Written Submission for the Pre-Budget

Consultations in Advance of the 2019 Budget

By: Jim Loney

Recommendation: 1

That the government provide funding in the amount of $3,410,391,020.4 for a building that will be placed on building test area.

Recommendation: 2

That the government provide land for the build, near Vancouver British Columbia, that is referred to in recommendation 1.

Recommendation: 3

That the government provide funding in the amount of $4,396,000 for the purpose of obtaining and installing seven bio-digesters.

Recommendation: 4

That the government provide funding in the amount of $359,302,943.72 for the purpose of building a Hyperloop from Vancouver British Columbia to the housing location.

Recommendation: 5

That the government provide funding in the amount of $80,000,000 per-year for the purpose of providing Public safety, police, fire, and medical personnel for the housing area.

Recommendation: 6

That the government provide funding in the amount of $900,000,000 for the research and development and implementation of new toilets that use a pneumatic tube delivery system within the building referred to in Recommendation 1.

Recommendation: 7

That the government provide funding in the amount of $5,257,859.91 for the research, development and implementation of a water filtration system that will be used within the building in Recommendation 1.

Ensuring Canada's Competitiveness.
August 3, 2018

The total number of people, within the lower-mainland, who are homeless is 4211. This is according to the 2017 Report on Homelessness in the Lower Mainland.[1] The lower-mainland refers to Vancouver, British Columbia and the cities that are located around Vancouver.

This brief proposes that a test area be set up near Vancouver, British Columbia. At the location of the test area a structure would be located that would have 5000 units dedicated to people who were homeless and 5000 units that would be set at market rates. In addition there would be an assortment of shops and offices within the building.

According to Eoghan Macguire who is a journalist for CNN's web page and the senior editor, John Caulfield, for the website "Building Design and Construction," Broad Sustainable Building (BSB) designed and built a "57-story building known as J57 Mini Sky City, with 800 apartments and office space for 4,000 workers […] [in] 19 working days."[2] Caulfield goes on to write "it would have taken two years to construct a similar building using conventional methods, Xiao Changgeng, BSB's Vice GM, told the Guardian. BSB claims prefab reduces construction costs by 20% to 40%. The 180,000-sm Mini Sky City cost US$700/sm to build, confirms BSB Chairman and CEO Zhang Yue."[3] In addition Macguire writes, "by preparing more than 2,700 modules in a factory for four months before site work began, BSB says it was able to assemble the structure at the rate of three stories per day."[4]

Developing and constructing a project twice the size of the Mini Sky City would allow Canadian businesses to perfect modular design and automation building practices. This would enable the modular components to be built in Canada and then shipped to the location that the building was being constructed, whatever country that was in. This would allow more employment opportunities to be created as well as allow Canadian companies to compete with Chinese companies like BSB, who is in the process of opening 50 new franchise offices.

1 http://www.metrovancouver.org/services/regional-planning/homelessness/HomelessnessPublications/2017ReportOnHomelessnessInTheLowerMainland.pdf
2 https://www.bdcnetwork.com/asia%E2%80%99s-modular-miracle
3 Ibid.
4 https://www.cnn.com/2015/06/26/asia/china-skyscraper-prefabricated/index.html

The building constructed at the test area would also incorporate a new type of toilet that would use a pneumatic tube delivery system to transfer human fecal matter from the toilets to bio-digesters located in the building. The pneumatic tube delivery system would operate without the use of water. The benefit of a system that does not use water to transport feces is that it reduces, by 30 percent, the amount of water that is used. According to the the United States Environmental Protection Agency, EPA, "Toilets are by far the main source of water use in the home, accounting for nearly 30 percent of an average home's indoor water consumption."[5]

The reason the above system would ensure Canada's competitiveness is that there are cities around the world that are suffering from a drought. According to the Los Angeles Times 44% of California is now experiencing moderate drought conditions."[6] This system would meet a need while allowing Canadian companies to prosper.

