

FUNCTIONAL ORGANIZATIONAL CHART

Office of the Chief Administrative Officer

Total Positions - 9
January 2019



CAPREOL #1

Updated: November 5, 2019

2019 - 2020 Season

| TIME | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY | SUNDAY | TIME |
|-------|--------|---------|---------------|---------------|-------------|----------|--------|-------|
| 6:00 | | | | | MAINTENANCE | | | 6:00 |
| 6:30 | | | | | MAINTENANCE | | | 6:30 |
| 7:00 | | | | | MAINTENANCE | | | 7:00 |
| 7:30 | | | | | MAINTENANCE | | | 7:30 |
| 8:00 | | | | | MAINTENANCE | | | 8:00 |
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| 9:00 | | | | | MAINTENANCE | | | 9:00 |
| 9:30 | | | | | MAINTENANCE | | | 9:30 |
| 10:00 | | | | | MAINTENANCE | | | 10:00 |
| 10:30 | | | | | MAINTENANCE | | | 10:30 |
| 11:00 | | | | | | | VEMH | 11:00 |
| 11:30 | | | | | | | VEMH | 11:30 |
| 12:00 | | | | | | | VEMH | 12:00 |
| 12:30 | | | | | | | VEMH | 12:30 |
| 1:00 | | | | | | | VEMH | 1:00 |
| 1:30 | | | | | | | VEMH | 1:30 |
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| 4:00 | | | | | | | | 4:00 |
| 4:30 | | | | | | | | 4:30 |
| 5:00 | | | | NCHA | | | | 5:00 |
| 5:30 | | | CapMH | NCHA | | | | 5:30 |
| 6:00 | VEMH | SGHA | CapMH | NCHA | | | | 6:00 |
| 6:30 | VEMH | SGHA | SGHA | VEMH | | | | 6:30 |
| 7:00 | VEMH | SGHA | SGHA | VEMH | | | | 7:00 |
| 7:30 | VEMH | SMHA | SGHA | VEMH | | | | 7:30 |
| 8:00 | VEMH | SMHA | SGHA | VEMH | | | | 8:00 |
| 8:30 | VEMH | SMHA | SGHA | VEMH | | | | 8:30 |
| 9:00 | VEMH | | SGHA | VEMH | | | | 9:00 |
| 9:30 | VEMH | | Adult Booking | Adult Booking | | | | 9:30 |
| 10:00 | | | Adult Booking | Adult Booking | | | | 10:00 |
| 10:30 | | | | Adult Booking | | | | 10:30 |
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| 11:30 | | | | | | | | 11:30 |
| 12:00 | | | | | | | | 12:00 |
| 12:30 | | | | | | | | 12:30 |

CAPREOL #2

Updated: November 5, 2019

2019 - 2020 Season

| TIME | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY | SUNDAY | TIME |
|-------|---------------|---------------|---------------|----------------|----------------|----------------|---------------|-------|
| 6:15 | | | | MAINTENANCE | | | | 6:15 |
| 6:45 | | | | MAINTENANCE | | | | 6:45 |
| 7:15 | | | | MAINTENANCE | | | | 7:15 |
| 7:45 | | | | MAINTENANCE | | | | 7:45 |
| 8:15 | | | | MAINTENANCE | | | | 8:15 |
| 8:45 | | | | MAINTENANCE | | | VEMH | 8:45 |
| 9:15 | | | | MAINTENANCE | | | VEMH | 9:15 |
| 9:45 | | | | MAINTENANCE | | CapMH | VEMH | 9:45 |
| 10:15 | | | | MAINTENANCE | | CapMH | VEMH | 10:15 |
| 10:45 | | | | MAINTENANCE | | | VEMH | 10:45 |
| 11:15 | | | | Parents & Tots | Parents & Tots | | VEMH | 11:15 |
| 11:45 | | | | Parents & Tots | Parents & Tots | NCHA | VEMH | 11:45 |
| 12:15 | | | | | | NCHA | VEMH | 12:15 |
| 12:45 | | | | | | NCHA | VEMH | 12:45 |
| 1:15 | | | | | Adult Skating | | VEMH | 1:15 |
| 1:45 | | | | | Adult Skating | | VEMH | 1:45 |
| 2:15 | | | | Adult Shinny | | | VEMH | 2:15 |
| 2:45 | | | | Adult Shinny | | | VEMH | 2:45 |
| 3:15 | | | | Adult Shinny | | | VEMH | 3:15 |
| 3:45 | | | | | | | VEMH | 3:45 |
| 4:15 | | | | | | | | 4:15 |
| 4:45 | Adult Booking | | | | | | | 4:45 |
| 5:15 | Adult Booking | NCHA | | CapMH | | | | 5:15 |
| 5:45 | Adult Booking | NCHA | | CapMH | | | | 5:45 |
| 6:15 | CapMH | CapMH | | NCHA | | | | 6:15 |
| 6:45 | CapMH | CapMH | | NCHA | | Public Skating | | 6:45 |
| 7:15 | | Adult Booking | | NCHA | Adult Booking | Public Skating | | 7:15 |
| 7:45 | | Adult Booking | Adult Booking | SGHA | Adult Booking | Adult Shinny | | 7:45 |
| 8:15 | Adult Booking | Adult Booking | Adult Booking | SGHA | Adult Booking | Adult Shinny | Adult Booking | 8:15 |
| 8:45 | Adult Booking | Adult Booking | Adult Booking | Adult Booking | Adult Booking | Adult Shinny | Adult Booking | 8:45 |
| 9:15 | | Adult Booking | | Adult Booking | Adult Booking | | Adult Booking | 9:15 |
| 9:45 | | Adult Booking | | | Adult Booking | | | 9:45 |
| 10:15 | | | | | | | | 10:15 |
| 10:45 | | | | | | | | 10:45 |
| 11:15 | | | | | | | | 11:15 |
| 11:45 | | | | | | | | 11:45 |
| 12:15 | | | | | | | | 12:15 |
| 12:45 | | | | | | | | 12:45 |

