



Public Works and Infrastructure Committee

**Thursday, July 11, 2019
4:00 PM**

Henry Baker Hall, Main Floor, City Hall



OFFICE OF THE CITY CLERK

Public Agenda Public Works and Infrastructure Committee Thursday, July 11, 2019

Approval of Public Agenda

Adoption of Minutes

Minutes of the meeting held on April 18, 2019.

Administration Reports

PWI19-11 Snow Fence Program

Recommendation

1. That the continuation of the Snow Ridge Program be endorsed.
2. That item MN19-5 be removed from the List of Outstanding Items for the Public Works and Infrastructure Committee.
3. That this report be forwarded to the July 29, 2019 meeting of City Council for approval.

PWI19-12 Area 13 Drainage Upgrade Project

Recommendation

1. That the Executive Director of Citizen Services be delegated authority to initiate the process to engage consulting and professional engineering services for all phases of the Area 13 Drainage Upgrade Project.
2. That the Executive Director of Citizen Services, or his or her delegate be delegated authority to negotiate, award, enter into and amend a contract with the highest ranked proponent from each public procurement process of the Area 13 Drainage Upgrade Project.
3. That City Council authorize the City Clerk to execute the contract with the highest ranked proponent(s) upon review and approval of the City Solicitor.
4. That this report be forwarded to the July 29, 2019 meeting of City Council for approval.



OFFICE OF THE CITY CLERK

PWI19-13 4th Avenue Pumping Station (4APS)- Issue Request for Proposals and Award Engineering Services Contract

Recommendation

1. That the Executive Director of Citizen Services, or designate, be authorized to initiate a public procurement process to engage consulting and professional engineering services for the design and construction of the 4th Avenue Pumping Station.
2. That the Executive Director of Citizen Services, or designate, be authorized to negotiate, award, and enter into a contract with the highest ranked proponent from the public procurement process.
3. That the City Clerk be authorized to execute a contract with the highest ranked proponent upon review and approval of the City Solicitor.
4. That this report be forwarded to the July 29, 2019 meeting of City Council for approval.

Adjournment

AT REGINA, SASKATCHEWAN, THURSDAY, APRIL 18, 2019

AT A MEETING OF PUBLIC WORKS AND INFRASTRUCTURE
COMMITTEE
HELD IN PUBLIC SESSION

AT 4:00 PM

These are considered a draft rendering of the official minutes. Official minutes can be obtained through the Office of the City Clerk once approved.

Present: Councillor John Findura, in the Chair
Councillor Jason Mancinelli
Councillor Andrew Stevens
Councillor Barbara Young

Regrets: Councillor Lori Bresciani

Also in Attendance: Council Officer, Elaine Gohlke
Legal Counsel, Jayne Krueger
Executive Director, Citizen Services, Kim Onrait
Director, Roadways & Transportation, Norman Kyle
Director, Water, Waste & Environmental Services, Pat Wilson
Manager, Corporate Asset Management, Geoff Brown
Manager, Infrastructure Delivery, Chris Seeley
A/Manager, Traffic Engineering, Faisal Kalim

APPROVAL OF PUBLIC AGENDA

Councillor Barbara Young moved, AND IT WAS RESOLVED, that the agenda for this meeting be approved, as submitted, and that the delegations and items be heard in the order they are called by the Chairperson.

ADOPTION OF MINUTES

Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that the minutes for the meeting held on March 7, 2019 be adopted, as circulated, after noting a typo in Recommendation #2 in PWI19-4 Residential Roadway Repairs and amending Recommendation #2 to read "That PW18-10 be removed from the List of Outstanding Items for Public Works and Infrastructure Committee."

ADMINISTRATION REPORTS

PWI19-8 Safety in School Zones – School Zone Safety Audit

Recommendation

1. That the following amendments to *The Regina Traffic Bylaw, 1997*, No. 9900 (the “*Traffic Bylaw*”) be approved and come into force on September 1, 2019:
 - a. reducing the speed to 30 kilometres per hour from 7 a.m. to 7 p.m. in school zones and playground zones to enhance pedestrian safety
 - b. prohibiting U-turns in school zones
2. That the City Solicitor be instructed to prepare the necessary bylaw to authorize the respective *Traffic Bylaw* amendments.
3. That this report be forwarded to the April 29, 2019 meeting of City Council for approval.

Faisal Kalim, A/Manager, Traffic Services, and Jacob Sprawson, Engineering Assistant III, made a PowerPoint presentation to the Committee.

The following addressed the Committee:

- Elena Chase and Christine Niemczyk, representing Regina Pedestrian Traffic Safety Committee; and
- Linda McKenzie.

Councillor Barbara Young moved that the recommendation contained in the report be concurred in.

Councillor Barbara Young moved, in amendment, AND IT WAS RESOLVED, that recommendation 1 a. be amended to read as follows:

1. That the following amendments to *The Regina Traffic Bylaw, 1997*, No. 9900 (the “*Traffic Bylaw*”) be approved and come into force on September 1, 2019:
 - a. reducing the speed to 30 kilometres per hour from 7 a.m. to 7 p.m., 365 days a year, in school zones and playground zones to enhance pedestrian safety prohibiting

The main motion, as amended, was put and declared CARRIED.

PWI19-7 Noise Attenuation

Recommendation

1. That Administration be directed to report back to Public Works & Infrastructure Committee with recommendations for an updated Roadway Noise Policy by Q1 2021 which:
 - a. modernizes the acceptable methodologies and materials for design and implementation of noise attenuation
 - b. maintains requirements for the provision of noise attenuation in new neighbourhoods where required
 - c. reviews the requirement for the City of Regina to monitor and install noise attenuation for existing development locations exceeding the established limit.
2. That the 1990 Roadway Noise Attenuation Policy be amended to remove the requirement for the Administration to monitor roadway noise in established neighbourhood locations for compliance until such time as a new policy is adopted.
3. That *EX16-27* be removed from the List of Outstanding Items for Public Works & Infrastructure Committee.
4. That this report be forwarded to the April 29, 2019 meeting of City Council for approval.

Councillor Jason Mancinelli moved, AND IT WAS RESOLVED, that the recommendation contained in the report be concurred in.

PWI19-9 Lead Service Connection Management Program Update

Recommendation

That this report be received and filed.

Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that this report be received and filed.

