of financial statement preparation

(a) Statement of compliance

The financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB). The financial statements for the year ended March 31, 2022 were approved and authorized for issue by the Board of Commissioners on June 27, 2022.

(b) Basis of measurement

The Commission's financial statements are prepared on the historical cost basis except for certain financial instruments that are measured at fair value, as explained in the accounting policies below.

(c) Functional and presentation currency

The Commission's functional and presentation currency is Canadian dollars. All financial information is presented in Canadian dollars and has been rounded to the nearest thousand.

(d) Use of estimates and judgments:

The preparation of financial statements conforming to IFRS, requires the use of accounting estimates and management's judgment to determine the appropriate application of accounting policies. Estimates and assumptions are required to determine the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Any revisions to accounting estimates are recognized in the period in which the estimate was revised and any future periods affected.

2. Basis of preparation (continued)

The following judgments and estimates are those deemed by management to be material to the Commission's financial statements:

Judgments

(i) Capitalization and componentization

Judgment is used when determining if components of a construction project are of a capital or repair nature and as to what components constitute a significant cost in relation to the total cost of an asset and whether these components have similar or dissimilar patterns of consumption and useful lives for purposes of calculating depreciation. Among other factors, these judgments are based on past experience, as well as information obtained from Commission's internal and consulting engineers.

(ii) Depreciation and amortization

Judgment is used when determining the estimated useful lives of property, plant, and equipment. Among other factors, these judgments are based on past experience, as well as information obtained from the Commission's internal and consulting engineers.

Estimates

(i) Depreciation and amortization

Depreciation and amortization is calculated to write off the cost, less estimated residual value, of assets on a systematic and rational basis over the expected useful life of the asset. Estimates of residual value and useful lives are based on past experience, as well as information obtained from the Commission's internal and consulting engineers. Expected useful lives and residual values are reviewed annually for any change to estimates and assumptions.

(ii) Contract costs and contingencies

The Commission makes estimates in determining total estimated project costs related to its capital projects. Estimated total project costs are determined based on contractual obligations, past experience, as well as information obtained from the Commission's internal and external engineers/project managers. In addition, the Commission can be subject to disputes and claims from contractors related to additional costs and recoveries, the Commission assesses the likelihood of these disputes and claims at each reporting period based on available information to determine if any amounts should be recorded. Actual results could differ from those reported and any adjustments are recorded in the year they become known.

3. Significant accounting policies

The accounting policies set out below have been applied consistently to all periods presented in these financial statements.

a) Revenue recognition

The Commission recognizes revenue at the time a vehicle crosses a bridge. The Nova Scotia Utility and Review Board (NSUARB) regulates toll rates charges by the commission. Customer prepayments of their Electronic Toll Collection (ETC) crossings are initially recorded as deferred revenue. When the customer crosses a bridge, revenue is recognized and the deferred ETC account is reduced accordingly.

b) Finance income and finance costs

Finance income comprises interest income on funds invested. Interest income is recognized as it accrues in profit or loss, using the effective interest method.

Finance costs comprise interest expense on borrowings. Borrowing costs that are notdirectly attributable to the acquisition, construction or production of a qualifying asset are recognized in profit or loss using the effective interest method.

c) Financial Instruments

The Commission classifies financial assets and financial liabilities according to their characteristics and management's choices and intentions. All financial instruments are initially recorded at fair value plus directly attributable transaction costs and subsequently measured based on classification described below.

Financial instruments are classified into one of the following categories: amortized cost, fair value through other comprehensive income ("FVOCI"), fair value through profit or loss ("FVTPL") or other financial liabilities. The Commission does not have any financial assets or financial liabilities classified as either FVOCI or FVTPL.

The classification of financial assets is determined by both:

- The Commission's business model for managing the financial asset, and
- The contractual cash flow characteristics of the financial asset.

The Commission's financial instruments are comprised of the following:

Financial instrument	Classification
Cash	Amortized cost
Receivables	Amortized cost
Restricted assets	Amortized cost
Accounts payable, accrued liabilities and provisions	Other financial liabilities
Long-term debt	Other financial liabilities

3. Significant accounting policies (continued)

(i) Financial assets

Financial assets measured at amortized cost are assets with fixed or determinable payments that are not quoted in an active market. Such assets are recognized initially at fair value plus any directly attributable transaction costs. Subsequent to initial recognition, the financial assets are measured at amortized cost using the effective interest rate method over the terms of the related debt, less any impairment cost.

