ROSEMÈRE

APPLICATION OF THE TOWN OF ROSEMÈRE
PRELIMINARY PROPOSAL
April 24, 2018

SMART CITIES CHALLENGE

TABLE OF CONTENTS

SUMMARY

A "smart" approach to help protect the environment for a sustainable community. Using connected technologies, the Town of Rosemère would like to innovatively manage resources by introducing a series of interactive activities aimed at transforming community attitudes and practices for a sustainable future. The proposal submitted within Infrastructure Canada's Smart City Challenge competition aims to improve services to residents, conserve drinking water and promote a green economy to provide an outstanding quality living environment. The implementation of digital management systems using sensors such as smart water meters and chip-embedded bins will make it possible to increase the efficiency of processes and promote eco-responsible actions. A mobile application will enable residents to be informed and connected. This initiative is in line with the objectives that the Town wants to achieve over the next few years within in its vision of a ***proud, green and prosperous town***.

Photo: Éthier, Vincent. (Photographer). (2012). Mille-Îles river.

PRELIMINARY PROPOSAL

SECTION I: INFORMATION ON THE APPLICANT

QUESTION 1 – INFORMATION ON THE COMMUNITY

- Name of community: Town of Rosemère
- Province or territory: Quebec
- Population: 13,958 residents (2016)
- Indigenous community: No

QUESTION 2 – CHOICE OF PRIZE CATEGORY

- $5 million (population under 30,000 residents)

SECTION II: PRELIMINARY PROPOSAL

QUESTION 3 - DEFINE YOUR CHALLENGE STATEMENT IN ONE SINGLE SENTENCE THAT GUIDES YOUR PRELIMINARY PROPOSAL.

A "smart" approach to help protect the environment for a sustainable community

QUESTION 4 - DESCRIBE THE OUTCOME(S) YOUR PROPOSAL SEEKS TO ACHIEVE BY ELABORATING ON YOUR CHALLENGE STATEMENT.

Through the use of smart tools, Rosemère would like to acquire technological means of innovating in governance, by introducing a series of interactive activities, with the objective of transforming community attitudes and practices for a sustainable future. The development of eco-responsibility through an equitable resource management system is the very cornerstone of our proposal. The implementation of ideas aims to improve services or reduce costs, conserve drinking water and promote a green economy to provide an outstanding quality living environment.

ISSUES

Rosemère has always been a leader in environmental matters. Today, it enjoys an enviable position, particularly with regard to the development of its green spaces and the protection of its natural environment. The conservation of drinking water has been a concern since its very beginnings: Water meters were installed in the early 1970s. Over the past twenty years, it has been noted that the population explosion in the surrounding cities and climate change have had an impact on the supply of drinking water. In fact, the Town of Rosemère's drinking water production plant is supplied by the Mille-Îles river, which is the only source of water. Since the early 21st century, there have been periods of extreme low water levels (2001, 2005, 2007 and 2010), resulting in a boil water advisory for the entire population served (2001), a drinking water restriction advisory (2010) and increased operational costs due to poor water quality in the river, among other impacts. Ever since, the Town has therefore been taking steps to preserve this depletable and life-sustaining resource. These initiatives include the implementation of a green police force (2002), an annual pipe rehabilitation program (2005), the revision of the bylaw on drinking water use (2007), financial assistance for low-flow plumbing fixtures (2014) and an annual leak detection program(2017). Despite its action plan to help reduce water consumption and waste, the amount of water distributed per person is equivalent to 493 L/pers-d (2016), which is higher than Canada's first quartile of 403 L/pers-d.

On September 12, 2016, Rosemère launched an organic waste collection for its entire territory. This initiative aims to significantly reduce the amount of waste sent to landfill. It also makes it possible to reclaim organic materials, in accordance with the Quebec government's Residual Materials Management Policy. The reorganization of the household waste collection is also helping to reduce greenhouse gas emissions, thereby contributing to Quebec's objectives in the fight against climate change. Despite the information sessions, posters, awareness raising or educational tools, such as the *ECO LIFE* Internet capsules, public engagement in the collection is not optimal. In fact, the Town of Rosemère's subsidy within the annual program on the redistribution of waste disposal charges to municipalities is $7.50 per capita (2016), which is $0.98 less than the average amount allocated to Quebec as a whole.