Business Case for Service Level Change

Request/Project Name: Community Housing Security Camera Revitalization

Department: Community Development

Division: Housing Operations

Council Resolution (if applicable): FA2019-67

I. Executive Summary

Overview of Proposal

Council approved a motion FA2019-67 directing staff to prepare a business case for increased security hours and capital funding to upgrade security cameras. Housing operates a comprehensive security camera system at all GSHC apartment buildings and townhouse complexes. The system uses a network of 51 digital recorders and 436 cameras. The system is helpful in acting as a deterrent to vandalism and other criminal behaviour; and is frequently used by police services as an investigative tool. As well, staff use recorded footage in landlord and tenant board hearings. The camera systems are consistently rated as a positive feature by residents, who appreciate the safety and security afforded by the cameras. The cameras and recorders are an aging analog based system, and use technology that is near end of life. New systems are entirely digital and use IP based cameras. This project would exercise a phased approach to upgrading the camera systems, and to change the monitoring software to one which is also used by the City and Police Services to ensure compatibility and simpler IT support. In addition, Housing employees security services at 3 of our largest complexes and Security personnel are able to monitor issues in hallways and common areas when they are on site. The current security service level has the 3 sites sharing 80 service hours on evenings and weekends. During 2019, for safety reasons, security was increased to have 2 guards on duty on evenings and weekends, keeping the service level at 80 hours. Due to the rising issues related to the opioid crisis and criminal activity on our properties, tenants have been requesting an increase in security patrols at all 3 sites. With a change in camera systems to City's I-Vision software, it would be possible to have all the camera's monitored from a central location, similar to the system in place for CGS.

II. Background

Current Service Level

The current security camera system uses a network of 51 digital recorders and 436 cameras and was installed in various stages through the years dating back to 2003. The cameras are a mix of analog and digital with some currently operating in black and white. They operate in analog format over Co-Axial cables to an analog DIVAR recording system. There are two software systems required to review and download video footage depending on which vintage of system is in place at a specific building. The City's camera systems are more modern and digital, operating over fibre (where possible) and feed either to a server at the property or directly to servers at Tom Davies Square. The software supplied with the cameras is accessible from the desktops/laptops of Housing staff. There is a significant (weekly) failure rate of video review and download capability whether it is for tenant related concerns or police related concerns. Due to this, the security benefit from having cameras is not being realized and incidents with infrastructure damage associated with negligence, vandalism or other mechanism can't always be utilized to support prosecution due to the technical issues and quality of the images. The current service level for Security patrols is 2 guards on duty for evening and weekend coverage at 3 large sites. The 3 sites currently share a combined 80 hours of security coverage on evenings and weekends.

Drivers for Proposed Course of Action

There have been increased calls for security and review of video surveillance footage by Police and residents, due to increases in crime and crime related activities on our properties. In 2019, Security patrols were increased to 2 guards per shift on evenings and weekends for health and safety reasons. A review of our current camera system indicates that our cameras are inferior to modern High Definition units, the digital recorders (divars) are also aging and small hard drive storage space results in short retention times for video. Often, staff or police will require video only to find that it has been overwritten by more recent footage. Technical issues with our aging camera systems have resulted in weekly error messages while using the existing download software causing gaps in service. CGS staff are unable to provide video recordings to police as they investigate crimes due to the frequent service outages and technical issues. The City uses a platform called I-Vision, which can be accessed through the City's network, for properties with a fast (fibre) connection such as Agilis, it is possible for video to be streamed directly from the various properties to City servers, where it can be accessed remotely. Changing to the same platform would greatly simplify the IT task of supporting our camera system. As well, it would provide a seamless way of sharing video when necessary with Police Services, who use the same platform. Finally, there may be advantages is utilizing existing City live monitoring of cameras and expanding that service to our properties in order to react to issues in buildings as they arise. Review of the repairs and maintenance expenditures on camera systems for the last five years (2014-2018) indicates 135 calls for service which is an average of 27 calls per year or 1 call every 2 weeks. Upgrading the system will reduce these calls for service and associated costs. Increasing the safety and security for residents in social housing through the recommended upgrade to I-Vision and increased security patrols will act as a deterrent for criminal activity and contribute to a safe, inclusive housing environment.

III. Recommendation

Categorize your specific request (mark an 'X' for all that apply):

| | | | |
|-------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|
| <input checked="" type="checkbox"/> | Change to base operating budget | <input type="checkbox"/> | Change to base FTE allocation |
| <input type="checkbox"/> | Change to fees (unit price) | <input type="checkbox"/> | Change to revenues (volume change) |
| <input type="checkbox"/> | Investment in project (Operating) | <input checked="" type="checkbox"/> | Investment in project (Capital) |

Recommendation

The capital cost to replace all cameras, recording divars and connect the properties using Agilis fibre network is estimated at \$830,000. This project is recommended to be phased in over 3 years. The need to replace the aging and cobbled security camera hardware/software was identified and submitted as part of the capital prioritization process. The result of the risk based process was to delay the request to 2021. To prevent this implementation delay, staff are proposing to use existing 2019 capital funding by cancelling an approved asphalt parking lot project at 166 Louis Street with uncommitted value of \$300,000. This project has incurred some costs to date including design but was not tendered in 2019. Repurposing the remaining approved 2019 capital funding will provide adequate year 1 funding to begin the camera conversion. These funds are estimated to be sufficient to replace the camera systems at our priority high rise properties. The Louis Street parking lot can be resubmitted as a capital request for 2021. Increasing security service hours from 80 to 120 hours per week shared between the priority sites at a cost of approximately \$100,000. This will allow staff to review our security needs with the new cameras system and possibility of monitoring all cameras from one site similar to TDS security and preparing business case for 2021.