Once the human feces has been delivered to the bio-digesters, the bio-digesters will process the fecal matter into bio-fuel and/or fertilizer, which are two commodities. On average a person located in North America will produce approximately 1000 grams of feces per-day. At minimum every 1000 grams of feces will produce 1liter of bio-fuel. This calculates, after 30 days after digestion, into 10,000 liters of bio-fuel being produced each day. In a thirty day period 300,000 liters of bio-fuel will be produced. In 365 days 3,650,000 liters will be produced. The bio-fuel, since it is a commodity, will be able to be sold and/or used to produce electricity that will be able to be sold back into the grid or used in the building. The bio-fuel could be sold to countries that still have a segment of its populations that used solids, such as wood and/or crop residues, to cook food and/or heat their homes with. According to the US National Library of Medicine National Institutes of Health "70% of China's population lives in rural areas, where most of the people still use solid fuels for cooking and heating."[7]

Canada will increase its competitiveness by engaging in the project above because a material that would normally be discarded would now be transformed into a material that has economic worth. This means of creating economic worth would remove a harmful substance from the environment and simultaneously create a product that is able to produce wealth while not leaving a harmful by-product when the product is used.

The fresh water that will be needed to service the building will come from one or more of the of the municipalities that are located around Vancouver. If required, wells could be drilled which would supply water to the building. The water would be filtered once it was obtained from the wells.

5 https://www.epa.gov/watersense/residential-toilets
6 http://www.latimes.com/local/lanow/la-me-drought-report-20180201-story.html
7 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4537619/

Whatever option is chosen the building will make further gains in the area of water conservation by completely filtering the water that was used in the building. This would be accomplished by partnering with Canadian companies that specialize in water purification.

The reason this system above would ensure Canada competitiveness is that in a place, like California, water is very important. If a company that was designing buildings could show that it had a water purification system that was integrated into the buildings and was able to reduce the amount of water that was wasted, municipalities would be willing to invest to obtain the system.

Land prices in lower-mainland have skyrocketed and thus land options around Vancouver are limited. To counter this situation and add additional options for land that the test area could be located on, this brief is proposing that a Hyperloop be built that would connect the test area with Vancouver. A Hyperloop is able to travel around 600 kilometers per hour. This means that the test area could be built around Abbotsford, British Columbia which is a distance of 40.24 miles or 64.76 km from Vancouver,[8] and a person would be able to travel from the test area to Vancouver faster than someone traveling to Vancouver from Surrey, British Columbia.

The base cost of a Hyperloop per-mile or 1.6KM is $5,000,000US or $6,653,962.38Can. Recommendation: 4 requests $359,302,943.72 to be set aside for the construction of the Hyperloop so that if the test area needed to be father away from Vancouver that option would still be available.

The speed of transportation is a major concern for any country including Canada. Having a better understanding of a transportation system like the Hyperloop would ensure Canadian competitiveness. Canada would be able to work with the Hyperloop to understand how to best utilize the technology, so that it may be implemented in other applications across the nations. This would allow people and cargo to move and interact in a way that has never been seen. Plus the Hyperloop would attract other developers to the test area, which would create other employment opportunities.

To maintain order and safety within the building, the building will be staffed with police, and medical personnel. The personnel will be stationed within the building. A fire station and fire personnel will be within a short distance from the building. According to Carlito Pablo of the The Georgia Straight, Vancouver's police department was able to hire 30 officers and 10 civilians for $3.2 million.[9] Data

8 https://tinyurl.com/y76x34he

9 https://www.straight.com/news/999116/vancouver-police-want-almost-285-million-or-one-fifth-entire-2018-city-operating-budget

acquired by the FBI shows that “Washington, D.C., maintains by far the largest police presence of any city [in the United States], with about 57 officers for every 10,000 residents.”[10]

The police and medical staff would have dedicated facilities within the building instead of being located off-site. This will allow the personnel to be familiar with the tenants in the building as well as reduce response time in the event there is a situation. Plus if a tenant within the building needs to be transferred to a Vancouver police station and/or needed medical attention the police and/or medical personnel would have access to the Hyperloop.

The fire hall will be located outside the building. This is due to fact that if the building catches fire it would be ill-advised to have the fire hall inside.

The way police, medical workers and firefighters are implemented will allow Canada to be seen as a leader in policing, medical work and preventing fires. This prestige would allow Canada to guild and teach the international community and with that interaction other benefits would come into being.

The test area would allow all the homeless in the lower-mainland to find housing; plus a large number of market value units would also be available. Also Canadian businesses would be able to develop their expertise in water purification, skyscraper module design, converting bio and organic waste in to bio-fuel as well as transporting human fecal matter without the use of water. Plus Canadian businesses would be able to develop and evolve their skill sets in the area of the implementation of a hyperloop.

10 http://www.governing.com/topics/public-justice-safety/gov-cities-police-officers-hiring.html