The Commission derecognizes a financial asset when the contractual right to the cash flows from the asset expire, or it transfers the rights to receive the contractual cash flows of the financial asset in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred. Any interest in the transferred financial assets that is created or retained by the Commission is recognized as a separate asset or liability.

Financial assets and liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Commission has a legal right to offset the amounts and intends either to settle on a net basis or to realize the assets and settle the liability simultaneously.

(ii) Financial liabilities

Financial liabilities are recognized initially at fair value plus any directly attributable transaction costs and subsequently measured at amortized cost using the effective interest rate method. Direct and indirect costs that are attributable to the issue of other financial liabilities are presented as a reduction from the carry amount of the related debt and are amortized using the effective interest method over the term of the debt. These financial liabilities are deemed to have been issued at prevailing market rates at the date of advance; accordingly no adjustment for fair value has been made.

The Commission derecognizes a financial liability when its contractual obligations are discharged, cancelled or expire.

d) Cash

Cash includes cash on hand and balances with banks. Interest is received on funds in the general bank account at a rate of prime minus 1.75%.

3. Significant accounting policies (continued)

e) Property, plant and equipment

(i) Recognition and measurement

Items of property, plant and equipment are measured at cost less accumulated amortization and any accumulated impairment losses. Land was recorded at deemed cost as of April 1, 2010, as per the optional election made on the transition to IFRS.

Cost includes expenditures that are directly attributable to the acquisition of the asset. The cost of self-constructed assets includes; the cost of materials and direct labor, any other costs directly attributable to bringing the asset to working condition for its intended use, the cost of dismantling and removing the items, and restoring the site on which they are located. Borrowing costs related to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use. When funds are temporarily invested pending their expenditure on qualifying assets, any such interest income earned on such funds is deducted from the borrowing costs incurred.

When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected from its use or disposal.

Any gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount and are recognized net within profit or loss.

(iii) Repairs and maintenance

Repairs and maintenance costs are charged to expense as incurred, except when these repairs significantly extend the life of the asset or result in an operating improvement. In these instances the portion of these repairs relating to the betterment is capitalized as part of plant and equipment.

3. Significant accounting policies (continued)

(iv) Amortization of property, plant & equipment

Amortization is recognized in profit or loss on a straight-line basis over the estimated useful lives of each component of an item of property, plant and equipment since this most closely reflects the expected pattern of consumption of future economic benefits embodied in the asset.

Amortization commences in the year an asset is put in use. Amortization methods, useful lives and residual values are reviewed at each financial year end, based on consultation with the Commission's internal and external consulting engineers, and adjusted if appropriate. Land is not depreciated. The estimated useful lives for the current and comparative periods are as follows:

Asset	Rate
Buildings	5 - 50 years
Bridge and bridge components:	
Angus L. MacDonald	5 - 125 years
A. Murray MacKay	5 - 125 years
Transferable electronic toll transponder	8 years
Other assets	2 - 25 years
IT Computer and other equipment	3 - 25 years
Mobile equipment	5 - 10 years

f) Impairment

(i) Financial assets (including receivables)

A financial asset not carried at fair value through profit and loss is assessed at each reporting date to determine whether there is objective evidence that it is impaired. A financial asset is impaired if objective evidence indicates that a loss event has occurred after the initial recognition of the asset, and that the loss event had a negative effect on the estimated future cash flows of that asset that can be estimated reliably.

Objective evidence that financial assets are impaired can include default or delinquency by a debtor, restructuring of an amount due to the corporation on terms that the Commission would not consider otherwise, indications that a debtor or issuer will enter bankruptcy, or the disappearance of an active market for a security.

3. Significant accounting policies (continued)

An impairment loss in respect of a financial asset measured at amortized cost is calculated using the 'expected credit loss' model. The Commission makes use of the simplified approach in accounting for receivables and records the loss allowance as a lifetime expected credit loss as the receivables do not have a significant financing component. These are expected shortfalls in contractual cash flows, considering the potential default at any point during the life of the financial instrument. The Commission uses historical experience, external indicators and forward-looking information to calculate the expected credit loss. Receivables are written off when there is no reasonable expectation of recovery, during the year the Commission did not record an allowance (2020 - $Nil). Losses are recognized in profit or loss and reflected in an allowance account against receivables. Interest on an impaired asset continues to be recognized through the unwinding of the discount. When a subsequent event causes the amount of the impairment loss to decrease, the decrease in impairment loss is reversed through profit or loss.

