



**City of Kingston
Report to Council
Report Number 15-428**

To: Mayor and Members of Council

From: Denis Leger, Commissioner, Transportation, Facilities and Emergency Services

Resource Staff: Sheila Kidd, Director Transportation Services

Date of Meeting: November 17, 2015

Subject: Capital Maintenance Program - Chown, Hanson, and Robert Bruce Parking Structures

Executive Summary:

The City of Kingston owns and operates three parking structures in the downtown area. The three structures, named the Hanson Memorial (Hanson), the Robert Bruce Memorial (Bruce), and the Chown Memorial (Chown) are all located within a three-block area, on or near Brock Street, between Wellington and Montreal/Sydenham Streets. The Hanson and Bruce garages were constructed in the mid to late 1960s and the Chown was constructed in the mid-1980s. These concrete structures provide a combined total of 823 parking spaces that are primarily used for short-term, hourly parking. Given their age and design, the structures require a significant and ongoing investment to maintain them.

Typically the capital remediation program for these structures is done on a two to three-year cycle and requires the temporary closure of parking spaces. The work identified for the 2014 remediation program was not completed due to schedule delays and, as a result, there is outstanding work that must be completed within the next 12 months. The pending closure of surface lots in the North Block area due to impending developments will reduce the public parking supply for a period of time, until new and/or replacement supply can be constructed and made available for use. Staff is recommending that the outstanding and planned work for the Chown, Bruce, and Hanson for the upcoming four years (2016-2019 inclusive) be advanced in 2016 so that these structures will be fully operational before other supply is reduced as a result of development.

In addition to the planned maintenance, staff is also recommending that safety barriers be added to the Chown and Hanson garages as there have been three tragic incidents of self-harm over the past 24 months. These tragic events have prompted the need to review options for

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enhancing safety features to these garages. Staff has identified an approach that includes a combination of architecturally-enhanced barriers and chain-link fencing that will provide a deterrent for incidents of self-harm at these parking structures.

The purpose of this report is to inform Council of the proposed capital maintenance program for the Chown, Bruce, and Hanson parking garages and to seek direction to incorporate the identified measures and costs in the 2016 capital budget submission.

Recommendation:

That Council direct staff to incorporate in the 2016 Parking Capital Budget submission for its consideration, the cost estimates to complete the outstanding work from the 2014 capital remediation program, the cost estimates required to provide for an accelerated planned capital maintenance program for works originally identified needing completion in the 2016-2019 period for the Chown, Bruce, and Hanson parking structures, as well as the cost estimates for implementing safety barriers at the Chown and Hanson to provide deterrent for incidents of self-harm at these facilities.

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Authorizing Signatures:

ORIGINAL SIGNED BY COMMISSIONER

**Denis Leger, Commissioner,
Transportation, Facilities, &
Emergency Services**

ORIGINAL SIGNED BY CHIEF ADMINISTRATIVE OFFICER

Gerard Hunt, Chief Administrative Officer

Consultation with the following Members of the Corporate Management Team:

Cynthia Beach, Corporate & Strategic Initiatives	Not required
Lanie Hurdle, Community Services	Not required
Jim Keech, President and CEO, Utilities Kingston	Not required
Desiree Kennedy, Chief Financial Officer & City Treasurer	

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Options/Discussion:Background

The City of Kingston owns and operates three parking structures in the downtown area. The three structures, named the Hanson Memorial (Hanson), the Robert Bruce Memorial (Bruce), and the Chown Memorial (Chown) are all located within a three-block area, on or near Brock Street, between Wellington and Montreal/Sydenham Streets, as illustrated in Exhibit A – Downtown Parking Structure Locations.

The Hanson garage is a five-storey, split-level, stand-alone parking structure that was originally constructed in the late 1960s with additional levels added circa 1980. It provides 272 above-ground parking spaces that are primarily used for short-term, hourly parking. The structural system is comprised of structural steel long-span beams with cast-in-place concrete slabs and foundations.

