

## Section I – Items for Authority Action

**TO:** Chair and Members of the Authority  
Meeting #6/18, Friday, July 20, 2018

**FROM:** Michael Tolensky, Chief Financial and Operating Officer

**RE:** **TORONTO AND REGION CONSERVATION AUTHORITY ADMINISTRATIVE  
OFFICE BUILDING PROJECT**

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### KEY ISSUE

Approval in principle to modify Toronto and Region Conservation Authority's new administrative office building project to adhere to the available budget.

### RECOMMENDATION

**THAT the project update which proposes to modify the previous Authority approval of the administrative office building project to adhere to budgetary changes be approved;**

**THAT staff report back on the outcome of the Site Plan Approval process and recommendation of the design specifications to be included in the construction tender to ensure the construction of the project meets Toronto and Region Conservation Authority's (TRCA) sustainability expectations and City requirements;**

**AND FURTHER THAT Mike Mattos be added as a Member of the Long Term Office Accommodation Working Group.**

### BACKGROUND

The Long Term Office Accommodation Working Group (LTOAWG) was established on May 23, 2008 by Authority Resolution #A126/08, to determine the office accommodation needs of TRCA over the next 30 years and recommend a comprehensive, cost effective solution. At Authority Meeting #2/15, held on February 27, 2015, the Authority approved appointment of new members to the Working Group and the selection of the existing Head Office site at 5 Shoreham Drive as the preferred site for TRCA's new headquarters. The LTOAWG is currently comprised of the Chair, Maria Augimeri and the following Authority Members: Glenn De Baeremaeker, Jack Heath, Colleen Jordan and Anthony Perruzza.

Under the direction of the LTOAWG, and with the assistance of DTAH, staff undertook an intensive planning and design process, which included the development of a project charter with objectives for TRCA's long term head office; a sustainability charter to evaluate proposed designs against; a building program and needs assessment; a preliminary consultation with stakeholders and potential partners such as York University, Tennis Canada, City of Toronto, Ontario Ministry of the Environment and Climate Change; design workshops with DTAH's consulting team; development of independent construction costs by A.W. Hooker and Eastern Construction; and life cycle cost assessments.

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Under the direction of the LTOAWG and staff, DTAH developed a schematic design for a six-storey, 190,254 ft<sup>2</sup> (100,000 ft<sup>2</sup> office and 90,254 three level underground parking garage) building that featured a low-carbon wood and concrete hybrid structural system and proposed to achieve Leadership in Energy and Environmental Design (LEED) platinum and WELL Building silver certification. This concept and a preliminary cost estimate were presented at LTOAWG Meeting #2/15, held on July 24, 2015. LTOAWG members directed staff to assemble life cycle cost information for the proposed schematic design and compare it to other options such as purchase of an existing building and continuing to lease.

This information was presented at LTOAWG Meeting #3/15, on November 13, 2015, along with updated build new option construction cost estimates of \$57,841,916 as provided by A.W. Hooker and \$56,549,640 as provided by Eastern Construction (in 2015 dollars). The cost of constructing the building out of concrete was estimated by Eastern Construction at \$51,508,836 which was also provided for consideration of the Working Group at this meeting, identifying a potential savings of \$5,040,804 in 2015 dollars. The wood option was supported by the Working Group as it has the advantages of supporting TRCA's sustainability objectives by offering a low carbon, renewable building material that can be sustainably sourced. Wood construction also allows for prefabrication to be considered during construction to reduce construction time, reduces the weight of the building, reduces the amount of material deliveries to the site and reduces the amount of formwork required which in turn reduces significant amounts of construction waste.

LTOAWG members agreed with the staff recommendation that the continue to lease option was not a cost effective solution to TRCA's long term head office requirements and that it should be removed from further consideration. Staff presented that the purchase of an existing building was comparable in price to the build new option; however, with higher risks and less benefits. The LTOAWG directed staff to revise the financing proposal and provide more detail on aspects related to past head office design studies (i.e. Integra 2008), parking, existing buildings for sale, and funding options.

At LTOAWG Meeting #4/15, held on December 4, 2015, staff provided a draft Authority report for consideration, which included a project summary, comprehensive justification and recommendation for Authority approval to proceed with the new build option at 5 Shoreham Drive. This information was included in a report at Authority Meeting #12/15, held on January 29, 2016 which recommended approval of the project in principle based on the design developed by DTAH, with a finance proposal for an upset limit of a \$70 million capital asset outlay.