(ii) Non-financial assets

The carrying amount of non-financial assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, then the assets recoverable amount is estimated.

The recoverable amount of an asset is the greater of its value in use and its fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax rate that reflects current market assessments of the time value of money and the risk specific to the asset.

An impairment loss is recognized if the carrying amount of the asset exceeds its estimated recoverable amount. Impairment losses are recognized in profit or loss.

Impairment losses recognized in prior periods are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

3. Significant accounting policies (continued)

g) Leases

The Commission as a lessee

For any new contracts entered into, the Commission considers whether a contract is, or contains a lease. A lease is defined as 'a contract, or part of a contract, that conveys the right to use an asset (the underlying asset) for a period of time in exchange for consideration'. To apply this definition the Commission assesses whether the contract meets the following criteria:

- the contract contains an identified asset, which is either explicitly identified in the contract or implicitly specified as being identified at the time the asset is made availableto the Commission;
- the Commission has the right to obtain substantially all of the economic benefits from use of the identified asset throughout the period of use, considering its rights within thedefined scope of the contract; and
- the Commission has the right to direct the use of the identified asset throughout the period of use. The Commission assess whether it has the right to direct 'how and forwhat purpose' the asset is used throughout the period of use.

Measurement and recognition of leases as a lessee

At lease commencement date, the Commission recognizes a right-of-use asset and a lease liability on the statement of financial position. The right-of-use asset is measured at cost, which is made up of the initial measurement of the lease liability, any initial direct costs incurred by the Commission, an estimate of any costs to dismantle and remove the asset at the end of the lease, and any lease payments made in advance of the lease commencementdate (net of any incentives received).

The Commission depreciates the right-of-use assets on a straight-line basis from the lease commencement date to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term. The Commission also assesses the right-of-use asset for impairment when such indicators exist.

At the commencement date, the Commission measures the lease liability at the present value of the lease payments unpaid at that date, discounted using the interest rate implicit in the lease if that rate is readily available or the Commission's incremental borrowing rate. Lease payments included in the measurement of the lease liability are made up of fixed payments (including in substance fixed), variable payments based on an index or rate, amounts expected to be payable under a residual value guarantee and payments arising from options reasonably certain to be exercised.

3. Summary of significant accounting policies (continued)

Leases (continued)

Subsequent to initial measurement, the liability will be reduced for payments made and increased for interest. It is remeasured to reflect any reassessment or modification, or if there are changes in the substance of fixed payments. When the lease liability is remeasured, the corresponding adjustment is reflected in the right-of-use asset, or profit and loss if the right-of-use asset is already reduced to zero.

The Commission has elected to account for short-term leases and leases of low-value assets using the practical expedients. Instead of recognizing a right-of-use asset and lease liability, the payments in relation to these are recognized as an expense in profit or loss on a straight-line basis over the lease term.

The Commission as a Lessor

A lease is an agreement whereby the Commission, the lessor, conveys to the tenant, the lessee, in return for a payment, or series of payments, for the right to use an asset, generally land and buildings, for an agreed period of time. Leases in which a significant portion of therisks and rewards of ownership are retained by the Commission are classified as operating leases. Operating lease rentals are recognized on a straight-line basis over the period of the lease. Leases are classified as finance leases if the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee. As at December 31, 2022 (2021 – $Nil), the Commission did not have any finance lease agreements.

h) Provisions

Provisions are recognized when the Commission has a present obligation (legal or constructive) that has arisen as a result of a past event and it is probable that a future outflow of resources will be required to settle the obligation, provided that a reliable estimate can be made of the amount of the obligation. A provision is a liability of uncertain timing or amount.

i) Accounting changes

The Commission assesses new accounting pronouncements issued by the International Accounting Standards Board (IASB) and International Financial Reporting Interpretation Committee (IFRIC) to determine whether there could be a material impact on its financial statements. As at March 31, 2022 there have been no accounting pronouncements by the IASB or IFRIC that would have a material impact on the Commission’s financial results or position.

4. Harmonized sales tax (HST) and income tax status

As a public sector entity controlled by the Province of Nova Scotia, the Commission is not subject to Federal or Provincial income taxes, and is entitled to rebates of 100% of the HST it expends on goods and services.