The Bruce garage is a two-level parking structure that was constructed in the late 1960s. It is comprised of two levels and provides a total of 101 parking spaces, all of which are used for short-term, hourly parking. The lower level is accessed from Bagot Street and the upper level is accessed from Montreal Street. The garage was constructed of pre-cast concrete, supported by cast-in-place concrete beams, columns and foundations.

The Chown garage is a six-storey, split-level structure located on Brock Street across from Hotel Dieu Hospital. It provides 450 parking spaces, primarily used as short-term, hourly parking. The hospital generates the greatest demand however this garage also serves visitors to retail shops on Princess Street and the Grand Theatre. It was originally constructed in 1984 with additional levels added in 1989. The garage utilizes a precast concrete suspended-slab system, supported by precast concrete beams and cast-in-place columns and foundations.

A. Capital Maintenance Program and Outstanding Works

The capital maintenance programs for these structures have been largely defined based on engineering building condition assessments (BCAs). The respective BCAs assess the structural, architectural, pavement, and concrete condition of the facility and its mechanical and electrical systems. It further identifies and quantifies the type and extent of capital maintenance program and related costs that are needed to maintain the garages in a safe and operational condition over the long term. This would be in addition to the annual general repairs and maintenance that are associated with normal upkeep.

Based on the long-range capital plans, timing, and costing estimates provided in the BCAs, staff updates the City's 15-year capital forecast, giving consideration to a two to three-year cycle to achieve economies of scale and minimize customer disruption, and annually submits the proposed capital budget for Council's approval. Once budgets are approved, with the

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assistance of engineering consultants, staff design and tender the work to be completed on this two to three-year cycle. After construction is complete, a warranty review is undertaken prior to the expiration of the warranty period for all work performed, which may result in further work needing to be conducted.

Building Condition Assessments were completed for all three structures in 2007 and these were subsequently updated in 2010. An extensive rehabilitation program was initiated in 2011 with an additional second phase initiated in 2013/14. The work is seasonal as much of it is concrete and asphalt remediation and requires sections of the garages to be closed. As parking demand is high in this area, the contracts require the garages to remain open and operational during construction.

The most recent remediation program was undertaken by way of two contracts, a combined contract for the Chown and Bruce and a separate contract for the Hanson. The work at all three garages included concrete and masonry restoration, joint sealant and repairs, repair and/or replacement of the waterproof membrane, and parking deck drainage maintenance.

The work at the Chown and Bruce was initiated in the spring of 2013 and, due to schedule and work delays, the job was not completed by December, had to recommence in April 2014 and was essentially completed during the 2014 construction season. The work at the Hanson commenced in April 2014 and this job also experienced schedule and work delays. By early August 2014, the job was only 70% complete and it was decided to defer the portion of the contract related to concrete work of the lower floor slabs. This deferred portion of the contract will need to be undertaken within the next 12-month period from a combination of approved unspent monies and supplementary funding required and submitted as part of the 2016 capital budget process.

Typically, the capital remediation program for these structures is done on a two to three-year cycle therefore, in addition to the deferred work, there is additional planned capital maintenance that needs to be completed over the 2016-2019 timeframe.

With the impending private developments and closure of surface lots in the North Block area, there will be a reduction in the public parking supply for a period of time, until new and replacement supply contemplated to be part of the private development at 51-57 Queen Street can be constructed and made available for use. To ensure that all parking spaces at the three City-owned parking garages are completely operational and available for use prior to the closure of North Block surface lots, staff is recommending that all outstanding and planned work for the upcoming four years, that would require temporary parking stall closures at the Chown and Hanson, be advanced in 2016.

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B. Safety Measures at the Chown and Hanson

There have been three tragic incidents of self-harm over the past 24 months involving both the Chown and Hanson garages. As a result, staff received a request, on behalf of Hotel Dieu and Kingston General Hospital, to consider exploring options that other cities have implemented to provide deterrents for incidents of self-harm at public buildings and structures. Staff met with local health officials who specialize in mental health issues, to gain a better understanding on these tragic situations.