How does this align with Council's Strategic Plan?

| | | |
|---|---|--|
| | Asset Management and Service Excellence | Business Attraction, Development and Retention |
| | Climate Change | Economic Capacity and Investment Readiness |
| X | Housing | Creating a Healthier Community |

Increasing the safety and security for residents in social housing through increased security measures such as increased patrols and upgraded camera systems contributes to Council's strategic plan and reflects Council's desire for all citizens, especially vulnerable populations, to have access to safe, affordable, attainable and suitable housing.

IV. Impact Analysis**Qualitative Implications**

This change will allow for the conversion of cameras at our site with the largest demand for video surveillance from residents and police as well as begin the integration of GSHC camera software and systems with CGS and attempt to create efficiencies. Being connected to City system would allow for the possibility to have the CGS security staff assist 24/7 in the event of an emergency. Staff and residents have been frustrated with the current system technical failures and the lack of quality video to be able to provide evidence for police investigations and landlord and tenant matters. Increased security hours will also increase tenant satisfaction, as they will feel as though their requests have been heard.

Quantifiable Implications

An increase in security budget of \$100,000 would enable an increase the service hours from 80 to 120 hours per week for evenings and weekends. Staff would have the flexibility to schedule hours on the 3 sites as required to deal with issues. Upgrading the existing analog camera systems with digital cameras and Agilis fibre connections is estimated to cost \$830,000. This capital project would be phased in over 3 years, with 2020 (year one) funding of \$300,000 provided by cancelling a 2019 approved capital project. Year 2 and 3 would be funded from the tax levy through contributions to capital. The capital project includes new cameras, digital recorders and the installation of Agilis fibre network cable and I-Vision software to enable GSHC cameras to be compatible with CGS camera systems and network. The I-Vision system will provide the capability for review of all camera's from one location similar to the system in place with TDS security. The \$300,000 year one funding will allow GSHC to connect the 3 priority high rise areas. In addition, fibre connections will improve the speed and reliability of our video surveillance camera systems and enhance the ability to respond to requests for assistance from police and residents.

Operating Revenue - Incremental**Detail**

| Description | Duration | Revenue Source | 2020 \$ | 2021 \$ | 2022 \$ | 2023 \$ | 2024 \$ |
|--------------|----------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | | | |
| | | | | | | | |
| | On-Going | | \$ - | \$ - | \$ - | \$ - | \$ - |
| | One-Time | | \$ - | \$ - | \$ - | \$ - | \$ - |
| Total | | | \$ - | \$ - | \$ - | \$ - | \$ - |

Operating Expenditures - Incremental**Detail**

| Description | Duration | Funding Source | 2020 \$ | 2021 \$ | 2022 \$ | 2023 \$ | 2024 \$ |
|----------------------------|----------|----------------|-------------------|-------------------|--------------------|---------------------|-------------|
| Security Costs | On-going | | \$ 100,000 | | | | |
| Transfer from 2019 Capital | One-Time | | \$ (300,000) | \$ 300,000 | | | |
| I-Vision Cameras | One-Time | | \$ 300,000 | \$ - | \$ (70,000) | \$ (230,000) | |
| | | | | | | | |
| | On-Going | | \$ 100,000 | \$ - | \$ - | \$ - | \$ - |
| | One-Time | | \$ - | \$ 300,000 | \$ (70,000) | \$ (230,000) | \$ - |
| Total | | | \$ 100,000 | \$ 300,000 | \$ (70,000) | \$ (230,000) | \$ - |

Impact to Capital

Staff are proposing to cancel the 2019 Capital project to replace the asphalt parking lot at 166 Louis Street with a unspent value of \$300,000 and repurpose the capital funds towards the I-Vision Camera Replacement project in 2020. This will provide the needed year 1 funding and allow us to implement the new camera system at 3 priority sites. With all the asphalt work that the City has been tendering deferring the parking lot may allow for better pricing in future years when not competing with other City asphalt projects.

FTE Table

| Position | Bargaining Unit | Duration | Permanent / Part Time | 2020 | 2021 | 2022 | 2023 | 2024 |
|----------|-----------------|------------------|-----------------------|------|------|------|------|------|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | Permanent | | - | - | - | - | - |
| | | PT Hours | | - | - | - | - | - |

| Net Impact | 2020 \$ | 2021 \$ | 2022 \$ | 2023 \$ | 2024 \$ |
|-----------------|------------|------------|-------------|--------------|---------|
| On-Going | \$ 100,000 | \$ - | \$ - | \$ - | \$ - |
| One-Time | \$ - | \$ 300,000 | \$ (70,000) | \$ (230,000) | \$ - |
| Total | \$ 100,000 | \$ 300,000 | \$ (70,000) | \$ (230,000) | \$ - |

Implementation

The implementation is intended to be phased in over 3 years depending on capital funding availability. The project will begin in 2020 and complete in 2022. The assumptions are based on pricing received by I-Vision and Agilis and that the costs will remain consistent over the 3 year period as technology improves and the specified camera systems/servers continue trend of cost decrease offsetting expected labour cost increases for installation. There is an assumption that the coaxial cables in the high rises are in good condition and will not require replacement. The synergy with connecting cameras through the same I-Vision system as CGS will benefit both the Housing Operations staff, and the CGS IT team as the format will now be identical instead of the current state of 3 different camera systems. There should be a noticeable improvement for Housing staff when reviewing video footage based on reliability and general download speeds.

