

Appendix A - Additional Details of Capital Projects in Options

Project Name	Estimated Cost	Useful Life in Years of Capital Project for Debt Financing Option Only	Expected Completion Date (end of 2020, end of 2021, etc)	Description of Project (obtained from Capital Prioritization submissions where available) (For Road Projects - also indicate how integrates with W/WW work along with estimated cost of water and ww (separately as will be funded from respective reserve fund.)	Pros or Benefits of why project should be completed. What are future costs that are avoided with this project?	Cons or Drawbacks if project is not completed	How does project address infrastructure gap?	Return on Investment / Payback (ie. annual savings; annual energy savings; energy rebates; etc)	Federal / Provincial Funding or Other Grants
1 Arena SMART Hub Energy Upgrades	\$ 507,000		Q3 2021	<p>An arena facilities consume a great deal of electrical energy during its normal operation. A typical community arena ice plants accounts for 40% of the energy used each year. Energy is the second-highest cost of operation, exceeded only by labor, in a typical ice facility. City arena refrigeration systems were designed for decades ago with simple analog technology. Modern technology available, including modulating head pressure controls and monitoring equipment, reduces equipment run time and energy consumption. It estimated that 1,195,317 KW of energy will be saved by installing the SMART Hub technology amounting to a energy cost savings of \$188,787 annually.</p> <p>This project proposes to purchase SMART Hub technology to be installed in each arena plant. The SMART Hub upgrade offers the following main features: SMART Scheduling; remote access; maintenance schedule notifications; alarm to email/text notifications; mobile app; power monitoring; and floating head pressure. As an option, the project could look at Class 1 arenas only, which would have a project cost of \$275,000 with annual savings of \$109,131.</p>	This project supports the City's Strategic Plan of Creating a Healthier Community (investment in infrastructure to support community recreation). The project also supports the City's Community Energy and Emissions Plan (CEEP) by reducing energy use at municipal arenas. As equipment run time will be reduced, the project will extend the life expectancy of arena refrigeration equipment (approximately 10%).	Energy costs will continue to be incurred due to analog technology. Equipment servicing costs will continue rise as equipment approaches end of life expectancy.	The project will allow the City to continue providing existing service levels for arenas. The City currently provides 16 ice pads across 14 arenas. The Parks, Open Space and Leisure Master Plan establishes a provision level of one ice pad for every 405 youth registrants.	Estimated energy savings of \$188,787 annually. Average pay back period per system installed is 3.08 years.	Estimated energy grant of \$157,669 expected in completion of this project.
2 Arena Roof Replacements and Interior Drywall Upgrades	\$ 2,270,000	30	End of 2021	<p>The Cambrian, Capreol, Coniston, Countryside, Dr Edgar LeClair, Garson, and JJ Coady Arenas require roof replacements and interior drywall repairs as identified from the recent 2018 Building Condition Assessments (BCA).</p> <p>The stakeholders of this project are Assets, Leisure Services, Parks and citizens that rent the arenas.</p> <p>With funding approval, we will begin design and tender the works in 2020. The repairs are anticipated to be phased amongst the several arenas, and completed in 2021. The main risk of not being able to complete this project is that we are over budget at tender. CGS nor the Consultants can predict or control the market pricing from the tender stage.</p>	This project supports the City's Strategic Plan of Creating a Healthier Community (investment in infrastructure to support community recreation). Cambrian and Onaping roofs are actively leaking. The rest are nearing end of life-cycle. Water leaks into interiors can cause mould and other adverse health issues.	Escalation of costs due to inflation, the longer water leaks are prolonged, the more damages to interior finishes, and increased risk to developing mould. Failing asset will lead to increased customer complaints and portray a negative image of the City when hosting out of town teams during events.	The project will allow the City to continue providing existing service levels for arenas. The City currently provides 16 ice pads across 14 arenas. The Parks, Open Space and Leisure Master Plan establishes a provision level of one ice pad for every 405 youth registrants. Roofs are part of the building envelope which is critical to life cycle of a structure.	None	None.
