Community Excellence Awards

2018 Application Form

Please complete and return the application form by Friday, May 25, 2018. All questions are required to be answered by typing directly in this form. If you have any questions, contact awards@ubcm.ca or (250) 356-5193.

SECTION 1: Applicant Information	
Local Government: City of Surrey	Complete Mailing Address: 13450 - 104 Avenue Surrey, BC, Canada V3T 1V8
Contact Person: Fraser Smith	Position: General Manager, Engineering
Phone: 604 591-4042	E-mail: FSmith@surrey.ca

SECTION 2: Category

- ☐ **Excellence in Governance.** *Governance processes or policies that are outcomes-based and consensus oriented; support and encourage citizen participation in civic decision-making; are efficient, equitable and inclusive, open and transparent; and exemplify best practices in accountability, effectiveness, and long term thinking.*
- ☐ **Excellence in Service Delivery.** *Projects/programs that provide effective services in a proactive manner, demonstrate benefit to the community, and utilize performance measures, benchmarks and standards to ensure sustainable service delivery.*
- ☐ **Excellence in Asset Management.** *Projects/programs that demonstrate a comprehensive system of asset management policies and practices, meeting and/or exceeding accepted best practices.*
- ☒ **Excellence in Sustainability.** *Projects/programs that incorporate a long-term sustainability lens by considering cultural, social, economic and environmental issues in planning, policy and practice.*

SECTION 3: Project/Program Details

1. **Name of the Project/Program:**

   Surrey Biofuel Facility

2. **Project/Program Summary**. Please provide a summary of your project/program in 150 words or less.

The Surrey Biofuel Facility will process 115,000 tonnes of residential and commercial organic waste into renewable natural gas and compost. Over 120,000 gigajoules of RNG will be produced per year and used to power the City's waste collection trucks and its growing fleet of service vehicles. The high quality compost product will be used in landscaping, growing food, and other agricultural applications, as well as provide a renewable fuel source for the city's District Energy System. The Surrey Biofuel facility will be the largest in North America, helping the City of Surrey and the Metro Vancouver area achieve its regional 80% waste diversion goal by 2020.

The biofuel facility was developed as a Public-Private Partnership (P3). As part of the partnership, the Government of Canada, contributed up to 25% of the capital cost of the future biofuel facility. The biofuel facility project is now one of P3 Canada's flagship projects.

3. **Demonstrating Excellence.** Please describe how your project/program demonstrates excellence in meeting the purposes of local government in BC and provides promising practices for others to follow.

The City of Surrey has demonstrated tremendous leadership by intentionally selecting CNG-powered vehicles to establish the option to transition them onto biofuel energy once the City could establish a reliable local supply. From the conception of the city's overarching organic waste collection system, the City has always intended to pursue a closed-loop system. The completion of the Surrey Biofuel facility will help to realize the City's vision to power its fleet of waste collection and service vehicles through natural gas produced from organics collected from residents and commercial enterprises throughout Surrey.

The City's approach to organics waste management is both scalable and transferrable to other cities in North America with established organics diversion and collection programs. In fact, other Canadian municipalities are currently exploring opportunities to replicate this strategy for a closed-loop organics system because of this project's anticipated success.

Sustainability is a core value of the City of Surrey, and the City based part of its selection process for the consortium of partners who have been working collaboratively to design, build and eventually operate this state-of-the-art project on sustainable performance This facility will be the first organic waste facility to be completed using this approach, and one of only five solid waste P3 projects Canada-wide, a testament to the project team's leadership.

In addition,, the facility demonstrates excellence by enabling the City to capture the value of the organics it collects by:

(a) Meeting the following purposes of local government in BC through:

(i) Contributing to the goals of Metro Vancouver's Integrated Solid Waste Management Plan through the recovery of energy from the waste stream after material recycling to provide the highest beneficial use to society – reduce landfill diversion by 80% by 2020 and the source separation of organics across all sectors

(ii) Delivering on the City's commitments to its Citizens:

(b). This project implements the "Sustainable Planning and Design for Energy Recovery from Waste" strategy of Surrey's Community Energy and Emissions Plan

i. Reduction in GHG by 20% by 2020

ii. Reduction in the City's carbon footprint to 16,000 MT/y

(c). Economically Feasible

i. Through an innovative commercial partnership with the private sector which places project risks with the party best able to manage them, such that the City do not pay for the service (includes mortgage payments for the facility) until the facility is providing the prescribed outputs. The City also have a share in any super profits, which together with a fixed tip fee annually indexed for 25 years will ensure on going value for money to the City.

ii. In summary, the completion of the facility elevates the City's capacity to manage and operate its own waste collection, achieved without any additional tax burden on the City's residents, and alleviate the need for future increases in tipping rates.