PWI19-10 Placemaking: Community Street Painting Program

Recommendation

1. That City Council approve the following amendment to *The Regina Traffic Bylaw, 1997, No. 9900 (Traffic Bylaw)*:
 - a) Add “Street Painting Event, \$400 per permit” to *Schedule “J” – Fees and Charges*.

2. That the City Solicitor be instructed to amend the *Traffic Bylaw* to reflect the change proposed in recommendation 1(a) of this report.
3. That *CR18-36* be removed from the List of Outstanding Items for Public Works & Infrastructure Committee.
4. That this report be forwarded to the April 29, 2019 meeting of City Council for approval.

Councillor Jason Mancinelli moved, AND IT WAS RESOLVED, that the recommendation contained in the report be concurred in.

ADJOURNMENT

Councillor Barbara Young moved, AND IT WAS RESOLVED, that the meeting adjourn.

The meeting adjourned at 5:56 p.m.

Chairperson

Secretary

July 11, 2019

To: Members
Public Works and Infrastructure Committee

Re: Snow Fence Program

RECOMMENDATION

1. That the continuation of the Snow Ridge Program be endorsed.
2. That item MN19-5 be removed from the List of Outstanding Items for the Public Works and Infrastructure Committee.
3. That this report be forwarded to the July 29, 2019 meeting of City Council for approval.

CONCLUSION

By continuing with the current Snow Ridge Program, the City of Regina (City) will continue to provide an effective method to address blowing snow on rural roads on the outskirts of the city, newly developed open areas and known trouble spot locations. This method has proven successful in reducing costs, while still providing the same benefit as a snow fence.

Administration will continue to look at cost effective and innovative solutions to address drifting snow through the use of methods such as living snow fences and/or other mitigation measures in collaboration with other departments and private landowners.

BACKGROUND

At the April 29, 2019 meeting of City Council Motion *MN19-5* was passed:

“That Administration prepare a report for Public Works and Infrastructure Committee for Q2 of 2019 that identifies the costs, implications and options for implementing snow fencing to commence in Q4 of 2019.”

Historically, the City’s winter maintenance staff would install wooden snow fences at various locations throughout the community. These locations were generally on the rural roads on the outskirts of the city, newly developed open areas, or known trouble spot locations where the snow drifts would affect traffic flow. These locations were selected based on service requests and historic data. Winter Maintenance staff would conduct a pre-season site inspection to check if the snow fences or alternate solutions would be required to mitigate the concern of roads and intersections getting blown-in by snow.

Over the past few years, the Roadways & Transportation Department had transitioned much of the snow fence locations to snow-windrowing (ridging) locations for operational savings and efficiencies. In 2017, as part of the budget discussions, a decision was made to discontinue the Snow Fence Program due to the effectiveness of the snow ridges. Winter Maintenance crews have been continuously servicing and monitoring the identified trouble-spots through a dedicated crew and taking immediate steps to ensure safe winter driving conditions on these roads.

DISCUSSION

After several years of trials and careful analysis of pros and cons of installing snow fences, Administration adopted an innovative solution of creating snow ridges in open areas as opposed to erecting snow fences. Snow ridges provide the same benefits as snow fences in terms of reducing the amount of snow blown onto roadways.

As mentioned in *PW114-19* and *PW115-21*, this method of using snow ridges rather than snow fencing proved to be quite successful, reducing installation and removal expenditures. The total cost saving was approximately \$47,000 per year in labour only.

The process of installing snow fences prior to the winter season and uninstalling them during spring uses considerable staffing resources; this typically involves multiple crews and several weeks to complete. In the spring there is often delays in the removal of snow fences due to frozen and/or wet ground conditions. This requires crews to frequently check the sites for safe conditions to uninstall the fencing and posts.

The one advantage snow fencing has over snow ridge barriers, is at the start of the winter season, or winters with little snow accumulation, they act as barrier when these conditions do not allow for the proper construction of snow ridges.

Additional information regarding the pros and cons for snow fences versus snow ridges are described in Appendix A to this report.

With either method, be it snow fence or snow ridge, during extreme windy conditions the snow could still be blown over a barrier and fill the roads and intersections, requiring services of winter maintenance. During these conditions, the roads may still need to be temporarily closed due to reduced/zero visibility and for maintenance until safe winter driving conditions are restored.

Enhanced snow plowing has proven to be an effective solution in favour of installing snow fences or snow ridges on certain locations; such as areas where the barrier is higher than the adjoining road surface. As a past and current practice during windy conditions, City crews are assigned to previously identified trouble spots to clear snow mechanically, regardless of whether the locations having Snow Fences or Snow Ridges installed. Furthermore, Service Regina staff are trained to contact the on-call winter supervisor to inspect and assign units as required when informed of a blocked or impassable road condition.

Weather Conditions – February - March 2019:

During February and early part of March, Regina observed daily extreme cold warnings; temperatures dipped into the minus 40s, with frigid wind chills. There were continuous wind gusts ranged from 60 kilometer per hour to 74 kilometer per hour on several days and some of these days were accompanied by snow precipitation as well. In accordance with Environment and Climate Change Canada, the last time Regina saw conditions similar was in 1939.

With following the Winter Maintenance standard practice, crews were continuously deployed to address these challenges. Some sections on Courtney Street had to be closed to traffic for a few hours in early March due to blowing snow, poor visibility and icy conditions. Some other road sections that experienced similar challenges during these months were around Ring Road and in the Lakeridge areas. During these types of conditions, closures may be required to ensure safe winter driving conditions with the aim to provide emergency response access, maximise connectivity and minimize response times.

Options

Snow Ridge Program with Timely Maintenance of Trouble-spots – Recommended Option

Administration continues to create snow ridges on rural roads on the outskirts of the city, newly developed open areas, or known trouble spot locations where the snow drifts would affect traffic flow. For the list of locations, see Appendix B to this report.

The following is the breakdown of the typical snow ridge lengths created between November and March annually, in the last three seasons:

City Zone	Snow Fence length requirements to replace all Snow Ridge locations across the city
NE	3000m
SE	3000m
SW	1600m
NW	1800m
Total	9400m (approx. 30,000ft)

The annual costs associated with creating snow ridges on trouble spots is approximately \$8,000 per season. Creating and maintaining snow ridges is generally not a very expensive activity. Additional information regarding costing can be found in Appendix C to this report.