Advantages/Disadvantages

| Advantages | Disadvantages |
|---|--|
| <ul style="list-style-type: none"> • Synergy with IT and City camera systems, enhance IT support with 1 integrated system • Increased quality of camera video from analog to digital, which allows for enhanced enforcement efforts • Reduced delays for video review and gaps in service created by technical issues with existing internet and cameras • Allows for increased security hours, review of video camera policies, and possibility of CGS security assistance with review of video for police | <ul style="list-style-type: none"> • Risk associated with capital cost increases due to unforeseen conditions • Cancelling asphalt work at 166 Louis Street and reprioritizing funding may result in difficulty getting funds for parking lot approved with competing priorities in future years • Risk based review of 166 Louis parking lot indicates that some mitigation work to patch potholes may need to be undertaken |

V. Alternatives**Alternatives Considered**

| Solution Options | Advantages/Disadvantages | Financial Impact |
|--|---|---|
| Increasing property tax levy to fund the capital cost of approx \$830,000 which can be phased in over 3 years. The high rise buildings at 3 priority sites would be completed in year 1. | Allows for projects to be completed without cancelling parking lot, but puts pressure on competing priorities of lower taxes and other infrastructure work. Work can be phased in as completion of all building cameras and fibre installation at all sites cannot be accomplished in 1 year. | Funding year 1 without reallocating capital priority for our parking lot would increase the tax levy \$300,000. |
| Increase security patrols from sharing 80 hours per week to 168 hours per week (3 sites 8 hours per day 7 days a week). This would double current service level at an estimated cost of \$230,000. | Advantage is that the increased security would be noticeable at all 3 sites. Disadvantage is with new cameras, that can be monitored from single location and appropriate personnel dispatched may not require this level of service level and once residents get used to someone on site, its more difficult to change again. | This option would require an increase to the tax levy of \$230,000 per year. |
| Increase security patrols from sharing 80 hours per week to sharing 120 hours per week on evenings and weekends, and funding this \$100,000 one time from GSHC operating reserve. | Advantage is that it would give staff an opportunity to review the security needs and the ability to monitor cameras using I-vision from one location like at TDS and determine ongoing needs. Disadvantage is that once tenants get used to this level of service its difficult to reduce and puts pressure on 2021 tax levy increase to fund. | This option would have no impact on tax levy for 2020 but if ongoing would require funding in 2021. |

Business Case for Service Level Change

Request/Project Name: Installation of Lighting Along Junction Creek Waterway Park

Department: Community Development

Division: Leisure Services

Council Resolution (if applicable): FA2019-64

I. Executive Summary

Overview of Proposal

This business case responds to Council Resolution FA2019-64 to install lighting along a 2.2 km section of the Junction Creek Waterway Park trail which connects the Flour Mill and Downtown Sudbury. The trail serves as an active transportation route. Lights along this section will make it a more viable alternative to automobile short-distance trips and promote more active healthy lifestyles. Leisure Services has obtained a proposed lighting plan and project estimate. A total of 44 LED light fixtures are recommended to light the 2.2 km section at an estimated cost of \$180,600 (including 36% contingency).

Full Council Resolution:

WHEREAS the Junction Creek Waterway Park (JCWP), established in 1991, is Greater Sudbury's unique non-motorized trail system that connects the urban community;
AND WHEREAS the JCWP serves as a path to promote active living, healthy lifestyle and is a gateway to the natural environment, a corridor for civic engagement, and as a route toward economic growth;
AND WHEREAS the 2.2 km section of the JCWP which connects the Downtown to the Flour Mill is used extensively at all times of day, and its users would benefit from the installation of lighting to further promote its safe and extended use;
AND WHEREAS Council for the City of Greater Sudbury supports that "protecting and expanding the existing pedestrian and bicycle network in the City is essential to creating quality of place" and will encourage people to choose active transportation over driving, thereby reducing our carbon footprint and traffic congestion;
AND WHEREAS municipalities across Ontario are implementing initiatives to encourage active transportation as a viable alternative to private automobile for short-distance trips and as a method of promoting a more active and healthy lifestyle;
THEREFORE BE IT RESOLVED that the City of Greater Sudbury directs staff to prepare a business case to install lighting along the 2.2 km section of the JCWP trail from the Downtown to the Flour Mill for Council's consideration during the 2020 budget deliberations.

II. Background

Current Service Level

The City of Greater Sudbury maintains 177 km of non-motorized trails. The majority of non-motorized trails are unlit, with the exception of the Jim Gordon Boardwalk, Delki Dozzi Cycling/Walking track, Dominion Drive trail and Bonaventure trail and a section of the JCWP.

Drivers for Proposed Course of Action

At the Finance & Administration Committee meeting of October 22, 2019, Council directed staff to prepare a business case to have lights installed along the 2.2 km section of the Junction Creek Waterway Park to further promote its safe and extended use. The lighting of this section of trail will make it a more viable alternative to automobile short-distance trips and promote more active healthy lifestyles.

III. Recommendation

Categorize your specific request (mark an 'X' for all that apply):

| | | | |
|-------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|
| <input checked="" type="checkbox"/> | Change to base operating budget | | Change to base FTE allocation |
| | Change to fees (unit price) | | Change to revenues (volume change) |
| <input checked="" type="checkbox"/> | Investment in project (Operating) | <input checked="" type="checkbox"/> | Investment in project (Capital) |

Recommendation

The recommendation is to install 44 LED light fixtures along the 2.2 km section of the Junction Creek Waterway Park in question (Perrault Street to St Joseph Street) at an estimated cost of \$180,600. Source of capital funding would be a combination of park reserve and tax levy 50/50.

How does this align with Council's Strategic Plan?

| | | | |
|--|---|-------------------------------------|--|
| | Asset Management and Service Excellence | | Business Attraction, Development and Retention |
| | Climate Change | | Economic Capacity and Investment Readiness |
| | Housing | <input checked="" type="checkbox"/> | Creating a Healthier Community |

Investment in trails and active transportation infrastructure represents an investment in community recreation with a focus on quality of life. The project also advances the Population Health priority of active and sustainable outdoor urban spaces.

IV. Impact Analysis

Qualitative Implications

Having lights along this section of the Junction Creek Waterway Park will provide a safer experience, and make it a more viable active transportation option for those travelling between the Flour Mill and Downtown Sudbury.

Quantifiable Implications

The estimated one time capital cost for the supply and installation of 44 LED light fixtures is \$180,600 (including 36% contingency). Annual operating costs for the 44 LED light fixtures are estimated at \$1,500. This project would be funded from one time contribution from park reserve fund (\$90,300) and tax levy (\$90,300).