(d). Sustaining the Organics Closed Loop

i. The Facility incorporates a theme of education and includes a Visitor and Education Centre which will provide a venue for schools and members of the public as well as experts to observe the plant in use, and to further understand how their role in source separating their organics results in such a positive outcome for not only themselves but for future generations – sustainability at it's finest

(ii)Supporting the Province's initiatives

- BC Utilities Commission and Fortis Gas to create a renewable natural gas (RNG) market segment in BC

- Establishing a vibrant market in BC for the trading of GHG Certificates. The impact of the biofuel facility will be such that the City as a whole, will have surplus GHG credits to trade.

4. Category Criteria.

A. Please describe how your project/program meets the objectives of the category you have applied under. Refer to S. 3 of the Program & Application Guide.

The City wish to apply under the category of "Excellence in Sustainabilty". The City strongly believes that the project meets the stated requierments, since the repurposing of organic materials into Class A Compost and RNG meets the current needs and, with the ongoing education of Citizens at the facility's Visitor and Education Centre can only enhance the ability of future generations to meet their needs through further decreasing the amount of organics ending up in landfill while providing corresponding reductions in GHG emissions.

B. In many cases projects may meet the criteria of more than one category. If applicable, please describe how your project meets the criteria of one or more other categories.

The City believes that the project may also be considered in the category of "Excellence in Asset Management"

The project represents the final piece in an integrated business approach which seeks to minimize the City's carbon footprint by reducing the GHG emissions through significantly reducing the amount of organic waste going to the landfill, and reducing/eliminating GHG emissions from the City's diesel powered waste trucks and service vehicles. The City created the Re-Think Waste campaign, invested in educating the public of the benefits, purchased new waste collection bins, purchased new CNG powered waste collection trucks and procured a state of the art biofuel facility under an innovative commercial arrangement with the private sector providing the majority of finance required to design and build the facility, while the City retained the rights to all assocaited environmental attributes such as GHG credits, and, entered into a purchase agreement with Fortis for the sale and re-purchase of the biomethane produced by the facility.

Completion of the facility elevates the City's capacity to manage and operate its own waste collection service, achieved without any additional tax burden on the City's residents, and alleviate the need for future increases in tipping rates.

SECTION 4: Program Criteria

5. Leadership. Describe the extent to which your local government acted as a local or regional leader in the development or implementation of the project/program.

Surrey is located along Canada's west coast in the province of British Columbia and is the 2nd largest city in BC and the 9th largest city in Canada with a growing population of over 530,000. Surrey is set to become the most populated city in British Columbia by 2040, as people from around the world continue to move to one of the youngest and most culturally diverse cities in Canada.

Metro Vancouver (Regional Government) is responsible for long term planning and disposing of the waste generated by residents and businesses in the region with the

regional goal to increase waste diversion by 80% by 2020.

Waste collection services are provided to approximately 135,000 Surrey households on a weekly basis. Regional municipalities within the region, including Surrey, are responsible for the collection of residential waste including garbage, recyclables and organic waste (kitchen and yard waste).

The City of Surrey has demonstrated tremendous leadership in the area of sustainable waste management through the construction of its biofuel facility. It's a new way of thinking, organics as a resource. The biofuel facility has established a new benchmark in sustainable waste management practices which provides environmental and economic benefits to the entire region. It helps reduce emissions, create viable new energy infrastructure, divert waste from the landfill, and become more sustainable in our operations.

Taking the steps that the City has taken with organic waste management is already being seen as revolutionary within the solid waste industry and amongst peers from other local governments. While biofuel facilities have been proven successful in Europe, Surrey's Rethink Waste collection system represents a first of kind in North America, and will certainly act as a catalyst project on the local, regional and national level.