### **RATIONALE**

At Authority Meeting #5/16, held on June 24, 2016, Resolution #A85/16 approved the construction of an administrative office building at a cost of \$70,000,000 and directed staff to take the necessary action to complete the project, including the submission of formal requests for approval to the participating municipalities and the Province of Ontario. On February 24, 2017, staff reported at Authority Meeting #1/17 that all six of TRCA's participating municipalities, by way of their respective Councils, had approved the project and the allocation of \$60,000,000 in new and existing capital funding toward the project.

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Following this meeting, TRCA staff began the process of assembling an integrated design team and reported at Authority Meeting #7/17, held on September 22, 2017, of the Minister of Natural Resources and Forestry's decision to not grant approval to allocate approximately \$10 million to the project from existing and future land sale disposition proceeds, inclusive of the provincial and TRCA share of the revenue. Staff also reported at this meeting that other funding for the project would continue to be explored as well as opportunities to reduce the overall cost of the project through the final design process. In the fall of 2017 the integrated design team assessed the DTAH budget and developed a total project budget of \$80,876,216, assuming all soft and hard cost including design, permitting, construction, financing, commissioning, fit-out, staff relocation and contingences, which exceeds the approved \$70,000,000 budget by \$10,876,216.

Subsequently, at Authority Meeting #4/18, held on May 25, 2018, staff reported on the Minister's decision on May 8, 2018 to allow the use of \$3,538,000 in disposition proceeds towards the project, for a total budget of \$63,538,000. As a result of the refined costing model and in conjunction with the reduced funding envelope, TRCA challenged the integrated design team, to realize a highly efficient, cost effective building within a \$63,538,000 budget.

The first option to be explored was a reduction in overall on-site parking to achieve the minimum requirement to meet City of Toronto Zoning By-law 569-2013. Elimination of the underground parking would result in a reduction in upfront, capital costs, of approximately \$8,500,000 and a reduction in projected annual maintenance costs. Removal of the underground parking also eliminates the potential risk related to potential cost and schedule delays associated with the excavation, shoring and dewatering activities required to construct underground parking.

SvN is providing municipal approval services and provided comment on TRCA's draft Site Plan with zoning boundaries and zoning analysis on March 22, 2018. This zoning analysis confirmed that the Open Space Natural Area (ON) designation on the lower half of TRCA's property extends north along a portion of the right-of-way that had been shown as surface parking in the original DTAH concept as illustrated in Attachment 1. Locating parking in the ON zoned portion of the public right-of-way has been identified by SvN as being a significant risk in terms of zoning compliance and approvals. Locating parking in this area would require at a minimum a minor variance application and possibly a zoning amendment. Based on the zoning and TRCA's further analysis of the potential impacts of parking on the existing and adjacent tree cover in this area, the amount of surface parking proposed on-site has been reduced from the original 159 parking spaces proposed in the DTAH concept to 44 parking spaces.

The result is similar to the original DTAH concept, with surface parking within the right-of-way between TRCA's property and Tennis Canada, and the balance of TRCA's parking being met within the adjacent Black Creek Pioneer Village parking lot which has capacity to accommodate up to 700 vehicles. The refined concept also separates TRCA parking from Tennis Canada's to address security concerns and prevent operational issues associated with two organizations sharing a parking lot. This strategy allows TRCA to take advantage of an existing asset without incurring additional costs and allows more of the site to be protected and restored as part of the Black Creek ravine system. It also eliminates substantial upfront capital investment in underground parking which is costly to maintain and operate, which may not be needed in the future, and will be difficult to repurpose.

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For years, TRCA staff has reached out to several organizations in regards to renting space in TRCA's future office, but no partnership has been confirmed. As such, TRCA staff needed to be creative in developing a future proofing strategy within the available capital budget. TRCA staff worked with the integrated design team to review and refine the building program, with consideration for projected growth by each TRCA business unit. The resultant building program results in a reduction in size from 100,000 to 80,000 ft<sup>2</sup>, achieving a greater efficiency in the use of space by not allocating permanent space to staff that by the nature of the jobs are not in the office the majority of the time (e.g. education staff that spends more than three days a week out of the office delivering programs). The design can accommodate future growth through a one floor addition of 640 to 1,237 m<sup>2</sup> (6,889 to 13,315 ft<sup>2</sup>) should it be needed. It also considers feedback from staff that the long linear floorplates proposed by the original DTAH concept would result in staff teams being located on multiple floors, which would inhibit collaboration between teams that commonly work together. The resultant design takes the original linear floorplates and combines them over one floor as illustrated in Attachment 1. The result is larger floorplates, over fewer floors, and a reduction from six to four storeys. The upfront capital cost reduction is estimated at \$8,000,000, with a further estimated savings of \$250,000 per year in operating and maintenance costs.