Subsequent to meeting with local health officials, staff engaged the services of Read Jones Christoffersen Ltd. (RJC), an engineering consulting firm, to determine measures that could be implemented to provide deterrents for incidents of self-harm at City parking structures. RJC has completed their review and a summary of their findings and recommendations are outlined in the following section of this report.

i) Safety Measures -Structural Review Findings

The structural system of the Chown garage is a combination of cast-in-place and precast concrete. The structure includes rail and post perimeter guards between the levels and along the top of the structure. The height of the top rail is approximately 43 inches above the concrete floor.

The structural system of the Hanson garage generally consists of structural steel framing (beams and columns) with cast-in-place, reinforced concrete slabs and foundations. The perimeter guards typically consist of painted steel channel rails with flat bar balusters spanning between structure steel posts or columns. The height at the top of the rail was generally found to be approximately 38 inches above the floor. Chain-link fencing and steel panels have been added over the years, around or on top of the perimeter guards, to prohibit access to nearby properties.

Both structures have impact barriers installed adjacent to the parking stalls, along the inside face of the perimeter guards, to prevent vehicles from bumping into the garage walls.

RJC has concluded that the perimeter guards at both the Chown and Hanson garages have been constructed in a manner such that they offer a relatively easy means of scaling or climbing. Furthermore, the impact barriers can be used as a step to allow pedestrians to easily climb over the perimeter guards.

ii) Safety Measures – Options and Recommendation

The consultant considered four courses of action that could be taken to improve the effectiveness of the existing perimeter guards. The options under consideration ranged from basic vertical extensions that would increase the overall height of the existing perimeter guards to the installation of a full custom, architecturally-enhanced barrier at all levels.

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The option being recommended involves the installation of a full (architecturally-enhanced) barrier at intermediate levels along the south façade (facing Brock Street) and vertical extension on the rooftops, coupled with a more cost-effective barrier (i.e. chain-link fencing) at the intermediate levels on the other facades. This option is being recommended as it provides architectural enhancements where the barriers are highly visible from Brock Street, and a cost-effective solution at less visible elevations of both facilities. Exhibit B - Conceptual Design, Architecturally-Enhanced Barrier – RJC Ltd. provides a conceptual drawing that illustrates the architecturally-enhanced barriers that will be installed on the south façade of both buildings.

iii) Safety Measures - Preliminary Design

In May 2015, staff further engaged the consultant to prepare preliminary designs for the preferred approach. This phase included a review of the building facades and design loads, design of the framing and anchorage for the new barriers, and preparation of the required drawings and specifications suitable for tendering. As part of this work, it was determined that the panels of art on the façade on the Hanson garage needed to be removed to allow for a full visual review of the concrete up-stand walls. The artwork, which is about 15 years old, consists of a series of painted panels that are secured to 20-foot lengths of flat bar using steel bolts. The removal involved special equipment, and arrangements to ensure the work was performed safely.

The visual review indicated the concrete was cracked and stained at numerous locations, and the existing protective coating was deteriorated. It was also noted that the paint on many of the panels is cracked and peeling. Given the poor condition of the panels and the fact that they restrict access to the concrete façade to allow for routine maintenance, staff does not intend to reinstall the panels. The panels are currently in storage where they will be retained until a decision can be made regarding the need/ability to relocate or dispose of them.

The consultant recommended that the south façade of the Hanson structure requires localized concrete repairs at the existing up-stand walls and exterior slab edges, surface preparation and application of an elastomeric coating on the south side (Brock Street) walls, and cleaning and repainting of existing structural steel framing along the south façade.

The estimated cost for the recommended option is \$690,000 for the Chown and \$345,000 for the Hanson, for a total estimated cost of \$1.035M plus applicable taxes. The costs for the Hanson include the recommended repair work on the façade. Estimated costs are provided in 2015 dollars and do not include the cost of engineering design, contract administration and project management fees, building permit fees, and contingencies, which adds approximately 25% to the total cost. Accordingly, the total estimated costs for the implementation of the self-harm structural deterrents at both the Chown and Hanson garages are likely to be in the vicinity of \$1.3M.

