


TO: Mayor Savage and Members of Halifax Regional Council

SUBMITTED BY:  Original signed
Councillor Bill Karsten, Chair, Audit and Finance Standing Committee

DATE: May 15, 2013

SUBJECT: LED Street Light Conversion Reserve Q327

ORIGIN

A motion approved by the Audit and Finance Standing Committee at a meeting held on May 15, 2013.

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Council approved, December 11, 2012, that all budget increases are to be presented to the Audit and Finance Standing Committee, prior to submission to Council.

Halifax Charter, section 93(1) - The Council shall make estimates of the sums that are required by the Municipality for the fiscal year; Halifax Charter, section 79(1) - Specifies areas that the Council may expend money required by the Municipality; Halifax Charter, section 35(2)(d)(i) - The CAO can only authorize budgeted expenditures or within the amount determined by Council by policy; Halifax Charter, section 120(6) - The Municipality may maintain other reserve funds for such purposes as the Council may determine; Halifax Regional Municipality policy on Changes to Cost Sharing for Capital Projects - Changes requiring Council approval; and the Halifax Regional Municipality Reserve Policy - No reserve funds will be expended without the CAO's recommendation and Council approval.

RECOMMENDATION

The Audit and Finance Standing Committee recommends that Halifax Regional Council:

1. Approve the establishment of the LED Street Light Conversion Reserve (Q327), as per the Reserve Business Case attachment, dated April 1, 2013, to the attached staff report, dated May 9, 2013;

RECOMMENDATION CONT. ON PAGE 2

2. Approve the strategy to reallocate operational savings realized from energy and maintenance efficiencies due to LED street light technology conversion into the LED Street Light Conversion Reserve (Q327) including issuing debt outside the HRM debt targets; and
3. Approve the recovery of accumulated LED Street Light Conversion Reserve (Q327) savings to fund the capital investment required to purchase NSPI stranded assets within HRM and convert all HRM street lights to LED technology.

BACKGROUND

At its May 15, 2013 meeting, the Audit and Finance Standing Committee received a staff report, dated May 9, 2013 outlining the implementation process for the provincially mandated conversion of streetlights in HRM to Light Emitting Diode (LED) lights.

DISCUSSION

The committee reviewed the report presented and asked staff about the cost of the program and about implementation challenges. The committee approved the recommendation as outlined in the attached report, dated May 9, 2013.

FINANCIAL IMPLICATIONS

The financial implications are as outlined in the attached report, dated May 9, 2013.

COMMUNITY ENGAGEMENT

Audit and Finance Standing Committee meetings are open to public and all agendas, reports and minutes are available on the web in advance of meetings.

ENVIRONMENTAL IMPLICATIONS

There are no environmental implications associated with this report.

ALTERNATIVES

Alternatives are as outlined in the attached report, dated May 9, 2013.

ATTACHMENTS

1. **LED Street Light Conversion Reserve Staff Report, dated May 9, 2013.**

**LED Street Light
Conversion Reserve Q327
Council Report**

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May 28, 2013

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.html> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Matt Godwin, Legislative Assistant, 490-6521

Attachment 1



P.O. Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

Item No.
Audit & Finance Standing Committee
May 15, 2013

TO: Chair and Members of Audit & Finance Standing Committee

SUBMITTED BY: Original Signed
Richard Butts, Chief Administrative Officer

Original Signed

Bruce Fisher, FOR: Greg Keere, Director, Finance and ICT / CFO

DATE: May 9, 2013

SUBJECT: LED Street Light Conversion Reserve Q327

ORIGIN

Environment & Sustainability Standing Committee Recommendation report, HRM LED Streetlight Conversion Project, dated March 6, 2013.

LEGISLATIVE AUTHORITY

Province of Nova Scotia Energy-efficient Appliances Act, Section 5, Regulation 8 – Restrictions on use of non-LED roadway lighting, as amended by O.I.C. 2012-295 (September 10, 2012), N.S. Reg. 172/2012.

HRM Charter, 120 (6) The Municipality may maintain other reserve funds for such purposes as the Council may determine.

Requirement of the HRM Reserve Policy is that no Reserve Funds will be expended without the CAO's recommendation and Council approval.