Operating Revenue - Incremental

Detail

| Description | Duration | Revenue Source | 2020 \$ | 2021 \$ | 2022 \$ | 2023 \$ | 2024 \$ |
|--------------------|----------|----------------------|-------------|-----------|---------|---------|---------|
| Parks Reserve Fund | One-Time | Capital Reserve Fund | \$ (90,300) | \$ 90,300 | | | |
| | On-Going | | \$ - | \$ - | \$ - | \$ - | \$ - |
| | One-Time | | \$ (90,300) | \$ 90,300 | \$ - | \$ - | \$ - |
| Total | | | \$ (90,300) | \$ 90,300 | \$ - | \$ - | \$ - |

Operating Expenditures - Incremental

Detail

| Description | Duration | Funding Source | 2020 \$ | 2021 \$ | 2022 \$ | 2023 \$ | 2024 \$ |
|-------------------------|----------|----------------|------------|--------------|---------|---------|---------|
| Contribution to Capital | One-Time | Tax Levy | \$ 180,600 | \$ (180,600) | | | |
| Hydro | On-going | Tax Levy | \$ 1,400 | | | | |
| Purchased Services | On-going | Tax Levy | \$ 100 | | | | |
| | On-Going | | \$ 1,500 | \$ - | \$ - | \$ - | \$ - |
| | One-Time | | \$ 180,600 | \$ (180,600) | \$ - | \$ - | \$ - |
| Total | | | \$ 182,100 | \$ (180,600) | \$ - | \$ - | \$ - |

Impact to Capital

Project will be completed in 2020 calendar year.

FTE Table

| Position | Bargaining Unit | Duration | Permanent / Part Time | 2020 | 2021 | 2022 | 2023 | 2024 |
|----------|-----------------|-----------|-----------------------|------|------|------|------|------|
| | | | | | | | | |
| | | Permanent | | - | - | - | - | - |
| | | PT Hours | | - | - | - | - | - |

| Net Impact | 2020 \$ | 2021 \$ | 2022 \$ | 2023 \$ | 2024 \$ |
|------------|-----------|-------------|---------|---------|---------|
| On-Going | \$ 1,500 | \$ - | \$ - | \$ - | \$ - |
| One-Time | \$ 90,300 | \$ (90,300) | \$ - | \$ - | \$ - |
| Total | \$ 91,800 | \$ (90,300) | \$ - | \$ - | \$ - |

Implementation

Upon approval of the business case, Leisure Services will work with Purchasing to issue a tender for supply and installation of lights based on the recommended lighting plan. Project could be completed in 2020.

| Advantages | | Disadvantages | |
|--|--|---|--|
| <ul style="list-style-type: none"> Improved user experience and safety along section of JCWP Promotion of active transportation and healthy lifestyles Not 100% tax levy Impact as 50% funded from capital parks reserve fund | | <ul style="list-style-type: none"> Additional unplanned capital expenditure Additional ongoing operating cost \$1,500 Reduction in capital parks reserve fund balance Increased tax levy impact | |

V. Alternatives

Alternatives Considered

| Solution Options | Advantages/Disadvantages | Financial Impact |
|--|---|------------------|
| One time capital fund / ongoing operating cost | One time 100% tax levy impact in the amount of \$180.600 and ongoing operating cost of \$1,500. No reduction in capital parks reserve fund. | \$ 182,100.00 |
| Donation from communities, private sector | No tax levy impact and does not affect existing capital programs. Community group required to initiate the fund raising effort and time required to raise required fund and additional ongoing operating cost of \$1,500. No reduction in capital parks reserve fund. | \$ 1,500.00 |

Business Case for Service Level Change

Request/Project Name: LED Streetlight Conversion

Department: Corporate Services

Division: Finance, Assets and Fleet

Council Resolution (if applicable):

I. Executive Summary

Overview of Proposal

The City of Greater Sudbury (CGS) owns all streetlights within the City with electricity provided through either Greater Sudbury Utilities (GSU) or Hydro One Networks Inc. (HONI), depending on the area serviced. GSU also provides technical support, advice, and is contracted to maintain the system including the streetlight inventory database, and the repairs and maintenance of the streetlights. There are approximately 15,023 streetlights in the City's inventory, with 61% serviced by GSU and 39% serviced by HONI. Of the current inventory, approximately 3,991 are Light-Emitting Diode (LED). LEDs are more energy efficient and have a longer useful life than traditional streetlights. The following business case proposes converting the remaining high pressure sodium (HPS) and low pressure sodium (LPS) streetlights to LED. If the conversion is completed by December 31, 2020, the City is eligible for a \$0.56 million rebate for construction costs through the Independent Electricity System Operator (IESO) retrofit program. It is also anticipated that the City would realize significant energy cost savings.

II. Background

Current Service Level

There are approximately 11,032 HPS/LPS and 3,991 LED Streetlights in the City of Greater Sudbury. The 2020 budget for energy costs is proposed at \$2.6 million, and increases year to year. The methodology for billing energy costs differs between GSU and HONI. While the overall composition is a combination of fixed costs (per unit) and variable costs (based on energy consumption), the proportion of fixed costs for streetlights serviced by GSU is significantly more than that of HONI. Therefore, a streetlight converted to LED would realize more savings if serviced by HONI as opposed to GSU.

Drivers for Proposed Course of Action

There is currently an opportunity for a funding incentive in the amount of \$0.56 million from IESO. Staff estimate that a full conversion of the remaining HPS streetlights would result in 61% energy savings and an approximate \$1.06 million energy cost savings annually.

III. Recommendation

Categorize your specific request (mark an 'X' for all that apply):

| | | | |
|-------------------------------------|-----------------------------------|-------------------------------------|------------------------------------|
| <input checked="" type="checkbox"/> | Change to base operating budget | | Change to base FTE allocation |
| | Change to fees (unit price) | | Change to revenues (volume change) |
| | Investment in project (Operating) | <input checked="" type="checkbox"/> | Investment in project (Capital) |

Recommendation

The recommended change is to convert the remaining HPS streetlights to LED by entering into an agreement with AMO/RealTerm Energy in accordance with the report from the General Manager of Corporate Services dated November 29, 2019.