CHALLENGE

Rosemère wants to continue its efforts to protect the environment as well as improve its position at the provincial and national levels with regard to its drinking water use results and the quantity of waste materials recovered. The implementation of reliable data collection and analysis systems, using sensors such as water meters or smart bins, will help it increase the efficiency of its drinking water and waste management processes, in order to promote eco-responsible actions and encourage residents to protect the environment. The Town recognizes that changing a community's lifestyle is an ambitious goal; however,

it is bound to strengthen residents' will through the financial incentives that it will provide through connected technologies.

SIGNIFICANT, MEASURABLE, SUSTAINABLE RESULTS

The Town will monitor the progress of the process through two indicators: drinking water consumption, calculated in litres per person per day (L/pers-d) and the quantity of composted residual materials, expressed in metric tons (MT). The measurable and anticipated results of the implementation of the proposal consist of a reduction in the use of drinking water (litres per person per day), an increase in recovered residual materials (metric tons) and ultimately, a greater number of eco-responsible residents (number of residents), in order to preserve the environment, for a sustainable community.

QUESTION 5 - DESCRIBE HOW YOUR COMMUNITY RESIDENTS HAVE SHAPED YOUR CHALLENGE STATEMENT. DESCRIBE YOUR PLANS FOR CONTINUING TO ENGAGE AND INVOLVE THEM IN YOUR FINAL PROPOSAL GOING FORWARD.

PREVIOUS ENGAGEMENT

Over the past few years, Rosemère has consulted its residents on various municipal issues. These consultations took many forms to provide them with an opportunity to express their opinions on policies, bylaws, projects and actions likely to affect their living environment. These consultations included a survey on Rosemère residents' satisfaction with municipal services (2013), focus groups on their perception and expectations of external communications (2014), an online survey and public meetings on the Town's financial situation (2015), a telephone and online survey as well as public meetings on the future of the Rosemère golf course (2016), an online survey on the Town's digital communication tools (2016) and lastly, an online survey and public meetings on the Citizen Participation Policy that is expected to be adopted in 2018 (2017). Residents also have the opportunity to express their opinions before Town Council meetings or at a forum where elected officials can meet with them on a regular basis (e.g., Mayor's breakfasts). Transparent administration, access to information, maintaining the Town's financial health and environmental issues are at the heart of the Rosemère community's concerns.

SMART CITIES CHALLENGE SURVEY

In order to consult residents as part of the Smart City Challenge competition, the Town of Rosemère's Communications, Public Affairs and Citizen Relations Department, in conjunction with the Environment and Infrastructure Department, developed a short survey to give Rosemerites a chance to comment on the best ideas that would enable Rosemère to stand out as a smart town. The online survey was promoted on social networks, on the Town's Internet site and in the Town's e-newsletter *(PubliCourriel).* A press

release announcing Rosemère's decision to participate in the Challenge was also published on the Réseau d'Information Municipale du Québec and in local newspapers.

CHALLENGE STATEMENT

In the online survey, Rosemerites were asked to choose one of the following themes: urban connectivity, access to information, active living, sports and leisure activities, or the environment. These themes were determined based on the results of the previous engagement and the Town's 2018-2020 three-year capital expenditures program. Public participation in the survey was outstanding. More than four hundred people commented on the idea that would enable Rosemère to stand out as a smart town. The majority of respondents were 46 years old or over, well reflecting the Town's demographic situation. We also learned that 78% of participants believe that the implementation of new technologies would improve their quality of life. Of the five ideas proposed, smart facilities received the highest number of votes, at 27%. Through the many comments demonstrating Rosemerites' enthusiasm to participate in this Challenge, others confirmed residents' will to maintain Rosemère's "green" features: "Let's keep our Town green and add some smarts," wrote survey respondent #79. Therefore, by considering residents' concerns, the survey findings and the feedback received on this occasion or on social networks, the Town has defined the Challenge Statement as follows: *A "smart" approach to help protect the environment for a sustainable community.* The survey findings and the definition of the Statement were presented to Council members at the Town of Rosemère's administrative committee meeting on April 16, 2018. The survey findings were announced to the public on social networks, on the Town's Internet site and in its e-newsletter in the same week.

