

To: The Chair and members of PEC

Thank you for this opportunity to share my ideas

Re. 3640 Dingman Dr., 145 Base Line Road West, 383 Clarke Road & 1906 Whitney Street, 1408 and 1412 Commissioners Road West

The last time I talked to this committee, when the Oxford developments were up for consideration I expressed concern about thousands of vehicles and their resulting transportation emissions. I think now that scenario needs correcting.

My mistake was to predict that new developments would create large increases in emissions by bringing in new vehicles. Google environmental information about transportation emissions in London in 2023 shows London's transportation emissions increased by 4% in 2023 over 2022. Significantly, those emissions are higher than pre-covid 2018 (799 000 tCO_{2e} vs 796 000 tCO_{2e}). The roughly 273 000 vehicles in London were responsible for roughly 3 tCO_{2e} per vehicle.

London's population grew in 2023 by .776 %, about 4000 new residents and they brought about 2550 more vehicles to the city which was responsible for about 7656 tCO_{2e} of emissions, and that is less than 1/4th of that 4% increase (.0093). So most of that 4% increase was caused by vehicles already here that were just commuting more.

It's just a mistake to make too much of the connection between new housing and increased emissions. If the future is going to imitate the past only a fraction of new housing will actually be occupied by new population, most of it will be bought or rented by population already here. Most of the 6717 houses that were sold in 2023 in London were purchased for households already here.

There are probably different factors that contributed to increased commuting but one major factor still relates to the pandemic.

Before the pandemic, 6% of London's workers worked in home/hybrid model. By May 21/22 the amount reached a high of 24.5%. But since then employers have changed more work back to the non remote model and as of May 2024 the amount in London was reduced to 19%. So, in 2023 a significant number of workers returned to driving to work and contributed transportation emissions that are now even higher than (2018) pre pandemic levels. For the sake of reducing emissions, it would be nice if that trend stopped but at this point it has to be considered as a factor that could continue to increase emissions in 2024.

But the most important takeaway from the 2023 emission results is that the housing changes Londoners made, did nothing to reduce commutes and if we are to have any hope of reducing emissions, that has to change... sorry to say that challenge for future housing lies on your plate.

That message I intended to deliver in the context of other developments, at least two months ago.

Unfortunately, my plans for things I wanted to do here in London was turned upside down by three hurricanes in the last thirteen months that have descended on a home my wife and I have in Tarpon Springs Florida, forcing me to spend more time down there and delaying things I wanted to do here. (In fact, we weren't finished cleaning up from Helene when we had to evacuate Tarpon Springs because of the approach of Milton.) On the heels of this experience I have some comments about the relationship between emissions and catastrophic flooding, and how it should effect our plans for development here in London.

Like all northern hemisphere hurricanes, Helene formed an immense clockwise rotation of wind but near the center of the cyclone, moisture is actually pushed out of the top of the circle and rotated to the bottom. So the dangers of the top of hurricanes are rain and wind, on the bottom, storm surge.

As a hurricane travels north through the gulf, the prayers of coastal dwellers are that it won't directly hit your backyard, or at least that it will make landfall south of where you live, so that you will 'just' get the rain and wind, not the storm surge. As bad as the top can be the extent of the damage that storm surge can cause is much, much worse.

Helene made landfall near Perry Fl. in the Northern Nature coast and caused unprecedented storm surge flooding for three hundred miles to the south. But the real game changing nature of Helene, and the recognition that we are dealing with a new generation of storms, came ultimately from what Helene caused on that top rain and wind end.

A double cell formed in Helene and when it moved North to N. Carolina, that front produced an astonishing 17 to 30 in. of rainfall, with 80 mph winds that simply obliterated towns... the largest Asheville N.C. was a postcard historic community, and the point is, this happened 400 miles from landfall in Perry, Fl. So the question for communities that haven't been impacted by these catastrophic events, where hurricanes are concerned, ... How far away is "safe"?

London in fact was far enough to be safe from Helene, which expired in Ohio, 800 miles from Perry across L. Erie as a tropical depression, a giant rain cloud that covered the state. So for London's relief, there has never been a gulf hurricane that caused damage 900 miles inland from landfall and lets hope that doesn't change.

But, an Atlantic hurricane, seventy years ago, on Oct. 5 1954, made landfall near the border of the Carolinas, and travelled 680 miles northeast to devastate Toronto. And if Hazel had veered slightly west across Lake Erie, it could have actually taken a shorter path to London. (Hurricane Milton actually made landfall on the 70th anniversary of Hazel's landfall, at Siesta Key Oct. 5, 2024)

The most important thing is, Hazel 'only' contained (200 mm or 7.9") of rain about half the low end of rainfall that Helene caused in Western N. Carolina. So, we have to recognize the distinct possibility that an Atlantic hurricane could now make that same trip and have a greater 'Helene' type effect on London than the worst hurricane to ever reach Ontario.

Catastrophic rainfall events are developing faster, increasing in size, travelling farther, and causing more flooding. The science that connects all of this to global warming is three hundred years old. The Clausius-Clapeyron equation shows that for every degree Celsius of warming, the air holds 7% more water. A 2019 study (npj) Climate and Atmospheric Science found that each degree of warming increases rainfall by 13 %. To this point, London's closest brush with a massive rain event happened in s/w Middlesex in Aug 2023. What was termed a once in a century deluge, flooded basements, damaged roads, and caused one fatality when a truck was driven into a washout on Hwy 80.

Implications of catastrophic flooding risk for the projects considered in this meeting.

3640 Dingman Dr.

The park proposed for 3640 Dingman Dr. is an excellent example of a flood mitigation strategy. Greenspaces need to be protected and increased across the city because of their ability to absorb flood waters. For the same reason we should be limiting the growth of pavement and impervious surfaces and increasing water retention areas.

566 Southdale Rd E & 818 Easy Street 1408 and 1412 Commissioners Road West

These developments need to be re-designed to accommodate the mature trees on these properties that should not be removed. The root structure of trees creates channels for accelerating the displacement of floodwater and easing the effects of flooding. In this way, trees are an important flood mitigation strategy.

145 Base Line Road West, 383 Clarke Road & 1906 Whitney Street

In these areas only above grade building permitting should be considered. Basements, underground parking, below grade non waterproof electrical infrastructure, etc. shouldn't be acceptable.

In summary, my worst fear is that emissions are going to continue to increase and the risk of catastrophic flooding along with it and I think trying to identify flooding risk zones in a city like London would be a fool's errand. No one really knows what the effect of 16 to 30 inches of rain and 80 mph wind might be.

To build or re-build a home to mitigate flooding effects, consider building above grade without a basement. Use vinyl plank flooring or a similar plastic material on high quality plywood sub-flooring . Do not use any wood composite products. When flooded they disintegrate. Use metal or solid wood furnishings. Use inflatable type mattresses. Elevate the ground floor and position all appliances including your furnace, water heater, washing machine, dryer and electrical panel, as high as possible. Every inch you can gain is potentially important. Shut off all electricity before the flooding begins. After the flood recedes, dry electrical connections as well as you can before restoring power. Compressed air canisters work well for this.

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