How does this align with Council's Strategic Plan?

| | | | |
|-------------------------------------|---|--|--|
| | Asset Management and Service Excellence | | Business Attraction, Development and Retention |
| <input checked="" type="checkbox"/> | Climate Change | | Economic Capacity and Investment Readiness |
| | Housing | | Creating a Healthier Community |

In 2019, Council declared a climate emergency. A target of net zero greenhouse gas emissions by 2050 was directed by Council Resolution (CC2019-151). This is reaffirmed in the 2019-2027 City of Greater Sudbury Strategic Plan to build climate resiliency into existing programs.

IV. Impact Analysis

Qualitative Implications

The conversion of the remaining HPS/LPS streetlights would reduce greenhouse gas emissions by 61%.

Quantifiable Implications

The estimated annual energy cost savings would amount to \$1.06 million annually. Net capital costs would amount to \$6.15 million, including financing costs of \$0.67 million.

Operating Revenue - Incremental

Detail

| Description | Duration | Revenue Source | 2020 \$ | 2021 \$ | 2022 \$ | 2023 \$ | 2024 \$ |
|---------------------------------|----------|----------------|-----------------------|-------------|-------------|-------------|-------------|
| Contribution from Reserve Funds | One-Time | | \$ (6,145,772) | | | | |
| | On-Going | | \$ - | \$ - | \$ - | \$ - | \$ - |
| | One-Time | | \$ (6,145,772) | \$ - | \$ - | \$ - | \$ - |
| Total | | | \$ (6,145,772) | \$ - | \$ - | \$ - | \$ - |

Operating Expenditures - Incremental

Detail

| Description | Duration | Funding Source | 2020 \$ | 2021 \$ | 2022 \$ | 2023 \$ | 2024 \$ |
|-------------------------------|----------|----------------|---------------------|----------------|-------------|-------------|-------------|
| Energy Costs | On-going | | | \$ (1,059,479) | | | |
| Contribution to Reserve Funds | On-going | | | \$ 1,059,479 | | | |
| Contribution to Capital | One-Time | | \$ 6,145,772 | | | | |
| | On-Going | | \$ - | \$ - | \$ - | \$ - | \$ - |
| | One-Time | | \$ 6,145,772 | \$ - | \$ - | \$ - | \$ - |
| Total | | | \$ 6,145,772 | \$ - | \$ - | \$ - | \$ - |

Impact to Capital

Capital project estimate includes all costs associated with converting remaining 11,032 HPS/LPS streetlights to LED. Funds fully utilized in 2020 in order to realize incentive from IESO retrofit program.

FTE Table

| Position | Bargaining Unit | Duration | Permanent / Part Time | 2020 | 2021 | 2022 | 2023 | 2024 |
|----------|-----------------|-----------|-----------------------|------|------|------|------|------|
| | | | | | | | | |
| | | | | | | | | |
| | | Permanent | | - | - | - | - | - |
| | | PT Hours | | - | - | - | - | - |

| Net Impact | 2020 \$ | 2021 \$ | 2022 \$ | 2023 \$ | 2024 \$ |
|--------------|-------------|-------------|-------------|-------------|-------------|
| On-Going | \$ - | \$ - | \$ - | \$ - | \$ - |
| One-Time | \$ - | \$ - | \$ - | \$ - | \$ - |
| Total | \$ - | \$ - | \$ - | \$ - | \$ - |

Implementation

If approved, staff will commence the procurement as outlined in the information report from the General Manager of Corporate Services, dated November 29, 2019.

| Advantages/Disadvantages | | |
|---|---|---|
| Advantages | | Disadvantages |
| <ul style="list-style-type: none"> • Energy cost savings of approximately \$1.06 million to be realized in 2027 after pay-back period. • Low energy consumption when compared to HPS and are more efficient by 40% to 60%. Direct lighting also contributes to lower light pollution. • Reduced glare; Directing the light downward onto the roadway reduces the amount of light that is directed into driver's eyes. • Long and predictable lifetime: The projected lifetime of LED street lights is usually 15 to 20 years, two to four times the life of currently prevalent HPS. • More accurate color rendering: Improved color rendering makes it easier for drivers to recognize potential road hazards. • Quick turn on and off: Unlike HPS, which take time to heat up once switched on, LEDs come on with full brightness instantly. • RoHS compliance: LEDs do not contain mercury or lead, and do not release poisonous gases if damaged unlike HPS. | | <ul style="list-style-type: none"> • Capital costs would be internally financed from the Surplus Funds reserve fund as funds are currently not allocated to this project. • Luminance level higher than 10,000 cd/m2 causes visual discomfort whatever the position of the lighting unit in the field of vision. • The initial cost of LED street lighting is high and consequently it takes several years for the payback before savings on energy are realized. • The increase in the blue and green content of artificial sky glow arising from widespread LED lighting is likely to increase impacts on bird migration and other nocturnal animal behaviours. • The one for one replacement of LED for HPS could lead to dark patches and inadequate coverage on roadways and/or sidewalks as LEDs provide a very direct light relative to the broader spectrum of light emitted by HPS. |
| V. Alternatives | | |
| Alternatives Considered | | |
| Solution Options | Advantages/Disadvantages | Financial Impact |
| Remain Status Quo | The advantage of status quo is that the City would not have to incur the capital cost of the project and lighting coverage of HPS is more adequate. The disadvantage of status quo is that the City would forego energy reductions, operating savings and a project with a 6 year payback. | \$ - |
| Strategic replacement of HPS to LED wherein the payback period is shortest and/or where lighting coverage is best. | The advantage of this would be to maximize the quantity of the return on investment and ensure that the negative effect on lighting quality of changing to LED lighting is minimized. The disadvantage is that the City may not be able to complete the full conversion in this manner and as a result, the City may not receive the full incentive amount. | |