RESIDENTS' ENGAGEMENT IN THE FINAL PROPOSAL

This Challenge of environmental interest and sustainable development concerns the entire Rosemère community. Information, education and awareness raising will be part of our resident engagement plan for developing and implementing the project. The Town will put in place various simple, flexible mechanisms, consistent with best practices and recognized public engagement objectives, in order to give residents a chance to express their views throughout the process. Information tools will include flyers, notices in local newspapers, online articles, posters at the Town's entrances and promotional items. Engagement tools will be varied to encourage strong community involvement, taking into account that 74% of Smart City Challenge survey respondents said that online surveys were their preferred method. Residents' meetings or focus groups will also be used. For example, the community will be invited to comment on the remodelling of the processes to be put in place to promote eco-responsible actions as well as on the development of the mobile application. An advisory committee will be formed following

Rosemère's announcement as a finalist. In addition, residents' expertise in open data and connected technologies will be called upon throughout the process. Some residents have already expressed interest in taking part in the project. The public will also be invited to participate in a pilot project, which is an important activity for building support for the final proposal. And lastly, information sessions will be offered to residents free of charge in order to perfect their knowledge of the tools developed as part of the competition.

QUESTION 6 - DESCRIBE YOUR PRELIMINARY PROPOSAL AND ITS ACTIVITIES OR PROJECTS.

PROJECT

With the help of connected technologies, the Town of Rosemère wants to update its processes related to water and waste services. To do so, it has to replace the four thousand eight hundred (4800) mechanical water meters—most of them forty-five years old and more—with smart meters. In addition, when the organic waste collection was introduced in 2016, the Town equipped the four thousand eight hundred (4800) brown bins with electronic chips. For this reason, it wants to implement a digital system for managing putrescible (decomposable) waste. A mobile application will be developed to actively involve residents in achieving the results defined in the proposal. And lastly, Rosemère will put in place financial incentives to increase the community's willingness to protect the environment for the common good of the community.

SMART WATER METERS

The implementation of a digital drinking water management system will reduce water consumption (litres per person per day) and consequently improve Rosemère's drinking water use results. In fact, smart consumption measurements will ensure reliability and efficiency in data collection and analysis. In the present system, such causes as inaccurate data input, inaccurate consumption measurements, unestimated water volumes and undetected leaks are affecting the drinking water usage results. Moreover, Rosemère will become a smarter town through automated remote meter reading. It will also be able to monitor consumption and, through targeted interventions, prevent waste.

CHIP-EMBEDDED BROWN BINS

As far as the digital organic waste management system is concerned, it will make it possible to collect statistics in order to validate residents' participation in the third-stream waste collection, and to carry out

targeted education and awareness raising actions to increase the amount of recovered waste materials $_{(metric}$ $_{tons)}$.

MOBILE APPLICATION

The mobile application will be developed based on users' expectations. For example, it will include data on drinking water consumption and quantity of recovered materials, in addition to local, regional and national statistics, the carbon credits generated as well as the schedule of sector-based collections and alerts, in order to provide residents with resources to take the necessary actions to achieve the collective objectives.

EQUITABLE AND SUSTAINABLE MANAGEMENT OF RESOURCES

Based on the data collected, the Town will set up a fair billing system. It will establish financial incentives to promote eco-responsible residents and motivate others to take such beneficial actions for the environment.

ROSEMÈRE, SMART TOWN

In this way, with the implementation of such activities, Rosemère will adopt technological ways and means of achieving its ambitions, to establish fair and thorough management processes. Digital systems for managing drinking water and putrescible waste are essential vectors for achieving the ultimate result, i.e., a greater number of eco-responsible residents $_{(number\ of\ residents)}$, for a sustainable physical, social and economic environment.

ROSEMÈRE AS AN EXAMPLE

Rosemère will ensure that the processes and mechanisms established during the implementation of the proposal are adaptable and appropriate to other communities seeking similar results, regardless of the technology (radio frequency, cellular, etc.) or providers used.

QUESTION 7 - DESCRIBE THE WAYS IN WHICH YOUR PRELIMINARY PROPOSAL SUPPORTS YOUR COMMUNITY'S MEDIUM- AND LONG-TERM GOALS, STRATEGIES AND PLANS.

