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OPPORTUNITIES FOR FINANCING THE UNDERGROUND RELOCATION OF POWER TRANSMISSION LINES ALONG THE VIVA RAPIDWAYS

The Rapid Transit Public/Private Partnership Steering Committee recommends the following report dated February 26, 2009, from the Vice-President, York Region Rapid Transit Corporation be referred back to staff to allow senior staff to consult on the findings with the Chief Administrative Officers and Commissioners in the City of Vaughan, and Towns of Richmond Hill, Markham and Newmarket and that staff report back to a future meeting of the Committee.

1. RECOMMENDATIONS

It is recommended that:

1. The Regional Clerk circulate this report to local municipalities for their review and comment.
2. Staff report back to Council on the outcome of the municipal comments and provide recommendations as to next steps on the hydro line relocation strategy along the Viva rapidway corridors.

2. PURPOSE

This report provides background and some of the supporting analysis of a study jointly led by the York Region Rapid Transit Corporation and PowerStream and undertaken by Giffels Associates and their associated consulting team to determine the opportunities for alternative sources of financing for the underground relocation of the power transmission lines along those Viva rapidways that lie within the PowerStream boundaries.

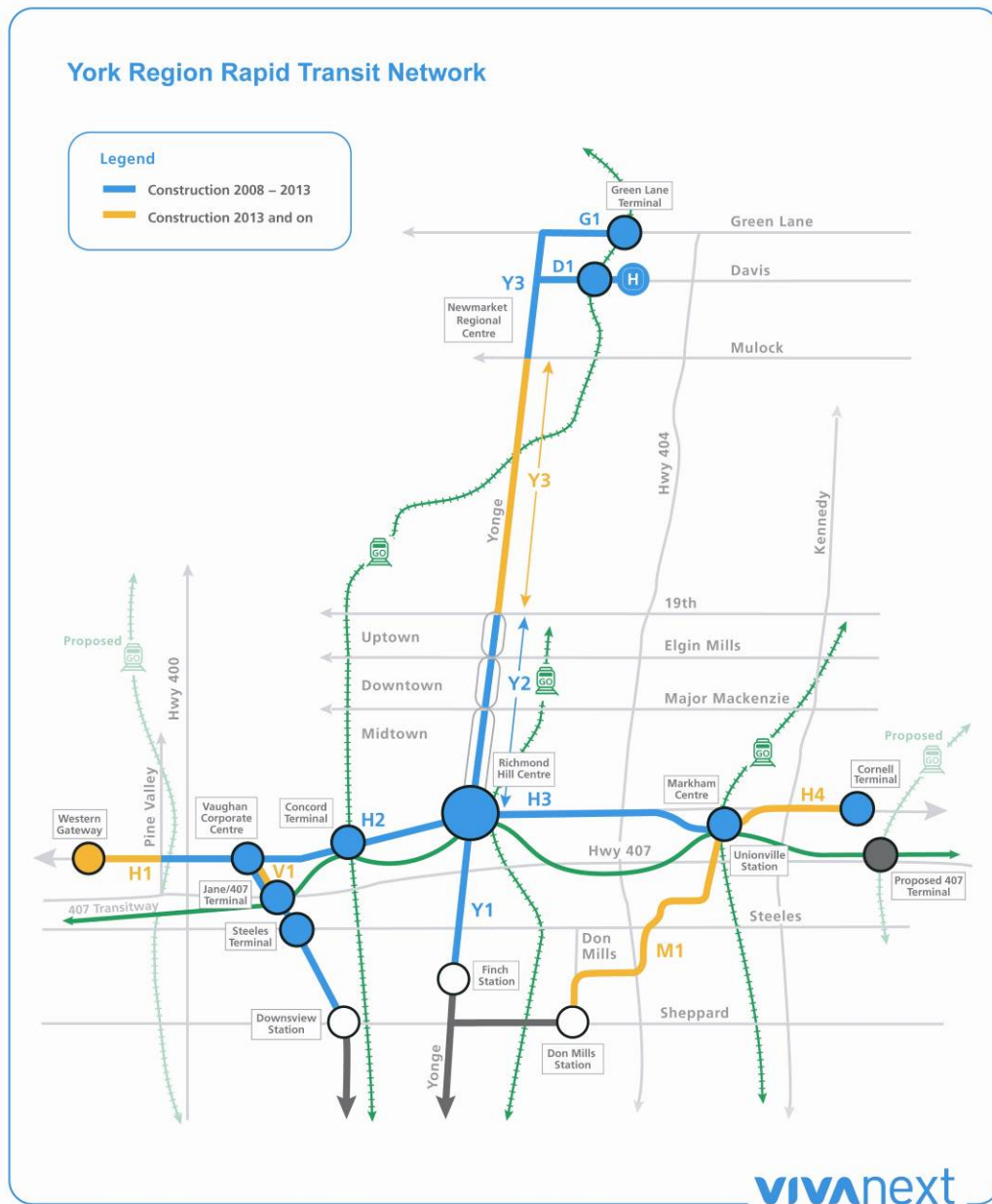
While the study excludes the Newmarket segments of rapidways, the findings of this report are equally applicable to any electrical distribution company.

