

Community Services Report to
Priorities and Finance Committee
2020 July 14

ISC: UNRESTRICTED
PFC2020-0784

Council Innovation Fund Application for Virtual Reality Fire and Life Safety Education Pilot

EXECUTIVE SUMMARY

Councillor Gondek is sponsoring an application to the Council Innovation Fund (CIF) with the cooperation and support of the Calgary Fire Department (CFD) to complete a Virtual Reality (VR) Fire and Life Safety Education pilot. This pilot will serve Calgarians primarily in high-risk and vulnerable groups by giving them a virtual opportunity to understand how a fire situation could be managed. Councillor Gondek and the CFD are requesting a withdrawal of \$75,000 from the CIF to support the one-time pilot development. The funds would be supplemented by private sector contributions of up to \$60,000 for hardware costs and ongoing software licensing fees. The funds would be used over the next several months to work with a technology company to develop, launch and promote a virtual reality fire and life safety education pilot, and perform post-pilot testing and evaluation.

The CFD will manage the project and submit an update report to Council through the Priorities and Finance Committee, detailing how the grant was used and the outcomes of the pilot.

ADMINISTRATION RECOMMENDATION:

1. Approve this one-time application to allocate \$75,000 from the Council Innovation Fund for the Virtual Reality Fire and Life Safety Education Pilot.
2. Direct Administration to report back to the Priorities and Finance Committee on the outcomes of this project by September 2021.

PREVIOUS COUNCIL DIRECTION / POLICY

As part of the 2010 November deliberations on the 2011 budget, Council originally established the Council Innovation Fund and directed Administration to develop Terms of Reference for the fund and create criteria that would guide Council on requests. On 2019 April 29, Council approved updates to the Council Innovation Fund Terms of Reference and introduced a new fund dedicated to community-driven projects called the Council Community Fund. The revised Terms of Reference for the Council Innovation Fund can be found in Attachment 4.

Any Council member can submit an application to the Priorities and Finance Committee for review and ultimately for Council's consideration and approval. The proposal for funding must demonstrate credibility, fiscal responsibility and good management which will be important considerations in the evaluation of applications.

BACKGROUND

Calgary fire statistics suggest that CFD needs to continue its education and prevention efforts in Calgary, with the number of fire-related injuries increasing in 2019 by 41 per cent, and specifically continue to develop innovative ways to reach those most vulnerable to fire incidents. CFD targets its programs primarily to high-risk and vulnerable groups, as there is an extensive body of research that suggests that the risk of accidental fire and injury can be lowered through targeted fire and life safety education. Education delivered through interactive mediums such as VR are particularly effective at increasing learning and changing behaviors amongst these vulnerable populations. CFD has established success using simulations with the existing Fire Safety Trailer training tool, which mimics real-world experiences. However, the trailer is limited

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to hosting events in larger spaces and requires a minimum of two to three staff to operate. These staff have limited knowledge of the multiple languages spoken in Calgary, which also limits the effectiveness of the Trailer with diverse audiences. The VR technology does not have these limitations and in addition, can instruct participants through a multitude of scenarios in a multitude of languages.

INVESTIGATION: ALTERNATIVES AND ANALYSIS

Previous educational research on human behaviour during real-world fire incidents has shown that a lack of understanding of the spread and movement of fire often means that occupants are unprepared and misjudge appropriate actions. Further, research suggests that most people have trouble estimating the speed of fire and smoke growth and underestimate the dangers fire poses, which can lead to “irrational actions”. In fact, in a study by the Centre for Environmental Safety and Risk Engineering at Victoria University, Australia, of over 18,000 injuries and over 1,600 fatalities due to fire in the United States, five per cent of injuries and 5.2 per cent of fatalities were deemed to have been caused by “irrational actions”.

Research indicates that by utilizing VR technology, participants will be more prepared and less anxious to face fire-related emergencies and be able to identify potential fire hazards in their homes, and will communicate the information they have learned to others around them. Using a VR immersive experience also allows CFD to reinforce the consequences of accidental fires by simulating a fire incident without putting anyone at risk and with the ability to tailor learning experiences to different audiences. Experiencing firsthand what it is like to be in a residential fire and extinguishing it or escaping it, for example, is both shocking and impactful. To that end, CFD issued a Request for Information (RFI) in 2019 to determine what technology is available to develop Fire and Life Safety education modules in Calgary and has used that information to determine budget and feasibility of this pilot.

