



TRANSPORTATION IMPACT STUDY (SUBMISSION)

May 2011

Lazy Pat Farm Property
(3269 Dundas Street West), North Oakville West

PREPARED FOR:



PREPARED BY:



D14-011-18

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May 13, 2011

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Attention: Mr. Michael Reel, Vice President, Investment Management

Dear Mr. Reel,

Subject: Transportation Impact Study, Lazy Pat Farms Property (3269 Dundas Street West)
 North Oakville West

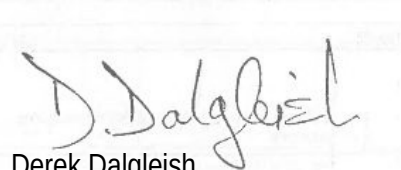
MMM Group Limited is pleased to present the findings of our Transportation Impact Study with respect to the proposed 407 West Employment Area (Lazy Pat Farms Property), in the Town of Oakville.

The findings indicate that the projected traffic volumes associated with the proposed development can be satisfactorily accommodated at the boundary road intersections with the recommended road improvements in place.

We thank you for the opportunity to undertake this study. We would be pleased to respond to any questions, should they arise.

Yours truly,

MMM GROUP LIMITED



Derek Dalglish
Manager, Transportation Planning
Associate

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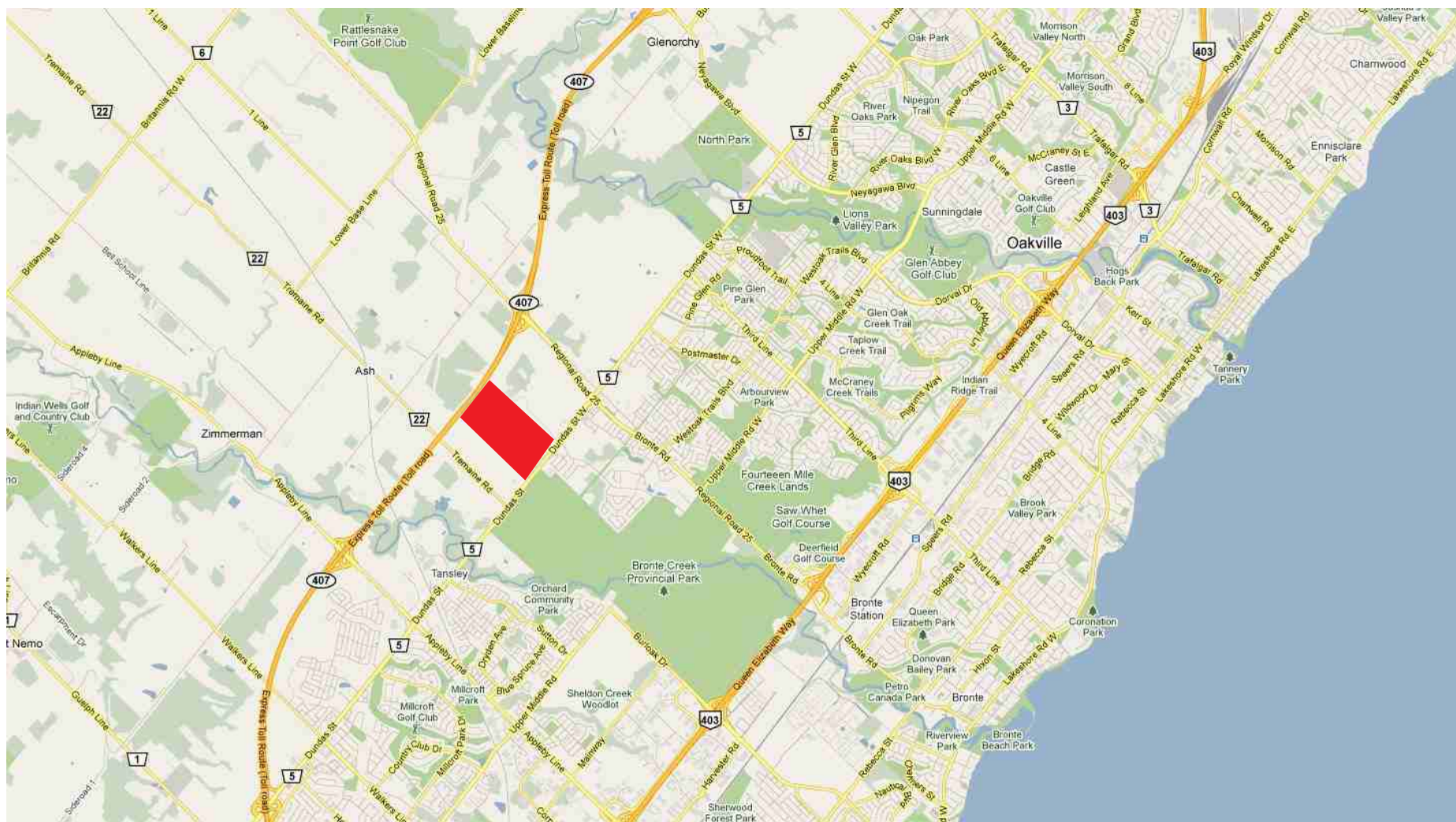
1.0 Introduction

Bentall Kennedy (Canada) LP, on behalf of bcIMC Realty Corp. is proposing to develop the Lazy Pat Farms Property, located north of Dundas Street West and mid-block between Bronte Road and Tremaine Road at 3269 Dundas Street West, in the Town of Oakville. As per the North Oakville West Secondary Plan (NOWSP), the subject property is designated as an Employment District. A mix of uses, including General Employment, Light Employment and Employment Related Service-Commercial uses are proposed within the Lazy Pat Farms Property.