3 Copper Cliff Library Capital Repairs	\$ 1,170,000	20	End of 2021	The Copper Cliff Library is fast approaching the end of its useful life. There are a number of large repair/replacement projects identified: complete roof replacement, parking lot refurbishment, front and rear entrances/ramp replacements, doors and brick/planter refurbishment. In addition, significant interior upgrades are required due to safety concerns which includes upper loft railing and stair railing. Other interior renovations required include bathroom retrofits, flooring replacement and electrical updates. The stakeholders of this project are Libraries, Assets and Citizens. Although we expect to be able to complete this work in its entirety in 2020, there could be a possibility that a portion of the interiors being completed in 2021 (this can only be confirmed from tender with a contractor).	The leaks result in issues the deterioration of other parts of the building, including windows. Water leaks also cause mould and can have adverse issues on health.	Will continue to deteriorate in a progressive rate and eventually will not be able to function.	This will prolong the use of the facility.	Will result in savings of costs associated to repair and mitigate roof leaks, and will preserve other elements of building that are deteriorating as a result of the leaks.	None

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4 Transit - Implementation of Various Technological Improvements	\$ 4,987,000		end of 2023	Leveraging with Investing in Canada Infrastructure Program (ICIP) funding, Transit is applying for the implementation of various technological improvements. The resulting recommendations of the review must allow for the collection and operational management of reliable data which will be used to analyze service demand. Preliminary areas of improvements will focus on a new electronic fare payment system, and an on-demand solution for low(er) ridership areas. There is a high confidence that this project can be completed as described and within forecasted cost and timeframe.	The implementation of various technological options will positively impact riders by increasing customer experience and operational efficiencies. Technological improvements will create alternate payment options for a more accessible transit service (new electronic fare collection system) and create operational efficiencies with the collection of better data to support planning and network design. On-demand technologies would provide an increase in level of service in low demand areas. Programs which support operational functions (daily work assignments, absenteem etc) could reduce time spent on administrative tasks, and provide Supervisors time to manage the system.	Doesn't improve customer feedback for easier, faster and more dependable fare media options. Also, failure to implement new smartcard technology will result in continued farebox maintenance costs on aged assets (most fareboxes are past their useful life) whereas a new system would result in significantly less maintenance costs due to newer life cycle. On-Demand technology will allow for improved service within existing operating funds.	Fareboxes are becoming increasingly expensive to maintain and eliminating their use with smartcard technology would assist in the life cycle of this new payment system.	Lower farebox maintenance. Approx. \$80k per year average annual spend since 2018 with annual budget of \$45K in 2020.	\$ 3,640,510
5 Local Roads Resurfacing and Rehabilitation	\$ 4,100,000		2020	Scope of work includes resurfacing or rehabilitation of the asphalt, granular material, curbs and sidewalk. The design life of the surface asphalt will be approximately 10 years.	Scope of work includes resurfacing or rehabilitation of the asphalt, granular material, curbs and sidewalk. The design life of the surface asphalt will be approximately 10 years.	Maintenance costs will be expected to increase and local resident satisfaction is not addressed.	Proposed work will increase the lane km of roads which can be classified as good or very good.	Maintenance work can be reallocated to other assets.	None
6 Old Hwy 69 (MR 80) North of Maley Drive to McCrea Heights (enhanced scope)	\$ 1,600,000		2020	Increase scope of approved project from localized patching to full length resurfacing of approximately 3.5km of arterial road. \$1.6 mil in funding will be added to the approved \$2.0 mil funding for 2020.	Full length resurfacing will reduce future maintenance costs within the road segment and extend the service life of the road segment to 7 to 10 years.	Maintenance of sections between the patched sections of road will be required. Full length resurfacing may be required within the expected service life of the proposed full length resurfacing.	Proposed work will increase the lane km of roads which can be classified as good or very good.	Maintenance work can be reallocated to other assets.	None
7 Capreol Road (MR 84) Cote Boulevard to Linden Drive	\$ 1,800,000		2020	Bring forward proposed project from the planned completion year of 2021 to 2020 and revise limits. Scope of work includes approximately 1.5 km of full depth asphalt rehabilitation of arterial road using recycled technology and addition of paved shoulders.	Rescheduling proposed from 2021 to 2020 work provides an opportunity for additional road work in 2021.	Delay in project will result in increase in maintenance costs for this road segment.	Proposed work will increase the lane km of roads which can be classified as good or very good.	Maintenance work can be reallocated to other assets.	None