AMBITIONS

The Smart City Challenge competition supports the Town of Rosemère's three main objectives: The first is to improve existing services by creating a real culture of service to residents within the administrative system. In short, to make Rosemère a model, modern and efficient public service organization where the

Town does its utmost to meet the needs of its residents, while respecting the common interest of the community. The second is to promote the engagement of residents in making the necessary major investment projects subject to public consultation. And lastly, to maintain the tax burden around inflation, and to preserve Rosemère's enviable position in terms of taxation and debt, by taking advantage of financial assistance opportunities or alternative financing methods, to carry out ambitious and innovative projects.

SMART APPROACH

Since 2010, the Town of Rosemère has been revising its resource management processes based on a smart city approach, and implementing solutions within its means. In fact, whether through the introduction of an automated telephone system $_{(2010)}$, server virtualization $_{(2011)}$, the acquisition of tablets to launch a Paperless Town Council $_{(2011)}$, online registration for leisure activities $_{(2012)}$, the e-book $_{(2013)}$, online permit applications $_{(2014)}$, Rosemère's debut on Facebook $_{(2014)}$, the *Voilà!* application $_{(2015)}$, an interactive database on the Town's infrastructures $_{(2015)}$, the redesign of the Town's Internet $_{(2017)}$, a new online catalogue for the library $_{(2018)}$, or most recently, the KeepTruckin app $_{(2018)}$ to comply with the paperless Bill 430, these are all actions that have helped Rosemère become an increasingly smarter town.

VISION

The proposal submitted within the framework of the competition is an ambitious one, not only in terms of the financial resources needed to achieve it, but also in terms of the goal set and the results expected. This smart infrastructure upgrade meets the objectives that the Town wants to achieve over the next few years within its vision of a proud, green and prosperous town. More precisely, the details of this vision are as follows:

PROUD: cultivating the sense of belonging of residents of all generations by offering an outstanding quality of life

GREEN: protecting its environment, enhancing its country character and adopting innovative practices in sustainable development

PROSPEROUS: offering an environment that fosters the vitality of its community by encouraging its economic and social outreach

QUESTION 8 - DESCRIBE YOUR COMMUNITY'S READINESS AND ABILITY TO SUCCESSFULLY IMPLEMENT YOUR PROPOSAL.

SKILLS AND EXPERIENCE

Today, Rosemère has over eighty full-time employees who share responsibility for providing such services as recreational, leisure and cultural activities, public works, parks and green spaces, land use and urban planning, water and waste materials. Over the years, the Town has developed not only internal expertise, constantly seeking innovative and economical solutions, but also a concern for quality in carrying out projects. A team of professionals consisting of highly experienced engineers and technicians carries out, on average, more than $10 million in construction and infrastructure upgrades annually. These projects include road repairs, replacement or rehabilitation of pipes, construction of a skatepark, rehabilitation of the drinking water production plant and the redevelopment of parks. Since 2010, the Town has been implementing technological tools in the various areas of the organization, aimed at improving service (e.g., the online requests system, the *Voilà!* application) and protecting the environment (e.g., paperless Council meetings, KeepTruckin application).

The organization's structure, processes and practices make it possible to manage and implement complex, multi-dimensional projects. Internal resources, with many years of experience in carrying out similar projects, will manage and monitor the implementation of the final proposal. If Rosemère is chosen as a finalist, an external resource will join the team to provide additional expertise in the field of connected technologies to bring the project to a successful conclusion.

DISTINCTIONS

Over the past twenty-five years, Rosemère has won some fifty awards and honours in various Quebec and Canada-wide competitions, notably for its initiatives in sustainable horticulture, landscaping and urban forestry. In addition, Rosemère has made a name for itself for the quality of its drinking water. In fact, for the past seventeen years, the Town of Rosemère's drinking water treatment plant has been taking part in Réseau Environnement's drinking water excellence program (PEXEP). The Rosemère community also stands out in the area of open data and connected technologies: Rosemère was chosen to receive one of five Google eVille trophies in 2014. This award recognizes that the Town's businesses are making full use of the Web's potential to stimulate the local economy. In 2015, Rosemère innovated by implementing an interactive digital system to locate, georeference and integrate full information on its infrastructures in a database. This project, carried out in collaboration with Lbi data, now allows Town managers to access complete and integrated data, for optimal management in their development and planning projects.

