



Office of the Commissioner
Transportation Services

Memorandum

To: Committee of the Whole

From: Paul Jankowski, Commissioner of Transportation Services

Date: June 7, 2018

Re: **Peak Period Transit/High Occupancy Vehicles Lanes in York Region - Effectiveness Review**

This memorandum provides an update on the Region's implementation and performance of Transit/HOV lanes on Regional roads, as requested by Council.

On [April 20, 2017](#), Council considered the report "Transit/High Occupancy Vehicle Lanes". Council endorsed the report to designate the curb lanes on newly-constructed six-lane roads in the Cities of Vaughan and Markham as Transit/High Occupancy Vehicle (HOV) lanes, consistent with the Region's Lane Designation Bylaw. Council also requested staff report back with an update on the performance of existing Transit/HOV lanes along Regional roads.

Implementation of Transit/High Occupancy Vehicle lanes has been supported by Council for almost 20 years

Transit/HOV lanes are restricted lanes reserved for use by vehicles with at least one passenger in addition to the driver. Permitted vehicles include carpools, vanpools, taxis and public transit vehicles. Transit/HOV lanes encourage efficient use of limited road capacity by giving a travel time advantage to vehicles carrying more than one occupant.

There are now approximately 10.2 kilometres of existing Transit/HOV lanes along Regional corridors. The existing Transit/HOV lane network is shown in Attachment 1. Transit/HOV lanes operate Monday to Friday, during peak periods only. Council approved Transit/HOV lanes on the following corridors:

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- Yonge Street, from Steeles Avenue to Clarke Avenue (1999)
- Dufferin Street, between Steeles Avenue and Langstaff Road (2009)
- Major Mackenzie Drive, from Highway 400 to Pine Valley Drive (2017)
- Highway 7, from Town Centre Boulevard to Sciberras Road (2017)

The 2016 Transportation Master Plan confirmed support for implementation of Transit/HOV lanes and under Objective 2, “Develop a Road Network Fit for the Future”, expansion of the Regional Transit/HOV lane network is identified as a major initiative.

A performance monitoring study was carried out to determine the effectiveness of Transit/High Occupancy Vehicle lanes on Regional corridors

To measure the effectiveness of Transit/HOV lanes, a performance monitoring study has been completed. High occupancy vehicles are those carrying at least one passenger in addition to the driver. Data was compiled from York Region Transit to assess transit benefits. Traffic surveys were undertaken to assess use by other vehicles using Transit/HOV lanes.

Transit/High Occupancy Vehicle lanes improve the reliability of transit

Transit service offers the greatest opportunity to increase the people-moving capacity of Regional corridors as transit vehicles can carry the same number of people as 50 or more private vehicles. This benefit has largely underpinned Council’s investment in public transit in the Region over the last two decades. Designating Transit/HOV lanes on new, six-lane corridors reflects this focus as these lanes improve the reliability of transit, making the service more attractive.

Analysis of York Region Transit service reliability data for transit routes operating in Transit/HOV lanes between 2010 and 2016 shows the following:

- 18 different transit routes use the Transit/HOV lanes along Yonge Street (11), Dufferin Street (one), Major Mackenzie Drive (three), and Highway 7 (three)
- The reliability of travel times, measured based on the variance of travel times, has improved for all services for which data was available since 2010
- Some transit routes have seen reliability improvements greater than 20 per cent
- Comparative pre-implementation data is not available for two of the routes that use Transit/HOV lanes, as the transit services in these corridors have only recently been taken over from the Toronto Transit Commission

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While other operational improvements have been implemented to improve transit reliability, Transit/HOV lanes help to mitigate traffic delays during peak periods. The service reliability for transit improves when routes are given priority. Table 1 in Attachment 2 provides more detail on transit reliability for routes operating in Transit/HOV lanes.

Transit/High Occupancy Vehicle lanes also provide benefits to vehicles carrying at least one passenger in addition to the driver

Traffic surveys were completed using traffic counts to determine queue length in transit/HOV lanes versus adjacent General Purpose Lanes (GPL). Travel time savings in Transit/HOV lanes versus adjacent GPL were determined using GPS technology. More details are provided in Tables 2 and 3 in Attachment 2.