The study did not consider the implementation of rapidways along the section of Yonge St. between Highway 7 and Steeles, since it is now proposed that this section will be served by an extension to the Yonge-University-Spadina Subway, with an extension from Finch station to the Richmond Hill Centre. The subway may provide other opportunities for undergrounding along the Yonge corridor that would be the subject of a future report.

3. BACKGROUND

Viva Phase 1 rapid transit runs today in mixed traffic in four key corridors. As shown in Figure 1 vivaNext includes the construction of 67 kilometres of surface rapid transit in these same corridors, integrated with the extension of the Yonge Street and Spadina subway lines north to the Richmond Hill Centre and Vaughan Corporate Centre.

Figure 1
York Region Rapid Transit Network – vivaNext



In June 2008, the York Region Rapid Transit Corporation and PowerStream Inc. commissioned a study to guide the planning of power plant relocations to accommodate road widening for vivaNext. The study focused on analysis of potential mechanisms for funding the incremental costs to install electrical power distribution lines and equipment underground (hereafter referred to as “undergrounding”) in lieu of overhead construction. The study explored numerous avenues of law, regulations, governing body rulings, industry practice and precedents related to funding the installation of underground distribution systems. The results of that study are discussed in Section 4.

4. ANALYSIS AND OPTIONS

The Giffels Study assessed a range of relocation options in consideration of financial, regulatory, legal and political impacts

A Request for Proposals was issued in March 2008, requesting proposals for a study to guide the planning of power transmission relocations resulting from the road widening necessary to accommodate the rapidways. Several proponents responded and after review and evaluation a project team led by Giffels Associates Ltd./IBI Group, in consultation with Navigant Consulting, and Gowling Lafleur Henderson LLP were selected to conduct the study, and a contract was awarded at the end of June 2008.

The study focused on the following areas:

1. Technical analysis of the options available to PowerStream for plant relocation at each of 11 identified sections of the planned rapidways, and comparing the costs of undergrounding at each location with undergrounding only at key areas.
2. Financial impacts: an assessment of the capital requirements and funding strategies for PowerStream to relocate plant to accommodate the vivaNext system and the Region’s Growth Management strategy and urban design policies and guidelines.
3. Regulatory impacts: an assessment of whether or through what strategies the capital costs could be approved by the Ontario Energy Board (OEB) for inclusion in the PowerStream rate base, and how a by-law requiring undergrounding would be viewed by the OEB in such application.
4. Legal impacts: an assessment and opinion of Ontario’s Places to Grow Act, 2005, and other available regulations or mechanisms that could be used as strategies to develop funding sources for undergrounding.
5. Political impacts: including an assessment of municipal desire for undergrounding, and a report on any prior decisions of the Ontario Energy Board on the same or similar proposals from gas or electricity distributors.

The study initially excluded the Newmarket area, which is not supplied by PowerStream, but rather by Newmarket Hydro. An addendum to the original study to include recommendations for the rapid transit corridors in Newmarket is underway.

Funding for undergrounding hydro lines is not included as part of provincial support for vivaNext

The budget prepared and submitted to Metrolinx for the rapidway construction assumes “like for like” relocation with power transmission lines that are relocated to remain above ground. In this study it is not anticipated that provincial money allocated for transit would fund undergrounding, and it was assumed that no other provincial money would be available.

Key stakeholders were consulted during the study

The consulting team consulted a number of key stakeholders during the study, including the Ontario Energy Board, York Region, local municipalities, Hydro One Networks Inc., and the coalition of Large Distributors and developers.

Municipalities were asked to identify their priority sections for undergrounding and these have been mapped against corresponding plans for rapidways

Municipalities were interviewed to determine their desire for undergrounding, and priority sections of Highway 7 and Yonge St. were identified where the municipalities most desired the undergrounding of electrical distribution facilities. These sections were evaluated against those sections identified for road widening for the Viva rapidways.