HUMAN CAPITAL

The Town of Rosemère's guarantee of excellence and success is based on its human capital's dedication and concern for excelling. With the residents' expression of enthusiasm over taking part in this Challenge and by banking on its resources, Rosemère will innovate again, in order to offer customized, effective solutions for an outstanding urban environment.

QUESTION 9 - DESCRIBE YOUR PLAN FOR USING THE $250,000 GRANT, IF YOU ARE SELECTED AS A FINALIST.

The financial assistance of two hundred and fifty thousand dollars will fund the main activities within four main categories: community engagement, scientific research and experimental development, the consolidation of technological resources and training.

Table 1. Overall breakdown of expenditure categories

Projected expenditures	Estimated amount
1. COMMUNITY ENGAGEMENT	
• Engagement tools (meetings, survey, etc.)	$20,000
• Information tools (posters, flyers, promotional articles, etc.)	$7,000
2. RESEARCH AND DEVELOPMENT	
• Social, technical and economic study	$75,000
• Small-scale, residential, commercial and institutional pilot project	$55,000
3. CONSOLIDATION OF TECHNOLOGICAL RESOURCES	
• Human resources	$85,000
• Material resources	$5,000
4. TRAINING on the tools developed within the pilot project	$3,000
TOTAL	**$250,000**

QUESTION 10 - DESCRIBE THE PARTNERS THAT ARE OR WILL BE INVOLVED IN YOUR PROPOSAL. WHERE PARTNERS ARE NOT YET DETERMINED, DESCRIBE THE PROCESS FOR SELECTING THEM.

TRANSPARENCY AND COMPETITION

The procurement strategy will be in line with Rosemère's contract management policy. In fact, in order to promote transparency in the management of municipal contracts, the Town has introduced a policy, with

the main objective being to assure residents that the funds spent on the acquisition of goods and services comply with the principles of sound administration. In order to open the market to competition, a public call for tenders will be launched for technology or service providers.

INNOVATION

Rosemère will request the collaboration of training centres, institutes or universities, in the fields relevant to the project, to encourage the emergence of new ideas.

KNOWLEDGE SHARING

And lastly, the Town will seek information from municipalities that have already implemented smart facilities, in order to draw inspiration from the lessons and experiences of others, so that it can well define the final proposal.

ACKNOWLEDGEMENTS

iiii   ROSEMÈRE

Heartfelt thanks to the Town of Rosemère's residents for their participation in the survey. The comments received reflect Rosemerites' enthusiasm over taking part in this Challenge and implementing new technologies.

J'ADORE MA VILLE ET SON AVANT-GARDISTE ! EXCELLENTE INITIATIVE. *MERCI AU NOM DES CITOYENS.* *BRAVO POUR L'INITIATIVE !* *BONNE CHANCE À LA VILLE DE ROSEMÈRE.* *J'ENCOURAGE ET JE SUPPORTE CETTE MISE EN CANDIDATURE.* *MERCI DE PENSER À NOUS.* GO ROSEMERE! *FAITE LE. ROSEMERE EST DÉJA UNE VILLE QUI SE DÉMARQUE NOUS MÉRITONS CETTE SUBVENTION.* *BONNE CHANCE POUR VOTRE CONCOURS !* *ON AIME ROSEMÈRE .* *JE SERAIS INTÉRESSÉE DE PARTICIPER AU PROJET VILLE INTELLIGENTE !* *MERCI !* *TRÈS BONNE IDÉE !* *INTÉRESSANT COMME DÉMARCHE.* *HÂTE D'EN CONNAITRE D'AVANTAGE SUR CE PROJET.* NICE *GARDONS NOTRE VILLE VERTE ET AJOUTONS-Y DE L'INTELLIGENCE.* I LOVE ROSEMERE. GO ROSEMERE GO. *CONTINUEZ LE BON TRAVAIL .* I THINK IT'S A GREAT INITIATIVE. **GOOD LUCK!** TECHNOLOGY MUST BE DEPLOYED TO PRESERVE AND ENHANCE OUR LOCAL ENVIRONMENT. *JE TRAVAILLE EN INFORMATIQUE ET JE CROIS QUE L'EXPLOITATION DES DONNÉES A BEAUCOUP À OFFRIR.* **MEILLEURE DES CHANCES.**