Pilon, Janet

Subject: FW: Hamilton Light Rail: Preparing for a Resilient Future

From: Paul Raun
Sent: March-28-17 8:23 AM
To: clerk@hamilton.ca
Subject: Hamilton Light Rail: Preparing for a Resilient Future

To the City Clerk,

My name is Paul Raun. My wife and I have lived in the Aldershot portion of Burlington for just under five years. Our decision to move here hinged crucially on being able to use a wide range of transport modes-walking, cycling, public transit-conveniently in addition to driving the car. With respect to living in Aldershot, which is undergoing a long-term effort to foster an attractive town centre along Plains Road, the proposed light rail line in Hamilton will have positive implications for public transit beyond Hamilton itself, where it can provide the foundation for building an effective rapid transit system across the region, which can provide well-integrated service into the expanding GO Train line.

In following the debate on the feasibility of building an LRT line across Hamilton, the first phase of Line-B running between McMaster and Queenston Circle, I find very little discussion of the kind of situation that we will likely find ourselves by Line-B's projected completion date in 2024. That is roughly seven years away. It is essential that we act now to put in place the necessary alternatives for transportation in our area before the situation becomes critical. I am hoping that you will take the time to review the information below and consider it as you move forward in discussions about the LRT.

When it comes to issue of how much inexpensive energy we have, on 29 August 2016, Bloomberg News published a rather concerning report about the low level of conventional or crude oil deposits being discovered in the last several years, despite the energy companies' having doubled their expenditures on exploration since 2004. At present, we are finding **one** barrel for every **twelve** barrels that we are using each year. By 2025, we will likely experience significant shortfalls in supply to meet the demands of a Global Economy.

https://www.bloomberg.com/news/articles/2016-08-29/oil-discoveries-at-a-70-year-low-signal-a-supply-shortfall-ahead

In September 2016, Hong Kong Shanghai Bank(HSBC) released a 54-page report on the state of the world's mature oilfields, where "81% of world's liquid production [including conventional oil, condensates, natural gas liquids, unconventional oil] is already in decline (excluding new developments)". Newly-discovered oilfields are increasingly smaller in size and, therefore, have a higher depletion rate than the older giant fields such as Ghawar(world's largest) in Saudi Arabia.

https://www.research.hsbc.com/R/24/vzchQwb

Having emerged in August 2014, the current glut in the supply if crude oil and other liquids has arisen essentially because of decreasing demand, which weakening economic conditions have fostered. As an

example of such conditions, plateauing in January 2015, global trade has undergone a gradual yet steady decline, which contrasts greatly with the sharp rise in global trade before 2008.

https://www.weforum.org/agenda/2016/07/global-trade-is-not-growing-slower-its-not-growing-at-all-finds-a-new-report

https://www.nytimes.com/2016/10/31/upshot/a-little-noticed-fact-about-trade-its-no-longer-rising.html

Over the last several years, as part of this glut, we have had a growing reliance on unconventional sources of oil, such as the tar sands and shale oil, which is known as "light tight oil"(LTO). Both sources require increasing injections of conventional crude as well as other fuels, such as natural gas and diesel, in order to become useable forms of energy. They both have **low** net energy values when compared to crude oil, where they both yield only **six** barrels for **every** barrel used to turn them into useable fuel, while onshore crude currently yields **seventeen** barrels for **every** barrel used. When we were beginning the development of suburban areas that depend heavily on the use of automobiles, in the late-1940's and early-1950's, we were extracting **one-hundred** barrels for **every** barrel used to turn crude oil into useable energy.

Facing a general pattern of decline in the availability and quality of energy, especially conventional crude as a critical foundation for converting other energy sources into useable energy, it is crucial to redesign Hamilton in order to build its capacity to be resilient in the face of this decline. This entails moving away from a continuing outward expansion on Hamilton's fringe and rebuilding it, along with other historic centres such as Waterdown or Ancaster or Binbrook, into a fairly-compact city. In the context of building a more-compact city, the LRT can act as the city's primary rapid transit route providing a convenient way of transferring between different bus routes, along with revitalising neighbourhood centres along its route.

- It operates at roughly the same speed as a subway, when we measure them over the **same** distance between stops.
- It uses less energy when we take its capacity into consideration, i.e. how many passengers it carries, and it operates on rails, which reduces friction which is responsible for much of the energy that is used.
- Using an electric motor that takes its power from overhead wires, LRT does not require batteries that would need to be massive for size of vehicle.
- It can use a variety of power sources, with our largest renewable source being not so far away in Niagara Falls.

http://www.vtpi.org/tdm/tdm121.htm

http://torontoist.com/2016/08/a-love-letter-to-lrt/

If you have any questions or if you would like to discuss this further, please do not hesitate to contact me.

Yours sincerely,

Paul Raun