

Signal Timing Review - Pape Avenue at Danforth Avenue & Pape Avenue at Lipton Avenue

Date: February 24, 2020
To: Toronto and East York Community Council
From: Acting Director, Traffic Management, Transportation Services
Wards: Ward 14, Toronto - Danforth

SUMMARY

In response to Toronto and East York Community Council Item TE5.89, Transportation Services staff have reviewed the existing signal timing plans at the intersections of Pape Avenue at Danforth Avenue and Pape Avenue at Lipton Avenue. Our assessment has indicated that signal timing and hardware adjustments can be made at these signals to improve traffic operations and safety.

RECOMMENDATION

The Acting Director, Traffic Management Transportation Services recommends that:

1. Toronto and East York Community Council receive this report for information.

FINANCIAL IMPACT

The estimated costs for the installation of the optically programmable signals will be \$54,037.00. Installation will be considered in 2020, subject to funding availability and competing priorities.

DECISION HISTORY

Toronto and East York Community Council at its meeting held on April 24, 2019, adopted Item TE5.89, and in doing so, requested Transportation Services to review and report on intersection safety and signal timing/phasing at the intersections of Pape Avenue at Danforth Avenue and Pape Avenue at Lipton Avenue.

COMMENTS

In response to Toronto and East York Community Council Item TE5.89, Transportation Services reviewed the existing signal timing plans at the intersections of Pape Avenue at Danforth Avenue and Pape Avenue at Lipton Avenue.

Existing Conditions

The intersection of Pape Avenue and Danforth Avenue is a four-legged signalized intersection. Pape Avenue is a major arterial roadway north of Danforth Avenue and a minor arterial roadway south of Danforth Avenue. Danforth Avenue within the subject segment is a major arterial roadway. Both roadways have regulatory speed limits of 40 km/h and the average daily intersection traffic is about 37,000 vehicles.

The intersection of Pape Avenue and Lipton Avenue is a signalized "T" type intersection. Lipton Avenue is a local roadway which intersects the east side of Pape Avenue. Lipton Avenue has a regulatory speed limit of 30 km/h and the average daily traffic volume is about 14,000 vehicles. Immediately east of the intersection is Pape Transit Station, which provides access to the "2 Bloor-Danforth" subway line, the "25 Don Mills" bus, "72 Pape" bus, "81 Thorncliffe Park" bus, "325 Don Mills" night bus and "925 Don Mills Express" bus. The intersection is about 70 metres north of the traffic control signals at Danforth Avenue and Pape Avenue and was signalized in 2018 (Item TE24.59) to ensure safe crossing movements of pedestrians arriving at and departing the transit station.

Following the signalization of the intersection at Pape Avenue and Lipton Avenue, the signal timing plan for this intersection was selected to pilot the City's revised Traffic Control Signal Spacing Policy. The policy requires that signalized intersections within 100 metres of each other have the same signal timing plan function in tandem via a hardware interconnect. This is intended to be a failsafe to ensure that there is no confusion regarding the signals displayed to motorists at the closer of the two intersections. Motorists approaching the closer of the two signalized intersection could misinterpret the further displayed signal as for them. Therefore, the signal timing plans are coordinated in tandem to ensure a consistent message is displayed to traffic. The signal timing at Pape Avenue and Lipton Avenue was given the same signal timing plan function as Pape Avenue and Danforth Avenue, as the latter intersection has a greater volume of traffic to accommodate.

Analysis

Transportation Services is currently finalizing the City's updated policy on closely spaced traffic control signals. The updated policy's application to the signalized intersections on Pape Avenue at Danforth Avenue and at Lipton Avenue indicates that the implementation of simultaneous signal times is not required for these locations.

Staff recommends two operational changes to these signalized intersections, specifically the coordination of the signal timing plans will be limited to the amber phases only and signal heads will be replaced with optically programmable signal heads. Coordinated signal timing plans will be implemented to reflect the City's current practice for closely spaced signals; as a result, this will free up a few seconds of green phase time for the north-south movement to replace the east-west all-red phase time at the intersection of Pape Avenue and Lipton Avenue, as the requirement for all-red phase, following the east-west green phase, is less than the requirement for Pape Avenue at Danforth Avenue.

Secondly, the signal heads for northbound traffic at the intersection of Pape Avenue and Lipton Avenue and for southbound traffic at the intersection of Pape Avenue and Danforth Avenue will be replaced with optically programmable signal heads. Optically programmable signal heads are used at closely spaced intersections to ensure that the further set of signal displays are not visible for traffic at the closer set of signals. This will allow for separate signal timing plans to be implemented, which would better accommodate each individual intersection's traffic volumes. Signal timings will be adjusted in the near future and the signal heads will be installed in the third quarter of 2020.

Councillor Paula Fletcher has been advised of these proposed changes.

CONTACT

Shawn Dillon
Manager, Traffic Operations (Area 1)
Traffic Management
Transportation Services
Telephone: (416) 397-5021
Fax: (416) 392-1920
E-mail: Shawn.Dillon@toronto.ca

SIGNATURE

Roger Browne, M.A.Sc., P.Eng.,
Acting Director,
Traffic Management
Transportation Services

ATTACHMENTS