December 11, 2012 motion of Regional Council, that any creation or modification of reserves will be presented to Audit & Finance Standing Committee prior to submission to Regional Council.

RECOMMENDATION

It is recommended that the Audit & Finance Standing Committee recommend that Halifax Regional Council:

1. Approve the establishment of the LED Street Light Conversion Reserve (Q327), as per the attached Reserve Business Case;
2. Approve the strategy to reallocate operational savings realized from energy and maintenance efficiencies due to LED street light technology conversion into the LED Street Light Conversion Reserve (Q327) including issuing debt outside the HRM debt targets; and
3. Approve the recovery of accumulated LED Street Light Conversion Reserve (Q327) savings to fund the capital investment required to purchase NSPI stranded assets within HRM and convert all HRM street lights to LED technology.

BACKGROUND

In June 2011, the province amended its Energy Efficient Appliances Act to include street lights among the list of energy inefficient appliances in Nova Scotia. In September 2012, the Department of Energy released regulations around acceptable replacement technologies and the required implementation time period. Municipalities are obligated to convert all street lights to LED by December 31, 2022. Provincial regulations require all municipalities to submit an implementation plan by June 30, 2013.

DISCUSSION

The provincial mandate to convert all street lights in HRM to LED technology is a significant investment for the Municipality of approximately \$40M. The basis of the LED technology is to achieve energy efficiencies, reduce greenhouse gas (GHG) emissions, and eliminate the use of mercury.

Financial analysis on the impact of the related costs of the project determined that the operational savings anticipated would be significant enough to recover the capital investment in a simple payback period of just 10 years.

Therefore, an operating reserve to capture the realized savings is proposed to provide for this investment. The proposed reserve business case is provided in Attachment B.

Capital Investment

There are two components to the proposed capital investment required for this project, both of which will be funded from the LED Street Light Conversion Reserve (Q327).

The first component is the purchase of street lights within the HRM currently owned by Nova Scotia Power Inc. (NSPI), or stranded assets (approx. 28,500 lights). The Regional Council meeting on May 15, 2012 recommended taking ownership of the street lights within the municipality, as it would save HRM approximately \$20 million over the life of the new LED street light fixtures. The stranded asset cost, originally quoted by NSPI to be valued at \$5,082,256 as at January 2012, is estimated to be approximately \$7,946,000 by the time of purchase settlement in 2013/14. The net increase is due to new LED fixtures that NSPI are currently using to replace light failures, less depreciation on the asset pool. The funding for this portion of capital investment is proposed to be from the initial transfer to the Reserve, which was from the anticipated 2012/13 Operating Surplus.

The second component of the capital investment is the purchase and installation of LED light fixtures for all streets lights in the HRM (approx. 40,000 lights) plus an adaptive lighting control system to monitor and manage the lighting network. The 5-year conversion plan, to begin in 2014/15, is an estimated investment of \$31,520,000. Operational savings, accumulated in the Reserve, will be used to fund this investment.

Financing

Although the payback period of the LED conversion project is estimated to be 10 years, Financial Reporting and Accounting Manual (FRAM) for NS Municipalities requires that a permanent funding source is in place within one year of the completion of a capital project. Cash flow from the Operating Fund is not considered a permanent funding source.

Therefore, when the conversion project begins in 2014/15, the project team will recommend Regional Council to authorize a Temporary Borrowing Resolution (TBR) from the Minister of Service Nova Scotia and Municipal Relations for the full capital investment of \$31,520,000. As the repayment of debt will be recovered from the project operational savings, it is recommended that this use of debt funding should be outside the tax-supported debt targets.

At the end of the 5-year conversion project period, it is estimated that approximately \$16M in operational savings will have been realized and allocated to the LED Street Light Conversion Reserve (Q327). HRM will recover the balance in the Reserve to fund a portion of the project costs. The remaining unfunded project costs, approximately \$16M, will be requested as a debenture from the Minister of Service Nova Scotia and Municipal Relations, approximately half of the previously authorized TBR. Consideration will be given to the benefits of choosing a 5-year versus a 10-year debenture.