Snow Fence Program

To establish a Snow Fence Program, the City would need a plan to cover approximately 30,000 feet of the open areas around known trouble-spots. To cover this stretch, The City would require the purchase of approximately 600 snow fences (4 feet by 50 feet) and approximately 3,600 fence posts (6 posts per fence) would be required, in addition to the related hardware.

The following costs would be incurred:

- Material cost: The initial cost to procure the above material will be approximately \$100,800.
- Periodic replacement cost: Due to regular wear/tear and usage, the fence material may need replacement every three to four years. Ongoing replacement costs estimated at least 10 per cent of fencing would be required annually adding another \$10,000 annually for a Snow Fence Program.
- Storage cost during summer: The fence and posts removed during spring would take premium space for the purpose of safe storage.
- Annual installation/ removal labour cost: The Snow Fence Program would cost the City approximately \$50,000 in labour per year.

Other Options

The incidents of snow blowing into the intersections and roads around the open areas can be further mitigated by adopting some or all of the following cost-effective ways at the development stage. Some of the below alternatives have been piloted by various jurisdictions:

a) Enhanced Residents' Awareness About the Snow Ridge Program

A focused awareness program could be initiated to educate residents about the benefits of the Snow Ridge Program and how to request adding new areas or changing existing snow ridge plans. A dedicated winter supervisor could oversee the snow ridge program including the service requests coming from public on this topic.

b) Living Snow Fences

Living snow fences could include strategically planting of trees, shrubs, wildflowers and native grasses, as well as stacked bales of hay, along roads or outer sections of the neighbourhoods that are prone to blowing and drifting conditions. This option has been successfully tried and/or implemented by several municipalities in North America including the Region of Peel.

Properly designed and placed, these living barriers trap snow as it blows across fields, piling it up before it reaches a road or community. In Regina, there are some open areas or parks where appropriate vegetation could help replace temporary wooden snow fences.

Administration can also explore the possibility of living snow fences in fields or open areas on the outskirts of the city where no development is planned in the near future.

Not all current snow ridge locations can be replaced by this option as this option may require a long-term commitment from the property owners and developers and may not be always feasible. This option should be considered only if the locations are going to be maintained as an open area for the next several years.

This option would however require more research and working with other departments within the City as well as owners of the fields or open areas.

c) Outsourcing the Snow Fence Program for Supply and Install

Administration has never outsourced the Snow Fence Program to a 3rd party, but this possibility has been recently explored.

Research has shown that several fence suppliers and/or installers in Regina have moved away from the snow fencing business in the last few years. Only two suppliers/installers returned with the request for a quote. The quoted prices by two respondents were \$1.50 per ft and \$6.70 per ft, plus taxes.

As per the minimum quote received, hiring a 3rd party to supply/install snow fences for the known trouble spots would cost \$45,000 annually. This cost would include installing, removing and storing the fence and posts. There will be additional costs above this such as staff time for coordination, safety inspections, quality audits, contract management, arranging locates, as well as liability costs associated with claims. Details of the contract, such as the minimum guaranteed amount, would still need to be determined as well.

Pilot Study Option: Under this option, a pilot study could be conducted on a small section around the open areas in order to test the benefits or drawbacks of outsourcing a Snow Fence. This study could be performed during 2019/ 2020 winter season on a small stretch around Courtney Street between 9th Avenue North and Armor Road. A maximum of \$11,000 could be utilized from the Winter Maintenance operation budget towards this trial.

RECOMMENDATION IMPLICATIONS

Financial Implications

There are no budget implications to the recommended option.

A Snow Fence Program would cost the City approximately \$50,000 in labour per year, with an initial one-time capital cost to procure fencing materials at approximately \$100,800. There would also be costs associated with replacement, inventory management and storage. Annual replacement costs are estimated at \$10,000 per bringing the annual costs to a total of \$60,000.

The cost for the Living Snow Fences would vary depending on buy in from landowners and other service areas to support a program like this. Although these costs could vary, a Living Snow Fence Program may only see initial start-up costs. A program like this would also need to be supported by a communications plan to educate residents.

The cost associated with outsourcing to a 3rd party could be approximately \$45,000 annually, with additional costs as described in Option C. To conduct a pilot study to check the benefits or drawbacks of outsourcing snow fencing, \$11,000 would be a sufficient amount. The winter maintenance operation budget can be the source of this fund.

These estimates are based on the existing trouble spots. After the Snow Fence Program was gradually replaced by snow ridges over the years and ultimately discontinued.

Environmental Implications

The Snow Ridge Program would reduce the City's dependence on single use plastic fencing.

Policy and/or Strategic Implications

The recommended approach of a Snow Ridge Program, is consistent with *The Official Community Plan, Bylaw No. 2013-48* (OCP), specifically:

Section D9, Goal 2- Health and Environmental Impacts, 11.9, "Ensure city roadways are able to provide all- season emergency response access, maximise connectivity, and minimize response times."

The current Winter Maintenance Policy does not include snow fencing as part of the policy.

Other Implications

None to this report.

Accessibility Implications

Both snow ridges and snow fencing, along with alternative options provide accessible streets during the winter months.

COMMUNICATIONS

Information related to the Snow Ridge or Snow Fence Program, dependant on Council approval, will be included on the City's seasonal maintenance webpage.

DELEGATED AUTHORITY

The recommendation contained within this report requires City Council approval.

