The Design & Design Architectural Series Ply Gem

Cost of Ontario Science Centre temporary location exceeds cost of roof repairs

The time required to set up a temporary location will mean that there is no Science Centre location for two years; the RFP also reveals that a new Science Centre at Ontario Place would not be ready until 2030-2034.

By Elsa Lam — On Jul 2, 2024

Ontario Science Centre. Photo by Amanda Large

Hot on the heels of the abrupt closure of the Ontario Science on Friday, June 22, 2024 the government's search for a temporary location for the Science Centre began.

The Monday after the closure, Infrastructure Ontario put out a Request for Proposals (RFP) for a 50,000 to 100,000 square foot commercial/retail space to house a temporary Science Centre until its planned new facility at Ontario Place is complete.

The temporary location, which would not be open until 2026, will put the Science Centre in a location that is significantly smaller—and likely much more remote—than its current site. It will be there for up to eight years until the new facility at Ontario Place is open—which the RFP anticipates will be in 2030-3034, not 2028 as Minister Kinga Surma asserts.

Ironically, relocating to a temporary location will also be at least as expensive—and up to three times more costly—than making the $22-$40M in roof repairs which Infrastructure Ontario cited as the reason for the Centre's abrupt closure.

The option that best serves Ontarians—and the one that may also prove the most economical—appears to be making repairs to the Science Centre, and reopening it.

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DESCRIPTION	NO.	TENANT REQUIREMENT
Proposed Floors	1.1	Please verify that the BOMA Standard the Landlord will be measuring to at the Landlord's cost and provide a breakdown of square footage on proposed floor(s) and the associated rentable/useable and "gross up factor" for those areas proposed on a floor by floor basis (the "Premises").
IO Requirements	1.2	The initial requirement is estimated to be 50,000 - 100,000 sq.ft. of commercial premises within the Toronto, Ontario area, to house a temporary location for the Ontario Science Centre (OSC). Property will ideally be centrally located (within the TTC boundaries). The Property should also be located no more than one bus ride from a major public transit node such as subway, rail, etc. Landlord to also advise on maximum amount of additional sq. ft. that could be provided in the next 24 months within the identified area.
	1.3	Commencement date: No later than January 01, 2026
Leasable Area	1.4	Provide floor plans (in PDF and CAD format) for any potential Premises (and site plan for the Building)
	1.5	Describe the area available (e.g. improved vs. unimproved)
	1.6	Describe how the Premises will be provided to IO

Infrastructure Ontario's Request for Proposals (RFP) for a temporary Ontario Science Centre location states that it is looking for a space whose lease starts "no later than January 1, 2026." This acknowledges that the possibility that there would be no physical location for the Science Centre for a year and a half following its closure in late June, 2024.

The RFP for the relocation initiates a search for a space that the document says will take up to 12 months to fit-out, with a subsequent move-in date as late as January 1, 2026. In theory, the document implies, the renovation of a space could happen more quickly and the move-in date could be sooner, but the reverse is more likely the case. Real estate and design experts I have spoken to say that for a project of this size and scope, 18 to 24 months would be a more realistic schedule for completion.

Even if the project moves exceptionally quickly, it means that Toronto would have no Science Centre for at least a year and a half, and more likely over two full years.

8.1	The Tenant will require a continuing right of first refusal on all space in the Building.
9.1	The Tenant requires Three (3) options to extend the Lease for One (1) year each. The options to extend will be at the Tenant's sole discretion, and exercisable with no less than Six (6) months written notice prior to expiry, with market rents during extension periods to be defined in the Lease.
10.1	The Tenant requires the right to expand on the same terms and conditions prior to the occupancy date.
10.2	The Tenant requires the right to expand in the building under the same terms and conditions during the first year of the Term.
11.1	The Tenant requires a right to terminate a portion or all of the Premises with Twelve (12) months' written notice anytime after the third (3rd) year of term. Please confirm the Landlords terms and conditions.

The cancellation and renewal clauses of the lease in the RFP suggest that the Science Centre would occupy its temporary location until at least 2030, and as late as 2034. The Ontario Governments has indicated that a new Science Centre would be ready at Ontario Place by 2028; the RFP seems to indicate that it would take up to six years longer.

The RFP's terms also suggest that a new, smaller Science Centre would not be completed until 2030, or perhaps as late as 2034—not the 2028 date that has been publicized. This is apparent from the RFP's ask for a five-year lease starting as late as January 1, 2026, with the option to terminate the lease anytime after the fourth year, and to renew the lease for up to three years.

What would a temporary Science Centre look like? An environmental scan commissioned by the Province from Lord Cultural Resources says that the median ratio of exhibition-space-to-building -space for science centres in North America is somewhere between 39 to 45%. So, at the most efficient end, the exhibitions in the temporary location may occupy 22,400 to 44,800 square feet of space. That's a 61 to 85% reduction from the 153,360 square feet of exhibition space in the current location of the Science Centre.

Floor Plate Size	35.1	Please provide the typical floor plate size for the building
Clear Height	35.2	A minimum of 10,000 SF is preferred at 15-foot clear height to accommodate exhibit style space. The balance of the premises must be at least 10-foot clear height. Please provide the clear height(s) for the building and premises. If multiple clear heights please reference extent of each.
Shipping	35.3	The property must have a minimum of One (1) dock level door (leveller preferred or ability to install) plus a pedestrian delivery door. Indoor receiving area is preferred - please confirm. 53' trailer access is required. Please provide any additional pertinent details of the shipping capabilities for the building and the premises.
Exterior Storage	35.4	The property should have the ability to provide for approx. 1,000 SF of exterior storage (approx. 3 shipping containers) depending on location.

25.1	Please confirm the Building and Premises complies with current AODA. Please provide a breakdown of the ingress/egress of the Building and Premises. Dedicated/exclusive access to the premises is preferred. Please confirm if this currently exists, or can be accommodated.
25.2	Please outline any Building deficiencies as it relates to compliance with the current AODA.
25.3	Please outline any planned projects for improving the Building and Project's compliance with current AODA and to achieve an accessible Ontario by 2025.
25.4	Property should have the capacity to accommodate approx. 2,500 daily visitors on average with a peak of 5,000+.
26.1	The Landlord will provide up to 500 parking spaces unreserved, less if close to transit. If Landlord is unable to provide the required parking spaces, please include a plan for additional tenant parking (i.e. adjacent lots with parking spaces available, adjacent buildings with parking spaces available, or other viable solutions). The Tenant will also require a pickup and dropoff area for customers coming to the property via tour bus. Please indicate where this need would be accommodated.
26.2	Please provide the number of secured parking spaces. Please describe how Landlord could provide a controlled parking area with dedicated elevator access for selected employees, if applicable.
26.3	No. of secure parking spaces provided for the Tenant
26.4	Additional Lighting in Secure Parking area

Among other requirements, the RFP calls for a high-ceilinged space, with a large capacity for up to 5,000 visitors daily, and up to 500 parking spots—a kind of space that is rare, and expensive, in central Toronto.

While the RFP states a preference for a downtown, central location, the reality is that its requirements—a very large, high ceilinged building, with up to 500 parking spots, a bus drop-off, a freight elevator and loading dock, and the ability to accommodate up to 5,000+ visitors in peak periods—make a remote location more likely. It's probable that the location will at the edge of TTC boundaries. An empty big box store might fit the bill, out near Kipling or Vaughan stations, or up by the zoo in Scarborough.

According to The Toronto Regional Real Estate Board, the average commercial/retail lease rate in Toronto is $29.08/square foot, meaning that annual rent on such a space, depending on its size, would be $1.5 million to $3 million per year—$6 to $24 million over the four to eight year term of the lease.

Preparing such a space will be expensive. I spoke with an architect familiar with this project type, who estimated that bringing an empty commercial space up to public museum standards would cost from $200 to $300 per square foot, depending on the base building conditions, for a total of $10 to $30 million. If the government settled on a large industrial space, it would be especially costly to this up to public assembly standard, with modifications needed to meet requirements including fire code, exiting, floor loading, and HVAC. According to the industry expert, the cost could be as much as $400 per square foot—$40 million in all—if the location was a large, empty industrial shell building.

Standard practice would be to budget 12% on top of this, to cover the consultant fees of architects, engineers, project managers, and others involved in delivering the project, and to include a 10% cost contingency. This adds $2.2 to $8.8 million more.

The move itself is expensive, too—Infrastructure Ontario estimates that a single move to the smaller facility at Ontario Place would cost $4.9 million; a temporary space will mean paying for that move twice over. Since not all of the exhibitions could be shown in the temporary space, storage would also need to be arranged for a substantial amount of material. TRREB reports that the annual industrial lease rate in Toronto is $16.90 per square foot. Assuming that the contents of the remaining 500,000 square feet of building could be packed into a 20,000 square foot space, this would still add up to half a million dollars in annual storage costs.

This back-of-napkin math brings us to a one-time cost of $17-55 million dollars, plus $8 to $28 million in rent, depending on the size of the temporary space and the length of the lease—$25-$72 million in all. All for a temporary location that may be difficult to access, will not be open until 2026, may only offer 15% of the current Science Centre's exhibition space, and will be a poor shadow of the Ontario Science Centre's original grand digs for a long period of time—possibly the next decade.

Ironically, the space that best meets all the needs of a temporary location, including the RFP's stated preference for a space that enables the Science Centre to "open more quickly," is almost certainly the Ontario Science Centre's current location on Don Mills Road.

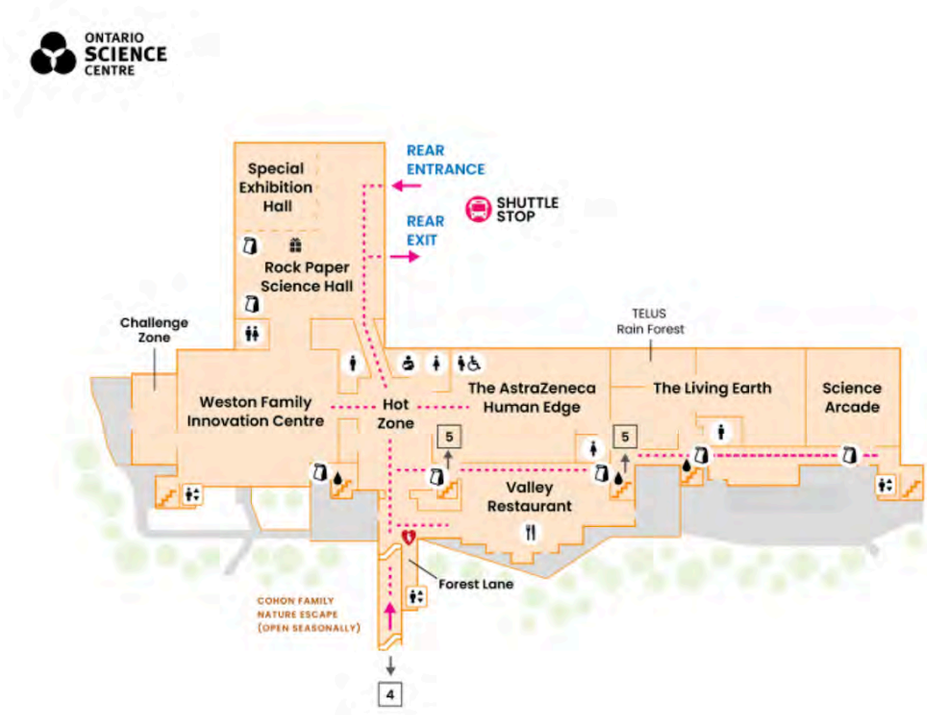
It's centrally located, and on the doorstep of the Eglinton LRT.