8 Old Hwy 69 (MR 80) South of Jean D'arc Street to North of Dominion Drive	\$ 700,000		2020	Bring forward proposed project from the planned completion year of 2021 to 2020. Scope of work includes approximately 0.4 km of 90mm asphalt grind and overlay with curb replacement. This contract has been awarded and work will be approved by change order.	Rescheduling proposed from 2021 to 2020 work provides an opportunity for additional road work in 2021.	Delay in project will result in increase in maintenance costs for this road segment.	Proposed work will increase the lane km of roads which can be classified as good or very good.	Maintenance work can be reallocated to other assets.	None

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9	Lorne Street - from Power to Logan (additional funds as external grants not approved)	\$ 14,600,000	Average of 30+ years	2021	This project includes the construction of the rehabilitation and resurfacing of Lorne Street for one of two phases. This phase of work includes from Power Street to Logan Street. Phase 1 includes Power St. to West of Big Nickel Mine as well as Power St. to Logan Ave. The City of Greater Sudbury has approved a portion of funding, and was originally presented with proposed Federal and Provincial funding that did not materialize. The City currently has approximately \$9 million currently budgeted for Roads (annual allocation in future capital budgets until 2038. This request is for the balance of funding. Additional information on this project can be found in the Business Case as part of the 2020 Budget document.	This project will address aging infrastructure, work will be coordinated with water/wastewater improvements, improve citizen satisfaction and foster economic development.	Road and water/wastewater infrastructure will continue to deteriorate, maintenance costs are expected to increase, and future capital costs can be expected to increase.	Proposed work will increase the lane km of roads which can be classified as good or very good.	Maintenance work can be reallocated to other assets.	None
10	Frobisher Salt/Sand Dome Replacement	\$ 8,250,000	50	2021	This project includes the construction of a new salt/sand storage structure at the Frobisher Depot. The proposal for this work is supported by the council report titled "Depot Master Plan - Frobisher, St. Clair, Suez, Black Lake and Whitefish" dated July 31, 2018.	This project will support redevelopment of the depot site using best salt management practices as the storage of pickled sand and salt will be located outside of the Ramsey Lake intake protection zone.	If the project is not completed, the City would not be adhering to the preferred solution of the Frobisher Depot Risk Management Plan and would be at risk of salt contamination of the intake protection zone.	A new storage facility for the Frobisher Depot is required and completion of this project will reduce the total funding required to address the depot infrastructure deficit.	Building maintenance work can be reallocated to other assets.	None
11	Maley Drive Extension (four lanes from Frood Road to MR 35 with roundabout at Frood Road)	\$ 11,000,000	Average of 30+ years	With approval in March, it would be tendered in 2020 with majority of work completed by end of 2021.	Scope of work includes four lanes from Frood Road to MR 35 with a roundabout at Frood Road. This road segment is currently attracting additional traffic with the recent opening on Maley Drive and experiencing congestion issues.	Improve levels of service for operation of transportation network, promoting economic development, and synergy with existing construction work.	If project is not completed congestion will continue and maintenance costs are expected to increase.	This project does address the existing infrastructure deficit on the pavement condition of the existing two lane road.	Maintenance work can be reallocated to other assets.	None
12	Local Road Improvements for our Downtowns	Approximately \$18 million to \$19 million	Average of 30+ years	Construction of these roads would be phased over multiple years to minimize impact to businesses.	Scope of work includes reconstruction of the asphalt, granular material, curbs and sidewalk. The design life of the surface asphalt will be approximately 20 years, however the other components will have a design life of 50 years, therefore the average design life will exceed 30 years. In 2021, Larch Street from Elgin to Lisgar (Sudbury) is identified in the capital budget and these limits could be extended to include portions of Lisgar and Durham. All community Downtown areas will be review for opportunities for road improvements including resurfacing, rehabilitation, sidewalk and curb renewal, light standards and will provide opportunities for beautification.	This project will reduce maintenance costs for the improved road segments, increase resident satisfaction with completion of community improvements and improve ability to attract businesses to downtown areas.	Maintenance costs will be expected to increase and resident/business satisfaction is not addressed.	Proposed work will increase the lane km of roads which can be classified as good or very good.	Maintenance work can be reallocated to other assets.	None
	Various Pool Upgrade Requirements:									