The sections identified and the corresponding segments of rapidways are shown in Table 1. The table also shows the estimated incremental costs by section and by municipality for the undergrounding when compared to above ground relocation.

VivaNext does not preclude future burial of hydro lines

The vivaNext rapidways project is moving forward on the basis of not burying hydro lines. However, it should be noted that the construction of viva rapidways does not preclude the possibility of burying hydro transmission lines along rapidway corridors in the future.

Table 1
Municipal Preferences and alignment with Rapidways

Areas of undergrounding requested by municipalities		Distance	Corresponding to Rapidways	Incremental costs for undergrounding	
		km.	km.	\$M	\$M
Town of Markham	H3 - Woodbine Ave to South Town Centre Blvd.	1.6	1.6	4.42	9.94
	H4 - 9th Line to Reesor Rd.	2	2	5.52	
City of Vaughan	H2 - Pine Valley Drive to 500 m. west of Kipling Ave.	2.5	1.9	11.40	39.60
	H2 - 200 m. east of Creditstone Rd. to Ansley Grove Rd.	3.3	2.7	16.20	
	H2 - Centre St - Dufferin St. to Bathurst St.	2	2	12.00	
Town of Aurora	Y3 - 1 km. south of St John's Side Rd. to 0.5 km. north of Wellington Rd.	1.5	1.5	6.57	6.57
Town of Richmond Hill					22.98
	H3 - Bayview Ave. to Valley Mede Dr.	1.2	0.9	2.48	
	Y2 - Trayborn Dr. to Elgin Mills Rd.	0.5	0.5	5.50	
	Y2 - Highway 7 to Major Mackenzie Dr.	4	4	22.00	
		18.6	17.1	86.09	86.09

The segments corresponding to rapidways are illustrated in Figure 2 below.

Figure 2
Municipal Preferences and Alignment with Rapidways



Certain clearance requirements are required between the transmission lines and any built form

The technical review included the Electrical Safety Association (ESA) regulations and the Ontario Highway Safety Manual. The ESA requires a clearance of 5.5m from the centreline of the pole to any adjacent building to account for:

- 1 metre separation of power cable from pole
- 1.5 metre potential sway of power cable
- 3 metre safety clearance from power cable

The Ontario Highway Safety Manual requires that where the speed limit is 50 kph, and the roadway is bounded by a curb, then the hydro pole should be a minimum 0.5 metres from the edge of the road. Where the posted speed limit is 60-70 kph, then the separation must be a minimum 3 metres.

These setbacks contemplate that it is possible for the first storey of a building to be built right up to the edge of the boulevard and that anything above the first storey would require an additional setback to provide the clearance necessary from the energised transmission line to accommodate the clearances noted above.

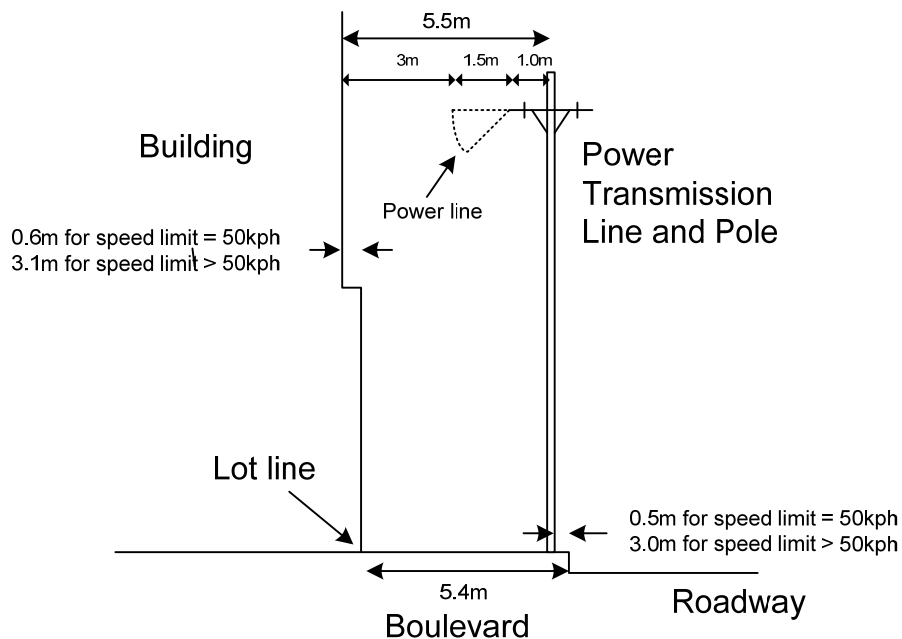
For a 50 kph posted speed limit the poles will require a setback from the curb of 0.5 metres, and any structure above the first storey will require a further setback of 5.5 metres from the poles.