The complex's lower building, Building C, alone contains 273,465 square feet of space, including almost all of the Science Centre's permanent exhibitions. As I have written in my analysis of Rimkus's engineering report on the roof, these permanent exhibitions are under a section of the building with a standard concrete roof.

RAAC roof does exist over the current temporary entrance to the Science Centre, and a temporary exhibitions hall. This area includes 11 RAAC panels classified as being high-risk.

The cost to replace those 11 panels?

A mere $37,400, according to the Rimkus report.



The main exhibition areas shown on this plan—Weston Family Innovation Centre, Hot Zone, The AstroZeneca HumanEdge, The Living Earth, Science Arcade, and Valley Restaurant—have standard concrete roofs. The only areas affected by the RAAC roofs are the Rock Paper Science Hall and the Special Exhibitions Hall. These include 11 RAAC panels classified as "high risk," which the report suggests could be repaired for $37,400. (The report also notes a section of roof over Rock Paper Science Hall that contains a number of "medium-risk" panels, which it recommends replacing this year at a cost of $306,600).

For an additional $17,200, the report details, you could also replace the three high-risk panels over an area that connects to the remaining permanent exhibition areas and school spaces on the balcony level of Building C, and to the permanent exhibition areas in Building B —the popular Space Hall and KidSpark. The latter, the engineering report suggests, can safely remain open as they are not directly under the roof, but one level down.

Likewise, the Ontario Science Centre's full IMAX theatre, along with its entrance atrium, are additions to the original complex and are topped by a non-RAAC roof.

The RFP says that "IO is evaluating several alternatives and cost is a critical issue. Please specify any concession package to be provided by the Landlord (e.g. free rent, Tenant Improvement Allowance, etc)." The existing Science Centre is already fit-out and owned by the province, and rent on the land will continue to be a bargain at $1 a year.

As for timing?

A new location for a smaller, temporary Ontario Science Centre in a different location will likely take two years to materialize.

The existing location was closed just under two weeks ago. It could be reopened just as quickly.

ontario science centre

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Ontario Science Centre doesn't require full closure: A close reading of the engineers' report

A deep dive into the engineers' report suggests that the building's key exhibition areas could continue to operate safely —even if the Ontario government chooses not to invest in any structural roof repairs by the fall.

By Elsa Lam — On Jun 24, 2024

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Construction fences were erected on Friday, June 21 around the perimeter of the Ontario Science Centre, following a provincial announcement of the Centre's immediate and indefinite closure. Photo by Elsa Lam

On Friday June 21 at 4 pm, the Ontario government announced that the Ontario Science Centre's landmark 1969 building, by Japanese-Canadian architect Raymond Moriyama, would be closed immediately, for an indefinite period of time. It cited an engineering report by Rimkus to justify the closure, saying that the report found "serious structural issues with the Ontario Science Centre building." While these issues would not be expected to materialize until the winter, according to Infrastructure Ontario, the intervening months were needed "for staff to safely vacate the building."

But a deep dive into the report reveals a different story. It suggests that the building's key exhibition areas could continue to operate safely for years to come—even if the Ontario government chooses not to invest in any structural roof repairs this year.

The issue at stake is the presence of Reinforced Autoclaved Aerated Concrete (RAAC) roof panels, sold under the brand name Siporex, which make up 57% of the Science Centre's roofs. A popular material in Ontario from the mid-1950s to mid-1970s, the lightweight panels were made form an aerated blend of sand, Portland cement, and aluminum.

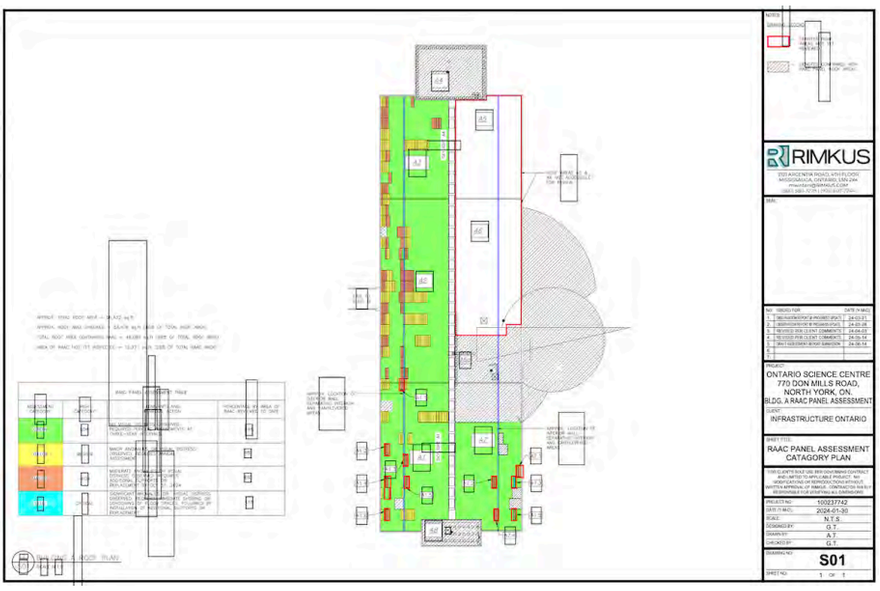
A palette of Reinforced Autoclaved Aerated Concrete (RAAC) blocks. Photo by Leo Miregalitheo via Wikipedia Commons

However, concerns have been raised that the panels have an overall reduced robustness compared to steel decks or traditional concrete, especially if there are leaks in the area. It's a known issue—over the past decades, the roofs of the Ontario Science Centre have been monitored and sections of the RAAC roof panels have been replaced with steel decking.

Rimkus's report is a comprehensive, panel-by-panel visual assessment of all accessible RAAC roof panels in the facility. It recommends a staged approach to addressing the RAAC issue once and for all: by removing and replacing all remaining RAAC panels with steel deck roofs, mostly when they come up for regular scheduled renewal over the next 10 years.

In assessing the panels, Rimkus found that a total of six of the 18-inch-wide, 5 or 10-foot-long RAAC panels in the facility were in what it deemed "critical" condition. These was reported as soon as they were identified, and all of these panels have been shored or are in the process of being reinforced.

Rimkus assessed a number of additional RAAC panels as being in "high risk" condition, and recommended that these be reinforced or replaced before the next snow season begins at the end of October, when an exceptionally large snow load may compromise the panels. In total, the "high risk" and "critical" condition RAAC panels constitute less than 2.5% of the Science Centre's overall roofs.



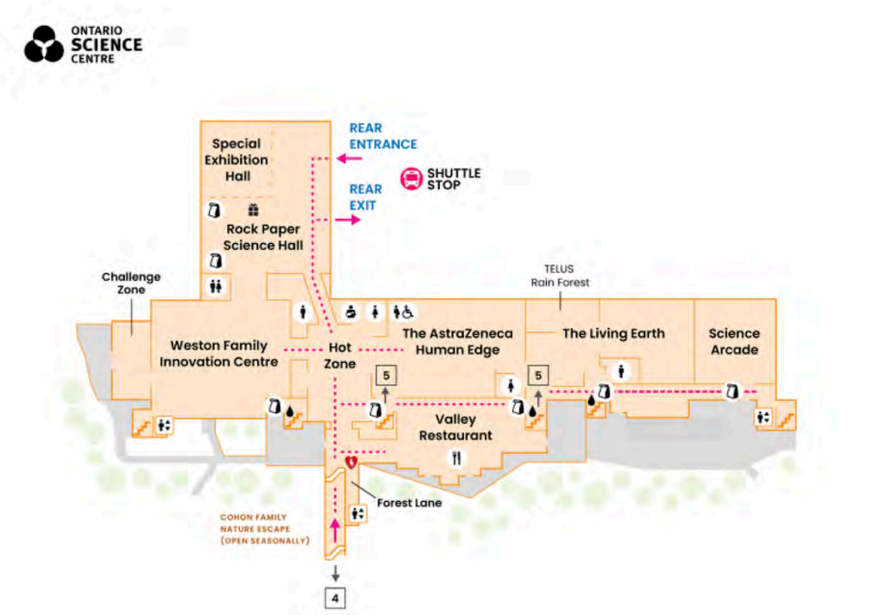
Engineers Rimkus performed a panel-by-panel assessment of the RAAC roof. The green shows low-risk sections of roof, whereas the red sections are recommended to be reinforced or replaced by the fall. If this is not possible, the engineers recommend restricting access to the areas directly below the affected roof sections. In "Building A," facing Don Valley Road, the roofs are directly over the Ontario Science Centre's conference centre and part of its its entrance hall. The IMAX theatre and entrance are a different roof type that does not need repair, and the main floor lunch and locker areas are not on the top floor, so are also not affected by the recommendation for restricted access.

The remediation of these "high risk" panels is estimated to take at least three months per building—and floor areas directly beneath the high risk panels would "need to be treated as construction zones within the building," according to the report.

However, this doesn't mean closing the building entirely: it means erecting barrier walls to eliminate pedestrian traffic in the areas directly below the 2.5% of the roof panels being repaired or replaced. The hoarding would be similar to what's currently present inside the ROM, where parts of the museum are undergoing renovation.

At the Ontario Science Centre, the construction would arguably affect visitors even less than at the ROM, because the RAAC panels do not exist above most key exhibition areas.