Figure 1 illustrates the site location.

MMM Group Limited was retained by Bentall Kennedy (Canada) LP to prepare a Transportation Impact Study, including Transit Facilities Plan and Pedestrian Circulation Plan to address the impacts of the proposed development on the boundary roadway intersections in the vicinity of the property.

The study has been completed in accordance with the Terms of Reference for Transportation Impact Studies in North Oakville. The associated analyses and findings outlined herein.



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Source: Google Maps



2.0 407 West Employment Area Concept Plan

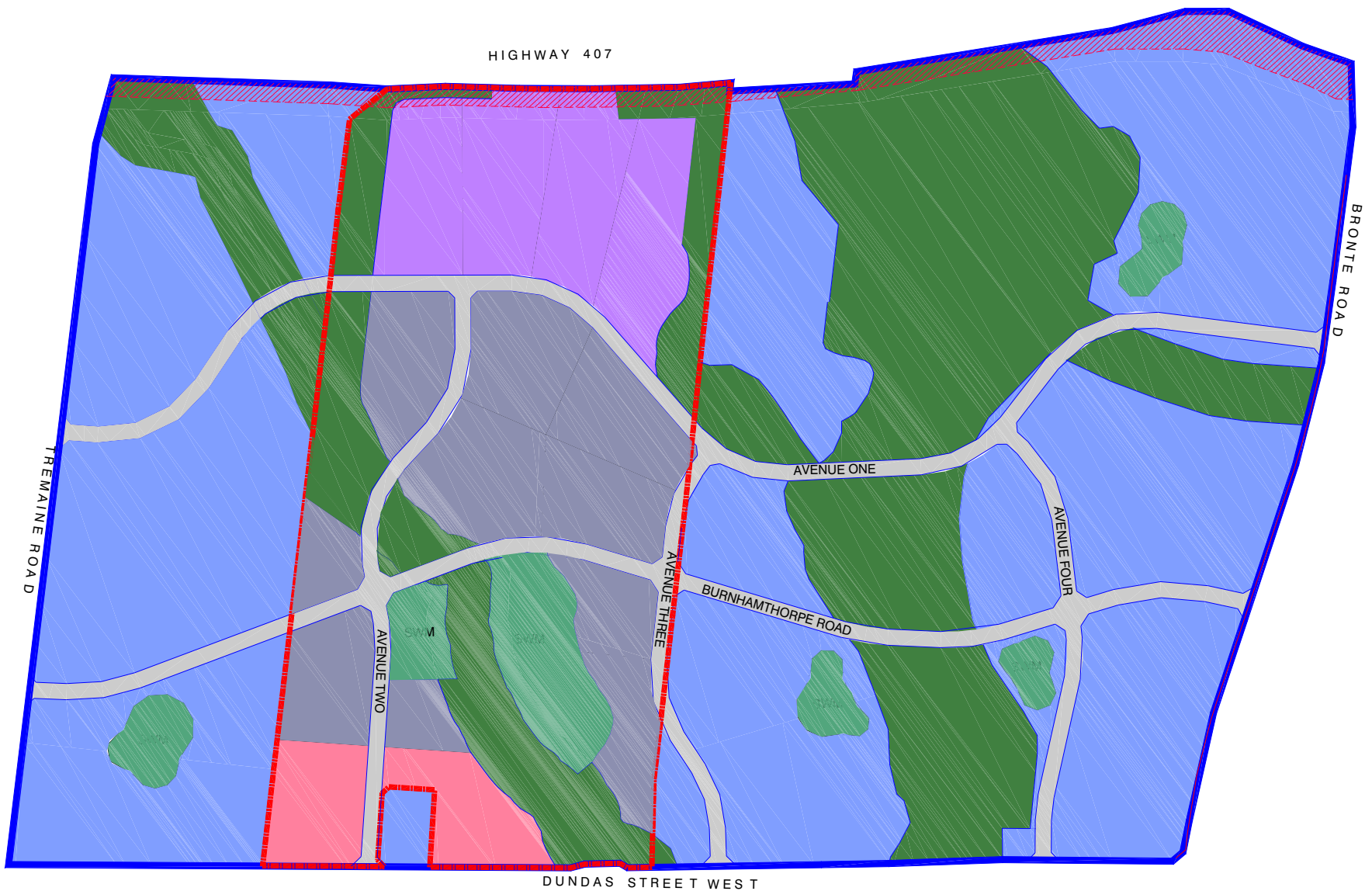
The development proposal is to accommodate an employment area on the Subject Property, which is intended to include light and general employment uses and limited retail and service commercial uses which serve the employment area in accordance with the Town's land use and planning directions for the 407 West Employment Area. The vision for the Subject Property is to develop an environmentally and economically sustainable employment district that will contribute to the dynamic character of the Town of Oakville. The concept plan is shown in Figure 2A.