Audit & Finance Standing Committee

Each year, according to the debenture payment schedule, accumulated savings in the Reserve will be withdrawn to fund required principal and interest payments against the debenture until the end of its term.

Over the 10-year period of 2014/15 through 2023/24, the operating budget for certain cost elements identified in the business case, within the TPW Street Lighting cost centre, will be increased annually by a 3% energy escalation and a 2% cost of living factor. Any variance in actuals to budget will be considered savings and transferred to the LED Street Light Conversion Reserve (Q327) to support the required capital investment.

It is important to note that as the LED fixtures have a 10-year warranty against fixture failure the operational savings, beginning in 2024/25, will not be as significant as in earlier years due to the additional costs required for the expected 1%-2% annual fixture failure rate.

FINANCIAL IMPLICATIONS

An initial amount of \$8M was transferred to the LED Street Light Conversion Reserve (Q327) in fiscal 2012/13 from the Operating Surplus. From this Reserve balance, HRM will fund the purchase settlement of NSPI stranded assets in 2013/14, of approximately \$7,946,000 (net HST included) for Project Account No. CTU000005 – LED Conversion of HRM Street Lights, as outlined in the 2013/14 Proposed Project Budget.

Ongoing annual contributions to the reserve will be provided by the energy and maintenance savings realized in Transportation and Public Works (TPW) Street Lighting cost centre R825, as outlined in the LED Street Light Conversion Reserve (Q327) business case.

Upon depletion of the 5-year investment of approximately \$31,520,000 for Project Account No. CTU000005 – LED Conversion of HRM Street Lights, accumulated savings will be withdrawn from the LED Street Light Conversion Reserve (Q327) as required to fund necessary project costs and debenture repayments.

Budget Summary, LED Street Light Conversion Reserve, Q327

April 1, 2013 opening balance	\$8,006.720
2013/14 Project funding	<u>(8,000,000)</u>
Projected March 31, 2013 balance	\$ 41,652

COMMUNITY ENGAGEMENT

None

ENVIRONMENTAL IMPLICATIONS

None

ALTERNATIVES

1. Regional Council may choose not to approve the proposed LED Street Light Conversion Reserve business case at this time. This is not the recommended option as the reserve provides an optimal strategy to fund the provincially mandated project without impacting the general tax rate.

ATTACHMENTS

Attachment 1: LED Street Light Conversion Reserve (Q327) Business Case

A copy of this report can be obtained online at <http://www.halifax.ca/boardscom/SCfinance/index.html> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210 or Fax 490-4208.

Report Prepared by: Crystal Nowlan, Senior Financial Consultant Financial Policy & Planning, 490-1342

Original signed

Report Approved by: Richard MacLellan
Richard MacLellan, Manager Energy & Environment, 490-6056

Original Signed

Report Approved by: Taso Koutroulakis
Taso Koutroulakis, Manager, Traffic & Right-of-Way, 490-4816

Original Signed

Report Approved by: Jane Fraser
Jane Fraser, Director of Planning & Infrastructure, 490-7166

Original Signed

Report Approved by: Ken Reashor
Ken Reashor, P.Eng., Director of Transportation & Public Works, 490-4855

Reserves Business Case

Halifax Regional Municipality · Finance and Information, Communication & Technology Division · 490-3696

Date: April 1, 2013
Contact: Director, Planning & Infrastructure

LED Street Light Conversion Reserve – Q327

Purpose

The LED Street Light Conversion Reserve is to provide funding for the purchase of approximately 28,500 lights (stranded assets) from Nova Scotia Power Inc. (NSPI) and the conversion of approximately 40,000 street lights in HRM from conventional to LED technology, including adaptive controls. The street light conversion to LED lamps was mandated by the Province of Nova Scotia (PNS) on September 12, 2012. to be completed by December 31, 2022.

Source of Funds

Based on financial projections, the purchase of stranded assets and conversion to LED technology should result in significant annual operational savings, including staffing, maintenance and energy efficiencies, which will be utilized to finance the project costs of the new equipment.