In the lowest and largest building, facing the Don Valley, the main exhibition spaces are in a part of the building with regular concrete panels on the roof—not the RAAC panels. Areas under the regular roof, which is not in need of repair, including the Weston Family Innovation Centre, AstraZeneca Human Edge, Living Earth, Science Arcade, Hot Zone, A Question of Truth, School Area Learning Centres, and the Valley Cafeteria



The main exhibition areas shown on this plan have standard concrete roofs. The only areas affected by the RAAC roofs, and which may require temporary/partial closure for proactive repairs, are the Rock Paper Science Hall and the Special Exhibitions Hall.

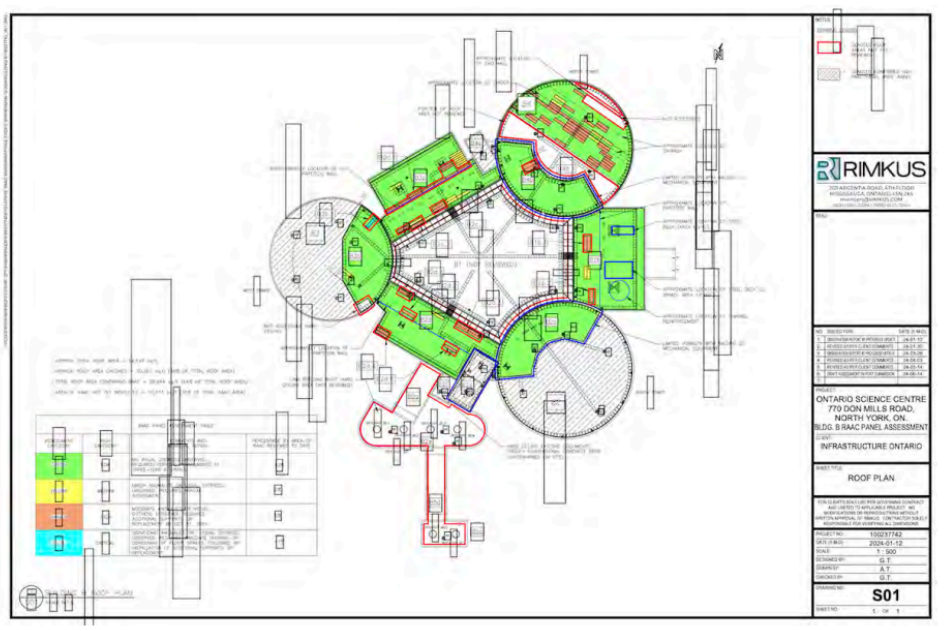
The highly popular Kidspark and the Space Hall—as well as the Rube Goldberg-esque machine outside of these areas—could also remain open, since they are not immediately beneath a roof, but one level down.

The IMAX theatre and entrance, as well, have a different roof type and could remain open with no danger.

There are some areas that would be more affected, but these are largely outside of the permanent exhibition areas. The report notes that the Science Centre's in-house workshop would need to pause operations for the repairs to be completed, since that area includes large machinery that couldn't be easily moved out of the way for repairs.

In "Building C," on the valley floor, the main areas affected by a higher concentration of higher-risk RAAC roof panels include the Science Centre's in-house workshop for fabricating exhibitions, a temporary exhibitions space, and the Rock Paper Science hall. The areas in grey towards the top of the plan—including the Weston Innovation Hall, AstroZeneca Human Edge, Science Arcade, and Valley Restaurant—are under a different, standard roof type. Note that this plan is flipped upside-down from the partial Ontario Science Centre exhibitions plan above.

The most notable temporary closure would be of the Great Hall, where special exhibitions are hosted; the special exhibition space at the lowest level may also need to be temporarily closed. From what is shown on the drawings, the Rock Paper Science hall—a space that is currently only sparsely populated with a handful of exhibits—is the only permanent exhibition area that may require temporary closure to accommodate repairs.



In the central section of the Science Centre (Building B), repairs are needed throughout the roof, including in the central Great Hall portion, which the engineers were not able to access, but presumed was in a similar state to the surrounding roofs. However, the report suggests that the repairs could be completed while only restricting access to the floor areas immediately below the roof. This would affect the special exhibitions in the great hall, but the recommendation suggests that the popular exhibition areas on the floor below—KidSpark and Space Hall—could remain open.

The Rimkus report acknowledges that getting the first wave of needed repairs done by October 31 may be challenging. So, it offers some alternate options for maintaining public safety. You could install temporary reinforcement for the panels, it says, or horizontal hoarding below the panels. The absolute safest option, it notes, would be to close the areas immediately below the less than 2.5% of roofs with high-risk panels, to stop people from walking in these areas.

Since the areas with high-risk panels are largely above non-exhibition areas, this means that even if there was a need to delay roof repairs past October 31, the Ontario Science Centre's permanent exhibitions could remain safely open to the public.

In short, whether the roofs will be repaired or not, there is no material in the engineering report that calls for the complete closure of the Science Centre, either now or even by the October 31 deadline. Those repairs should be made, of course, presuming there is the intent to keep the building functional in some way in the future—but the idea that a life safety issue requires complete closure of the centre is false. The safety of staff and visitors can be ensured by simply sealing off the floor areas below less than 2.5% of the roof with construction hoarding, and completing the three-month-long repairs. If the repairs take longer than the fall, the construction hoarding can stay up, and this solution is judged by the engineers to "completely eliminate the risk to public or staff."

There are no roofs needing repair directly above the key exhibition spaces—including the Weston Family Innovation Centre, AstraZeneca Human Edge, Living Earth, Science Arcade, Hot Zone, A Question of Truth, School Area Learning Centres, and the Valley Restaurant. Therefore, the report suggests, these areas can remain safely open, regardless of whether or not roof repairs are undertaken immediately.

The Ontario government has stated that the summer camps scheduled at the Ontario Science Centre will take place at a nearby school. It has also said that it is issuing an RFP for a temporary location for science programming, while it continues work on a new location for the Ontario Science Centre at Ontario Place. This new location for the science centre will be 45% of the size of the current Science Centre, and there is currently a call out for companies to build the project through a public-public partnership (P3), a process that is known for prioritizing cost savings over design quality.

As I have written before, the relocation of the Science Centre is based on a faulty business case. As the business case states, it was prepared "in response to the December 2021 direction to identify order of magnitude costing and capital requirements associated with relocating the OSC to the Ontario Place site and subsequent April 2022 direction to seek Stage Two (construction) approval for the project." In other words, the provincial government had already determined, more than two years before any public announcement, that it was determined to relocate the Ontario Science Centre to Ontario Place. The business case was specifically constructed to justify this decision.

NO.	ISSUED FOR:	DATE (Y-M-D):
1.	OBSERVATION REPORT #1 PROGRESS UPDATE	24-01-12
2.	OBSERVATION REPORT #2 PROGRESS UPDATE	24-01-19
3.	REVISED AS PER CLIENT COMMENTS	24-01-30
4.	OBSERVATION REPORT #3 PROGRESS UPDATE	24-02-05
5.	DRAFT ASSESSMENT REPORT SUBMISSION	24-03-01
6.	OBSERVATION REPORT #4 PROGRESS UPDATE	24-03-20
7.	DRAFT ASSESSMENT REPORT RE-SUBMISSION	24-03-27
8.	REVISED AS PER CLIENT COMMENTS	24-05-13

PROJECT:

ONTARIO SCIENCE CENTRE
770 DON MILLS ROAD,
NORTH YORK, ON
BLDG. C RAAC PANEL ASSESSMENTS

CLIENT:

INFRASTRUCTURE ONTARIO

SHEET TITLE:

The drawings included with the engineers' report indicate that Infrastructure Ontario had received progress updates about the roof assessment as early as January 12, 2024 and that it had a draft assessment report in hand on March 1, 2024.

Meanwhile, the timing of the sudden closure of the Ontario Science Centre on June 21 also seems to have been calculated, rather than resulting from a newly received report. Officials with Infrastructure Ontario said they had received the report detailing the building's structural roof issues in the week of the announcement, and made the decision to close the building "as quickly as we could move." However, the drawings included with the engineers' report indicate that Infrastructure Ontario had received progress updates about Rimkus's roof assessment as early as January 12, 2024, and that it had a draft assessment report in hand on March 1, 2024—almost four months before the June 21, 2024 announcement of the immediate closure.

The Ontario Science Centre's Joint Health and Safety Committee (JHSC) will be contacting the Ministry of Labour that the report was not conducted legally: staff were not notified that the report was being prepared, that inspections were being made, or that there would be people on site.

Even though the province has stated that camps would be relocated, staff also say that there is no plan in place at the moment, and that they are scrambling to find accommodation for summer camps.

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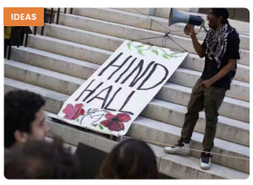

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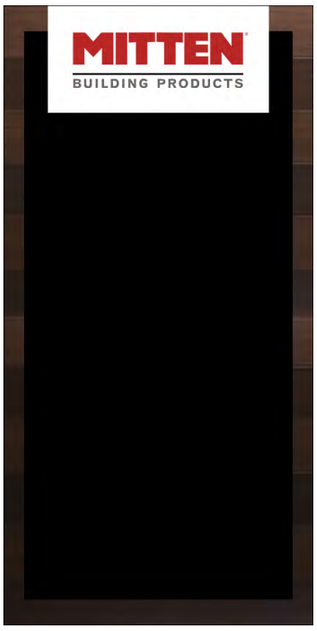

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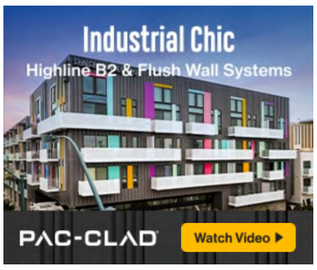

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Debunking the "Business Case" for relocating the Ontario Science Centre

Scratch below the surface, and there's clear problems with the province's math.

By Elsa Lam — On Dec 1, 2023

The current Ontario Science Centre on Don Mills Road, in Toronto. Photo by BuBZ at English Wikipedia – Transferred from en.wikipedia to Commons., Public Domain, https://commons.wikimedia.org/w/index.php?curid=3056582

This week, Doug Ford's government struck a deal with the City of Toronto giving the province fuller control over the future of Ontario Place, in exchange for the province taking on responsibility for the DVP and Gardiner Expressway, as well as additional funding for transit and addressing homelessness.

In the wake of this agreement, Infrastructure Ontario has released its business case for a major, and controversial, component of their Ontario Place plans: the closure of the existing Raymond Moriyama-designed 1969 Ontario Science Centre, and its relocation to a smaller, new-build facility at Ontario Place.