The range of employment land uses for the Subject Property have been further characterized as light employment (prestige office uses), general employment, and service area (service/retail/office) uses, in accordance with the NOWSP and implementing Comprehensive Zoning By-law for North Oakville. The development concept envisions more prestige office uses adjacent to Highway 407 and Bronte Road, due to increased visibility along these major roads. Limited commercial (service/retail/office) uses are envisioned to be clustered at the intersections with Arterial Roads and Avenues along the Dundas Street corridor to serve the employment area. It is recognized that more general industrial uses, such as mixed warehousing and office uses may be accommodated internal to the employment area, and appropriately buffered from surrounding land uses.

The concept plan is consistent with the Town's NOWSP and incorporates an appropriate implementation of the proposed road network based on more detailed study. The road pattern follows a modified grid pattern which responds to the existing environmental and site conditions, while encouraging accessibility and a viable transit network throughout the 407 West Employment Area.

The concept plan accommodates three intersection locations with Dundas Street West, including the existing intersections with Valleyridge Drive and Zenon Drive/Colonel Williams Parkway. A new intersection at Dundas Street is proposed approximately equal distance between Tremaine Road and the Colonel Williams Parkway intersection. Two major east/west road corridors are proposed as identified in the NOWSP to provide access from Tremaine Road to Bronte Road, across the employment area. The southern east/west road aligns with the proposed New North Oakville Transportation Corridor (i.e., Burnhamthorpe Road extension) proposed on the east side of Bronte Road. The spacing and locations of these intersections is consistent with the NOWSP and is intended to align with the secondary planning study being undertaken for the Dundas/Tremaine Secondary Plan area in the City of Burlington.

The development proposal identifies the natural heritage and open space system and stormwater management facilities based on the Town's NOWSP, which has been further refined for the Subject Property based upon the Environmental Implementation Report and Functional Servicing Study (EIR/FSS), prepared in support of these applications.



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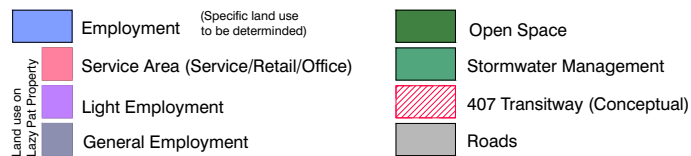


FIGURE 2A
407 West Employment Area
Concept Plan

3.0 Uses and Access

3.1 Uses

The subject property is situated mid-block between Bronte Road and Tremaine Road, and bounded by Dundas Street West to the south. The development proposal consists of about 64 acres of General Employment lands, 36 acres of Light Employment lands, and 15 acres of Service Area Employment lands, with the remaining area used as open space and for stormwater management purposes. The subject property is within the North Oakville West Secondary Plan area, where the general development objective for employment uses is a minimum of 0.35 FSI.

The proposed development and the supporting internal road network will be developed in three phases. Figure 2B illustrates the proposed block plan related to the property by phase. Table 3.1 summarizes the proposed uses and gross floor area by phase for the subject property.

Table 3.1 - Summary of Proposed Uses by Phase

Phase	Service Area Employment (Service/Retail/Office)	General Employment	Light Employment	Total by Phase
Phase 1	249,098 ft ²	140,189 ft ²	-	389,287 ft ²
Phase 2	-	745,724 ft ²	-	745,724 ft ²
Phase 3	-	-	789,533 ft ²	789,533 ft ²
TOTAL	249,098 ft ²	885,913 ft ²	789,533 ft ²	1,924,544 ft ²