Some of the impacts our project has made and benefits others are looking at include:

- Processing 115,000 tonnes of organic waste/year
- Production of 120,000 Gj of renewable natural gas/year, enough to fuel the City's waste collection fleet and municipal service vehicles
- Production 40,000 tonnes of compost/year that will be used by local food growers and landscapers.
- Carbon emissions will be reduced by 40,000 tonnes per year through the operation of this facility; that's equivalent to taking 10,300 cars off the road each year

In addition, the biofuel facility was developed as a Public-Private Partnership. As an added financial benefit, the Government of Canada announced that it approved the City of Surrey's application to the P3 Canada Fund, where they will contribute up to 25% (to a maximum of $16.9 million) of the capital cost of the future biofuel facility. The biofuel facility project is now one of Infrastructure Canada's flagship projects.

The biofuel facility has established a new benchmark in sustainable waste management practices which provides environmental and economic benefits to the entire region. It helps reduce emissions, create viable new energy infrastructure, divert waste from the landfill, and become more sustainable in our operations. The increase in level of service

and decrease in environmental footprint had a net zero impact on the waste collection utility levy.

6. **Partnerships and collaboration.** Describe the breadth and depth of community and/or regional partnerships that supported the project/program and the extent to which internal and/or external collaboration was evident.

   This Project's success is based on a number of key partnerships and collaboration both locally, regionally and nationally.

   The procurement of the facility benefited from a public-private partnership approach whereby the City provided the land for the facility, a committed annual tonnage of source separated organic waste and a fixed tip fee, in return the private sector partner would design, build, finance, operate and maintain the facility, recovering their investment over the 25 years operating period.

   The biofuel facility was developed as a Public-Private Partnership. As an added financial benefit, the Government of Canada announced that it approved the City of Surrey's application to the P3 Canada Fund, where they will contribute up to 25% (to a maximum of $16.9 million) of the capital cost of the future biofuel facility.

   The sale and repurchase of the RNG produced at the facility is subject to an innovative commercial arrangement in which the City sells the RNG to Fortis and repurchased that RNG required by the refuse trucks and the City's increasing fleet of RNG powered vehicles. The City also paid an monthly amount to Fortis for the provision of the interconnecting station which linked the facility to the gas distribution grid. Fortis were responsible for the negotiations with BC Utilities Commission around volume of RNG and the tariff.

   Both the City and Orgaworld worked collaboratively with the Province's Ministry of the Environment to develop and agree the terms of the Operational Certificate which governs the permissible levels of emissions to the atmosphere from the facility and sets out the reporting requirements. Similar discussions were held with Metro Vancouver to formalize the conditions of the Water Discharge Permit.

   This project demonstrates that all levels of government, including private industry, can work together to achieve successful and impactful projects that improve the quality of life for our community

7. **Innovation and promising practices**. Describe the degree to which the project/program demonstrated creativity and innovation, and contributed to increased efficiency or effectiveness.

   The biofuel facility, as stated earlier is the final piece in the City's closed loop management system for organics.

   By way of context, in 2009, the City established a progressive vision towards the management of Surrey's organic waste by producing fuel for Surrey's waste trucks using renewable natural gas generated from curbside organic waste.

   The City developed two innovative phases which tie together to achieve this vision:

Phase 1

In response to the first goal of introducing residential organic waste diversion at curbside, the City initiated its new solid waste management program, named "Rethink Waste" on October 1st, 2012. The program was a great success from an environmental, financial and customer participation perspective.

There are four key factors that make the Rethink Waste Program (residential organics diversion) so innovative:

1. The City has mandated the source separation of residential kitchen waste from the garbage cart into the organics cart. Surrey's residents were provided with a small "kitchen catcher" receptacle to make the transition more accommodating. This kitchen waste, comingled with yard and garden waste, effectively doubled the City's yearly organic tonnage, and significantly reduced garbage volumes bound for landfill.

2. While residential organic waste continued to be collected on a weekly basis, garbage collection was reduced to alternating, biweekly collection. Structuring the collection schedule in this way provided incentive to Surrey's residents to properly divert their organic waste into the organics cart, which further increased overall organic waste diversion rates.

3. Through its waste collection contractor, the City purchased a fleet of 100% Compressed Natural Gas (CNG) waste collection vehicles. As compared to diesel trucks, CNG trucks are a cleaner and quieter alternative.

4. Developing an organic waste processing biofuel facility to produce a renewable gas that will fuel the waste collection trucks that collect the organic waste at curbside.

The Rethink Waste program achieved a drop in the City's residential garbage tonnage by over 40% in its first three months of operation, along with an increase to waste diversion from 50% to 70% meeting the regional waste diversion goal well ahead of its 2015 target. In addition, the City's mandatory requirement to use compresses natural gas (CNG) waste collection trucks has reduced the City's corporate carbon emissions associated with its waste collection operations by approximately 23%.