13	- Onaping	\$ 1,600,000	15	End of 2021	This project also has corresponding work with W/WW which is estimated at \$4,000/m. This project supports the City's Strategic Plan of Creating a Healthier Community (investment in infrastructure to support community recreation). The project will reduce the frequency and magnitude of service level interruptions in the future. BCA calls for investment in facility.	The deferral of repairs called for in the BCA will result in increased emergency repair and maintenance costs. Derferral of repairs also increases the probability of service interruptions or equipment/mechanical failures. Project would bring identified items back to a state of good repair which will prolong the use of the facility.	The defferal of repairs called for in the BCA will result in increased emergency repair and maintenance costs. Derferral of repairs also increases the probability of service interruptions or equipment/mechanical failures.	The project will allow the City to continue providing existing service levels for pools. The City currently provides 5 pools. The Parks, Open Space and Leisure Master Plan established a provision level of one aquatic facility for every 25,000 residents (including CGS pools, YMCA and Laurentian University). Project would bring identified items back to a state of good repair which will prolong the use of the facility.	Small potential for ROI on the HVAC, but unlikely. Must be evaluated to be confirmed. The rest of the items will not have a ROI. Lighting already updated.	None. Perhaps on the HVAC. TBD

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17 - 1960 Paris Elevator Modernization	\$ 300,000	25	Q1 2021	Modernization of the 1960 Paris B building elevators (2 elevators). 3rd Party elevator audit from 2014 recommended the full modernization of the elevators at this building. Subsequent to this audit, the controllers became obsolete and parts are no longer available. The elevator is no longer providing the level of service with one unit being out of service for over 2 months. The elevators should last 25 years.	It is important to maintain levels of service in a community housing building made up of family units. The second elevator has the same obsolete controller and thus this work needs to be completed before failure.	If not completed then there is a likelihood of failure and a reduction in service levels. This will result in tenant complaints and the risk of an order against us.	The facility condition index for this building is considered on the cusp of poor. Operating an elevator to failure will further push the building into poor condition. Completing this project will benefit this metric while ensuring that tenants receive appropriate service levels.	No Annual Savings however service level standard not being met due to numerous elevator shutdowns. Currently most costs related to call outs are covered under Service Contract however elevator remains shutdown for extended periods to due components are obsolete.	None Anticipated
18 - 1052 Belfry Make Up Air Replacement	\$ 100,000	25	Q3 2020	The Make Up Air unit on the roof has had intermittent failures and is not operating with the reliability required for the building. The impacts our ability to maintain service level standards. There is an increased operational cost as technicians are dispatched, often after hours, to address a breakdown. New unit should last 25 years.	Maintain levels of service in a senior's community housing building units. The unit provides fresh, filtered and heated air while pressurizing the hallways. This controls odours They can also be used by the fire department to control the spread of smoke in the event of a fire.	If not completed then there is a likelihood of failure and a reduction in service levels. This will result in tenant complaints and the risk of an order against us.	The facility condition index for this building is considered on the cusp of poor. Operating a MUA unit to failure will further push the building into poor condition. Completing this project will benefit this metric while ensuring that tenants receive appropriate service levels.	Modeling of pre-retrofit conditions compared to the post-retrofit conditions result in an estimated electricity savings of 11,647 kWh and GHG emissions reductoin of 12,958 ekGCO2. Annual Estimated Savings \$1400	None Anticipated
19 - 166 Louis Street Make Up Air Replacement	\$ 100,000	25	Q3 2020	The Make Up Air unit on the roof has had intermittent failures and is not operating with the reliability required for the building. The impacts our ability to maintain service level standards. There is an increased operational cost as technicians are dispatched, often after hours, to address a breakdown. New unit should last 20 years.	Maintain levels of service in a community housing building units. The unit provides fresh, filtered and heated air while pressurizing the hallways. This controls odours They can also be used by the fire department to control the spread of smoke in the event of a fire.	If not completed then there is a likelihood of failure and a reduction in service levels. This will result in tenant complaints and the risk of an order against us.	The facility condition index for this building is considered on the cusp of poor. Operating a MUA unit to failure will further push the building into poor condition. Completing this project will benefit this metric while ensuring that tenants receive appropriate service levels.	Modeling of pre-retrofit conditions compared to the post-retrofit conditions result in an estimated electricity savings of 5,766 kWh, a natural gas savings of 336 m3, and GHG emissions reductoin of 6,414 ekGCO2. Annual Estimated Savings \$800.	Heat source is Natural Gas - Potential Enersmart Energy Rebate under Affordable Housing Conservation Program