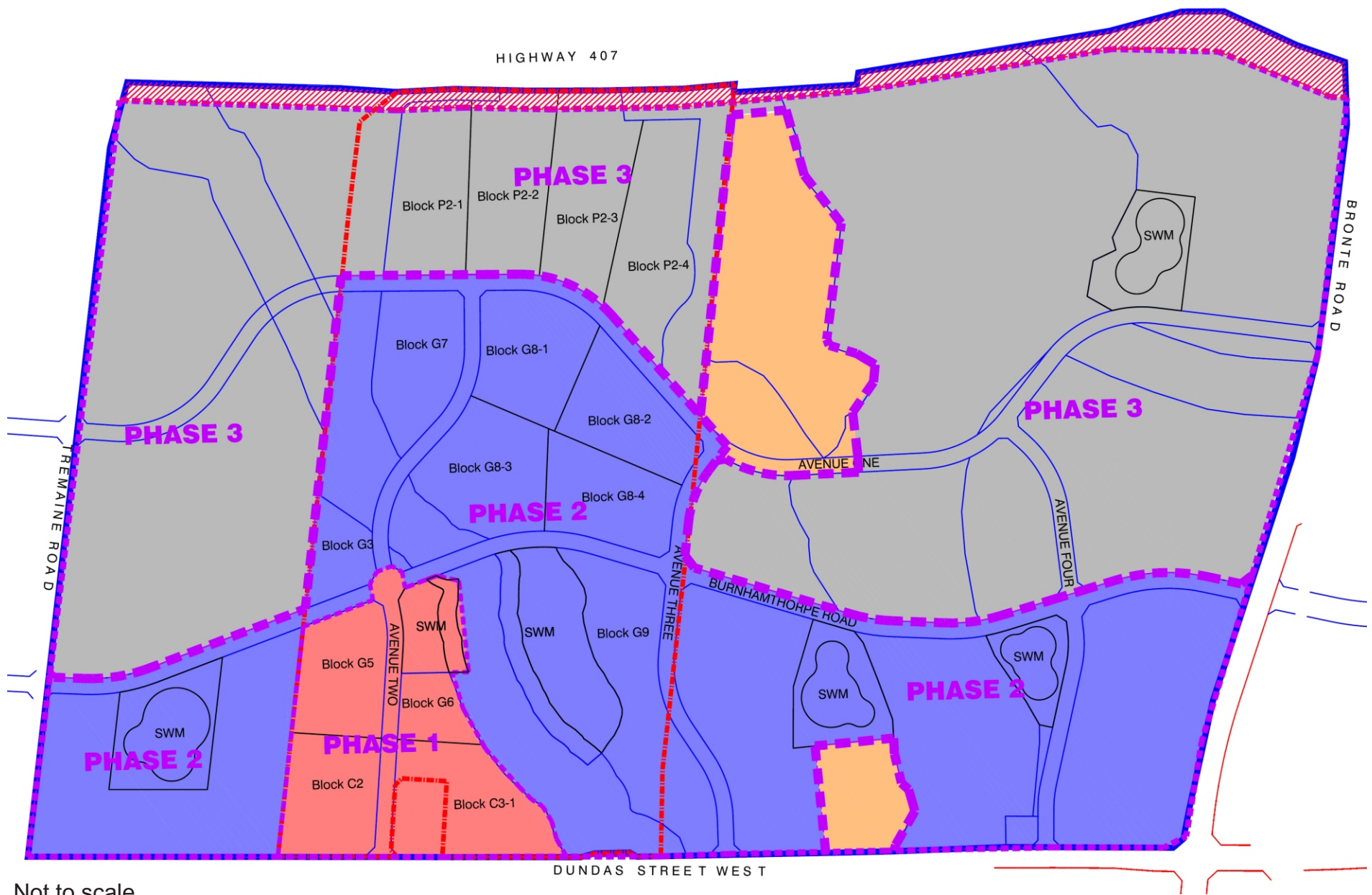
3.2 Access

The proposed development is part of the 407 West Employment Area bounded by Bronte Road, Tremaine Road, Dundas Street West, and Highway 407. On the basis of the Transportation Plan for the North Oakville West Secondary Plan (NOWSP), the 407 West Employment Area will be served by a grid network of roadways, as shown in Figure 2, including:

- Two (2) east-west roadways, namely Avenue One and the New North Oakville Transportation Corridor (NNOTC) extension (shown as Burnhamthorpe Road in Figure 2); and
- Three (3) north-south roadways, namely Avenue Two, Avenue Three, and Avenue Four.

As shown in Figure 2, both east-west roadways are parallel with Dundas Street West, connecting Tremaine Road and Bronte Road, between Hwy 407 and Dundas Street. Both roadways are expected to be aligned with the two future east-west roadways in the Tremaine and Dundas Secondary Plan Area to the west of Tremaine Road.

Avenue One will terminate at the intersection with Bronte Road.



The proposed NNOTC extension (Burnhamthorpe Road) will extend through the subject property, from Bronte Road to beyond Tremaine Road to the west.

Avenue Two will run between Dundas Street West and Avenue One located approximately 600 metres to the east of Tremaine Road.

Avenue Three will be aligned with Colonel William Parkway at its intersection with Dundas Street West. It will intersect with Avenue One at its northerly terminus.

Similarly, Avenue Four will be aligned with Valleyridge Drive at its intersection with Dundas Street and will intersect with Avenue One at its northerly terminus.

Figure 2 shows the assumed phasing of the future road network in the 407 West Employment Area.

4.0 Existing Traffic Conditions

4.1 Boundary Roadways

The key boundary roadways in the vicinity of the property are Dundas Street West, Bronte Road, Tremaine Road, Colonel William Parkway, and Valleyridge Drive.

Dundas Street West which bounds the property to the south, is a major east-west arterial road under the jurisdiction of the Region of Halton. It has a speed limit of 60 km/h between Bronte Road and west of Valleyridge Drive. The speed limit becomes 80 km/h beyond west of Valleyridge Drive. It currently provides a six-lane cross-section with three lanes in each direction between east of Bronte Road and west of Valleyridge Drive, and reduces to a four-lane cross-section to the west.

Bronte Road, which is located to the east of the property, is a north-south arterial road under the jurisdiction of the Region of Halton and has a speed limit of 60 km/h in the vicinity of the property. It currently provides for a four-lane cross-section, with two lanes in each direction.

Tremaine Road, which is located to the west of the property, is a north-south arterial road under the jurisdiction of the Region of Halton, with a speed limit of 80 km/h. It currently provides a two-lane cross-section, with one lane in each direction.

Colonel William Parkway, which is located to the south-east of the property, is a north-south local road with a speed limit of 50 km/h, under the jurisdiction of the Town of Oakville. Currently, the road terminates at Dundas Street West, and becomes a private driveway north of Dundas Street West. It has a two-lane cross-section, with one lane in each direction.