Ultimately, by developing this pilot CFD aims to increase fire and life safety education opportunities for Calgarians and reduce the risks of fire incidents including fatalities, injuries and environmental and property damage. With about one third of the city’s population speaking a language other than English or French at home, offering this experience in multiple languages will be key to outreach.

Stakeholder Engagement, Research and Communication

Currently, with only 61 per cent of Calgarians reporting that contact with the Calgary Fire Department improved their knowledge about how to spot hazards and what to do to prevent fires, it is clear that CFD must continue to engage diverse communities in innovative and impactful ways (Community Services Citizen Perceptions & Expectations Survey, 2020). With this in mind, CFD plans to engage with multiple stakeholders to ensure the VR technology has the greatest reach and impact possible. Planned stakeholders include the Calgary Board of Education and the Calgary Catholic School District, various cultural associations, recreation centres, the Calgary Public Library and the Centre for Newcomers.

Strategic Alignment

The project supports the Citizen’s Priority area, “A City of Safe and Inspiring Neighbourhoods”. Directives from One Calgary related to this service include: public spaces that are safe,

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accessible and inclusive for all Calgarians, including seniors and the disabled (N1); engaging Calgarians at the neighbourhood level that encourages local community connections (N2); and shifting our understanding and focus from how services are delivered to why services are delivered (W2). Further, as part of One Calgary, the CFD committed to increase efforts by frontline firefighters and our internal and external partners to influence more Calgarians to adopt safer and more responsible behaviors.

In addition, this pilot project supports Council's direction as detailed in the Diversity and Inclusion Framework, the Social Wellbeing Policy and the Multicultural Strategy for Communications and Engagement. This strategy ensures that The City is bridging diversity and inclusion gaps and providing services, strategies, engagement opportunities, and communication, to make Calgary a better place for all.

Social, Environmental, Economic (External)

Responsiveness and efficient service delivery is a primary focus for CFD. The Fire and Life Safety Education Virtual Reality Pilot project will contribute to a more efficient and well-run city by focusing Community Safety Officers on the following key activities:

- delivering experiential education for Calgarians vulnerable to accidental fires,
- partnering with community, cultural and faith-based groups to maximize reach to Calgarians and
- improving citizen outcomes by reducing risk to lives, property and the environment through reduced accidental fire incidents.

Financial Capacity

In 2018 November, Council approved the transfer of \$5 million to the CIF. As of 2020 July 3, the balance of the Council Innovation Fund is approximately \$2.833M. This application is a one-time funding request of \$75,000.

Current and Future Operating Budget:

This request has no impact on CFD's current operating budget. Should the pilot project be successful, the project may be expanded to result in savings for staffing costs to provide future educational or training opportunities. There may be a potential to provide cost-sharing or revenue generation opportunities as CFD explores collaboration with other regional fire departments that could benefit from the unique fire education opportunities provided by the VR model.

A minimal fee to maintain software licensing of approximately \$5,000 per year is expected to accompany this program. Corporate sponsorship funds is anticipated to cover these licensing costs.

Current and Future Capital Budget:

This request has no impact on CFD's current and future capital budget.

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Risk Assessment

If the application is approved and the pilot is successful, there is a risk of not meeting community expectations to expand the program. CFD may have an increased demand outside the targeted communities to provide VR experiences, requiring a purchase of further hardware. While CFD can pursue further sponsorship for an expanded program, a sponsor may not be able to cover the full costs.

If this application is not approved, CFD would continue to use existing models for education, which are limited in delivery settings and audience reach and do not fully satisfy the Council-approved directives set out for CFD's Fire Safety Education service line.

REASON(S) FOR RECOMMENDATION(S):

This application meets the criteria in the existing Council Innovation Fund Terms of Reference. This pilot project is a one-time funding request that has the potential to have a city-wide impact and helps to advance Citizen Priorities. The pilot will continue CFD's mission of promoting fire safety and prevention while maximizing available staff resources to be as efficient and effective as possible.

ATTACHMENT(S)

1. Application to The City of Calgary Council Innovation Fund
2. Proposed Virtual Reality Fire and Life Safety Education Pilot Budget
3. Letters of Support for the Virtual Reality Fire and Life Safety Education Pilot
4. Council Innovation Fund Terms of Reference