20 - Walkup Apartment Make Up Air (\$35,000 per building x 4 units) 27 Hanna, Capreol 35 Spruce, Garson 3553 Montpellier, Chelmsford 155 Lapointe, Hanmer	\$ 140,000	25	Q3 2020	The Make Up Air unit on the roof has had intermittent failures and is not operating with the reliability required for the building. The impacts our ability to maintain service level standards. There is an increased operational cost as technicians are dispatched, often after hours, to address a breakdown. New unit should last 25 years.	Maintain levels of service in a community housing building units. The unit provides fresh, filtered and heated air while pressurizing the hallways. This controls odours They can also be used by the fire department to control the spread of smoke in the event of a fire.	If not completed then there is a likelihood of failure and a reduction in service levels. This will result in tenant complaints and the risk of an order against us.	The facility condition index for this building is considered on the cusp of poor. Operating a MUA unit to failure will further push the building into poor condition. Completing this project will benefit this metric while ensuring that tenants receive appropriate service levels.	Modeling of pre-retrofit conditions compared to the post-retrofit conditions result in an estimated electricity savings of 12,916 kWh, and GHG emissions reductoin of 9,100 ekGCO2. Annual Estimated Savings \$1550.	None Anticipated
21 - 1960 A+B Paris Roof Replacement	\$ 1,200,000	20	Q3 2020	The flat roof at 1960 Paris is near the end of life and at risk of leaking. There are occasions where partially blocked scuppers result in higher than ideal water levels, increasing the risk of a leak. The blockage can be from ice dam formation during freeze/thaw events. The impact of a consistent and/or significant leak will be significantly costly as the water migrates unabated through the substructure and into tenant units. The impact is a loss or change of housing requirement for community housing members. A fundamental service level standard is to provide shelter that does not leak. New Roof should last 20 years.	It is important to prevent damage associated with a leak, prevent impact to tenants housed in the building, and maintain levels of service in a community housing building.	If not completed then there is a likelihood of failure and a reduction in service levels. This will result in tenant complaints and the risk of an order against us.	The facility condition index for this building is considered on the cusp of poor. Operating a highrise building roof to failure will result in increased costs and further push the building into poor condition. Completing this project will benefit this metric while ensuring that tenants are not at risk of losing housing due to leaks.	The improved insulation in a new roof would provide for a payback in approximately 11.2 years with an electricity savings of 500 kWh, natural gas savings of 15,873 m3, providing for an annual savings of \$5,005.	None Anticipated

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22	- 1960 A Paris Balcony Railing Replacement	\$ 350,000	20	Q3 2021	The 1960 Paris balcony railings require removal and replacement with new aluminium railings and associated deck repairs as needed. The current steel railings are deteriorated with flaking paint and rust. There is a risk that these will become unsafe for tenants and people walking below as they continue to deteriorate. A similar project was undertaken at 720 Bruce by GSHC staff with great success. This project is intended to be undertaken before there is failure. New Railings should last 20 years.	It is important to ensure the safety of tenants and the people below. Purchasing a new aluminum railing will provide decades of reliability and remove the need to frequently repair and repaint the railings.	If not completed then there is a likelihood of failure and a reduction in service levels. It is not an acceptable risk to operate balconies to the point of failure or decommission. This will result in tenant complaints and the risk of an order against us.	The facility condition index for this building is considered on the cusp of poor. Failure to replace the railings will further push the building into poor condition. Completing this project will benefit this metric while ensuring that tenant and pedestrian traffic safety is maintained.	This project does not provide financial savings related to energy efficiency, rather is a health and safety matter that reduces risk to tenants and pedestrians once completed. Savings are related to the impact of closing balconies resulting in tenancy impacts and possible vacancies or rent abatement costs.	None Anticipated
23	- 1960 B Paris Balcony Railing Replacement	\$ 500,000	20	Q3 2021	The 1960 Paris balcony railings require removal and replacement with new aluminium railings and associated deck repairs as needed. The current steel railings are deteriorated with flaking paint and rust. There is a risk that these will become unsafe for tenants and people walking below as they continue to deteriorate. A similar project was undertaken at 720 Bruce by GSHC staff with great success. This project is intended to be undertaken before there is failure. New Railings should last 20 years.	It is important to ensure the safety of tenants and the people below. Purchasing a new aluminum railing will provide decades of reliability and remove the need to frequently repair and repaint the railings.	If not completed then there is a likelihood of failure and a reduction in service levels. It is not an acceptable risk to operate balconies to the point of failure or decommission. This will result in tenant complaints and the risk of an order against us.	The facility condition index for this building is considered on the cusp of poor. Failure to replace the railings will further push the building into poor condition. Completing this project will benefit this metric while ensuring that tenant and pedestrian traffic safety is maintained.	This project does not provide financial savings, rather is a health and safety matter that reduces risk to tenants and pedestrians once completed.	None Anticipated