The 78-page document, accompanied by a 333-page appendix, argues that the Ontario Science Centre will require $369 million in deferred and critical maintenance over the next 20 years, and an additional $109 million to upgrade its exhibitions and public spaces, for a total cost of $478 million. In comparison, it says that the cost to build a new science centre at Ontario Place would be $322 million, plus $64 million for its exhibitions, for a total of $384 million—$94 million less.

It also argues that cost savings would be achieved through lower ongoing maintenance costs for the new building, and would be strongly offset through the larger attendance and new sponsorship opportunities that a new downtown facility might command. Overall, according to the report, the provincial government would save $596 million in nominal costs ($257 million net present value) over a 50-year period by relocating the science centre.

Scratch below the surface, though, and there's some clear problems with the province's math.

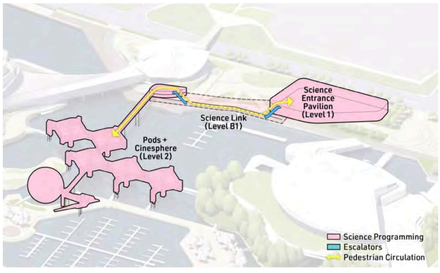
As the Globe and Mail's architecture critic Alex Bozikovic writes, the new Science Centre is proposed to sit on top of a 2,000-space underground parking garage, which, if built, will cost about half a billion dollars. If the parking moves to a different location, as Toronto Mayor Olivia Chow and Premier Doug Ford suggested earlier this week, the Science Centre will need to build its own basement and foundations—at a cost of perhaps some hundreds of millions of dollars.

On the other side of the equation, points out Bozikovic, the Science Centre's required repairs result from the government choosing not to invest in the building over many years. Someone will need to pay for those repairs eventually, should the building continue to be used, either as a cultural building or for another purpose. "If it survives, the province is saving money by dumping perhaps $300 million in liabilities on the city. It's a shell game, nothing more," he writes.

Even taken purely at face value, there are problems with the two figures.

The cost of building a new science centre, which the report pegs at $384 million, disregards pricing put forward by its own consultants. It doesn't include quantity surveyor A.W. Hooker's allowances for soft costs and a construction contingency—including consultant fees, project management fees, independent inspection and testing, third party commissioning, legal fees, development and permit charges, client FFE, and the cost of change orders made post-tender—which amount to an estimated additional $100 million. A.W. Hooker's overall estimate for the project is $499,200,000. And that's for a building whose program relies on 2,750 square metres of underground functional space—a full floor—but whose price tag does not include that floor, nor any type of parking, basement, or foundations.

Because no below-ground work is included, the price tag also excludes the cost for a 150-metre-long underground, 2-level link between the new Science Pavilion on the mainland and the bridge to the pods—an enormously expensive component of the project due to its proximity to the waterfront, and an essential element for allowing ticketed visitors to move from the main science pavilion to the Pods and Cinesphere.



The business case's costing for the relocated Ontario Place omits the costing for the the rehabilitation of the pods and cinesphere, as well as the cost for building the underground Science Link, shown on the site plan above, and detailed in the test fit documents as a two-storey underground link. Because this adjoins the waterfront and would be under the water level, the cost of constructing this component would be very high.

The $499-million price tag also excludes exhibitions from the majority of the pods ["OSC has opted to not program three of the pods on opening day, therefore remove $16.8M from the previous allowance"]. It doesn't include most of the renovations to the heritage pods, including the $25.5 million currently being spent on reclad ding those structures. It assumes that there will be no phased work, no accelerated construction schedule, and no work completed during the winter, after hours, or on weekends—all of which command premiums.

Diving into the $369 million repair bill for the existing Ontario Science Centre, on the other hand, it seems that the number is significantly inflated. Environmental consultants Pinchin pegged the cost at $228,604,000. This is already a generous number: the consultants note that an "adjustment factor" of 1.85 was "applied to all repair and replacement costs" due to the "fact that Ontario Science Centre is a complex facility with unique characteristics" and "per Client's [IO's] request to account for the hidden internal and external fees." Without this adjustment factor, the cost of repairs would be around $142 million.

To reach the estimated costs for its business case, IO then applied a mark-up of a whopping 40% to Pinchin's inflated $228-million bill "to account for uncertain and rapidly increasing cost pressures." (There is a similar contingency for cost escalation and market volatility in the estimate for relocating the Science Centre—but it amounts to 32.8%, and is applied to the base construction cost of $153,830,000 for that project, not to a total estimate that was already adjusted to account for unanticipated extra fees. Applying the same logic to the repairs for the science centre would result in a cost escalation contingency of $46.6 million—not the $141 million that the business case adds to the estimate.)

For the sake of simplicity, a somewhat more accurate high-level comparison might be to just put the two consultant estimates, in full, side-by-side: $499 million for a new science centre and partial exhibitions, to which should be added the cost of a basement level, foundations, and the underground link—versus $328 million to repair the existing Science Centre, including giving its exhibitions and public spaces a generous $100-million refresh.

From a sustainability perspective, one might also consider the massive carbon cost of building an underground, multi-level concrete parking garage and underground link next to a lake—as opposed to renovating an existing building whose embodied carbon has already been locked into place.

There's also a human cost to the math. The government's case for relocating the Ontario Science Centre is strongly based on the efficiencies of a smaller facility, but also on its ability, paradoxically, to attract more visitors. It estimates that 1.15 million people will visit the relocated science centre in its first years. It also expects to accrue cost savings through staffing reductions: the estimates count on laying off 53 people, or one out of every six people who currently work at the Science Centre.

In short, they are expecting that 50% more people will visit a facility that is 45% of the size of the current Science Centre, with a significantly reduced staff managing it all.

There's a few more salient details. On the side of retaining the existing building, the case assumes that the opening of the Eglinton LRT and eventually the Ontario Line, the densification of the area with condo towers, and the investment of over $100 million in exhibitions and public spaces in the building will result in precisely no increase in the visitors to the Science Centre in its existing location. The vaunted savings from maintaining a smaller science centre evaporate—and are in fact reversed—when you remove the "adjustment factor" of 1.3 that IO instructed its consultants to apply to the replacement value of the existing building, which carries forward in maintenance costs that are inflated by 30%.

Of course, it's not surprising that the business case contorts itself an attempt to justify the relocation. As the document states, it was prepared "in response to the December 2021 direction to identify order of magnitude costing and capital requirements associated with relocating the OSC to the Ontario Place site and subsequent April 2022 direction to seek Stage Two (construction) approval for the project." In other words, the provincial government had already determined, more than two years before any public announcement, that it was determined to relocate the Ontario Science Centre to Ontario Place. The business case was specifically constructed to justify this decision.

Whole sections of the business case are dedicated to another subject: the value of the current Ontario Science Centre lands, if redeveloped—a proposition in which the provincial government anticipates sharing profits with the City. There is a real hodge podge of ideas here, from repurposing the Valley building as a cultural facility to revamping it as a long-term care facility. Interestingly, there is no equivalent analysis of what the value of the waterfront-adjacent lands at Ontario Place would be worth if the Ontario Science Centre does not relocate there.

The horse may be out of the barn for building Therme's facility at Ontario Place, but there is still an imperative to change course on the government's idea of shuttering and relocating the Ontario Science Centre to the waterfront site. While we may take it for granted, there is value in taking care of what we have: a magnificent, much-loved museum at the Ontario Science Centre that is in need of some TLC. The value of such a gem isn't something we usually quantify, but if we did—in a neutral way that accounted for cultural value, economic value, social value, and sustainability—it's clear how the business case would land.

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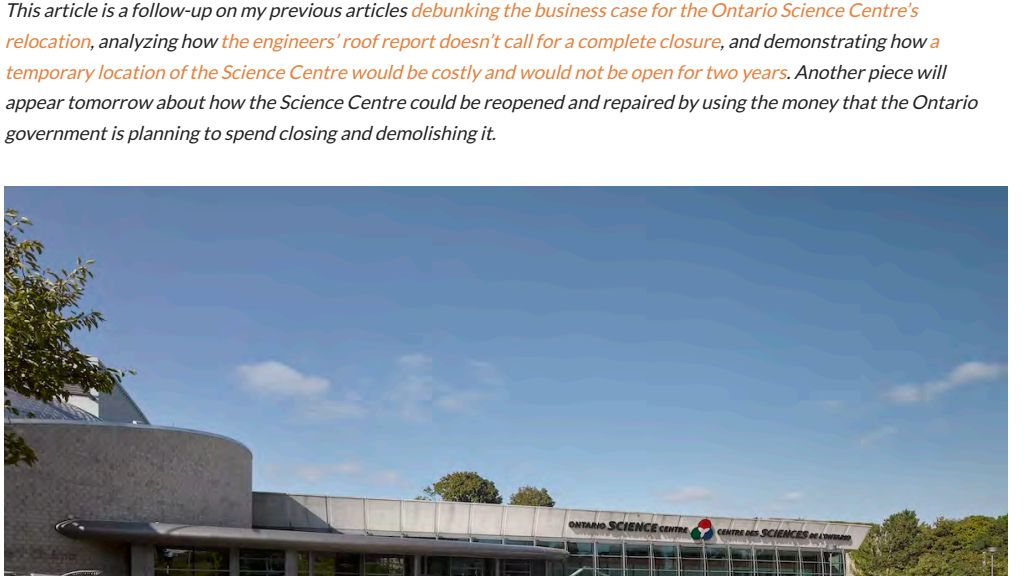
The true cost of repairing the Ontario Science Centre is much, much less than what Infrastructure Ontario has been saying—and the proof is in its own documents

Two figures have been cited by the Ontario Government: $478 million and $369 million. The actual number is much less—around $200 million, or just $24 million for tackling priority repairs to keep the museum open for several years to come.

By Elsa Lam — On Jul 8, 2024

This article is a follow-up on my previous articles debunking the business case for the Ontario Science Centre's relocation, analyzing how the engineers' roof report doesn't call for a complete closure, and demonstrating how a temporary location of the Science Centre would be costly and would not be open for two years. Another piece will appear tomorrow about how the Science Centre could be reopened and repaired by using the money that the Ontario government is planning to spend closing and demolishing it.



The Ontario Science Centre. Photo by James Brittain, Courtesy Moriyama Teshima Architects

How much will it cost to repair the Ontario Science Centre? Two figures have been cited by the Ontario Government: $478 million and $369 million. I have done a deep dive into the origins of this stated cost of repairs, and concluded that the actual figure is much less—around $200 million, or just $24 million if you were to prioritize repairs to a limited footprint of the Science Centre.