The economic benefits realized through the Rethink Waste program include a combined savings of approximately $4.5 million annually in collection and waste disposal costs. While these savings help to offset the City's $15 million capital investment in waste carts, the City has not had to increase its solid waste levies since 2012.

In early 2014, the Federation of Canadian Municipalities chose the City of Surrey to receive its annual Sustainable Communities Award based on Surrey's Rethink Waste program, citing Surrey as a leader in innovative municipal waste management services.

Phase 2

The City's second goal, and main context of this application, was the establishment of an Organic Waste Biofuel Processing Facility that will process the City organic waste collected at curbside, as well as commercial organic waste, and generate a renewable natural gas (RNG) and a compost material. In 2014, following a market competition, the City selected Orgaworld Canada as its preferred proponent to finalize an agreement to design, build, finance, maintain and operate the Surrey Biofuel Processing Facility project.

The cost of the biofuel facility was estimated at $67.6 million. The City's approach to developing this facility is through a public-private partnership (P3), with the Government of Canada contributing up to 25 percent of the capital costs ($16.9 million) through its P3 Canada Fund.

Construction commenced in the spring of 2015, with the facility starting operations in early 2018.

Prior to the biofuel facility there were very few organic waste processing facilities in North America that engaged anaerobic digestion to biomethane as their primary processing technology. Until recently, the default organic waste processing options has been open windrow composting; this is primarily due to its relatively low operating costs, and simple process.

The biofuel facility utilizes a world-class technology to convert residential and commercial kitchen and yard waste into renewable natural gas (RNG) and compost. Over 120,000 gigajoules of RNG is produced and used to power the City's waste collection trucks and its growing fleet of service vehicles. The high quality compost product will be used in landscaping, growing food, and other agricultural applications within the community. By diverting organics from the landfill and sending it to the biofuel facility, Surrey will also reduce its corporate and community carbon emissions by approximately 40,000 tonnes per year, that's equivalent to taking 10,300 cars off the road each year.

Taking this final step is truly innovative and sets Surrey apart as a global leader in the solid waste management industry.

8. **Public engagement and communications.** Describe the extent to which public engagement was foundational to the success of the project/program, including the use of communication tools such as social media.

The land designated for the facility is located in an industrial area of the City on First Nations Lands, adjacent to the Surrey Waste Transfer Station, with the closest residence located some 1.5km away from the facility.

The City of Surrey maintained the project's social license by consulting and collaborating with the community through a multi facet approach:

- Four Corporate Reports
- Press releases at all stages of the project utilizing all types media including Twitter, Website, Facebook
- Rezoning open houses
- Newspaper adverts
- Annual waste collection calendars
- Annual community celebrations such as Party for the Planet, Doors Open and Public Works Week
- The City and Orgaworld engaged with the [32] local First Nation Bands who hold ceremonial claims of the land on which the facility was to be built, successfully securing their support.
- Two public meetings were held during the design process to provide stakeholders with information on the planned facility and to receive any feedback to the proposals:

  - While there were no objections raised to the project, the majority of respondents were concerned with potential odour impacts. The treatment of the waste occurs within an enclosed building which is kept under negative air pressure, and the facility has a state of the art odour control system which ensures all potential causes of odour are removed before the residual water vapour is released through a 70m tall stack. The control system includes monitoring points and a weather station.

  - Prior to site design and construction concern around potential traffic increases were raised, the City also voiced concerns of trucks queuing to enter the facility leading to build up of local traffic, the final site layout accommodated up to ten trucks waiting while not obstructing access to the Visitor-Education Centre.

- A continuous communication with stakeholders and the broader public was maintained through the City's Rethink Waste Campaign which involved a web site www.surreybiofuel.ca

9. **Transferability.** Describe the degree to which the process or outcomes of the project, or other learnings, could be conveyed to other UBCM members.

The City is taking an unprecedented step of constructing its own Biofuel Facility, and fueling its fleet with the renewable natural gas produced. Under this model, the City's waste collection fleet will literally be collecting its fuel at curbside, which amounts to a closed loop system. Presently, there are only a handful of governments in the world that have taken sustainable waste collection to this level.