Valleyridge Drive is located to the south-east of the property and is a north-south local road, with a speed limit of 50 km/h, under the jurisdiction of the Town of Oakville. It currently provides a two-lane cross-section, with one lane in each direction.

Figure 3 illustrates the existing lane configurations related to the boundary road intersections.

4.2 Transit Services

The subject property is served by Oakville Transit Route 5 (Dundas), which runs between the Uptown Core Terminal (Trafalgar Road/Dundas Street) and Dundas Street/Colonel William Parkway. It also loops around Colonel William Parkway, Richview Boulevard, and Bronte Road at the west tip of the route.

Transit Route 5 serves Dundas Street West/Colonel William Parkway every 40 minutes during both the a.m. and p.m. peak hours, and every 30 to 40 minutes during the weekday off peak periods.



Site Location



Signalized Control

FIGURE 3
EXISTING LANE CONFIGURATIONS

4.3 Traffic Data

Turning movement counts were undertaken by Ontario Traffic Inc. (OTI) under MMM's direction on Thursday, June 18, 2009 from 7:00 a.m. to 9:00 a.m., and from 4:00 p.m. to 6:00 p.m. at the following intersections:

- Dundas Street West and Bronte Road
- Dundas Street West and Tremaine Road
- Dundas Street West and Colonel William Parkway/Private Driveway
- Dundas Street West and Valleyridge Drive
- Bronte Road and Highway 407 Eastbound Off-Ramp

Subsequently, recounts were undertaken at a few intersections on Thursday, November 26, 2009 to verify a discrepancy in the data from the first count during the p.m. peak period.

All the intersections analyzed are signalized intersections. The 2009 weekday a.m. and p.m. hour traffic volumes are shown in Figure 4.

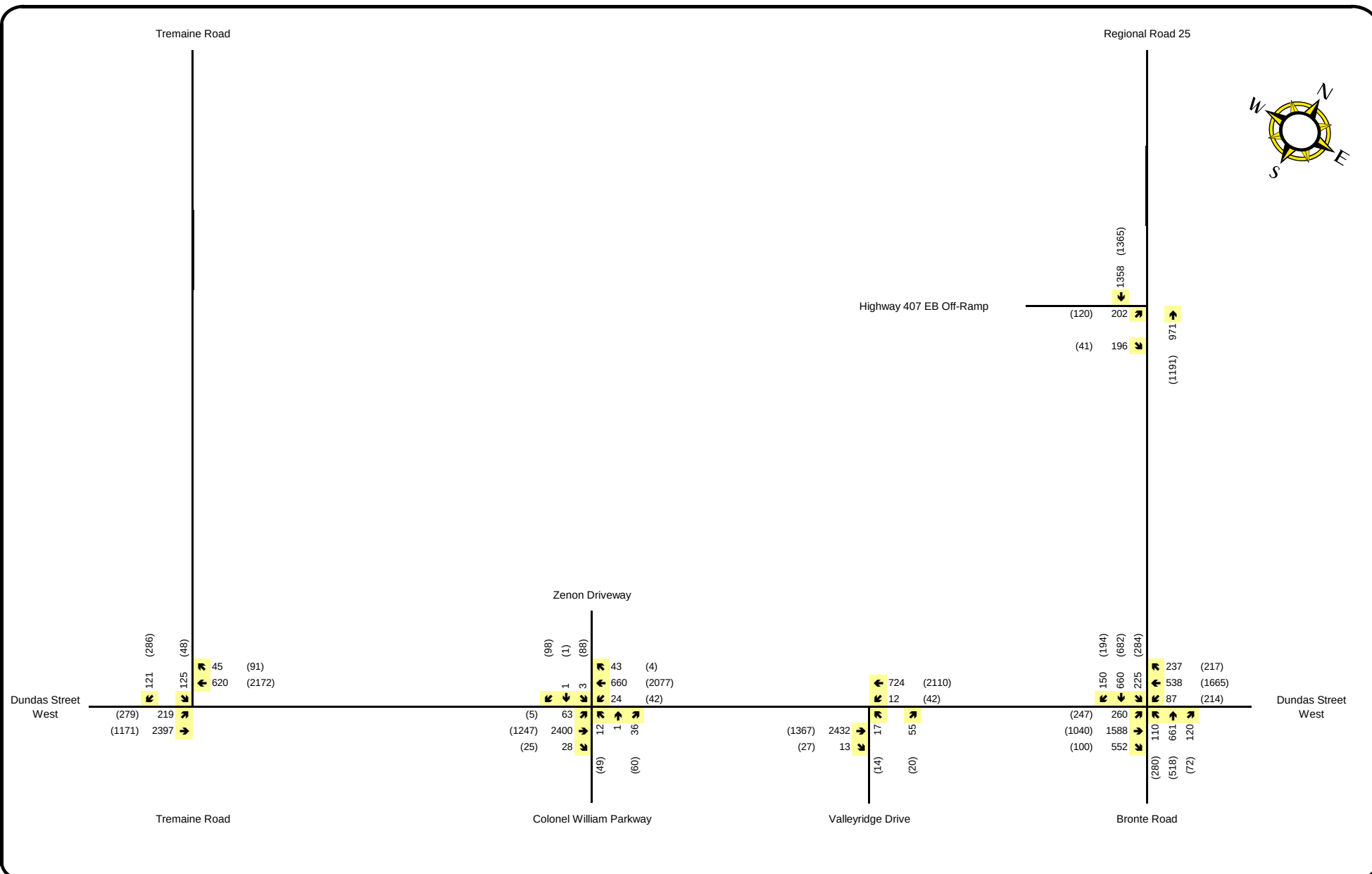
For the purposes of the assessment, a 1.5 percent per annum growth rate has been applied to all of the boundary arterial roadways to reflect the existing 2011 traffic conditions. Figure 5 illustrates the 2011 'existing' traffic volumes for the analyzed intersections during the weekday a.m. and p.m. peak hours.