(in thousands of dollars)

5. Restricted assets

	2022	2021
Capital fund	8,029	8,033
OM fund	3,389	2,947
Debt service fund	3,959	4,089
	$ 15,377	$ 15,069

2015 Loan

The Commission entered into a long-term loan agreement with the Province of Nova Scotia on February 06, 2015, with the proceeds used to finance the replacement of the suspended span of the MacDonald Bridge (the Big Lift project). This agreement requires that the Commission maintain an Operating, Maintenance & Administrative Fund (OM Fund), a Debt Service Fund, and a Capital Fund.

Under the terms of the loan agreement, the OM Fund must be maintained at an amount at least equal to 25% of the annual budgeted OM expenses for the following year subject to a minimum balance of $2,500. This fund can only be used to pay OM expenses, although any amount in the fund in excess of the required balance can be transferred to the Commission's unrestricted accounts. At March 31, 2022, the OM Fund had a market value of $3,389 (2021 - $2,947) and was invested in a guaranteed investment certificate at a rate of 1.50% per annum, maturing September 19, 2022.

Under the terms of the loan agreement, the Debt Service Fund must be maintained at an amount equal to or greater than the debt service amount for the next fiscal year. This fund can only be used to pay principal, interest, and other amounts coming due, although any amount in the fund in excess of the required balance can be transferred to the Commission's unrestricted accounts. At March 31, 2022, the Debt Service Fund had a market value of $3,959 (2021 - $4,089) and was invested in a guaranteed investment certificate at a rate of 1.50% per annum, maturing September 19, 2022.

Under the terms of the loan agreement, the Commission established and deposited a minimum of $1,000 to a Capital Fund commencing March 6, 2015, continuing every six months over four years to accumulate the required Capital Fund balance of $8,000. This fund can only be used for payment of costs arising from any capital improvements planned for the Bridges, excluding re-decking projects. At March 31, 2022, the Capital Fund had a market value of $8,029 (2021 - $8,033) and was invested in guaranteed investment certificate with maturities between November 30, 2022 and January 11, 2023 with rates between 1.17% – 1.25% per annum and term deposits maturing October 4, 2022 and November 30, 2022 with rates between 0.73% and 1.15% per annum.

(in thousands of dollars)

6. Property, plant and equipment

Cost	Land	Buildings	Bridge ALM	Bridge AMM	ETC	Other	Comp Equip.	Mobile Equip.	WIP	Total
Balance, March 31, 2021	$ 9,252	$ 8,753	$ 274,698	$ 49,106	$ 6,801	$ 16,409	$ 12,276	$ 2,423	$ 4,248	$ 383,966
Additions	–	–	–	–	–	–	–	–	12,866	12,866
Retirements	–	–	–	–	–	–	(18)	–	–	(18)
Transfers	–	106	5,612	1,649	–	61	957	38	(8,423)	–
Balance, March 31, 2022	$ 9,252	$ 8,859	$ 280,310	$ 50,755	$ 6,801	$ 16,470	$ 13,215	$ 2,461	$ 8,691	$ 396,814

Accumulated Amortization	Land	Buildings	Bridge ALM	Bridge AMM	ETC	Other	Comp Equip.	Mobile Equip.	WIP	Total
Balance, March 31, 2021	$ –	$ 3,999	$ 47,133	$ 31,488	$ 5,886	$ 12,059	$ 10,516	$ 1,606	$ –	$ 112,687
Amortization expense	–	255	6,327	1,825	268	395	419	162	–	9,651
Retirements	–	–	–	–	–	–	(18)	–	–	(18)
Balance, March 31, 2022	–	$ 4,254	$ 53,460	$ 33,313	$ 6,154	$ 12,454	$ 10,917	$ 1,768	$ –	$ 122,320
Net Book Values										
Balance, March 31, 2021	$ 9,252	$ 4,754	$ 227,565	$ 17,618	$ 915	$ 4,350	$ 1,760	$ 817	$ 4,248	$ 271,279
Balance, March 31, 2022	$ 9,252	$ 4,605	$ 226,850	$ 17,442	$ 647	$ 4,016	$ 2,298	$ 693	$ 8,691	$ 274,494

(in thousands of dollars)

7. Accounts payable, accrued liabilities and provisions

	2022	2021
Trade payables	$ 3,626	$ 932
Accrued expenses	517	443
Project holdbacks	636	1,399
Provisions	–	370
Accrued liabilities	1,401	1,445
Current portion of unearned revenue	144	157
	$ 6,324	$ 4,746

As at March 31, 2022, the Commission did not have any provisions for claims (2021 - $370). Provisions established in prior years were settled during the year ended March 31, 2022. Estimates are evaluated periodically and reflect all known information at year-end, including uncertainty associated with the timing and amount of the eventual settlement. Provisions are required to be measured at the present value of the expected future cash flows using a discount rate with the exception of amountspresented as current liabilities.