The LED Street Light Conversion Reserve will be funded from the following sources:

- An initial transfer of funds will occur in fiscal 2012/13 for \$8M from unallocated 2012/13 Operating Surplus.
- Ongoing funding, beginning in 2014/15, will be provided annually from the savings realized in the Street Lighting Operating Budget (R825) in Transportation and Public Works (TPW). This is defined as the “Current State Operating Budget” (an amount fixed as per the Source and Application of Funds attachment) less the actual operating and maintenance costs (estimated as the “Projected State” in the Source and Application of Funds attachment). The “Current State” is the 2013/14 operational costs indexed annually for the next ten years and is not intended to be updated regularly.
- Interest will be paid to the Reserve in accordance with the HRM Reserves Policy.

Application of Funds

The Reserve funds will be directly utilized for the 2013/14 purchase settlement of approximately 28,500 lights from NSPI. Within this total, approximately 27,320 are street lights and the remaining are various other outdoor lights, such as parking lots, cross walks, etc., located within the HRM.

The Reserve can be used for the funding of the purchase and installation of lights, including principal and interest payments and any capital lease costs.

Throughout the 5-year street light conversion plan, when strategically appropriate, and upon the project's completion, the Reserve funds accumulated to-date will be withdrawn and applied to the project costs incurred. The remaining unfunded project costs will be debt financed in accordance with the Municipal Finance Corporation Act. Consideration will be given to the benefits of a 5-year versus 10-year debenture.

Over the remaining term of the debenture, Reserve funds will be withdrawn as required by the debenture schedule to be utilized for principal and interest debt repayments.

This Reserve shall not be permitted to loan or guarantee funds to other reserves, projects, facilities, organizations, societies, boards, associations or the like, or to temporarily allocate funds to non-reserve uses.

Time Line and Balances

This Reserve is intended to be temporary in nature. Once the realized operational savings have equaled the total LED and Adaptive Controls conversion capital cost outlay and all related debt has been repaid, the Reserve should be discontinued. This simple payback period is estimated at 10 years (not including any debenture term), with conversion beginning in 2014/15.

Due to the nature of the evolving technology and the predicted 20-year life of the light fixtures being untested, it is recommended for staff to review at term's end, the need to extend the Reserve for the purpose to proactively save for another mass relamping project.

As such, the Reserve will likely cease to exist as of March 31st, 2030, unless extended by staff recommendation and a vote of Regional Council.

A minimum reserve balance of \$250,000 will be maintained beginning in 2014/15.

Approval Process

All requests for withdrawals must be initiated by the Director of Transportation & Public Works as part of the proposed annual budget and business planning process. If funding from the Reserve is required after approval of the annual budget, Council must approve withdrawal of funds through a resolution of Council by way of a Council Report.

Finance (Accounting) is responsible for ensuring availability of funds and appropriateness of withdrawals in accordance with the Reserve Policy prior to submission to council for their approval.

Attachments

- A) Assumption Details for Source and Application of Funds
- B) 17-Year Cash Flow Projection

Approval

CAO

Attachment A

**LED Street Light Conversion Reserve
Assumption Details for Source and Application of Funds**

Source of Funds

The ongoing funding contributions from TPW's Street Lighting cost centre R825 should be budgeted as follows:

"Current State":

Cost Element 6607 (Electricity) – *NSPI electrical billings for energy costs for all HRM street lights, and maintenance and leasing costs on the NSPI-owned lights.*

To be budgeted annually based on the actual number of lights (approx. 28,500) and rates realized in 2013/14. The budget for each year is to be increased incrementally for an assumed 3% energy escalator factor.

Cost Element 6399 (Contract Services) – *HRM Tender for street light maintenance on HRM-owned lights (approx. 12,000).*

To be budgeted annually based on the 2013/14 contract rate, escalated annually for a 2% cost-of-living factor.

"Projected State":

Cost Element 8008 (Transfer to Reserves) - *The annual variance between the above budgeted "Current State" and "Projected State" actuals is to be allocated in this G/L as a transfer of savings to the Reserve. The savings shall be derived from the actual operating and maintenance costs including the following cost elements:*

Cost Element 6607 (Electricity) – *NSPI electrical billings for energy costs for all HRM street lights.*

Annual billings based on current Utilities and Review Board (UARB) approved rates for the current number of HRM street lights.