Other elements of the original DTAH concept remain unchanged including ambitions to construct the building structure with a wood and concrete hybrid system and achieve a design that relies on low carbon and renewable energies from roof mounted photo voltaic (PV) panels and geothermal energy exchangers.

At Authority Meeting # 4/18, held on May 25, 2018, the Authority Members directed staff to report back on the cost comparison of a wood versus concrete structural system and the environmental impact of using wood. The current approved concrete and wood hybrid structure features cross laminated (CLT) slabs and glulam columns and beams. The costs of the current structure are identified below in relation to cost of substituting a concrete structural system, as provided by Eastern Construction.

### **Projected Cost of Proposed Hybrid Structural System Versus Concrete**

Concrete	\$2,141,526
Structural Steel	\$238,650
Wood (Glue Laminated System)	\$5,314,372
<b>Sub-total</b>	<b>\$7,694,548</b>
Substitute wood with concrete	(\$1,722,000)
Increase formwork costs on irregular bay sizes and floors	\$122,684
Increase foundation	\$213,200
Include ceiling finishes	\$410,000
Add thermal bridging at windows	\$82,000
Tariffs/Market conditions on rebar	\$127,920
Increase schedule/site logistics	\$100,000
Substitute lost LEED v4 credits	\$241,900
<b>Total potential savings*</b>	<b>(\$424,296)</b>

\*Note redesign, increased inflation and office lease extension costs would far surpass any potential savings if pursued at this point in the project.

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The wood structure will utilize 2,312.8 m<sup>3</sup> of fast growing pine, spruce and fir trees from managed wood lots. An average tree can produce 1.2 m<sup>3</sup> of wood product, therefore it is estimated that TRCA's office building will require 1,928 trees to be harvested. Based on the rates calculated by the University of British Columbia in their evaluation of the Brock Commons project, U.S. and Canadian forests grow the amount of wood required for TRCA's administrative office in six minutes. The advantages of utilizing a wood structural system are as follows:

1. Reduction of Structure Weight – mass timber is significantly lighter than a steel or concrete structure. The reduction in weight means smaller foundations resulting in less cost and time spent “underground” on foundations work and less disruption to TRCA's sensitive ravine site that supports many mature trees.
2. “Finished” looking Structural Systems – raw steel or concrete structures require “finishing” costs to cover ceilings and wall treatments to address fire safety, aesthetics and acoustic impacts. Mass timber can be left “as is” eliminating the cost and time of “finishing” required with steel or concrete structures.
3. A Canadian Solution - Canada is a world leader in mass timber development, manufacture and installation, and thus it is becoming an important job creator in the country as a whole and in Ontario. The ability to rely on a raw material and manufacturing process within Canada means that mass timber is not exposed to US tariff uncertainties. There are no structural steel rolling mills in Canada and most concrete reinforcing steel comes from the US, therefore, both steel and concrete are at much higher risk of cost escalations due to an unpredictable US trade environment. By using mass timber, TRCA will be supporting a technology of which Canada is a world leader and will be creating green, long term and high tech manufacturing jobs in Canada.
4. Sustainable and Low Carbon – the wood used for mass timber construction comes from sustainably managed forests. When compared to equivalent concrete or steel products (steel beams versus wood beams, concrete floors versus wood floors etc.), wood has a significantly lower carbon footprint over its life cycle. In numerical terms the US Environmental Protection Agency estimates that the production (harvesting, processing and transportation) of one tonne of lumber requires only about 15% of the carbon emissions than the production of one tonne of recycled steel, and 12% of the carbon emissions than the production of one tonne of concrete. Use of wood results in four LEED points based on the calculated life cycle impact reduction. A concrete structure results in a higher carbon footprint which would need to be offset by investing in other strategies, for example increasing on-site renewable energy production from 5% to 10%.
5. Durable and Low Cost - mass timber structural systems are comparable in terms of expected servable life and operation and maintenance cost to steel or concrete structures.