By operating a closed loop waste collection system, the City will act as a catalyst for other entrepreneurial municipalities seeking to maximize operational efficiencies, while minimizing the negative environmental impacts typically associated with solid waste management.

The steps that the City has taken, and the lessons that the City has learned relative to Phase 1 are absolutely transferable to any and all local governments looking to include the source separation of residential food waste into their waste collection program. Based on the high levels of waste diversion and the low overall levels of contamination that the City's been able to achieve over a relatively short period of time, the Surrey model is being considered a gold standard in the industry, relative to overall program management.

Phase 2, namely the development of an organic waste processing biofuel facility, may not be as universally transferable, however local governments would need to generate a similar volume of organic waste to justify the facility (i.e. achieve economies of scale). Phase 2 may be more transferable to large individual municipalities, smaller municipalities seeking to partner with one another, and/or Regional Districts seeking to enter into the waste processing market. In fact, the steps that the City has taken thus far with Phase 2, specifically regarding the decision to engage the Project under a P3 ownership model and seek Federal funding assistance, is presently being duplicated by Metro Vancouver, with their proposed Regional Waste-to-Energy facility.

In either case, the City is eager to share its experiences and lessons learned from both Phases 1 and 2, in the hopes that other local governments will seek to implement more environmentally sustainable waste management systems.

SECTION 5: Additional Information

10. Please share any other information you think may help support your submission.

The Surrey Biofuel Facility is the first waste sector infrastructure project in North America and only the third Canadian project overall to earn the prestigious Envision award for sustainability with the below highlights:

Leadership

The City of Surrey has demonstrated tremendous leadership by intentionally selecting CNG-powered vehicles to establish the option to transition them onto biofuel energy once the City could establish a reliable local supply. From the conception of the city's

overarching organic waste collection system, the City has always intended to pursue a closed-loop system. The completion of the Surrey Biofuel facility will help to realize the City's vision to power its fleet of waste collection and service vehicles through natural gas produced from organics collected from residents and commercial enterprises throughout Surrey.

The City's approach to organics waste management is both scalable and transferrable to other cities in North America with established organics diversion and collection programs. In fact, other Canadian municipalities are currently exploring opportunities to replicate this strategy for a closed-loop organics system because of this project's anticipated success.

Sustainability is a core value of the City of Surrey, and the City based part of its selection process for the consortium of partners who have been working collaboratively to design, build and eventually operate this state-of-the-art project on sustainable performance This facility will be the first organic waste facility to be completed using this approach, and one of only five solid waste P3 projects Canada-wide, a testament to the project team's leadership.

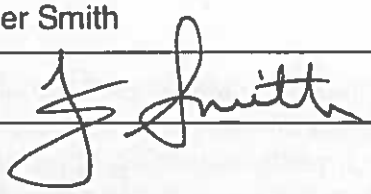
Climate and Risk

The Surrey Biofuel Facility is expected to have a negligible impact on air pollutant emissions, and the project's anticipated emissions are far below the California Ambient Air Quality Standards, and well below the even more stringent British Columbia Air Quality Objective.

In addition to falling below air pollution emissions standards for the province of British Columbia and Canada generally, the Surrey Biofuel Facility is expected to be net carbon negative, and it is expected to contribute to a net reduction of more than 49,000 tonnes of CO2e (carbon emissions) after one year of operation. This net reduction in carbon emissions will be primarily achieved through the transition of anaerobic digestion of organic wastes, rather than open air composting.

Natural World (NW)

The project site is surrounded by industrial lands. The City commissioned a full remediation of the entire site. Metals and hydrocarbons were among those contaminants removed from the site. No previously undeveloped land was acquired for this project. Although the project is situated in an industrial area, the project team introduced significant landscape elements to preserve species biodiversity. Vegetation will include a wide range of native and non-native shrubs, and more than 20 trees which far exceed local tree protection bylaws.

SECTION 6: Signature	
Applications are required to be signed by an authorized representative of the applicant.	
Name: Fraser Smith	Title: General Manager, Engineering
Signature: 	Date: May 24, 2018

All applicants are required to submit:

- Signed application form. Applications should be submitted as Word or PDF files.
- Five representatives photos of the project. Photos should be submitted as JPEG files.

If you choose to submit your application by e-mail, hard copies do not need to follow.

Submit applications to Local Government Program Services, Union of BC Municipalities

E-mail: awards@ubcm.ca

Mail: 525 Government Street, Victoria, BC, V8V 0A8