Attachment 5
"Transform Yonge" Evaluation of Preferred Transportation Network

Three transportation network alternatives were developed assuming the "Transform Yonge" design. The purpose of this work was to assess the three alternatives and select the one which improved overall traffic operations. The assumptions for the three network scenarios considered:

2031 Transform Yonge Scenario 1

- A cross-section reduction from 6 to 4 lanes on Yonge Street from Sheppard Avenue to Finch Avenue;

- The addition of bike lanes on Yonge Street from Florence Avenue/Avondale Avenue to Hendon Avenue/Bishop Avenue;

- The removal of both northbound and southbound left-turns and left-turn lanes at the intersection of Yonge Street and Sheppard Avenue;

- New traffic signals at the intersection of Northtown Way/Horsham Avenue and Yonge Street and at the intersection of Ellerslie Avenue and Yonge Street;

- The conversion to right-in-right-out (RIRO) on Yonge Street at the intersections of Tolman Street/Olive Avenue, Norton Avenue, Parkview Avenue, Upper Madison Avenue, Harlandale Avenue, Bogert Avenue, Johnston Avenue/Glendora Avenue, as per the Transform Yonge design;

- Revised GO and TTC bus stops as per the Transform Yonge design; and

- The addition of the Doris/Tradewind connection at Sheppard Avenue.

This scenario also includes 2031 pedestrian volumes at signalized intersections and cyclist volumes using the cycle track on Yonge Street. Transit services within the focus area are included along with the associated bus stops.

2031 Transform Yonge Scenario 2

This scenario includes all network modifications from Scenario 1. In addition, the following changes were applied:

- Beecroft Road extension from current terminus to Drewry Avenue with 4-lane cross section;

- Mid-block connection on the Beecroft Road extension at Turnberry Court with 4-lane cross-section;

- New signalized intersection at Beecroft Road and Drewry Avenue; and

- New two-way stop-controlled intersections at Beecroft Road and Hendon Avenue, and Beecroft Road and Turnberry Court.

2031 Transform Yonge Scenario 3

This scenario features the same network assumptions in Scenario 2, with the exception of the termination of Hendon Avenue as a cul-de-sac west of the Beecroft Road extension. The intersection of Beecroft Road and Hendon Avenue operates as a T-intersection with the east approach being stop-controlled.

Minor adjustments were made to the 2031 scenarios as necessary (for example changes to signal timing) to improve the manageability of traffic operations.

Overall Network Performance

The statistics and discussion presented in this section are performance measures collected over the entire modelled study area (Wilson Ave/York Mills Rd to Steeles Ave, Bathurst St. to Bayview Ave).

The network statistics shown in Table 1 below, highlights there are no significant differences between the three 2031 Transform Yonge scenarios. In most cases, the outputs are comparative, with minor variation favouring one scenario over another. Collectively, from a traffic operations perspective, there is nothing remarkable to identify a preferred scenario from the analysis, however, Scenario 2 was preferred given its ability to best advance planning policy objectives, namely improving mobility and forming a finer grained street network, as envisioned in the North York Centre Secondary Plan.

Outputs	2031 Scenario 1	2031 Scenario 2	2031 Scenario 3
At end of 3 hours			
Wanted to enter the network (total demand)	214,919	214,947	214,951
	(+9%)	(+9%)	(+9%)
In the network	5,995	5,967	6,036
Waiting to enter the network	1,202	997	1,029
Exited the network	207,722	207,982	207,886
% of demand exiting	97%	97%	97%
Over the 3 hours			
Average number of vehicles sitting in a queue	2,674	2,691	2,712
Total veh-hrs travelled*	19,719	19,819	19,870
	(+24%)	(+25%)	(+25%)
Average speed (km/h)	31	31	31
	(-14%)	(-14%)	(-14%)
Average delay (sec/km)	62	63	63
	(+35%)	(+37%)	(+37%)
Average density (veh/lane-km)	8.7	8.7	8.8
	(+24%)	(+24%)	(+26%)
Average virtual queue (veh)	640	590	591
Total veh-hrs travelled does not include time spent in the virtual queue			
Network statistics are based on all vehicle types combined			

Table 1: Scenario Testing Network Statistics