4.4 Existing Intersection Operations

The operations of these intersections have been analyzed on the basis of the 2011 'existing' weekday a.m. and p.m. peak hour volumes as shown in Figure 5 and the existing signal timing plans which were purchased from the Town of Oakville and Halton Region. It should be noted that the volumes at each intersection reflect the individual peak hours of each intersection. Thus, the traffic volumes may not be quite balanced in some cases.

The signalized intersections were analyzed on the basis of the approach outlined in the Highway Capacity Manual, 2000 Edition, using Synchro v7.0. Appendix A provides the level of service definitions, according to the Highway Capacity Manual 2000.

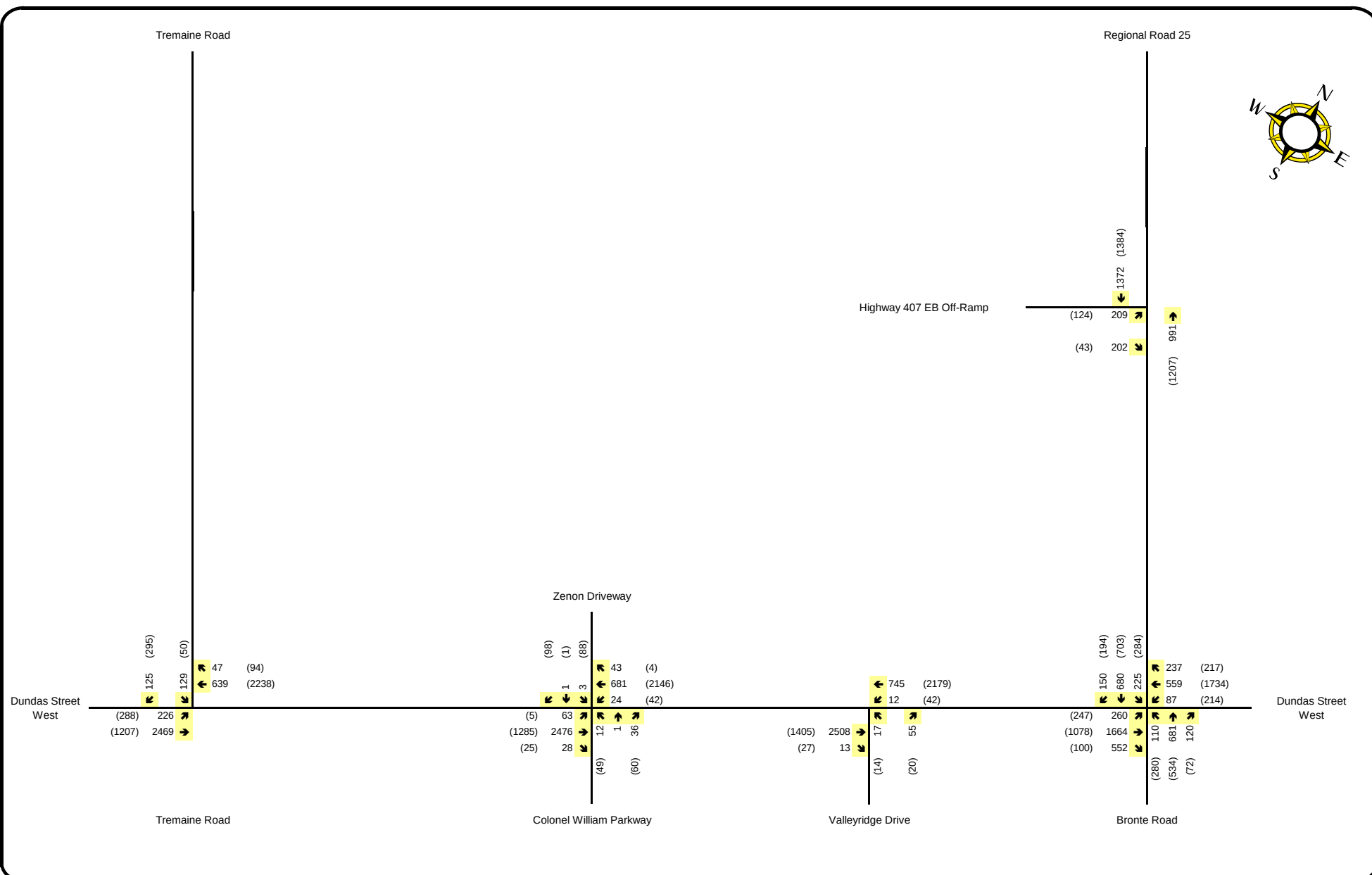
The details related to the existing intersection operations are provided in Appendix B, with the resulting levels of service outlined in Table 4.1.