Respectfully submitted,



Chris Warren, A/Director,
Roadways & Transportation

Report prepared by:
Neeraj Saroj, Senior Engineer

Respectfully submitted,



Kim Onrait, Executive Director,
Citizen Services

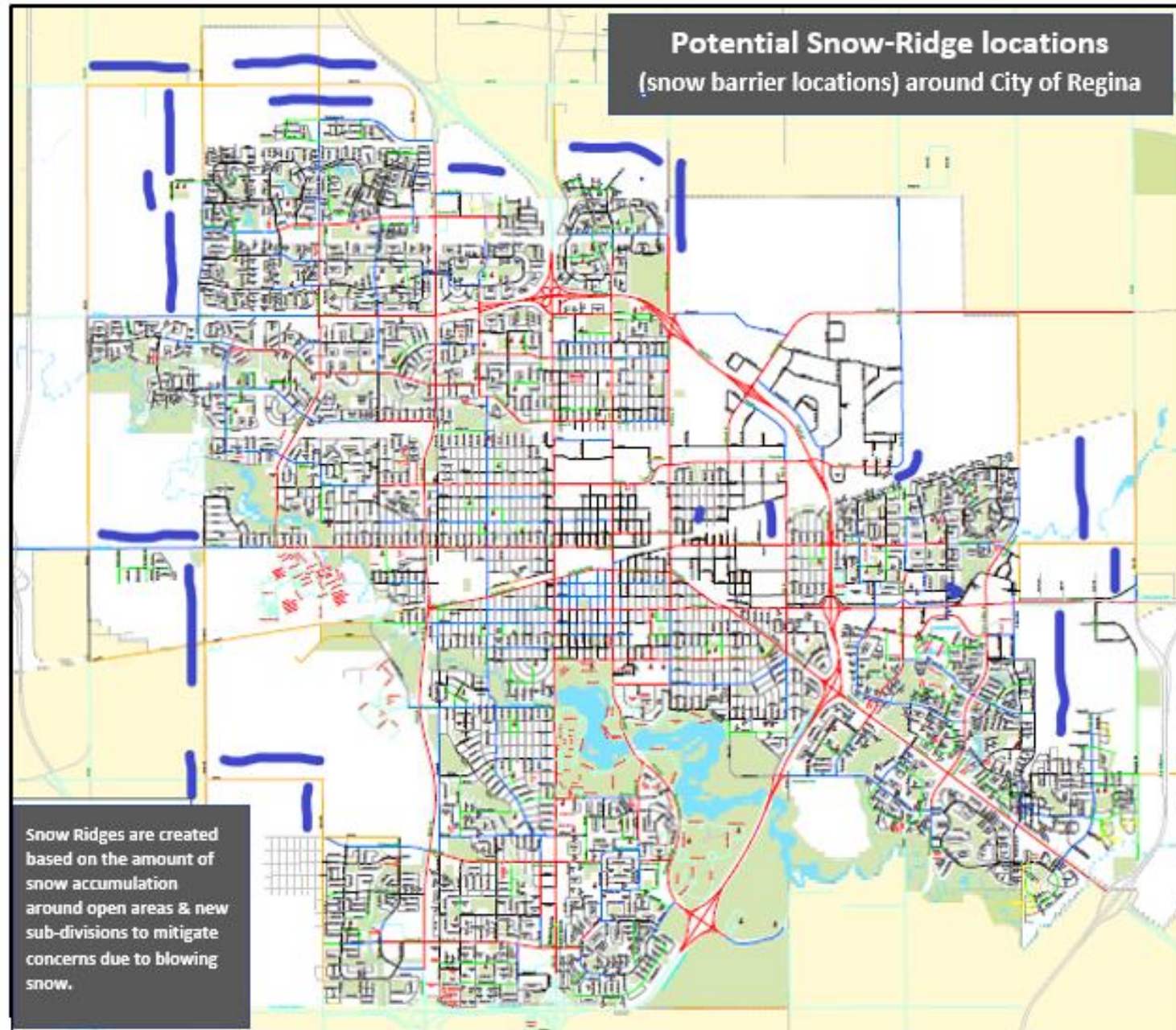
Appendix A

Snow Fences vs Snow Ridges

Type	Pros	Cons
Snow Fence	<ol style="list-style-type: none">1. Less frequent maintenance of snow fences during the winter season once these are installed2. May provide more perceived confidence to the residents due to physical visibility3. Could also be in place prior to first snow fall if drifting occurs	<ol style="list-style-type: none">1. Initial cost of investing in fences, fence posts and hardware2. Cost installation and removal3. Cost of storage during summer months4. Inventory management, disposal and replacement costs5. Snow fences can not be placed once the ground is frozen, as post installation is extremely difficult. Fence posts need to be installed during October, end of the construction season when staff are busy completing projects6. The fences and posts can only be removed in April or May when the surface is dry and safe. Crews are typically involved in the sweep and construction start up at this time7. Not effective when the winds are strong and high8. Can become a litter trap9. Landowners may not always approve digging for posts or installation of snow fences on their property10. Once installed, snow fences have no flexibility in case the fence direction needs to be adjusted.11. With less maintenance required during the winter season crews may not know if a fence was damaged

Snow Ridge	<ol style="list-style-type: none">1. No initial cost for material2. No inventory costs3. No disposal costs4. No installation or removal costs5. No need to create ridges if no or limited snow accumulation6. Snow ridge height or direction can be altered based on requirements (snow accumulation, wind direction)7. Multiple snow ridges can be easily created if required8. Would minimise damage to the landscaped surfaces9. Minimum staff or equipment as maintenance crews can create and/or maintain snow ridges with a grader10. Additional areas could be covered with snow ridges at minimal additional cost	<ol style="list-style-type: none">1. Additional snow ridges and locations may still require ongoing maintenance to maintain their effectiveness due to windy conditions and high amounts of snow accumulation2. Frequent maintenance of the ridges may be required based on the weather conditions3. Must have snow on the ground before these can be constructed
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-B.1-
Appendix B
Snow Ridge Locations



Appendix C Snow Ridge Costing

The table below explains the manpower and equipment cost of creating snow ridges at known trouble spots over the last three winter seasons. It took one well trained grader-operator and a grader approximately three shifts to create the snow ridges and approximately seven shifts to add or maintain these snow ridges every winter with an average to below average snow fall.

The creation of snow ridges does not typically occur until the second or third snow fall of a season so that enough snow has accumulated.

Snow Ridge Costing:

Labour	#	\$/Hr	Cost/Shift	#/Shifts during season		Cost for Season
				To create Snow Ridges	To maintain Snow Ridges	
Op IV/CL	1	\$27.22	\$272.20	3	7	\$2,722
O/H - 21%						\$571.62
Equipment						
Graders	1	\$45.00	\$450.00	3	7	\$4,500
Total Cost						\$7,794

July 11, 2019

To: Members
Public Works and Infrastructure Committee

Re: Area 13 Drainage Upgrade Project

RECOMMENDATION

1. That the Executive Director of Citizen Services be delegated authority to initiate the process to engage consulting and professional engineering services for all phases of the Area 13 Drainage Upgrade Project.
2. That the Executive Director of Citizen Services, or his or her delegate be delegated authority to negotiate, award, enter into and amend a contract with the highest ranked proponent from each public procurement process of the Area 13 Drainage Upgrade Project.
3. That City Council authorize the City Clerk to execute the contract with the highest ranked proponent(s) upon review and approval of the City Solicitor.
4. That this report be forwarded to the July 29, 2019 meeting of City Council for approval.