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C. Outstanding, Current and Planned Capital Works (2016-2019 Requirement)

Given that any work done at these parking structures requires temporary parking stall closures, consideration has to be given to the coordination of the implementation of the safety measures with work identified as being required in the capital maintenance program.

Accordingly, staff would like to expedite the implementation of recommended safety measures at the Chown and Hanson, as well as the outstanding work and planned rehabilitation work for the Chown, Bruce, and Hanson, in order to have optimum parking capacity when other downtown parking lots are taken out of service in the very near future as a result of North Block developments. The Bruce garage does not require safety measures because it is significantly smaller than the Chown and Hanson however staff is recommending the planned rehabilitation work at the Bruce also be advanced as it is more economical to complete similar work at this garage as part of a larger contract.

The planned work that will require the temporary closure of parking spaces includes concrete and steel restoration, asphalt repairs, joint sealing plus the replacement of the waterproof membrane on multiple levels at the Hanson.

The total estimated cost for outstanding and planned maintenance at the Chown, Bruce, and Hanson is just under \$2,950,000. As some of this work was originally estimated based on a 2011 Building Condition Assessment, a further review is currently underway to confirm the capital maintenance needs and resulting program, to identify a construction approach to complete the work, and to update the estimated costs. Staff will inform Council of any significant findings from this review as part of the 2016 budget presentation.

The chart below represents an estimated summary of the construction costs for the outstanding and upcoming capital expenditures for restoration work at the Chown, Bruce, and Hanson parking structures, and for the implementation of safety measures for the Chown and Hanson.

Remaining funds from the approved works in progress have been taken into account and will supplement the 2016 capital plan funding requirement. The 2016 capital budget submission will include the following amounts:

Description	Chown	Bruce	Hanson	Total
Outstanding work - Capital Maintenance Program	\$ 288,000	Included in Chown estimate	\$ 290,000	\$ 578,000
Planned Maintenance 2016-2019	\$ 440,000	\$230,000	\$1,700,000	\$2,370,000
Safety Measures	\$ 860,000	N/A	\$ 455,000	\$1,315,000
Total	\$1,588,000	\$230,000	\$2,445,000	\$4,263,000

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All costs have been adjusted to include soft costs such as project management fees, engineering design, contract administration, and contingencies. The timeline for completing this work will be developed and presented to Council in the first quarter of 2016. Should Council approve the recommendation in this report, staff will include these amounts in the 2016 capital budget submission.

Existing Policy/By Law:

N/A

Notice Provisions:

N/A

Accessibility Considerations:

N/A

Financial Considerations:

Parking Services (Operations and Enforcement) is accounted for as a separate cost centre. All costs associated with operations are charged against the revenues, and net revenues are allocated to the Parking Reserve Fund (PRF) on an annual basis. Approximately \$1.6 million in net revenues from the parking system are contributed annually to the Parking Reserve Fund.

The PRF has maintained an average of \$5 million since 2009 however the funding demands created by the ongoing remediation measures and safety measures as described in this report and the cost of developing new parking supply are significant. High-level modelling indicates that additional revenue will be required to support these costs and develop and operate new parking supply.

The current rate for parking at the Chown, Hanson, and Bruce is \$1 per hour. A review of all parking rates and fines will be conducted in 2016 for implementation in 2017. Recognizing the significant investment that is required to maintain the City's current parking structures in both safe and operational order in the interim, the 2016 budget and the related fees and charges submission will include a rate increase of 50 cents per hour for the Chown, Bruce, and Hanson parking structures, to become effective January 2016. A further adjustment to align fees with on-street rates may be recommended as part of the upcoming rate review.