LEGEND

XX AM Peak Hour Volumes
 (XX) PM Peak Hour Volumes

FIGURE 4
 2009 Traffic Volumes



LEGEND

XX AM Peak Hour Volumes
 (XX) PM Peak Hour Volumes

FIGURE 5
 2011 'Existing' Traffic Volumes

Table 4.1 - Intersection Levels of Service Based on 2011 'Existing' Traffic Volumes

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (delay in seconds)	Critical Movement(s) (v/c)	LOS (delay in seconds)	Critical Movement(s) (v/c)
Dundas Street West/ Bronte Road ⁽¹⁾	Signalized	C (28.5 sec)	-	D (50.8 sec)	WB-TR (0.91) SB-L (0.86) SB-T (0.85)
Dundas Street West/ Valleyridge Drive ⁽¹⁾	Signalized	A (2.1 sec)	-	A (9.2 sec)	-
Dundas Street West/ Colonel William Parkway/ Private Driveway ⁽¹⁾	Signalized	A (2.2 sec)	-	B (12.2 sec)	-
Dundas Street West/ Tremaine Road ⁽¹⁾	Signalized	B (12.6 sec)	EB-T (0.88)	C (25.2 sec)	EB-L (0.94) WB-T (0.98) SB-R (0.90)
Bronte Road/Highway 407 Eastbound Off-Ramp ⁽¹⁾	Signalized	B (11.4 sec)	-	A (5.9 sec)	-

⁽¹⁾ For signalized intersections, levels of service are based on the overall intersection delay.

As indicated in Table 4.1, all intersections which were analyzed are currently operating at Level of Service (LOS) 'D' or better during the weekday a.m. and p.m. peak hours. It is acknowledged however, that some movements related to the Dundas Street West/Bronte Road intersection and the Dundas Street West/Tremaine Road intersections are currently operating close to capacity.

5.0 Site Generated Traffic

5.1 Land Use Assumptions

Since the subject property is expected to be developed in three phases, three horizon years have been assessed in this study. The land use assumptions for the subject property by phase are summarized in Table 5.1. The estimated completion time of the individual phases and the corresponding horizon years are presented in Table 5.2.

Table 5.1 - Development Proposal by Phase

Phase	Service Area Employment		General Employment	Light Employment	Total
	Service and Retail Uses	Office Uses			
Phase 1	161,914 ft ²	87,184 ft ²	140,189 ft ²	-	389,287 ft ²
Phase 2	-	-	745,724 ft ²	-	754,724 ft ²
Phase 3	-	-	-	789,533 ft ²	789,553 ft ²
TOTAL	161,914 ft ²	87,184 ft ²	885,913 ft ²	789,533 ft ²	1,924,544 ft ²

Table 5.2 - Proposed Development Phasing and Corresponding Study Horizon Years

Phase	Estimated Completion Time	Horizon Year
Phase 1	Year 2013 – 2015	2016
Phase 2	Beyond 2016	2021
Phase 3	Beyond 2025	2031

5.2 Planned Road Improvements

According to the Halton Region Capital Projects (2011 – 2020) Roads, widening of the segment of Dundas Street West between Bronte Road and Tremaine Road (Project ID 3983) from 4 to 6 lanes is scheduled to start in 2015. It has been assumed that the road widening will be completed by 2016. The two additional lanes are assumed to be for general traffic use.