Let's start with the $478-million figure that has been widely cited by Infrastructure Minister Kinga Surma. This includes a generous $109 million allocation to cosmetic upgrades and to the renewal of exhibitions in the existing location of the Science Centre. At $66.5 million, the exhibition upgrade budget is equivalent to the entirety of the budget for exhibitions at the proposed new location of the Ontario Science Centre at Ontario Place. The $42.5-million renovation budget is also generous, especially considering that some $25-million of such upgrades appear to be double-counted in the cost for base repairs and renovations.

In any case, cosmetic repairs and renewed exhibitions fall in the category of nice-to-have, but not need-to-have. Over 75,000 people across Ontario have signed a petition saying they'd be more than happy to have the science centre back, just as it is. Tech sector donors have, unasked, also pledged over $2.5 million toward a reopened Science Centre—an offer that seems ripe with opportunities to work together towards sponsored upgrades to exhibitions. Personally, I think the "Hinton Hall of Computing and AI" has a nice ring to it.

Cosmetic upgrades and exhibition renewal aside, the cost for repairs cited by the Ontario government is $369 million. We can nitpick this—some $25 million of it, for instance, is for upgrades to interior ceiling finishes, flooring, walls, and kitchen millwork, which, as I have said, should arguably fall within the "cosmetic upgrades" budget rather than being considered part of core repairs.

But the bigger picture is that in order to create a business case that made the relocation to Ontario Place palatable, Infrastructure Ontario (IO) appears to have systematically maximized the possible costs of repairing the existing Science Centre, and, conversely, minimized the costs of building a new Science Centre at Ontario Place.

Environmental consultants Pinchin, who contributed to this business case by assessing the state of the Science Centre and estimating the cost of repairs over the next 20 years, came up with an estimate that would have originally been around $142 million.

Total Current Replacement Value:	$369,318,841
Total of Current needs:	$1,023,694
Total of Deferred Maintenance:	$63,905,874
Total of Proposed Maintenance:	$163,674,471
Facility Condition Index (FCI) 1	17%
Facility Condition Index (FCI) 2	18%

It should be noted that due to the fact that Ontario Science Centre is a facility complex with unique characteristics, an adjustment factor of 1.85 was applied to all repair and replacement costs and an adjustment factor of 1.30 was applied to all CRVs per Client's request to account for the hidden internal and external fees. It should also be noted that all costs may be subject to change due to volatile market value caused by COVID 19 pandemic.

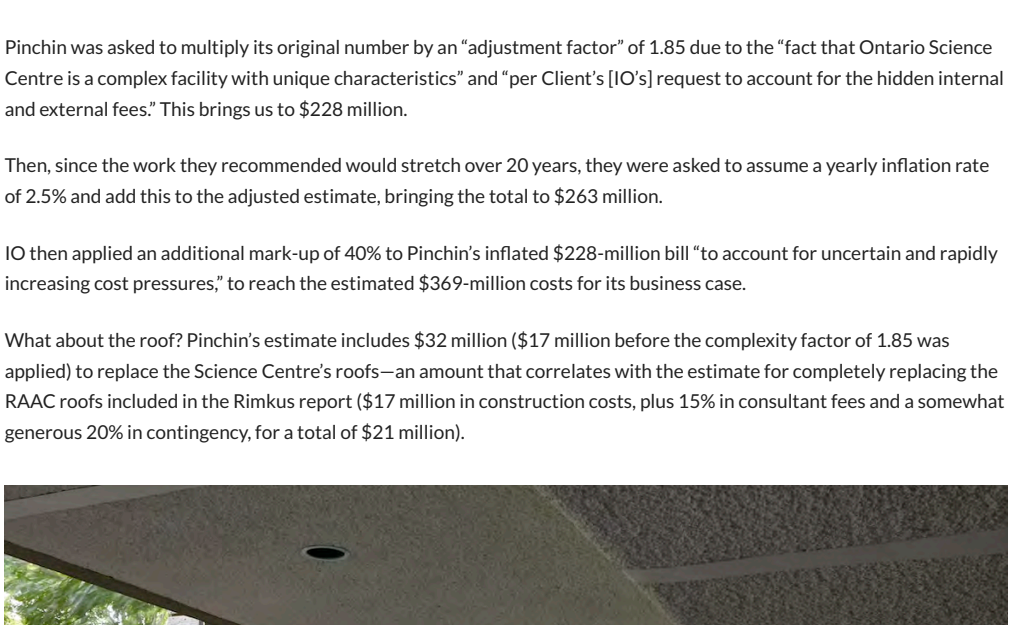
In a report prepared as part of the Ontario government's business case for relocating the Ontario Science Centre to Ontario Place, consultants Pinchin were asked to apply an "adjustment factor" of 1.85 to all of their estimates to account for the "hidden internal and external fees" of working with a "complex facility". This meant that they were asked to nearly double their base cost estimates for deferred and proposed maintenance and renovations. Infrastructure Ontario then applied an additional 40% markup to account for cost escalation.

Pinchin was asked to multiply its original number by an "adjustment factor" of 1.85 due to the "fact that Ontario Science Centre is a complex facility with unique characteristics" and "per Client's [IO's] request to account for the hidden internal and external fees." This brings us to $228 million.

Then, since the work they recommended would stretch over 20 years, they were asked to assume a yearly inflation rate of 2.5% and add this to the adjusted estimate, bringing the total to $263 million.

IO then applied an additional mark-up of 40% to Pinchin's inflated $228-million bill "to account for uncertain and rapidly increasing cost pressures," to reach the estimated $369-million costs for its business case.

What about the roof? Pinchin's estimate includes $32 million ($17 million before the complexity factor of 1.85 was applied) to replace the Science Centre's roofs—an amount that correlates with the estimate for completely replacing the RAAC roofs included in the Rimkus report ($17 million in construction costs, plus 15% in consultant fees and a somewhat generous 20% in contingency, for a total of $21 million).



A pedestrian bridge linking the front building to the main exhibitions has been closed since June 2022. Photo by James Brittain, courtesy Moriyama Teshima Architects

And the bridge? Pinchin's estimate also includes the $11.6 million (roughly $6 million, pre-adjustment) that would have been needed to stabilize the bi-level pedestrian bridge when an issue was first identified with it in 2021. The auditor general's office was told by Infrastructure Ontario that a new contract for the bridge repair amounted to $16 million, which would provide "a temporary solution to stabilize the bridge." This seems like an overly large budget—a structural engineer I spoke with indicated that the cost of over $1,000 per square foot put the estimate in the realm of what he would expect to see for repairing a large, vehicular bridge, not a pedestrian bridge. But as the documents related to these bridge repair contracts have not been made publicly available, it is hard to assess whether the numbers are competitive. For the sake of a ballpark figure, let's add the full $10 million difference to Pinchin's $142 million, for a total construction cost of $152 million.

Adding 17% in construction inflation (according to Statistics Canada) since Pinchin's report was generated in 2022, 12% in consultants' fees, and 10% contingency, the total bill comes to $211 million in repairs.

FIVE (5) YEAR EXPENDITURE SUMMARY TABLE:

A total investment of $113,578,135 within the first five years of the term of this analysis would be required to address all required repairs and replacement of the building components. This amount includes the immediate needs, key and other building components.

Based on the Clint request, Pinchin has provided the following Expenditure table with a five-year outlook:

Building Systems and Components	2021 (Current Year) Responsibility		2022 Responsibility		2023 Responsibility		2024 Responsibility		2025 Responsibility		2026 Responsibility		Total
	Infrastructure Ontario	Ontario Science Centre	Infrastructure Ontario	Ontario Science Centre	Infrastructure Ontario	Ontario Science Centre	Infrastructure Ontario	Ontario Science Centre	Infrastructure Ontario	Ontario Science Centre	Infrastructure Ontario	Ontario Science Centre	
A. SUBSTRUCTURE	$ -	$ -	$ 11,942,695	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 131,074	$ -	$ 12,073,770
B. SHELL	$ 499,891	$ -	$ 1,151,669	$ 432,106	$ 1,356,336	$ -	$ 2,889,599	$ 1,132,703	$ 3,681,489	$ 223,087	$ 13,443,833	$ 536,078	$ 25,346,791
C. INTERIORS	$ 10,583	$ -	$ 1,155,648	$ 647,845	$ 17,246	$ 433,263	$ 9,463,818	$ 715,195	$ -	$ -	$ 1,716,334	$ 1,141,012	$ 15,300,945
D10. CONVEYING	$ 37,000	$ -	$ 606,800	$ -	$ 5,281,750	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,925,550
D20. PLUMBING	$ -	$ -	$ 10,276,750	$ -	$ 83,250	$ -	$ 3,052,500	$ -	$ -	$ -	$ -	$ -	$ 13,412,500
D30. HVAC	$ -	$ -	$ 976,800	$ -	$ 9,573,750	$ -	$ 351,500	$ -	$ 447,700	$ -	$ 2,035,000	$ -	$ 13,384,750
D40. FIRE	$ -	$ -	$ 650,243	$ -	$ 224,390	$ -	$ -	$ -	$ -	$ -	$ 1,034,409	$ -	$ 1,909,042
D50. ELECTRICAL	$ 83,250	$ -	$ 342,250	$ -	$ 15,630,280	$ -	$ 83,250	$ -	$ 83,250	$ -	$ 1,161,800	$ -	$ 17,384,080
E.10 Equipment	$ -	$ -	$ 87,801	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
F10. SPECIAL CONSTRUCTION	$ 189,606	$ -	$ 39,682	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
G. SITE WORK	$ 203,364	$ -	$ 1,684,535	$ 1,132,256	$ -	$ 178,529	$ -	$ -	$ -	$ 5,324,935	$ -	$ -	$ 8,523,619
Total	$ 1,023,694	$ -	$ 28,914,873	$ 2,212,207	$ 32,167,002	$ 611,792	$ 15,840,667	$ 1,847,898	$ 4,212,439	$ 5,548,022	$ 19,522,451	$ 1,677,090	$113,578,135

The Pinchin report details that roughly half of its repairs ($113 M adjusted price, $61 unadjusted) be completed within the first five years following the report. The client may have asked for these repairs to be front-loaded within the five-year span in order to influence the Facility Condition Index assigned to the Science Centre, shifting it from a "B" to a "C".

This amount could be readily parsed into priority projects, if the intention is to keep the Science Centre functional only until such time that it moves to a different location. Pinchin's report recommends that roughly half of the repairs for the next 20 years should be completed in the coming five years. Some of the items in Pinchin's priority list might be reconsidered—for instance, some $8 million ($4 million unadjusted) in ceiling finish replacements that are marked "optional", or a $1.7 million ($1 million unadjusted) replacement of vinyl floor tiles in the exhibition hall and offices.