Staff met with the LTOAWG on June 8, 2018 to discuss the modifications to the project, as well as the cost comparison of the approved structural system versus a concrete structural system. The working group approved the modifications to the project to adhere to the reduced budget in principle and recommended the addition of Mike Mattos to the Working Group. Staff will convene the next meeting of the Working Group in early 2019 to discuss the outcome of the Site Plan process and draft tender specifications to ensure the construction of the project meets TRCA's sustainability expectations.

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### FINANCIAL DETAILS

As noted above, TRCA staff revised the original project cost based on the results of recent procurement of consultant services and with support from the integrated design team and TRCA's Project Manager, Jones Lang LaSalle. The revised budget shown below in comparison to the original budget prepared in 2015 identified a difference of \$10,922,804 in soft costs required to deliver the entire scope of the project. This new information on additional soft costs required changes to the scope of the project to ensure delivery by the June 2021 deadline, within the approved budget.

Budget	Original	Revised	Difference
Construction Cost*	\$61,211,316	\$61,211,316	\$-
Consultant Fees	\$3,342,096	\$4,595,037	\$1,252,941
Permits and Approvals	\$400,000	\$775,274	\$375,274
Other (Contingency)	\$5,000,000	\$5,000,000	\$-
Furniture/Fittings and Equipment	\$-	\$1,550,000	\$1,550,000
Relocation Costs	\$-	\$1,342,000	\$1,342,000
Project Management	\$-	\$2,575,000	\$2,575,000
Financing Costs	\$-	\$2,515,265	\$2,515,265
Non-Recoverable HST (1.76%)	\$-	\$1,312,324	\$1,312,324
<b>Total</b>	<b>\$69,953,412</b>	<b>\$80,876,216</b>	<b>\$10,922,804</b>

\*includes 10% design contingency and 5% construction contingency and 1.5% escalation/year

Further, in order to meet the project budget of \$63,538,000, TRCA has worked with the consultant team to propose a building that meets TRCA's needs, through refined design and construction assessments. The total all-in cost to realize construction, office fit out, commissioning and staff relocation for the proposed ZAS/BMCEA building is estimated as follows:

Budget	DTAH – Revised	ZAS/BMCEA - Proposed	Difference
Construction Cost	\$61,211,316*	\$44,704,505**	(\$16,506,811)
Consultant Fees	\$4,595,037	\$4,595,037	\$-
Permits and Approvals	\$775,274	\$775,274	\$-
Furniture/Fittings and Equipment	\$1,550,000	\$1,550,000	\$-
Relocation Costs	\$1,342,000	\$1,342,000	\$-
Project Management	\$2,575,000	\$2,575,000	\$-
Financing Costs	\$2,515,265	\$2,515,265	\$-
Non-Recoverable HST (1.76%)	\$1,312,324	\$1,021,805	(\$290,519)
Contingency	\$5,000,000	\$4,459,114	(\$540,886)
<b>Total</b>	<b>\$80,876,216</b>	<b>\$63,538,000</b>	<b>(\$17,338,216)</b>

\*includes 10% design contingency, 5% construction contingency and 1.5% escalation/year

\*\*includes 10% design contingency, 3% construction contingency and 5% escalation contingency

TRCA staff will continue looking for avenues to obtain grant funding, however, in order to advance the project, the organization must proceed with the planning and design under the assumption that a \$70M project is no longer viable given the \$6.5M existing shortfall.

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Should any of the estimated contingency not be required or should TRCA be successful in obtaining grant funding, this money will be applied to reduce the overall term of TRCA's financing.

Major Maintenance Capital funding is available to Site Plan Approval process and tender for construction under account 006-50.

### **DETAILS OF WORK TO BE DONE**

The key phases of the project are as follows:

Project Phases / Duration	
Architectural Design	October, 2017 – July, 2018
Site Plan Approval	July, 2018 – July, 2019
Building Permit	October, 2018 – August, 2019
Tender Contract Documents	July, 2018 – March, 2019
Award Construction Contract	March, 2019 – July, 2019
Construction (assumes partial bldg. permits)	April, 2019 – June, 2021
Occupancy	March, 2021 – June, 2021

Staff will report back to the Authority to provide an update on the outcome of the Site Plan Approval process and recommendations on tender specifications to ensure the construction of the project meets TRCA's sustainability expectations.

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**Attachments: 1**