8. Long-term debt

	2022	2021
Province of Nova Scotia – 2015 Loan	$ 145,000	$ 151,000
Less: current portion	(7,000)	(6,000)
	$ 138,000	$ 145,000

Principal payments required on the loans for the next five years are due as follows:

2023	$ 7,000
2024	8,000
2025	8,000
2026	8,000
2027	8,000
	$ 39,000

(in thousands of dollars)

8. Long-term debt (continued)

At March 31, 2022, long-term debt consists of a loan from the Province of Nova Scotia:

2015 Loan

A $160,000 unsecured loan issued February 6, 2015 bearing interest at an average rate of 2.80%. The loan proceeds have financed the replacement of the suspended span of the MacDonald Bridge (the Big Lift project). The 2015 loan is to be repaid over twenty years starting June 1, 2019 with annual principal repayments of between $4,000 and $10,000. Interest is paid semi-annually on June 1 and December 1 of each year.

Line of Credit

A $60,000 revolving, unsecured line of credit with the Province of Nova Scotia that matures on March 31, 2025. Interest is charged on outstanding balances at a rate equal to the arithmetical average of the discount rates on Canadian Dealer Offered Rate (CDOR) Banker's Acceptances applicable on the date of the requested advance payable at maturity. As at March 31, 2022, the balance drawn was $Nil (2021 - $Nil) and no advances were outstanding during the year.

Operating Loan Facility

A $5,000, unsecured, operating loan facility with a chartered bank which bears interest at the bank prime rate minus 0.5% per annum. As at March 31, 2022, the balance drawn was $Nil (2021 - $Nil) and no advances were outstanding during the year.

9. Finance income and finance costs

	2022 Budget (unaudited)	2022	2021
Interest income on restricted assets	$ (117)	$ (116)	$ (185)
Investment income	(40)	(63)	(79)
Finance income	(157)	(179)	(264)
Interest expense on long-term debt	4,089	4,089	4,187
Net finance cost recognized in profit or loss	$ 3,932	$ 3,910	$ 3,923

(in thousands of dollars)

10. Net change in non-cash working capital balances

		2022		2021
Decrease (increase):				
Receivables	$	(636)	$	731
Prepaid expenses and inventory		(139)		85
Increase (decrease):				
Accounts payable, accrued liabilities and provisions		1,578		(5,049)
Deferred revenue		297		176
Unearned revenue		(2)		(1)
Net change	$	1,098	$	(4,058)

11. Financial risk management

The Commission has exposure to the following risks from its use of financial instruments:

- Credit risk
- Interest rate risk
- Liquidity risk

a) Credit risk

The Commission provides credit to certain non-toll revenue customers in the normal course of its operations. In order to reduce its credit risk, the Commission has adopted credit policies including the monitoring of customer accounts.

b) Interest rate risk

The long term debt has fixed interest rates for the entire terms of both loans and consequently, there is no risk of higher interest rates in the future. The line of credit and operating loan facility are floating rate facilities with the interest rate set on the date of advance as per note 8 which consequently entails interest rate risk exposure on any outstanding balances.

11. Financial risk management (continued)

c) Liquidity risk

The Commission is exposed to liquidity risk arising primarily from its long-term debt with the Province of Nova Scotia. The 2015 loan requires annual repayments of principal, ranging between $4,000 and $10,000, beginning on June 1, 2019.

The Commission manages liquidity risk by monitoring short and long-term cash flows, setting toll rates and controlling the level of operating and capital expenditures. The 2015 loan requires annual contributions to a capital fund of $2,000 to a maximum of $8,000 that is to be maintained for the life of the loan.

The Commission's cash and restricted assets are invested in liquid, interest-bearing, investments.

12. Capital management

The Commission's capital management objective is to ensure there is adequate cash flow to meet its operational requirements, fund capital expenditures and make required debt payments.

The Commission regularly reviews its projected future toll revenues in conjunction with its current cash position and borrowing ability in order to finance significant future projects that are required to upgrade and maintain its property, plant and equipment. There were no changes to the Commission's approach to capital management during the year.