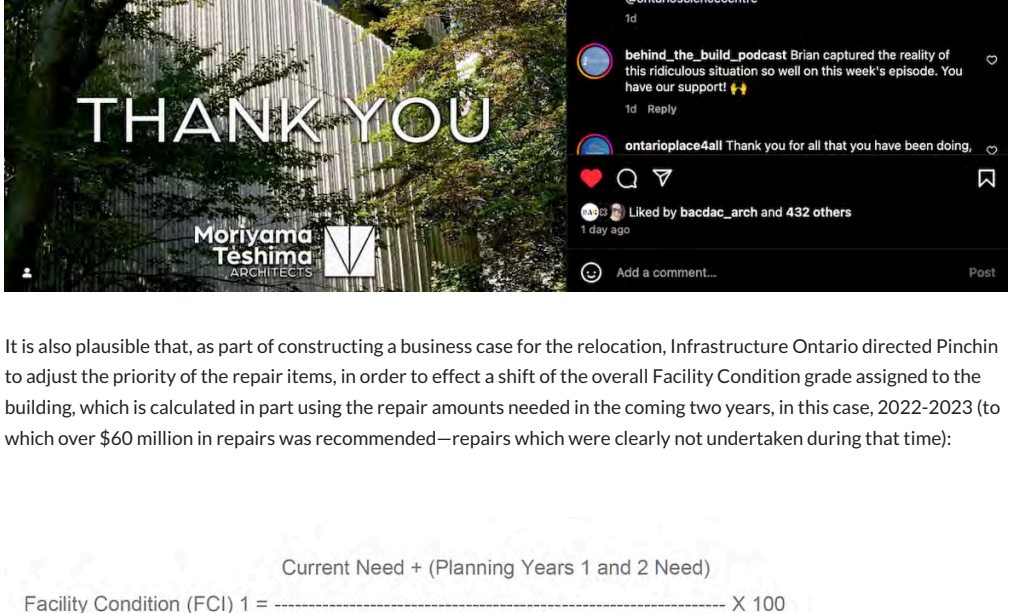
Due to this uncertainty, a conservative position has been taken in the business case and it has been assumed that OSC will remain at its current location for five years until March 31, 2028, operating with a reduced footprint. Based on estimates from MTCS, this will cost Government approximately $45 million (including a minimum of $32 million in building repairs over five years and decommissioning costs). This cost includes estimated impacts to revenues and costs due to reduced footprint. This entire cost has been allocated to the Relocate option as an interim operations cost.

An excerpt from the business case for relocating the Ontario Science Centre to Ontario Place notes that keeping the Centre in place and operating on a reduced footprint will require $32 M in building repairs over five years; the exact number used in the Business Case calculations is $32,309,026 ($30,528,632 NPV).

Buildings Critical Maintenance	Value has been provided by IO Asset Renewal Mgt based on building condition assessment report. Pinchin BCA estimate adjusted by IO Asset Renewal (40%) to reflect escalation due to market conditions and precedent projects. Remain: $369M for critical maintenance required over 20 years for critical maintenance of the current site. Includes markup of 40% on the inflated Pinchin report estimate for escalation, market conditions, and soft costs. Relocate: $32M for critical maintenance required to continue operation for 5-year interim operations assumed.

Another excerpt of the report showing how the Province used the estimated $32 M as the cost to repair the building to keep it operational for five years.

Infrastructure Ontario itself estimated that the footprint of the Science Centre could be reduced in footprint for that interim period, presumably restricting it to the Valley Building C alone, a move that it said would entail some $32 million in repairs. In reality, the interim cost of making the necessary repairs to keep the Ontario Science Centre in its may be closer to $24 million, if you were to use industry standard mark-ups and contingencies, rather than the Province's mark-ups. It could be and even less still if you take into account that Moriyama Teshima Architects, the firm that originally built the centre, has assembled a consultant team to help with the roof repairs pro bono.



It is also plausible that, as part of constructing a business case for the relocation, Infrastructure Ontario directed Pinchin to adjust the priority of the repair items, in order to effect a shift of the overall Facility Condition grade assigned to the building, which is calculated in part using the repair amounts assigned to the coming two years, in this case, 2022-2023 (to which over $60 million in repairs was recommended—repairs which were clearly not undertaken during that time):

$$\text{Facility Condition (FCI) 1} = \frac{\text{Current Need} + (\text{Planning Years 1 and 2 Need})}{\text{Total Replacement Cost of Facility}} \times 100$$

$$\text{Facility Condition Index (FCI) 2} = \frac{\text{Deferred Maintenance}}{\text{Total Replacement Cost of Facility}} \times 100$$

As of September 29, 2021, the current FCI 1 system average was 17%, which means that, overall, the buildings in Ontario Science Centre are in C condition (i.e., the facility and its components are functioning as intended; for most infrastructure assets, this would infer that no repairs anticipated within the next five years.). While previous various investments and budgets provided by the provincial government have

A key section in Pinchin's executive summary says that the Ontario Science Centre's "facility and its components are functioning as intended; for most infrastructure assets, this would infer that no repairs anticipated within the next five years."

This would explain a key discrepancy in Pinchin's report, where in one sentence it notes that the Facility Condition is such that "*the facility and its components are functioning as intended; for most infrastructure assets, this would infer that no repairs anticipated within the next five years*"—a comment consistent with the facility receiving a 'B' grade. In the same section, though, the report notes that the facility is a "C" due to the intensive repairs needed in the coming two years, but it carries the correlating note: "*The Facility and its components are functioning as intended; normal deterioration and minor distress observed; repairs will be required within the next five years to maintain functionality.*"

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The Current Replacement Value of the building was also adjusted, this time by a factor of 1.30, which increases the amount of yearly maintenance that would have been calculated for it in the business case by 30%.

As for running the Science Centre, in Infrastructure Ontario's business case, the maintenance costs for the existing Science Centre are also exaggerated. Again, due to the "fact that Ontario Science Centre is a complex facility with unique characteristics" and "as per Client's request to account for the hidden internal and external fees," Pinchin "adjusted" the Current Replacement Value (CRV) of the property by a factor of 1.30. Since the maintenance expenses were calculated as 1.25% of the property's CRV, the resulting annual maintenance estimate of $7.5 million per year is also inflated.

The actual maintenance number, without the inflated CRV, would be $5.8 million per year. This number is still significantly larger than the actual expenses in recent years. The Province charges the Ontario Science Centre $4.8 million a year for the use of the facility as an annual occupancy cost—a figure that not only has historically covered maintenance, but also taxes, operating and management fees, utilities, and leasehold improvements, as outsourced to an outside property management firm. In other words, the Science Centre has been getting by on an annual maintenance budget that is somewhat less than $4.8 million.

Figure 14: Summary of Ontario Science Centre Capital Maintenance Projects, 2016/17–2022/23

Source of data: Infrastructure Ontario

Fiscal Year	# of Funded Projects	Value of Funded Projects ($ 000)	# of Deferred Projects	Value of Deferred Projects ($ 000)*
2016/17	14	2,496	6	694
2017/18	9	8,475	8	1,347
2018/19	2	60	1	73
2019/20	1	65	7	1,489
2020/21	5	851	9	5,398
2021/22	0	0	4	1,510
2022/23	3	59	7	5,779
Total	**34**	**12,006**	**42**	**16,290**

* For projects with requested funding requests, deferred value is included at the initial requested cost.

The Auditor General's 2023 value-for-money report on Ontario's science centres summarizes the capital maintenance projects that were finished and deferred in the past seven years. From 2016 to 2018, $11 million worth of these projects were approved and $2 million denied funding; whereas from 2018 to 2023, the period in which Doug Ford has been Premier, just $1 million of these projects were approved, whereas $14 million were denied funding.

Of course, reinvestment in the Science Centre—including in ongoing maintenance—is indisputably needed. All buildings, new and old alike, require regular maintenance. The Auditor General's report notes that from 2016 to 2023, 34 maintenance projects identified as "critical," totaling $12 million dollars, were approved, while 42 of such maintenance projects, totaling over $16 million dollars, were denied funding, which the Auditor General notes "result[ed] in further deterioration of the building." The responsibility falls under different provincial leaders, but from 2016 to 2018, $11 million-worth of these projects were approved and $2 million denied funding; whereas from 2018 to 2023, the period in which Doug Ford has been Premier, just $1 million of these projects were approved, whereas $14 million were denied funding.

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The chart shown previously from the Pinchin report documents the division of budget responsibility for its recommended maintenance projects. The division is based on instructions Pinchin received from Infrastructure Ontario's management partner for the facility, CBRE.

Although the difference may seem academic, the responsibility for the vast majority of repairs falls to Infrastructure Ontario as the building owner, rather than to the Ontario Science Centre, which has a limited budget and responsibility for building improvements. The Ontario Science Centre, for its part, seemed to be doing what it could with its limited means and scope. At the time of the auditor general's report, the Science Centre was in the process of purchasing equipment using its exhibit renewals budget in order to reopen its planetarium in 2024.

As minor as it is, this may be, for me, one of the most telling details in this whole saga. Over the past five years, Infrastructure Ontario has systematically denied critical funding to the Ontario Science Centre, allowing its maintenance to lapse. The most visible effects of the Centre's apparent decline have included the closure of its planetarium in 2022, and the closure of its pedestrian bridge that same year. At the very moment that the province announced the sudden, indefinite closure of the Science Centre on the flimsy basis of an engineering report that asked for manageable, phased roof repairs, one of those key experiences was about to be restored.

The Science Centre had scraped through the pandemic and suffered through putting its visitors on shuttle buses to its back entrance. It had been informed that the government planned to move it to a half-sized facility at Ontario Place in a few years, a move that would include laying off one out of every six people who currently worked there. And yet, it remained determined to give its visitors the best possible science experience in the interim. New exhibitions were still appearing in its Science Arcade and Weston Family Innovation Centre. And the planetarium was going to reopen.

