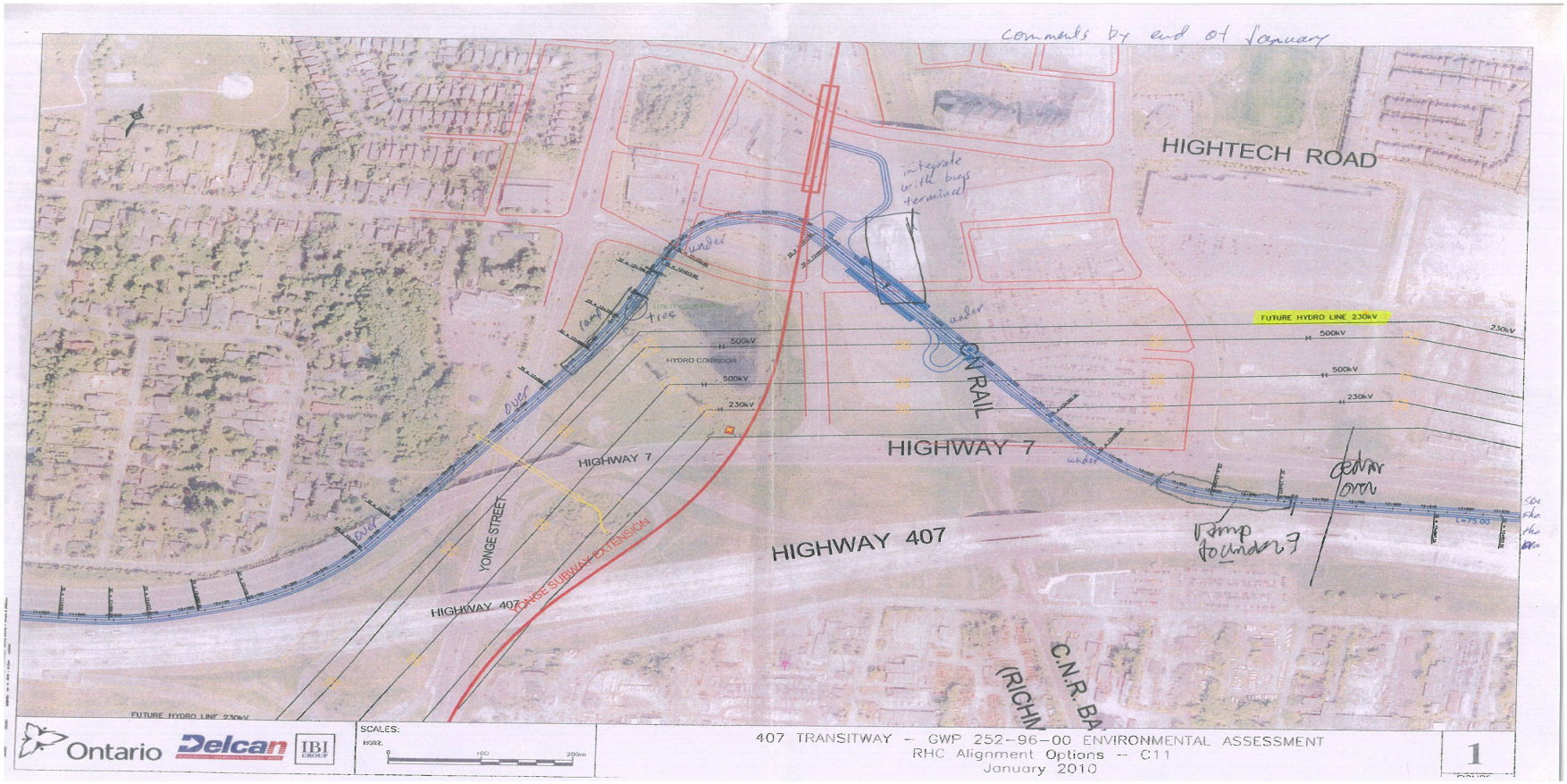
Hydro Undergrounding

Purpose

- Markham Council requested staff review the feasibility of undergrounding the 500KV and 230KV Hydro transmission lines located North of Hwy 7 from Yonge St. to Bayview Ave.
- Staff has retained a consultant and has received Hydro One comments on the feasibility of undergrounding and preliminary costs

Hydro Undergrounding



Hydro Undergrounding

230 KV

- There is one 230KV and one future line located between Yonge St. and Bayview Ave.
- This transmission line services regional needs
- The cost of undergrounding is approximately $40m
- A detailed feasibility study would be required to finalize the concept and costs estimates with Hydro One
- There have been two other 230KV transmission lines undergrounded in Brampton in the last 5 years
- Hydro One confirms that it is feasible to place the 230 KV line underground subject to conditions

Hydro Undergrounding

500 KV

- There are 2- 500KV lines located Between Yonge St. and Bayview Ave.
- These transmission lines are part of the Canada/U.S. eastern seaboard primary transmission corridor connecting the Darlington and Pickering Nuclear plants and Niagara Falls Hydro Electric plant with U.S. and Quebec primary transmission corridor
- Hydro One advises that 500KV lines have not been undergrounded in North America

Hydro Undergrounding

- Hydro One is not prepared to permit undergrounding of 500 KV lines due to risks to the system reliability and security are too high
- Hydro One advised that although they will not permit the undergrounding they indicated the cost to undergrounding will be $300 to $400 million

Hydro Undergrounding

- There are two options for undergrounding O.H. transmission lines:

- **Conventional underground cables**

- Requires sufficient right of way and area to be kept clear of any vegetation, roads or structures
- The cable system requires an overhead to underground transition facilities on both ends of the underground section that will cover a wide area and will resemble a large station(a few acres)

Hydro Undergrounding

- **GIL(Gas Insulated Lines)**

- GIL is a technology that utilizes gas insulated lines for high power applications where environmental or structural considerations rule out the use of O.H. transmission lines

- The extent of additional cost for the GIL System compared to conventional undergrounding has not been defined

Hydro Undergrounding

Hydro Undergrounding

Summary

- Undergrounding of the 230KV lines is feasible but expensive($40m)
- Undergrounding of the 2-500KV O.H. will not be supported by Hydro One
- Staff as part of the Yonge Mobility Hub station design will take into consideration the option of undergrounding the future 230KV line