Contacts:

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Other City of Kingston Staff Consulted:

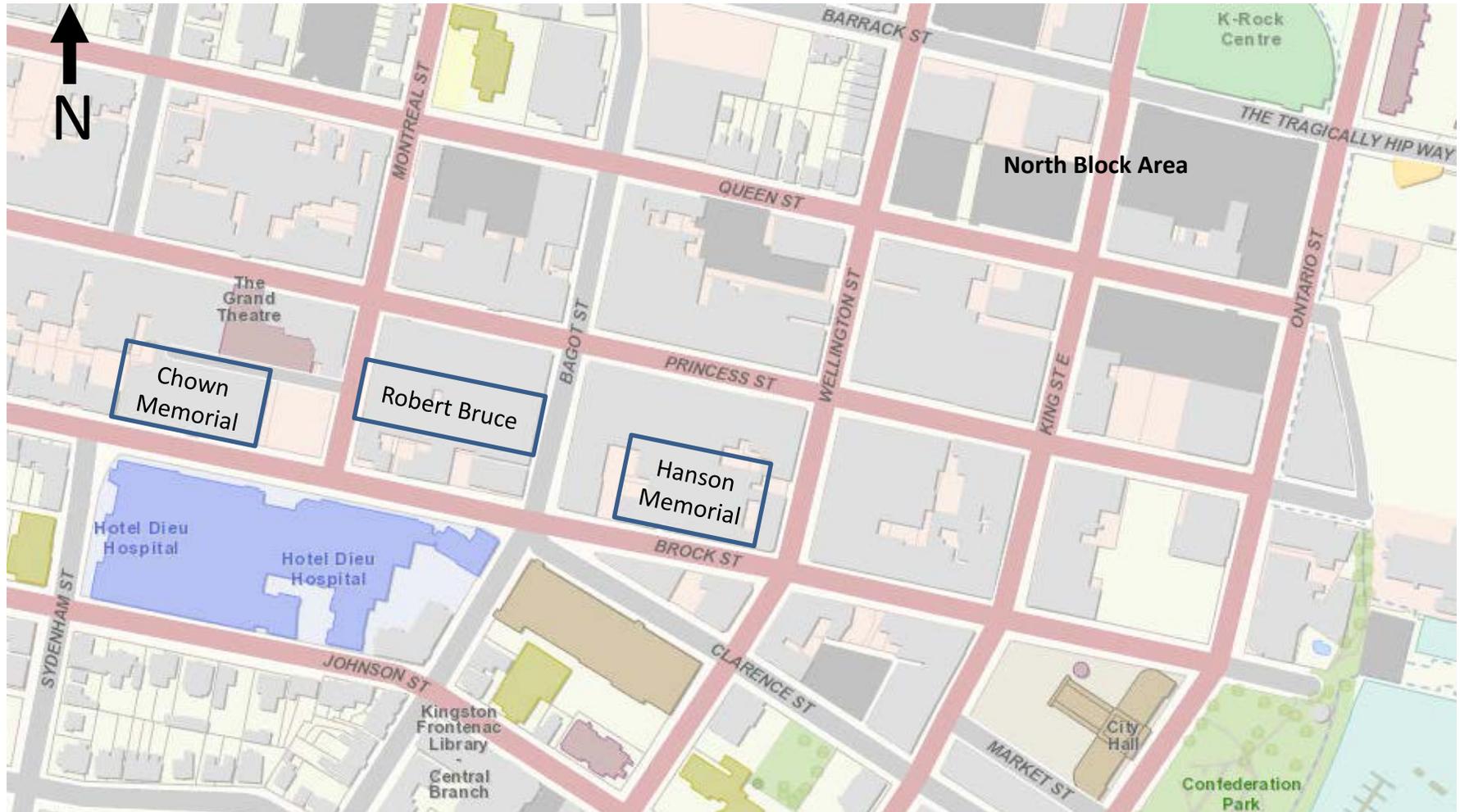
Susan Nicholson, Director, Legal Services and City Solicitor

Exhibits Attached:

Exhibit A – Downtown Parking Structure Locations

Exhibit B – Conceptual Design – Architecturally-Enhanced Barrier

Downtown Parking Structure Locations



Conceptual Design – Architecturally-Enhanced Barrier

Read Jones Christoffersen Ltd.