Applying this standard to the rapid transit corridors with a boulevard of 5.4 metres would mean that anything above the first storey would have to be set back a further 0.6 metres from the edge of the boulevard to ensure adequate safety clearance limits.

If the posted speed is increased above 50 kph, then the distance would extend a further 2.5 metres between the curb and the pole, pushing any structure above the first storey back a further 2.5 metres ($0.6\text{m} + 2.5\text{m} = 3.1\text{m}$).

Based on existing conditions along the majority of the rapid transit corridors with some possible exceptions on Davis Drive the report concludes that an overhead relocation is viable.

Figure 3
Power line clearances from curb and building fronts



Staff are concerned that the implications of this built form arrangement along the rapid transit corridors may not be consistent with the urban density and density objectives of the landowners and local municipalities and will review this with the local municipalities.

The report indicates that incremental costs for undergrounding are unlikely to be accepted into the rate base by the Ontario Energy Board

The consultant team could not find a precedent to support the inclusion of the cost of undergrounding in the Ontario Energy Board (OEB) rate base. Inclusion of such capital improvements by the OEB are subject to a test of prudence. While the OEB would be expected to pass a rate increase for above ground relocations, the report indicates that, unless it can be demonstrated to be technically necessary, that a rate increase for undergrounding would not likely be accepted.

The study looked at the planned sequence and schedule of works, and the costs to underground the distribution plant along the priority sections

The following table shows the impacts to the PowerStream rate base over a sample of years between 2009 and 2025 where:

- a) Scenario 1 represents system wide above ground replacement.
- b) Scenario 2 includes undergrounding of priority sections with the incremental cost included in the rate base.
- c) Scenario 3 is the same as 2 but with the municipalities funding the undergrounding.

All scenarios include the York Region Rapid Transit Corporation paying the same amount for the underground portions as it would have paid had they been overhead.

		2009	2013	2017	2021	2025
Scenario 1 (like-for-like replacement)	Total Rate Impact (c/kWh)	0.003	0.030	0.047	0.040	0.034
	Residential bill impact (\$/mo)	\$0.02	\$0.24	\$0.38	\$0.33	\$0.28
Revised Scenario 2 (High Priority Sections)	Total Rate Impact (c/kWh)	0.003	0.097	0.137	0.123	0.110
	Residential bill impact (\$/mo)	\$0.02	\$0.79	\$1.12	\$1.00	\$0.89
Revised Scenario 3 (High Priority Sections)	Total Rate Impact (c/kWh)	0.003	0.054	0.077	0.065	0.054
	Residential bill impact (\$/mo)	\$0.02	\$0.44	\$0.63	\$0.53	\$0.44

A variety of funding sources were examined for their potential application to the cost of undergrounding

Seven funding sources in addition to the OEB were identified as potential sources of funding for the undergrounding. It would be appropriate to go over the findings with the local municipalities with respect to these funding sources and report back to Council on the results.

5. FINANCIAL IMPLICATIONS

The construction of the rapidways includes the cost for relocating hydro lines, if required, as overhead lines. The report indicates that it would expect that for scenarios where funding is secured for undergrounding, where it is not required as a result of existing buildings, that the rapid transit budget for overhead to overhead relocation would be available to be applied to the undergrounding budget. The report does not provide any certainty as to the funding source for undergrounding at this time.

6. LOCAL MUNICIPAL IMPACT

Viva is being closely coordinated with local planning and economic development activities along the rapid transit corridors. Regional staff will review the content of the Consultant's report with local municipal staff.

7. CONCLUSION

The Giffels report is a significant and lengthy document. The significance of the findings need to be discussed at length with the local municipalities as the affected stakeholders prior to confirming our concurrence with its findings. It is recommended that staff be allowed to share the findings of the draft report with the affected stakeholders and report back on the outcome of these discussions.

For additional information, please contact Mary-Frances Turner, Vice-President, York Region Rapid Transit Corporation at (905) 886-6767 ext. 2226.

The Senior Management Group has reviewed this report.