CONCLUSION

The Administration remains committed to developing and implementing drainage improvement solutions and requires the services of a consulting engineering firm to carry out the design and construction of the Area 13 Drainage Upgrade Project. The successful proponent will be appointed to provide engineering services for all phases of this project with an initial upset fee established for design.

This report presents the Administration's plan to implement drainage improvements in Master Plan Drainage Area 13 (Area 13) in an efficient and cost-effective manner. The Administration is planning to issue and award a Request for Proposals (RFP) for engineering services for this project. City Council's authority is required by *The Regina Administration Bylaw No. 2003-69, Schedule D, Section 7* to issue and award the RFP, as the consultant's fees are expected to exceed \$750,000.

BACKGROUND

Area 13 comprises approximately the NorthEast and Coronation Park neighborhoods. From the *Stantec 2013 Pre-design of Master Drainage Plan Area 13 Study*, several areas with higher incidences of flooding were identified. One of these areas is located in the area surrounding Halifax Street and Dover Avenue.

To improve the level of service in the study area, AECOM was commissioned in January 2018 to complete the Design and Construction of Master Drainage Plan Area 13 – St. Anne Park Detention Facility, which was proposed within a 2013 Stantec study.

The original scope of work included confirmation of the proposed St. Anne Park Detention Facility recommended within the pre-design report. The objective was to reduce surface ponding to below 400 millimetres within the original study area surrounding St. Anne Park. AECOM concluded that the development of a detention pond within the St. Anne Park would provide minimal benefit to reducing surface ponding within the study area. However, AECOM confirmed that significant drainage deficiencies exist within the study area, mostly concentrated within the eastern half of Area 13, contributing to elevated flood damage risk. During a major storm event, the stormwater overloads the aging storm and domestic sewer system. This leads to overland flooding and sewer backups, which can flood residential and commercial properties. Due to the drainage issues within the eastern portion of Area 13, it was necessary to expand the scope of work to include an upgrade option with the highest cost/benefit ratio for the area.

DISCUSSION

AECOM determined that the St. Anne Detention Facility would have very minimal impact at reducing the surface ponding within Area 13. As such, the study boundary was expanded to include the catchment area contributing to the Toronto Street Trunk Sewer. This catchment area is generally bound between Broad Street and Winnipeg Street, from 8th Avenue North to the North Storm Channel (approximately 2nd Avenue). Figure 1 below provides an overview of the study boundary area.

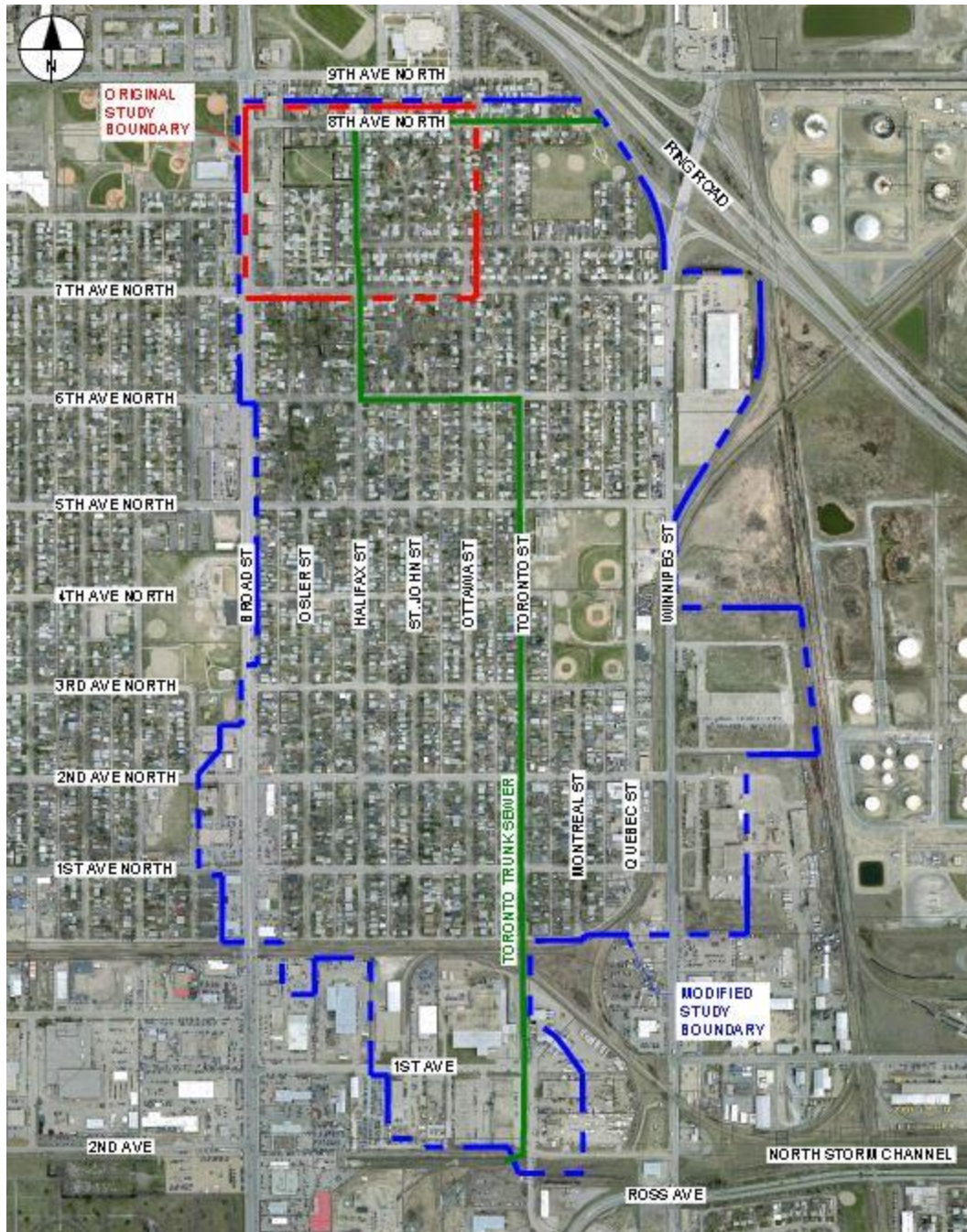


Figure 1: Study Boundary Area

AECOM developed and investigated three alternative stormwater upgrades. The existing collection system was analyzed using a detailed model and evaluation criteria. The evaluation criteria prioritizes reducing flooding locations for critical infrastructure (i.e. hospital, police station or fire hall) and residential properties. The criteria also incorporates flooding reductions on non-residential properties and major roadways.