For Information Only
Finance and
Committee

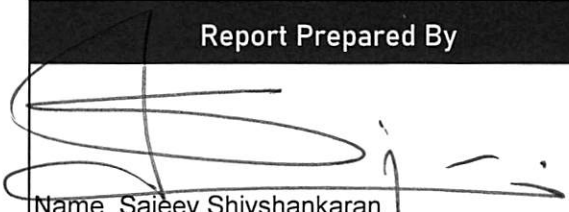

| Type of Decision | | | | | | | |
|--------------------|------------------|-----|---|-------------|-------------------|---|--------|
| Meeting Date | December 3, 2019 | | | Report Date | November 29, 2019 | | |
| Decision Requested | | Yes | X | No | Priority | | High |
| | Direction Only | | | | Type of Meeting | X | Open |
| | | | | | | | Closed |

| Report Title |
|----------------------------|
| LED Streetlight Conversion |

| Budget Impact/Policy Implication | Resolution |
|---|----------------------|
| <p>This report has been reviewed by the Finance Division and the funding source has been identified.</p> <p>There are no financial implications associated with this report.</p> <p>If Council approves the street lighting initiative, the financial implications are identified in the business case.</p> | For Information Only |
| Background Attached | Resolution Continued |

| Recommended by the Department |
|--|
|  Name Kevin Fowke Title General Manager, Corporate Services |

| Recommended by the C.A.O. |
|--|
|  Ed Archer Chief Administrative Officer |

| Report Prepared By | Division Review |
|---|--|
|  Name Sajeev Shivshankaran Title Manager of Energy Initiatives |  Name Shawn Turner Title Director of Assets & Fleet Services |

LED Streetlights Conversion

Purpose

This report is in response to Operations Committee Resolution OP2019-30 which directs staff to prepare a report on the conversion of High Pressure Sodium (HPS) streetlights to Light-Emitting Diode (LED) streetlights including information on the AMO/LAS turnkey program.

Background

The City of Greater Sudbury owns all streetlights within the City. The electricity is provided by Greater Sudbury Utilities (GSU) and Hydro One Networks Inc. (HONI), depending on the area serviced. GSU also provides technical support and is contracted to maintain the system including the streetlight inventory database and the repair and maintenance of the streetlights. The composition of the current inventory is depicted in Table 1 below.

| Table 1 Streetlight Inventory | | | |
|-------------------------------|-------|-------|--------|
| TYPE | GSU | HONI | Total |
| LED | 3,000 | 991 | 3,991 |
| HPS/LPS | 6,147 | 4,885 | 11,032 |
| Total | 9,147 | 5,876 | 15,023 |

Of these 15,023 streetlights, 61% fall in GSU and 39% fall in HONI serviced areas. Further 3,991 have already been converted to LED from HPS.

In 2012, City Council approved a streetlight retrofit project to convert 1315 HPS to LED. Advantages of this project were a reduction in greenhouse gas emissions, reduced light

pollution and a reduction in energy use. The project also secured a \$322,175 incentive from the Ontario Energy Board (OEB).

In 2012, the Association of Municipalities of Ontario/Local Authority Services (AMO/LAS) on the request from several leading municipalities formed the partnership with RealTerm Energy to develop a turnkey program for LED Street lighting conversion. This was mainly to mitigate the confusion in the market with products and design standards. The City of Greater Sudbury was a party to the 2012 study used by AMO / LAS in establishing a cooperative purchase program amongst several large and medium sized municipalities. In 2015, the City issued an RFP to convert the remaining HPS lights to LED. The highest ranked proposal that was received was from RealTerm Energy Corporation at a bid of \$5.854 million. The Award of the RFP was not approved by Council and subsequently cancelled.

In 2019, Council declared a climate emergency and the City reaffirmed action on climate change as a strategic priority. A target of net zero greenhouse gas (GHG) emissions by 2050 was directed by Council Resolution (CC2019-151).

Use of LED Streetlights

Many Ontario Municipalities have started converting their streetlight network from HPS to LED such as Kingston, Markham, Mississauga, North Bay Timmins, Windsor, Brampton, Guelph, London, Niagara Falls, Peterborough, and Barrie. Many large municipalities in the United States have also undertaken large-scale LED conversions. However, differences in energy rates and local climate make it difficult to compare these projects.

Conversion of streetlights to LED from HPS has been performed for a variety of reasons. Table 2 below summarizes the advantages and disadvantages of LED streetlights.

Table 2 Advantages and disadvantages of LED Street lights

| Advantages of LED | Disadvantages of LED |
|--|--|
| Low energy consumption: when compared to HPS and are more efficient by 40% to 60%. Direct lighting also contributes to lower light pollution | Due to the direct lighting there is potential for inadequate coverage for sidewalk and dark patches |
| Reduced glare: Directing the light downward onto the roadway reduces the amount of light that is directed into driver's eyes | Luminance level higher than 10,000 cd/m ² causes visual discomfort whatever the position of the lighting unit in the field of vision |
| Long and predictable lifetime: The projected lifetime of LED street lights is usually 15 to 20 years, two to four times the life of HPS | The cost of LED street lighting is approximately 40%-50% more than HPS and consequently it takes several years for the payback before savings on energy are realized |
| Quick turn on and off: Unlike HPS, which take time to heat up once switched on, LEDs come on with full brightness instantly | In the winters there is the risk of icing and thereby requiring additional cleaning as LEDs do not produce heat as much as HPS |
| RoHS compliance: LEDs do not contain mercury or lead, and do not release poisonous gases if damaged unlike HPS | |
| Less attractive to nocturnal insects: Nocturnal insects are attracted to ultraviolet light emitted by many conventional light sources | |
| Optically efficient lighting equipment: Other types of streetlights use a reflector to capture the light emitted upwards from the lamp | |

Current Opportunity

The City of Greater Sudbury has been preapproved for an incentive of \$564,165 by the Independent Electricity System Operator (IESO) retrofit program. The incentive is based on a per fixture rebate defined by the wattage of the bulb being replaced. The IESO

incentive is only available for streetlights converted by December 31, 2020. This incentive requires the City to complete the conversion of all or part of the remaining 11,032 HPS streetlights to LED before December 2020 in order to receive the full or pro-rata share of the incentive.