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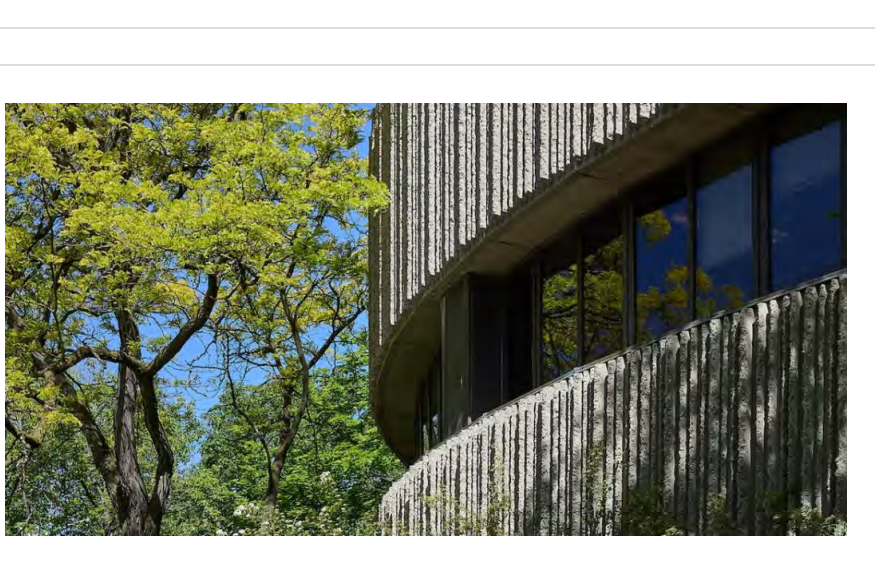

How to pay for repairing the Ontario Science Centre? Let's start by using the money it's taking to close it

The $50-$100 M it will cost to demolish and set up a temporary location of the Science Centre would more than cover the $30 M needed in repairs for the next few years—and put a sizeable dent in the $200 M needed to set the Science Centre to thrive for decades to come.

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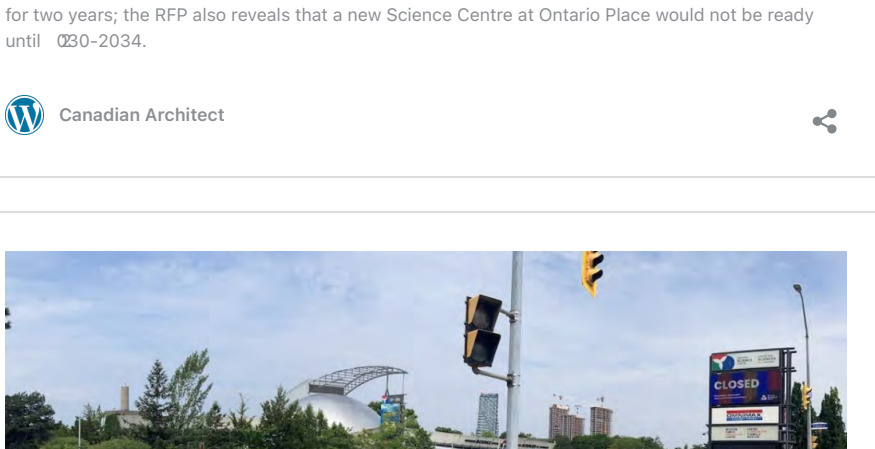

Cost of Ontario Science Centre temporary location exceeds cost of roof repairs

The time required to set up a temporary location will mean that there is no Science Centre location for two years; the RFP also reveals that a new Science Centre at Ontario Place would not be ready until 2030-2034.

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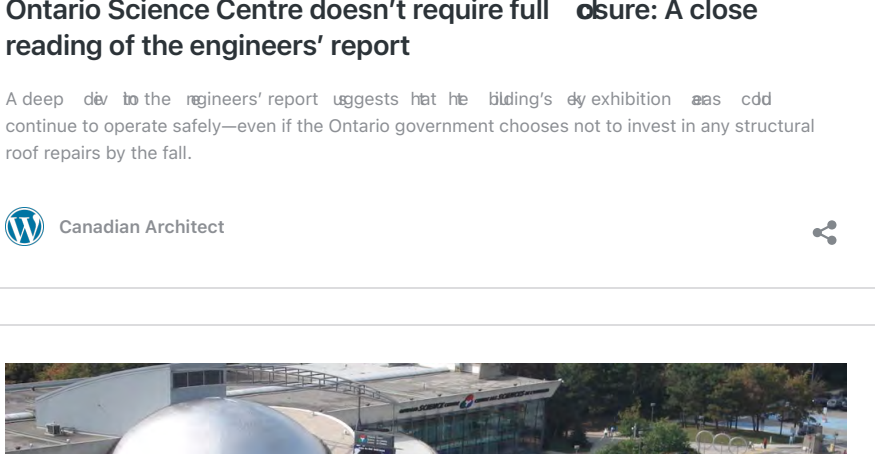

Ontario Science Centre doesn't require full closure: A close reading of the engineers' report

A deep dive into the engineers' report suggests that the building's key exhibition areas could continue to operate safely—even if the Ontario government chooses not to invest in any structural roof repairs by the fall.

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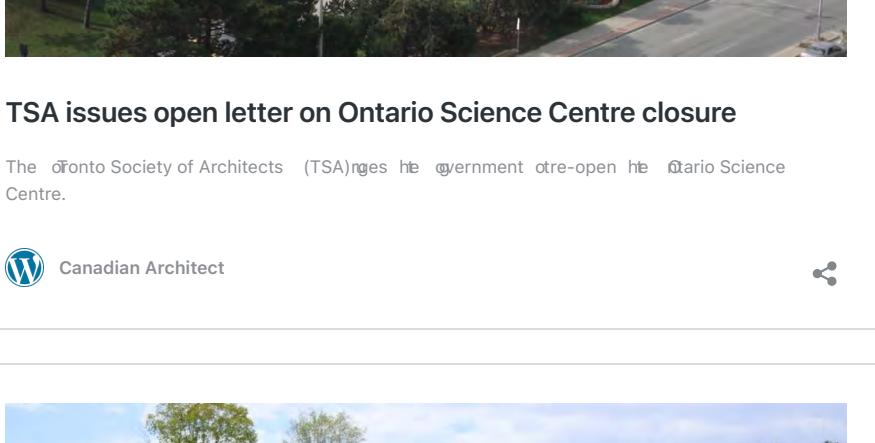

TSA issues open letter on Ontario Science Centre closure

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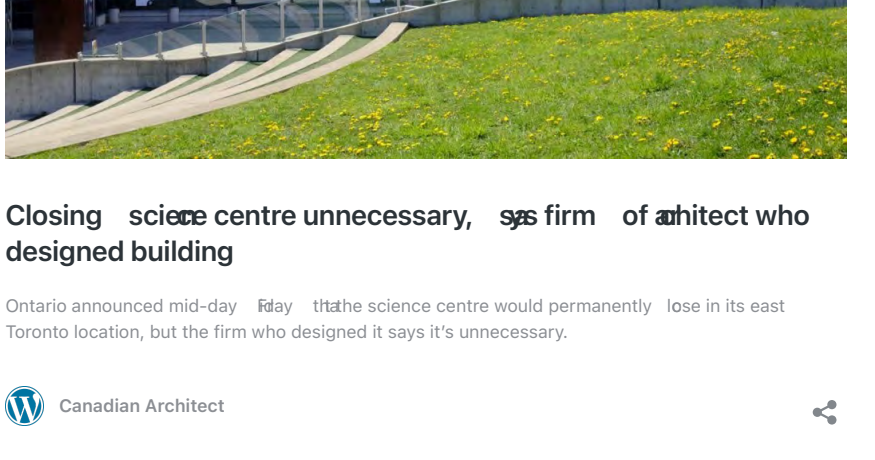

Closing science centre unnecessary, says firm of architect who designed building

Ontario announced mid-day Friday that the science centre would permanently close in its east Toronto location, but the firm who designed it says it's unnecessary.

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By Elsa Lam — On Jul 9, 2024

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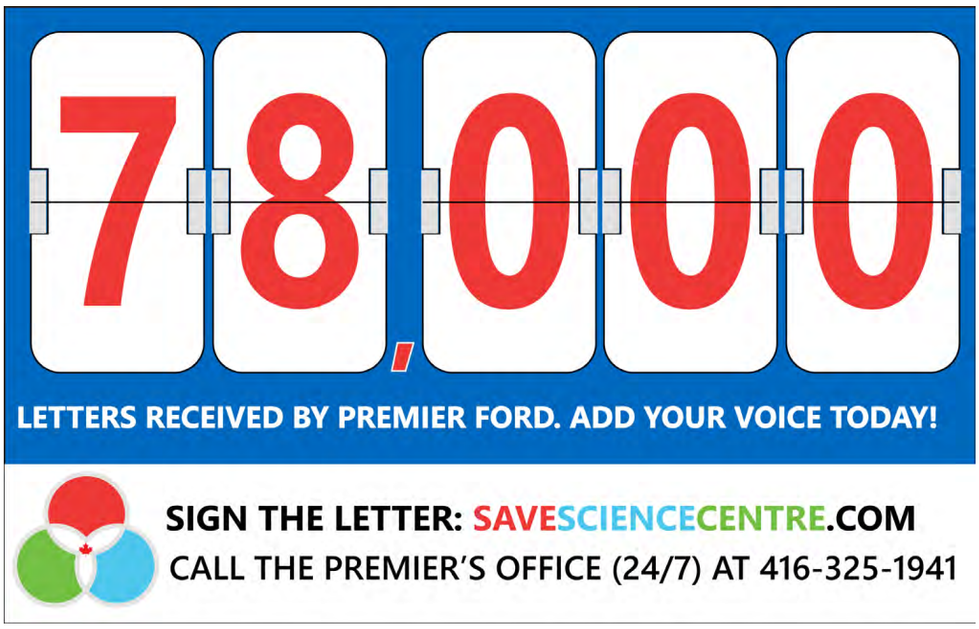

This article is a follow-up on my previous articles debunking the business case for the Ontario Science Centre's relocation, analyzing how the engineers' roof report doesn't call for a complete closure, demonstrating how a temporary location of the Science Centre would be costly and would not be open for two years, and calculating how the actual cost to repair the Science Centre is around $200 million—or just $25-30 million for tackling priority repairs—not the $478 million that is being cited by the Province.

Over 78,000 people have signed a petition demanding the reopening of the Ontario Science Centre. And it's clear, as with any older building, that repair and reinvestment will be needed.

It's true that in addition to the cost of roof repairs, there are other repairs needed to maintain the Science Centre's buildings in good working order. But, as I have written before and detailed yesterday, the actual construction cost of repairs over the next 20 years is around $200 million—not the $478 million that the Province cites. To keep the building open for the next few years would cost much less—around $25-30 million.

The actual figure for repairs comes in at $211 million. This is based on the estimates provided by the Province's consultants Pinchin and Rimkus, and applies industry standard figures for construction escalation, consultant fees, and contingency, instead of the province's inflated mark-ups. It fully addresses deferred maintenance and sets the building up to be functional for decades to come, including addressing repairs needed to the roof and budgeting $16 million in repairs to the pedestrian bridge.