The effectiveness of each upgrade option was evaluated in terms of its ability to lower the overall score within each of the key areas identified within the catchment. Costs for each relief option

were developed, while the benefits of each were quantified in terms of a reduction in overall score and reduction in flooded structures post upgrade. A benefit-cost ratio was then calculated based on these totals and expressed on a points reduction/\$Million basis. The ratio was intended to provide an indication of the relative benefit of each relief upgrade in relation to the costs of implementation. Higher benefit-cost ratios suggest greater returns (i.e. more value for the investment made).

The Administration remains committed to developing and implementing drainage improvement solutions and requires the services of a consulting engineering firm to carry out the design and construction of the Area 13 Drainage Upgrade Project. The successful proponent will be appointed to provide engineering services for all phases of this project with an initial upset fee established for design. The commission of subsequent phases of work is dependent on satisfactory performance of the previous phase of work and funding approval. If the appointment is terminated, another public procurement process will be initiated to seek a consulting engineering firm to complete the project.

The Administration requests City Council's approval to delegate authority to the Executive Director of Citizen Services to initiate the process to engage consulting and professional engineering services for the Area 13 Drainage Upgrade project. The Administration also requests City Council's approval to delegate authority to the Executive Director of Citizen Services to negotiate, award and enter into a contract with the highest ranked proponent from each public procurement process.

The engineering service fees for this commission are expected to exceed \$750,000; therefore, City Council's approval is required to engage consulting and professional engineering services for this project as required by *The Regina Administration Bylaw No. 2003-69, Schedule D, Section 7*.

RECOMMENDATION IMPLICATIONS

Financial Implications

Funding in the amount of \$5,000,000 was approved for the drainage improvements in Area 13 – St. Anne Detention Facility and Area 13 – Avonhurst in the 2018 and 2019 Utility Capital Budgets respectively. Funding for future phases of this project, as identified through this commission, will be requested through future budget submissions and are anticipated in the long-term Utility Model.

Environmental Implications

Completion of this project will mitigate flood risks within Area 13. Mitigating flood risks will reduce the amount of stormwater runoff entering the sanitary system and help reduce the frequency and intensity of future wastewater bypasses and sewer backups. This will have a positive effect on the environment and downstream users.

Policy and/or Strategic Implications

This project is consistent with the *Design Regina: The Official Community Plan (OCP)*, as it will support Section D4-Infrastructure Goal 4 Section 6.11 “Support runoff infiltration and retention by: continuing to reduce the incidence of water runoff being directed to the sanitary system”. Additionally, improvements to our financial viability will be made through collaboration with the underground infrastructure and the road program, and will ultimately reduce cost from a whole life cycle perspective.

Other Implications

None with respect to this report.

Accessibility Implications

None with respect to this report.

COMMUNICATIONS

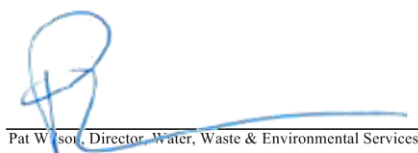
Internal and external stakeholders directly affected by the project will be consulted throughout the process, including the Water Security Agency. A communication plan will be developed to communicate the design and construction activities.

DELEGATED AUTHORITY

The recommendations contained in this report require City Council approval.

Respectfully submitted,

Respectfully submitted,



Pat Wilson, Director, Water, Waste & Environmental Services

7/2/2019



Kim Onra, Executive Director, Citizen Services

7/3/2019

July 11, 2019

To: Members
Public Works and Infrastructure Committee

Re: 4th Avenue Pumping Station (4APS)- Issue Request for Proposals and Award
Engineering Services Contract

RECOMMENDATION

1. That the Executive Director of Citizen Services, or designate, be authorized to initiate a public procurement process to engage consulting and professional engineering services for the design and construction of the 4th Avenue Pumping Station.
2. That the Executive Director of Citizen Services, or designate, be authorized to negotiate, award, and enter into a contract with the highest ranked proponent from the public procurement process.
3. That the City Clerk be authorized to execute a contract with the highest ranked proponent upon review and approval of the City Solicitor.
4. That this report be forwarded to the July 29, 2019 meeting of City Council for approval.

CONCLUSION

Administration is planning to issue and award a Request for Proposals (RFP) for engineering services to complete the design for the 4th Avenue Pumping Station (4APS) to be located near the 4th Avenue Reservoir. Constructing the 4APS is recommended as a better alternative than rehabilitating the existing Farrell Pumping Station (FPS), which is located at the northeast corner of Broad Street and Dewdney Avenue. It will bring minimal risk and interruption to the City of Regina water distribution system compared to the rehabilitation of FPS. The new pumping station will operate with less power cost and can provide more flow to meet peak water demands. City Council's authority is required by *The Regina Administration Bylaw No. 2003-69, Schedule D, Section 7* to issue and award the RFP, as the consultant's fees are expected to exceed \$750,000. This project requires professional engineering and consulting services to complete the work.

BACKGROUND

The City of Regina water system, as shown in Figure 1, includes the following major infrastructure:

- Two water supply sources; the primary source being Buffalo Pound Water Treatment Plant (BPWTP) and, the eight groundwater wells as the emergency secondary source.
- 56 kilometres of twinned steel supply pipeline with sizes 1,050 millimetres and 900 millimetres from BPWTP to Regina.

- Three pumping stations (North, Farrell and North Zone).
- Over 1,500 kilometres of water distribution piping.
- Five water storage reservoirs.

The BPWTP pumps treated water to the city through two supply pipelines to the Northwest and Pasqua Reservoirs. From the two reservoirs, water is then pumped to the north area of the city via the North Zone Pumping Station (NZPS) and to the rest of the city via the North Pumping Station (NPS), which is the main pumping station for the city. During normal operations the FPS pumps water to the downtown area of the city during the day. Depending on the demand and pressure in the distribution system, FPS runs to boost and stabilize the flows and pressure throughout the distribution system. When both pumping stations are operating, it is estimated the NPS supplies roughly two thirds of the system demand.