13. Related party transactions

As a provincially controlled public sector entity, the Commission is considered to be related to the Province of Nova Scotia. The Commission is also related to the City of Halifax by virtue of Halifax's right to appoint four members of the Commission's Board of Commissioners.

The Commission has applied the modified disclosure requirements under IAS 24, Related Party Disclosures, which exempt government-related entities from providing all of the disclosure about related party transactions with government or other government-related entities.

The Commission has one long-term loan with the Province of Nova Scotia (note 8) outstanding at March 31, 2022. The 2015 loan has an outstanding balance of $145,000 and interest charges for the period ended March 31, 2022 of $4,089 (2021 - $4,187), of which $1,355 (2021 - $1,390) was payable at year-end.

(in thousands of dollars)

13. Related party transactions (continued)

The Commission has a $60,000 revolving, unsecured line of credit with the Province of Nova Scotia that matures on March 31, 2025. No amounts were drawn from the line during the year ended March 31, 2022 and no interest or other charges incurred.

The Commission collects toll revenue from the province and the City of Halifax and makes purchases from the City of Halifax in the normal course of business.

14. Pension plans

The Commission is a Nova Scotia Public Service Superannuation Plan (PSSP) employer, which is a defined benefit plan. Eligible employees of the Commission are PSSP members and the Commission matches employee contributions to the PSSP calculated as 8.4% on eligible earnings up to the year's Maximum Pensionable Earnings (YMPE) under the Canada Pension Plan (CPP), and 10.9% on eligible earnings that is in excess of YMPE. The actuarial and investment risk of the PSSP is administered by Public Service Superannuation Plan Trustee Inc. The Commission is not responsible for any unfunded liability with respect to the PSSP and accounts for the contributions as a defined contribution plan.

The Commission recognized pension expense of $266 for the period ended March 31, 2022 (2021 - $242). No future contributions are required in respect of past service at March 31, 2022.

15. Other Liabilities

	2022	2021
Accrued employee future benefits	$ 3	$ 3
Unearned revenue	32	34
	$ 35	$ 37

(in thousands of dollars)

16. Fair value measurement

The fair value of financial assets and liabilities, together with the carrying amounts shown in the Statement of Financial Position are as follows:

	March 31, 2022				March 31, 2021			
	Carrying value	Fair value Level 1	Level 2	Level 3	Carrying value	Fair value Level 1	Level 2	Level 3
Assets								
Cash	$ 9,689	$ 9,689	$ –	$ –	$ 12,609	$ 12,609	$ –	$ –
Receivables	$ 809	$ –	$ 809	$ –	$ 173	$ –	$ 173	$ –
Restricted assets	$ 15,377	$ –	$ 15,377	$ –	$ 15,069	$ –	$15,069	$ –
Liabilities								
Trade and other payables	$ 6,324	$ –	$ 6,324	$ –	$ 4,746	$ –	$ 4,746	$ –
Long Term Debt	$145,000	$145,000	$ –	$ –	$151,000	$151,000	$ –	$ –

The different levels have been defined as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

17. Commitments

The Commission has entered into contracts for the 2022-2023 fiscal year for the continued maintenance and capital improvement of the bridges, toll systems and related computer networks in the amount of $10,066.

	2023	2024	2025	2026	2027
Contract obligations	$ 298	$ 281	$ 284	$ 286	$ 271
Capital contract obligations	9,768	–	–	–	–
Total contract obligations	$ 10,066	$ 281	$ 284	$ 286	$ 271

18. COVID-19 impact

Since December 31 2019, the spread of COVID-19 has severely impacted many local economies around the globe. Many businesses are being forced to cease or limit operations for long or indefinite periods of time. On March 22, 2020, the Province of Nova Scotia declared a state of emergency to help contain the spread of COVID-19, in addition to travel bans, quarantines, social distancing, and closures of non-essential services. The state of emergency continued through most of fiscal 2022, ending March 20, 2022. Various restrictions during the fiscal year ended March 31, 2022 have reduced the level of vehicular traffic on the Angus L. MacDonald Bridge and the A. Murray MacKay Bridge with a corresponding reduction in toll revenue to the Commission.

19. Subsequent event

On May 31, 2022, the Commission drew $5,000,000 on the line of credit facility with the Province of Nova Scotia. The advance has a maturity date of August 31, 2022 and bears interest at the arithmetical average of the discount rates on Canadian Dealer Offered Rate (CDOR) Banker's Acceptances applicable at maturity.