But what about just keeping the building operating for a shorter term—say, until a new facility is opened at Ontario Place? In its business case for the relocation, Infrastructure Ontario had planned to do just that. It estimated that the repairs needed to keep the Science Centre functional on a smaller footprint (presumably within the valley-side Building C, which contains the bulk of the exhibitions) until a new Science Centre was ready would amount to $32 million. (In

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reality, the cost should be $24 million if you were to use industry standard mark-ups and contingencies, rather than the Province's mark-ups—and even less still if you take into account that Moriyama Teshima Architects, the firm that originally built the centre, has assembled a consultant team to help with the roof repairs pro bono—but we'll stick with $32 million for simplicity).

Let's also assume that roof repairs were an unexpected addition to this cost—and that the Province opts to undertake the full $2 million in roof repairs and replacements recommended by their consultants to take place in the coming five years for Building C alone. The total comes to $34 million.

$34 million is not insignificant, but it is also far less than the $478 million figure that Infrastructure Ontario says it is unwilling to invest in a Science Centre that will be soon closed. It's also far less than the $83 million it may take to lease and fit-out a temporary location for the Science Centre.

Even if the Province manages to pull off the leasing and fit-out of a temporary location for $25 million (at the very lowest end of my calculations), that space would not be open for two years, costing $14 million in lost admission and membership revenue—a total of $39 million.

It would be less expensive, by the Province's own numbers, to simply keep the existing facility running on a smaller footprint. The repairs would more than pay for themselves.

Closure doesn't mean that the Province can simply walk away from the Science Centre. There are significant costs in addition to paying for a temporary location.

> If terms could be agreed, an early termination would result in the OSC lands being returned to the City and made available for redevelopment. Through this process, the Province could potentially negotiate either a long-term partnership with the City ('gain share') or a more immediate arrangement that would allow the site to be transferred back to the City on an 'as is, where is' basis. The latter could limit any trailing obligations, including but not limited to:
>
> - decommissioning costs (approximately $21 million); and
> - costs related to returning the building in a state of good repair (up to $369 million).
>
> Refer to Appendix L for a detailed analysis of the estimated land value for the OSC site.

The business case notes that the return of the OSC lands to the City could entail the Province being responsible for decommissioning costs ($21 million) as well as costs related to returning the building to a state of good repair (up to $369 million). The document notes that the Province would hope to minimize these expenses by negotiating for the lease to be terminated quickly on a "as is, where is" basis.

In the long run, when the Science Centre relocates to Ontario Place, the buildings will revert to the City of Toronto. The Province's lease obliged it to keep the buildings in a state of good repair, and in terminating the lease, the City can seek compensation for losses associated with the early lease termination. In its business case, Infrastructure Ontario has allocated $21 million towards decommissioning the existing Science Centre to resolve this—a number that seems to correlate with the cost of demolishing the buildings, clearing the slate for redevelopment. But the business case for the relocation also acknowledges that the province may be on the hook for "costs related to returning the building to a state of good repair (up to $369 million)."

> Heritage designations also impose some constraints on any future adaptive re-use strategy for the site. Should the OSC relocate to a new facility, the Province may choose to modify the asset or demolish portions or all of the existing building. However, as a heritage asset, demolition will require Ministry of Citizenship and Multiculturalism (MCM) Minister's Consent. Assuming a demolition cost of $40 per square foot, the entire 568,000 square foot complex could be demolished for approximately $25 million. Alternatively, if the original Moriyama & Teshima designed components were to be retained and adaptively re-used (approximately 350,000 square feet), demolition costs of the remaining 218,000 square feet are estimated at up to $10 million. Additional due diligence is required to confirm demolition costs estimates.

An excerpt from the business case for the relocation of the Ontario Science Centre details the cost of demolishing the buildings at $25 million, roughly correlating with the "decommissioning" costs detailed earlier.

An excerpt from the business case for the relocation of the Ontario Science Centre details the cost of demolishing the buildings at $25 million, roughly correlating with the decommissioning costs detailed earlier. It also notes that "as a heritage asset, demolition would require Ministry of Citizenship and Multiculturalism (MCM) Minister's Consent." As commentators to Adam McNamara's X thread analysis of the business case have noted, the current MCM Minister is Michael D. Ford, Premier Doug Ford's nephew.

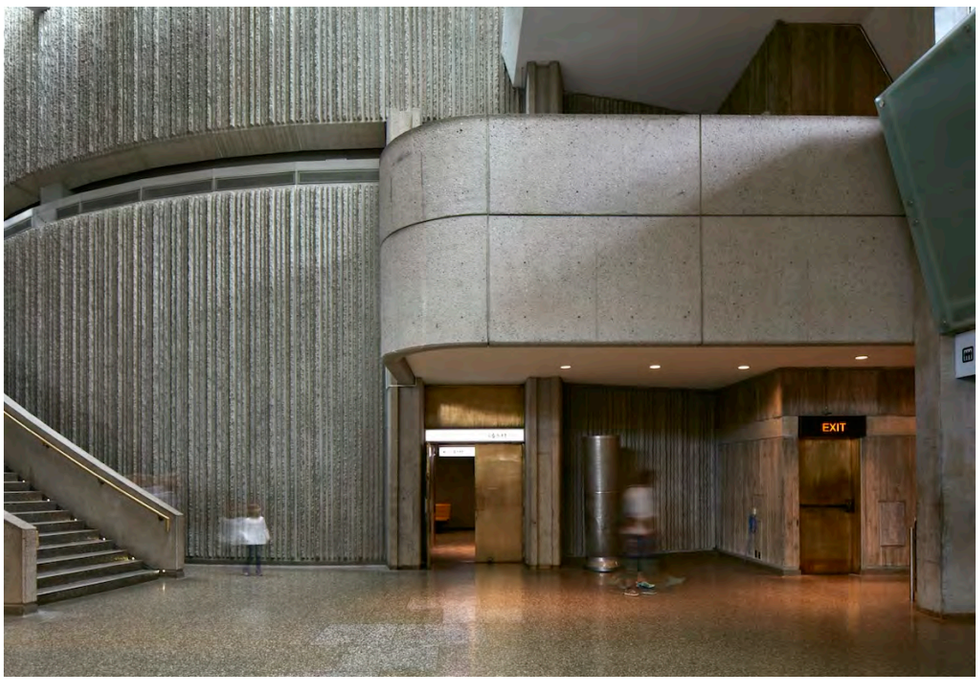
Demolition may become more difficult if the buildings become heritage designated with the City of Toronto, a process which is underway now, and which should be completed by mid-September, 2024. This would require the approval from the City for any changes to the "heritage attributes" of the centre, and make demolition a last resort to other solutions for the site. However, as the Auditor General has pointed out, under the Province's amendments to the Ontario Heritage Act in January 2023, Cabinet could exempt even a city-designated Ontario Science Centre from having to comply with heritage standards and guidelines.

Perhaps more pertinently, under the New Deal for Toronto, the City and Province are currently discussing retaining the buildings for "community-based science programming," creating a public expectation that the buildings will not be demolished—but will, indeed, but repaired and reinvested in, whoever is paying the final bill.

Ontario Science Centre. Photo by James Brittain, courtesy Moriyama Teshima Architects

If the Province no longer wants to be responsible for the Science Centre buildings, it would seem reasonable for the City to ask the Province for the $25-83 million it would otherwise have spent for a temporary location, plus the $21 million it had budgeted for decommissioning the buildings—easily something in the realm of $50-$100 million in all.

In return, the City could agree to reinvest that money in the Science Centre, including making the needed $26-32 million in repairs needed to keep it open it until a new Science Centre opens in 2030-2034. Under such an agreement, the Science Centre would also continue to receive its ongoing operational funding from the province. The small yearly operational deficit of the Science Centre, around $1 million, could be covered by the generosity of private donors who have stepped up to keep the Science Centre open—such as Sabina Vohra-Miller, Geoffrey Hinton, and Adam McNamara; the Auditor General's report also identified opportunities for the Science Centre to increase its self-generated revenues.



A partial view of the Ontario Science Centre's Great Hall. Photo by James Brittain, courtesy Moriyama Teshima Architects

Ideally, some version of the Science Centre would continue operating on the site after a new satellite location is completed at Ontario Place—both to make full use of the Moriyama building, as well as to serve locals and school audiences who will have more difficulty accessing an Ontario Place location. To make this viable for decades to come would require a continual commitment of operational funding from the Province, as well as further support for capital work—but this would be to the tune of $100-150 million, not the hundreds of millions that the Province is suggesting. There would be years to figure out where that money could come from—perhaps some combination of public sources, the development of the Science Centre's parking lots, private philanthropy, and self-generated revenue.

In any case, making the needed repairs to the Science Centre in the interim makes fiscal sense, and sets the Science Centre up for success in the future. Most importantly, it benefits Ontarians, and especially the province's kids and parents—who want to see the doors of the Ontario Science Centre reopened as soon as possible.

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The true cost of repairing the Ontario Science Centre is much, much less than what Infrastructure Ontario has been saying—and the proof is in its own documents

Two figures have been cited by the Ontario Government: $478 million and $369 million. The actual number is much less—around $200 million, roughly $24 million for tackling priority repairs to keep the museum open for several years to come.

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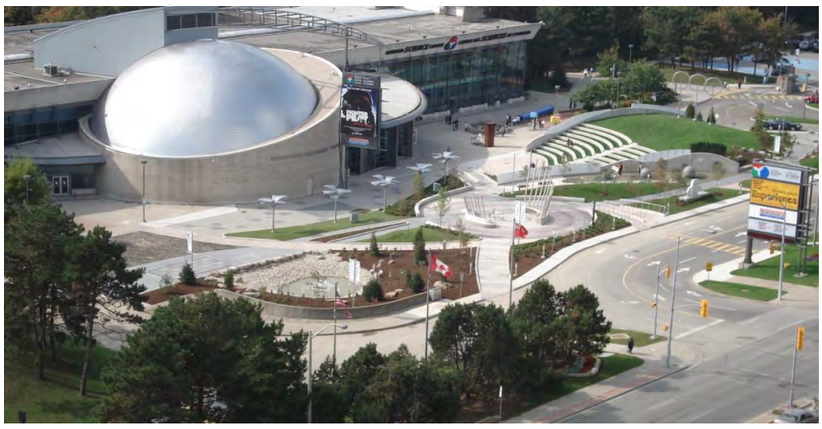

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