The City has difficulty in using the 4th Avenue Reservoir to supply the FPS by gravity. This is due to the significant distance and small elevation difference between the two locations. As a result, we are not able to fully utilize the volume of water in the 4th Avenue Reservoir. The FPS was built in 1960 and is a critical component of the City's overall waterworks system. The facility is deteriorating, with pumps and motors past their service life that would require significant rehabilitation to remain reliable. Rehabilitating FPS would involve replacing piping integral to the distribution system, including 1.2 kilometres of 750 millimetre suction pipe from 4th Avenue Reservoir. Figure 1 shows a general layout of the water supply system in Regina.

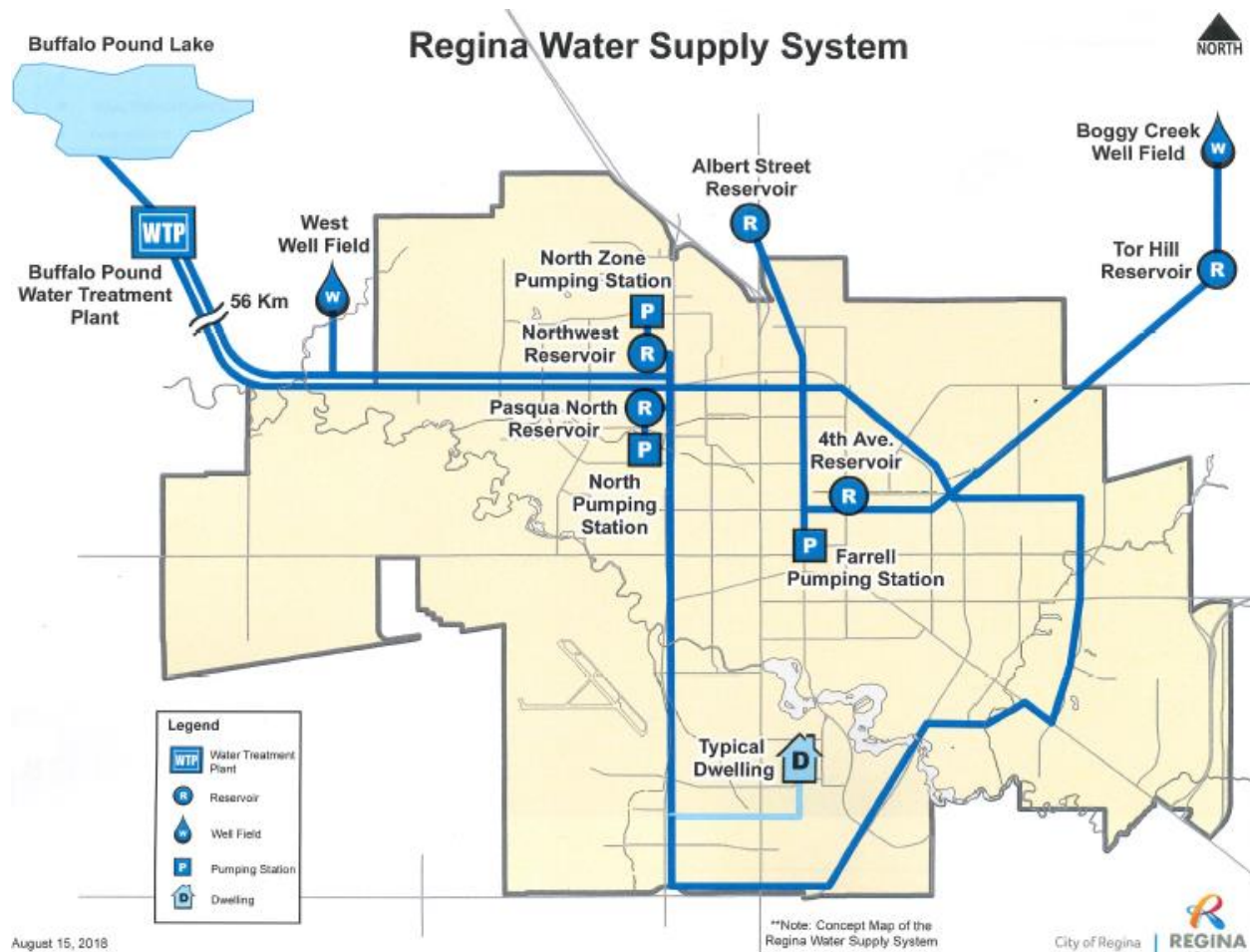


Figure. 1- Water Supply System for Regina

DISCUSSION

The Water Master Plan included a recommendation for a replacement of the FPS with a new pump station near the 4th Avenue Reservoir. The intent of the proposed station is to eliminate operational issues related to FPS and 4th Avenue Reservoir that limit the full usability of the reservoir. The 4APS will also serve as a partial redundancy for the NPS so that if NPS was to fail, flow would be provided from the 4APS, reducing the risk of water shortages.

Constructing the 4APS near the 4th Avenue Reservoir is recommended and is a better alternative to rehabilitating FPS. It will bring minimal risk and interruption to the City's water distribution system compared to the rehabilitation of FPS. Construction of the 4APS will also give the City the opportunity to reconfigure the distribution piping within the vicinity of 4th Avenue to allow direct transfer of water from BPWTP to the 4th Avenue Reservoir. This change has the potential to reduce the power costs for water distribution in the city. Figure 2 provides a visual of two potential locations for the new 4APS. Other locations within the vicinity of the 4th Avenue Reservoir may also be explored.