Note: The financial model used to analyze the project plan used a 2013/14 LED energy rate of \$4.14/kWh (unmetred, plus net HST).

Cost Element 6204 (Computer Software & Licenses) – *Monthly software maintenance fees for Adaptive Control System*

Note: The financial model used to analyze the project plan used a monthly fee of \$10/gateway (plus net HST).

Cost Element 6399 (Contract Services) / 6001&6100 Compensation & Benefits – *Additional staff and third-party contractors required for street light management and maintenance for all HRM street lights.*

Annual costs based on the combination of staff employed and third-party contractors tendered for maintenance.

Note: The financial model used to analyze the project plan included 2 FTE's (Engineering Supervisor, Works Planning Technician) plus an outside contractor for street light maintenance based on 70% of NSPI's 2012/13 maintenance costs. A Project Manager for 6 years' cost was included, although unknown whether it will be staff or part of the outsourced contract. Maintenance for street lights is assumed to be reduced due to the change of HPS lamp useful life (4-5-yrs) to LED useful life (20-yrs). LED lamps have a quoted 1-2% annual failure rate (~5% in the first year 'burn-in period'), however, a product warranty of 10 years will eliminate any asset cost for replacement during that time period and therefore more savings will be realized.

Application of Funds

The purchase cost for each new LED *street* light was modelled at \$420.00 for the fixture and \$325.40 for installation labour (NSPI rates January 2010; plus net HST). Anticipated decrease in fixture costs due to technology advances has not been factored into the model.

Adaptive lighting controls were modelled to include a per fixture cost of \$120 (plus net HST) at the time of LED light installation. It also includes a network cost of approximately \$350,000 (plus net HST). This cost estimates a network of 133 gateway servers (1 gateway per ~300 light fixtures).

Attachment 8

**LED Street Light Conversion Reserve
Source and Application of Funds ('000's)**

	Estimated 2013/14	Estimated 2014/15	Estimated 2015/16	Estimated 2016/17	Estimated 2017/18	Estimated 2018/19	Estimated 2019/20	Estimated 2020/21	Estimated 2021/22
Opening Balance	-	96	1,950	4,390	7,456	11,188	472	5,061	7,981
Contributions									
Initial transfer from operating surplus	8,007								
<u>Anticipated Savings:</u>									
Current state operating budget R825	6,185	6,367	6,555	6,749	6,948	7,153	7,364	7,582	7,806
Projected state operating costs	6,185	4,525	4,151	3,750	3,323	2,867	2,561	2,635	2,710
Savings Sub-Total		1,842	2,404	2,998	3,625	4,286	4,804	4,947	5,096
Withdrawals									
<u>Capital Investment (Project Acct No. CT000005):</u>									
Stranded asset estimated purchase	(7,946)								
Capital assets - LED Street lights						(12,670)			
Capital assets - Adaptive control system						(2,485)			
Debt repayment							(244)	(2,091)	(2,042)
Interest Earned	35	12	6	68	107	153	30	63	98
Closing Balance	96	1,950	4,390	7,456	11,188	472	5,061	7,981	11,133

continued.

	Estimated 2022/23	Estimated 2023/24	Estimated 2024/25	Estimated 2025/26	Estimated 2026/27	Estimated 2027/28	Estimated 2028/29	Estimated 2029/30
Opening Balance	11,133	14,523	18,160	16,452	14,773	13,125	11,507	9,920
Contributions								
Initial transfer from operating surplus								
<u>Anticipated Savings:</u>								
Current state operating budget R825		8,037	8,274					
Projected state operating costs		2,788	2,869					
Savings Sub-Total		5,248	5,405					
Withdrawals								
<u>Capital Investment (Project Acct No. CT000005):</u>								
Stranded asset estimated purchase								
Capital assets - LED Street lights								
Capital assets - Adaptive control system								
Debt repayment	(1,993)	(1,944)	(1,895)	(1,847)	(1,798)	(1,749)	(1,700)	(1,651)
Interest Earned	135	176	187	168	149	131	113	95
Closing Balance	14,523	18,160	16,452	14,773	13,125	11,507	9,920	8,363