Observations of the traffic surveys for vehicles using the Transit/HOV lanes showed:

- Shorter queue lengths in Transit/HOV lanes (between 20 to 50 per cent) compared to the adjacent GPL
- Travel time savings between 15 to 30 per cent when travelling in Transit/HOV lane as compared to the GPL
- Faster travel times for vehicles using Transit/HOV lanes, benefitting public transit vehicles and vehicles with at least one passenger in addition to the driver

The improper use of Transit/HOV lanes by single occupant vehicles can reduce the potential travel time savings of these lanes. During the traffic surveys, a number of vehicles without passengers were observed to be using the Transit/HOV lanes. It should be noted however, that not all such vehicles may be in violation of the lane restriction, as drivers may need to use this lane to make a right turn at an intersection or into an adjacent driveway. Use of the Transit/HOV lanes for right turn movements may explain why travel times observed on some Transit/HOV lanes were actually longer than travel times in the general purpose lanes. Staff will further investigate these areas to better understand the factors that contribute to increased travel times in Transit/HOV lanes.

Additional benefits could be achieved by addressing non-compliance

The Region recognizes that enforcement of Transit/HOV lane designation is a concern and staff is investigating a number of options to improve compliance. For example, staff is working with York Regional Police to identify strategies to mitigate improper use of Transit/HOV lanes and potentially increase enforcement. There may be marketing and increased public awareness options to improve compliance for existing Transit/HOV lanes. Further education could help to promote the benefits of HOV lanes, their proper use and connect potential users with carpool networks and transit services. This can be

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done using existing channels, such as local newspapers, online news, social media and the internet.

Transit/High Occupancy Vehicle lanes move more people along
Regional corridors

The recent review has confirmed that Transit/HOV lanes have the potential to move people faster along Regional corridors. They also help to encourage behaviour shifts from less efficient modes of travel such as driving alone, to more efficient modes, such as carpooling and transit. Data for transit and traffic using the existing peak period Transit/HOV lanes indicates the lanes are providing travel time savings compared to the General Purpose Lanes. It is anticipated the appeal of HOV lanes in the Region will increase as the Province continues to expand Transit/HOV facilities on the 400 series Highways in the Region.

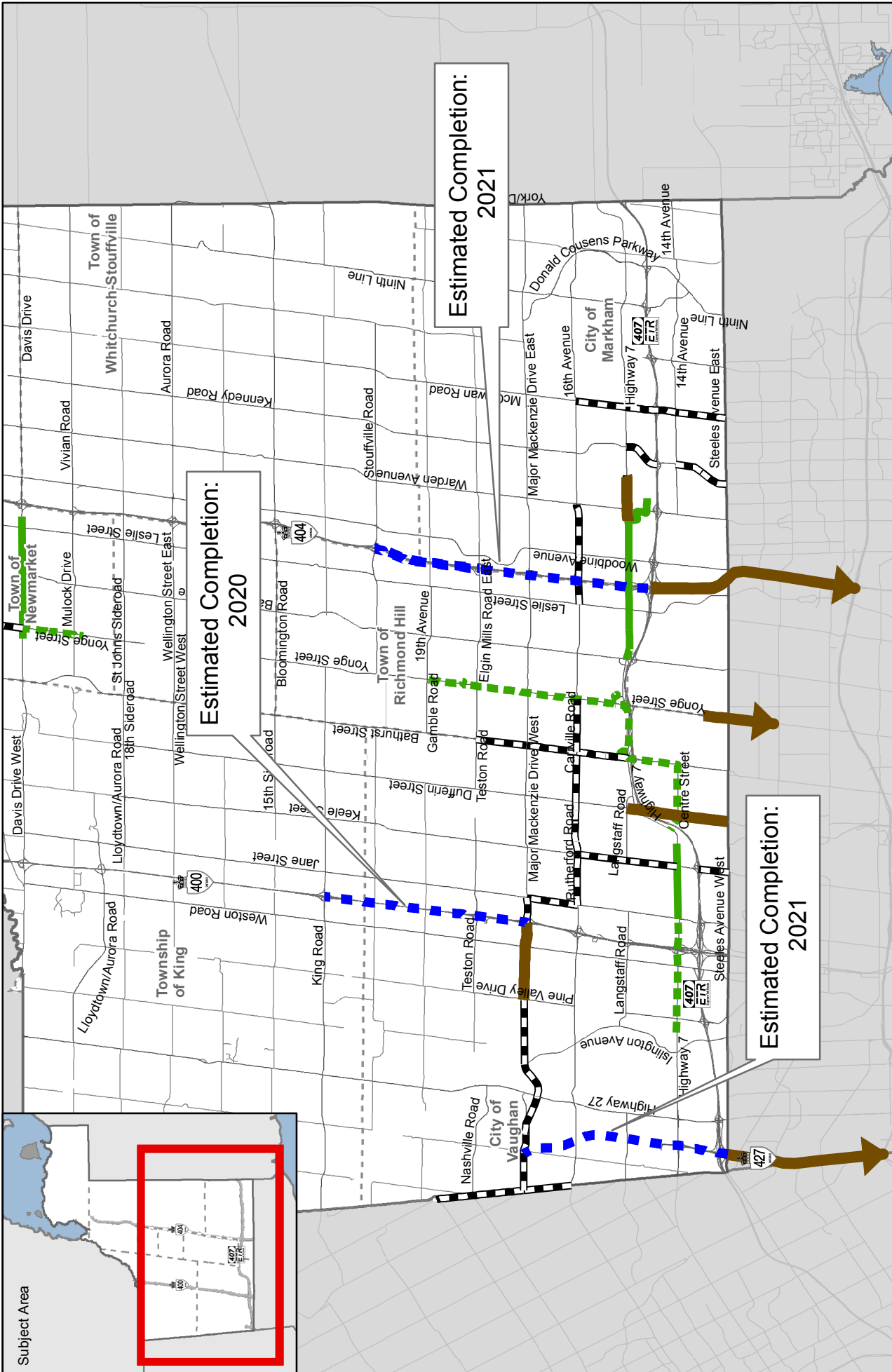
Staff will continue to monitor on the performance, transit benefits and impact on travel behaviour of Transit/HOV lanes in the Region.