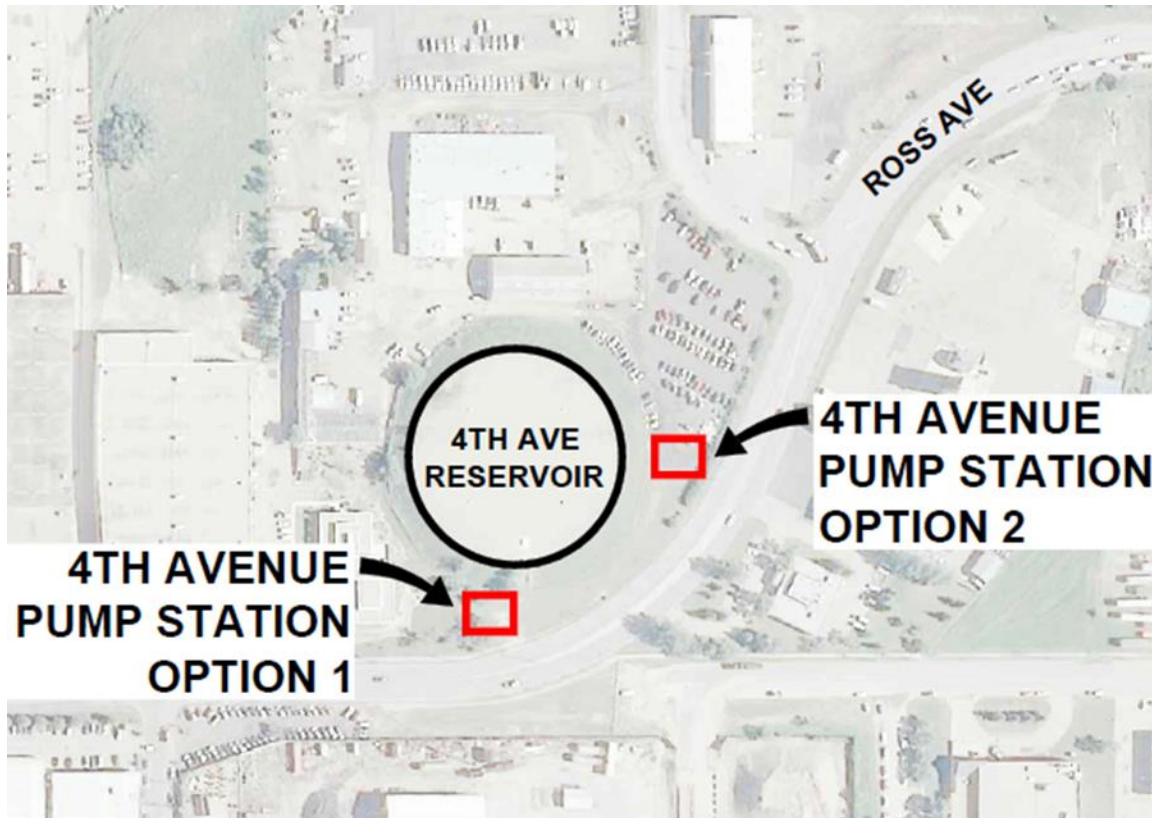


Figure 2: Potential locations of 4th Ave Pumping Station

Additional benefits for the City to construct and operate the 4APS compared to rehabilitating the existing FPS include:

1. Meeting future water demands for the inner city: The existing FPS cannot be expanded due to space limitations. Relocating to the space near the reservoir allows for future expansion.
2. Utilizing the entire volume of the 4th Avenue Reservoir: A rehabilitated FPS would only be able to utilize a portion of the reservoir volume. Constructing the new 4APS would add nine million litres of usable volume to the water distribution system.
3. Increasing system resiliency: This change to the system will allow us to provide a stable supply of the city's average day demand in case the NPS, the City's main pumping station, is totally out of service.
4. Improving energy use: The 4APS will operate with lower power consumption, resulting in lower emissions of carbon dioxide equivalents (CO₂e) and potentially lower cost.
5. Integrating with new infrastructure: The 4APS will be designed to integrate with the future Eastern Pressure solution and will be able to transfer water to a future East reservoir.

Administration requires the services of a consulting engineering firm to carry out the design and construction of the 4th Avenue Pumping Station Project. The successful proponent will be appointed to provide engineering services for all phases of this project, with an initial upset fee

established for design. The commission of subsequent phases of work is dependent on satisfactory performance of the previous phase of work and funding approval. If the appointment is terminated, another public procurement process will be initiated to seek a consulting engineering firm to complete the project.

The Administration requests City Council's approval to delegate authority to the Executive Director of Citizen Services, to initiate the process to engage consulting and professional engineering services for all phases of the 4th Avenue Pumping Station Project. The Administration also requests City Council's approval to delegate authority to the Executive Director of Citizen Services to negotiate, award and enter into contract with the highest ranked proponent.

The engineering service fees for this commission are expected to exceed \$750,000. City Council's approval is required to engage consulting and professional engineering services for this project as required by *The Regina Administration Bylaw No. 2003-69, Schedule D, Section 7*.

RECOMMENDATION IMPLICATIONS

Financial Implications

This project has been submitted as part of the five-year Utility Capital Program for the 2020 Utility Budget process, with funding requested for 2020, 2021 and 2022.

Table 1: Budget Requests

Funding Source	Utility Capital Budget		
	2020	2021	2022
Utility Reserve (\$k)	1,585	5,000	3,000

Funding from the existing Water Pumping Station Upgrades will be utilized, if required, to allow the engineering commission to begin in 2019.

Environmental Implications

The replacement of the FPS with a new 4APS will reduce the long-term power requirements to operate the pumping station. This will reduce the carbon footprint of the water distribution system and produce less carbon dioxide equivalent emissions.

Policy and/or Strategic Implications

The completed 4APS will help achieve the City's strategic objectives by supporting the goals of:

- Optimizing existing infrastructure, particularly the 4th Avenue Reservoir.
- Providing reliable, cost effective and sustainable infrastructure solutions.
- Flexibility in operating the water distribution system with different operating functions which will improve resiliency.

Other Implications

None with respect to this report.

Accessibility Implications

None with respect to this report.

COMMUNICATIONS

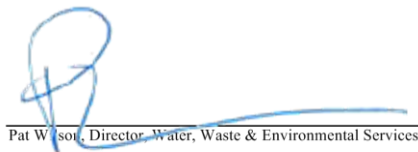
Internal and external stakeholders directly affected by the project will be consulted throughout the process, including the Water Security Agency. A communication plan will be developed to communicate the design and construction activities.

DELEGATED AUTHORITY

The recommendations contained in this report require City Council approval.

Respectfully submitted,

Respectfully submitted,



Pat Wilson, Director, Water, Waste & Environmental Services

7/2/2019



Kim Onra, Executive Director, Citizen Services

7/3/2019

Report prepared by:
Water, Waste and Environmental Services