The business case for the conversion is positive and a full financial estimate can be found in "Appendix A". Table 3 below provides the summarized results.

| Table 3 Streetlight Business Case | | | |
|--|-------------|-------------|-------------|
| | GSU | HONI | Total |
| Estimated Capital Cost | \$3,738,759 | \$2,971,179 | \$6,709,937 |
| Less Rebate | \$314,351 | \$249,814 | \$564,165 |
| Net Cost | \$3,424,407 | \$2,721,365 | \$6,145,772 |
| | | | |
| Annual Energy Savings KWh | 4,188,692 | 3,210,836 | 7,399,527 |
| Annual Reduction in Hydro Costs | \$383,532 | \$675,948 | \$1,059,479 |
| Payback Period After Rebate | 8.9 | 4.0 | 5.8 |

The annual hydro costs vary between GSU and HONI, as a result of different rate structures. GSU's rate structure has a large fixed component, whereas HONI is largely a variable structure.

In summary, the City's estimates that a full conversion of the remaining HPS streetlights would result in approximately 61% energy savings that would subsequently result in approximately 41% or \$1,060,000 of monetary savings. This would result in a payback of approximately 5.8 years. The financial savings are contingent upon GSU and HONI continuing to provide electricity at similar rates into the future. Finance costs at over 7 years are included and estimated at \$670,000.

Further consideration is given to the estimated capital costs and the effect on the payback period in Table 4 below. Particularly some variables such as infrastructure replacement, availability of resources, relocation of some lighting standard due to ineffective lighting, price fluctuations as a result of exchange or capacity issues could impact the estimated capital cost in Table 3 above. This sensitivity analysis displays the payback period under different capital cost scenarios.

| Table 4 Sensitivity Analysis (Payback in Years) | | | |
|--|------|------|-------|
| | GSU | HONI | Total |
| Estimated Base Capital Cost | 8.9 | 4.0 | 5.8 |
| Estimated Base Capital Cost +10% | 9.8 | 4.4 | 6.4 |
| Estimated Base Capital Cost +20% | 10.7 | 4.8 | 7.0 |

AMO/RealTerm Energy Proposal

The Association of Municipalities Ontario (AMO), through RealTerm Energy, introduced a turnkey program for streetlight conversion in 2013. AMO met with several consulting organizations to determine their ability to provide the best value to their municipal partners in relation to the complex engineering and product selection related to LED street light conversions. After evaluating several organizations abilities, AMO selected RealTerm energy as their engineering consultant and contract administrator to work on behalf of their municipal partners. To date 200 Ontario Municipalities have joined the LAS LED Street light Program.

RealTerm Energy has submitted a proposal to the City. City staff has reviewed RealTerm Energy's methodology and have spoken with staff from other municipalities who are currently using the LAS LED streetlight program. Communications with these municipalities have confirmed positive feedback with over 200,000 streetlights installed to date through this program.

RealTerm's proposal includes

- an initial assessment of the existing streetlight network
- a comprehensive Investment Grade Audit
- photometric designs to optimize energy efficiency and minimize costs
- new LED installation and recycling of old fixtures
- processing all IESO Incentive paperwork
- transfer of all inventory files and data into the GIS system
- transfer of all warranties at commissioning

RealTerm has presented a proposal for changing all the current HPS into LED for a fee. The RealTerm proposal is a "one for one" replacement of current HPS fixtures. This proposal is an estimate and may be adjusted after the investment grade audit with photometric design are complete. Further, it was completed by RealTerm without input from City staff. Due to the age of the streetlight network and past experience, staff believe there will be additional costs incurred for the replacement of electrical components throughout the system.

Conclusion

The conversion of street lighting from HPS to LED is advantageous to the City for a variety of reasons. These include lower energy consumption and operating costs, lower lighting pollution, lower GHG emissions, higher life span of LED, and will help with the Smart City ambitions as they form the basis of connectivity and data gathering and dissemination.

Appendix -A

Estimated capital cost and payback – LED conversion

| Summary | |
|---|---------------------|
| Fixtures to be Converted per Rebate | 11,032 |
| Electricity Consumption before Retrofit (kWh) | 12,222,075 |
| Estimated GSU Energy Savings (kWh) | 4,188,692 |
| Estimated Hydro One Energy Savings (kWh) | 3,210,836 |
| Total Estimated Annualized Energy Savings | 7,399,527 |
| Percentage Energy Savings (kWh) | 61% |
| Streetlighting Annual Energy Budget (2020) | \$ 2,601,000 |
| Estimated Required Annual Energy Budget after LED Conversion | \$ 1,541,521 |
| Total Estimated Annualized Monetary Savings | \$ 1,059,479 |
| Percentage Monetary Savings (\$) | 41% |
| Estimated Capital Cost | \$ 6,719,821 |
| Less: Rebate | \$ (564,165) |
| Total Project Cost | \$ 6,155,656 |
| Capital Cost per Fixture b/f Rebate | \$ 609 |
| Capital Cost per Fixture net of Rebate | \$ 558 |
| Pay-Back Period (years) | 5.8 |
| Manufacturer's Years of Operation | 20.0 |
| GHG emissions reduction Co2 eq in MT | 229.4 |

Assumptions:

GSU and HONI have different billing methodologies; GSU has a large fixed cost component while HONI's methodology relies more on kWh, resulting in a difference in percentage savings:
2019 utility rates used
Did not include maintenance savings as this is not negotiated with GSU;