Paul Jankowski
Commissioner of Transportation Services

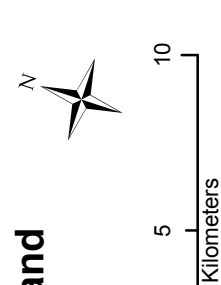
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Attachments (2)

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- Existing HOV
- Approved/Under Construction HOV on Provincial Highway
- Future Transit/HOV lane Roads
- Existing Rapidway
- Under Construction Rapidway



Transit/High Occupancy Vehicle Lanes and High Occupancy Toll Lanes

June 7, 2018

York Region

Produced by:
The Regional Municipality of York
Transportation Infrastructure Planning, Transportation Services
May 2018
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Table 1
Transit Service Reliability -
Transit Routes operating on Regional HOV lanes

Corridor	Route	Service Reliability		
		2010 (%)	2016 (%)	Change (+ / - %)
Yonge Street	2 - Milliken	88.1	91.6	+ 3.5
	5 - Clark	86.6	94.8	+ 8.0
	77/77A – Highway 7	77.4	90.1	+12.0
	99 - Yonge	86.2	94.0	+ 7.9
	300 – Business Express	96.7	97.6	+ 0.8
	301 – Markham Express	64.7	99.3	+ 34.5
	302 – Unionville Express	72.3	96.5	+ 23.9
	303 – Bur Oak Express	74.8	97.1	+ 22.3
	304 – Mount Joy Express*	96.9	97.5	+ 0.6
	Viva blue / blue A	77.9	94.3	+ 16.5
	Viva pink	84.5	98.7	+ 14.2
Dufferin Street	105 – Dufferin***	n/a	n/a	n/a
Major Mackenzie Drive	4A – Major Mackenzie	77.6	86.3	+ 8.7
	21 – Vellore Local**	99.4	99.9	+ 0.6
	165 – Weston***	n/a	n/a	n/a
Highway 7 East	Viva purple	84.7	91.9	+ 7.2
	1 – Highway 7	86.7	88.4	+ 1.7
	40 – Unionville Local	79.0	92.1	+ 13.1
	302 – Unionville Express	72.3	96.5	+ 23.9

* Route began operating September 2012

**Route began operating 2013

***Route assumed by YRT late 2017 – Statistics not available

Table 2
Average Queue Length – By Lane (metres)

Corridor	Direction	AM Peak Period			PM Peak Period		
		HOV Lane	Centre Lane	Passing Lane	HOV Lane	Centre Lane	Passing Lane
Yonge Street	NB	38	104	101	117	334	298
	SB	134	403	373	137	262	225
Dufferin Street	NB	63	121	101	152	261	246
	SB	62	202	185	50	172	158
Major Mackenzie Drive	EB	32	76	71	27	68	65
	WB	5	38	48	14	63	79
Highway 7	EB	13	49	56	25	135	146
	WB	57	91	92	34	68	73

Table 3
Travel Time Savings – Auto (minutes)

Peak Period	Yonge Street		Dufferin Street		Major Mackenzie Drive		Highway 7	
	NB	SB	NB	SB	EB	WB	EB	WB
AM	-00:40*	01:29	-00:41	01:52	02:14	02:08	00:32	00:38
PM	-00:47*	-00:48*	00:05	00:01	01:22	01:10	00:42	00:42

*Route with several driveways and intersections

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