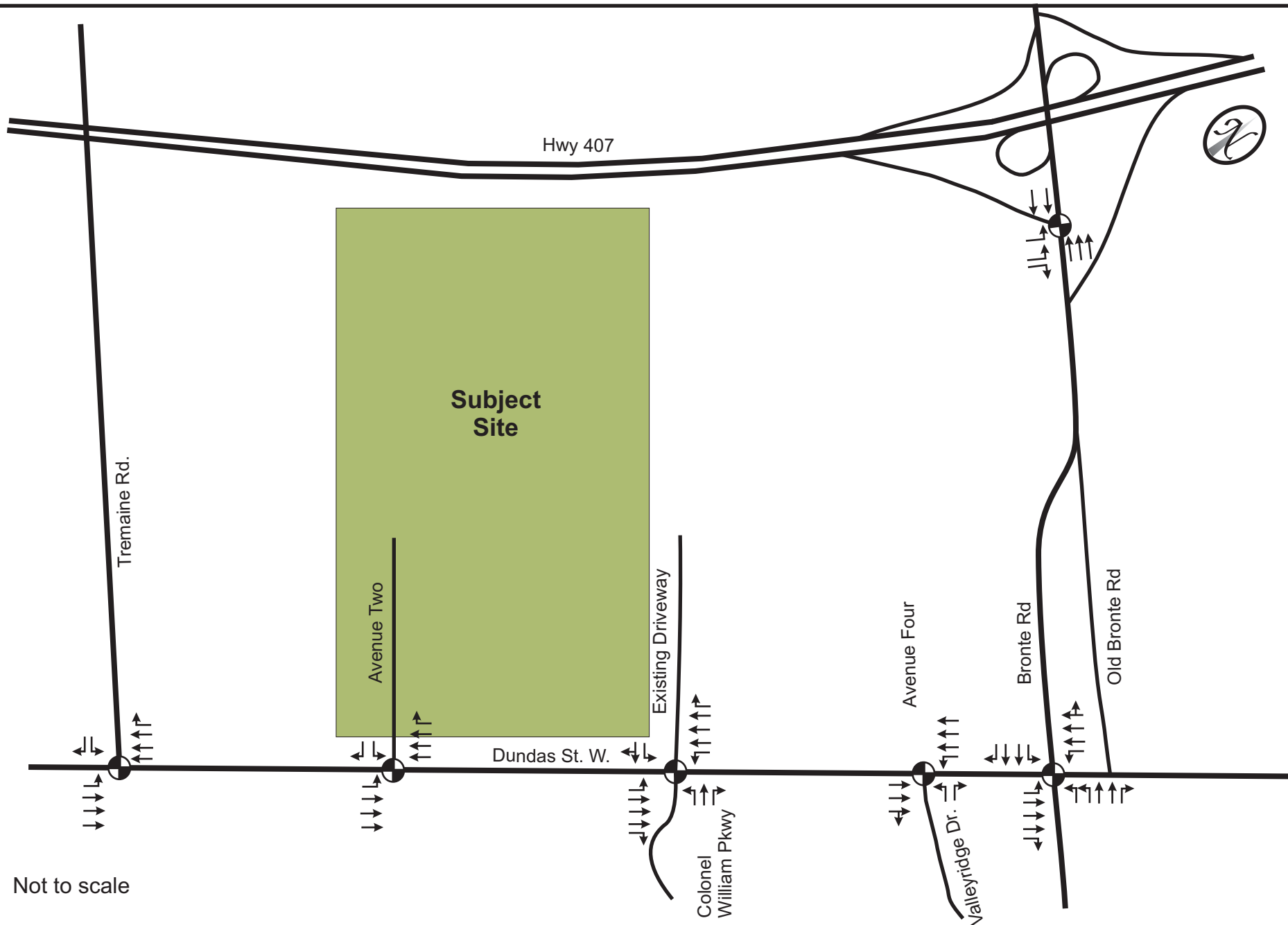
To support Phase 1 development on the subject property, the segment of Avenue Two between Dundas Street West and Burnhamthorpe Road extension is expected to be built by 2016.

Under the 2021 horizon, when the Phase 2 development is expected to be in place, the following road infrastructures have been assumed:

- Burnhamthorpe Road extension would be constructed between Tremaine Road and Bronte Road, connecting to the NNOTC to the east of Bronte Road.
- Avenue Two would be extended to terminate at the intersection with Avenue One.
- The existing driveway opposite Colonel William Driveway (Zenon driveway serving the existing GE site) would be realigned and intersect with Burnhamthorpe Road and Avenue One.
- Part of Avenue One would be built to support the Phase 2 development on the subject property.
- Avenue Four would be built to Burnhamthorpe Road.

The 2031 horizon represents the full built-out scenario of the subject property as well as the neighbouring lands within the study area. All of the proposed road infrastructure will be in place to support the entire 407 West Employment lands.

Figures 6, 7, and 8 illustrate the lane configurations anticipated for the 2016, 2021, and 2031 horizons, respectively.





Site Location



Signalized Control

FIGURE 7
2021 FUTURE LANE CONFIGURATIONS



5.3 Trip Generation

5.3.1 Trip Generation – General Employment

According to the comprehensive Zoning By-law for North Oakville (2009-189), permitted uses for the General Employment zone generally includes light employment uses (except hotel and service establishments), general industrial, outside storage and processing, among others.

The trip generation related to the proposed General Employment lands was determined using the Business Park (Land Use 770) code published in the ITE TRIP GENERATION MANUAL, 8TH EDITION.

The following equation and directional distributions from the ITE publications were used in the analysis:

Weekday A.M. Peak Hour: $\ln(T) = 0.98 \ln(X) + 0.45$
Where $X = 1,000 \text{ ft}^2 \text{ GFA}$
 $T = \text{Total Vehicle Trips}$
Distribution = 84% entering and 16% exiting

Weekday P.M. Peak Hour: $\ln(T) = 0.92 \ln(X) + 0.78$
Where $X = 1,000 \text{ ft}^2 \text{ GFA}$
 $T = \text{Total Vehicle Trips}$
Distribution = 23% entering and 77% exiting

5.3.2 Trip Generation – Light Employment

The proposed Light Employment lands mainly consist of office development, including general office, medical office, research and development, and information processing centres. The trip generation related to the proposed Light Employment lands was determined using the General Office (Land Use 710) code published in the ITE TRIP GENERATION MANUAL, 8TH EDITION.

The following equation and directional distributions from the ITE publications were used in the analysis:

Weekday A.M. Peak Hour: $\ln(T) = 0.80 \ln(X) + 1.55$
Where $X = 1,000 \text{ ft}^2 \text{ GFA}$
 $T = \text{Total Vehicle Trips}$
Distribution = 88% entering and 12% exiting

Weekday P.M. Peak Hour: $T = 1.12 (X) + 78.81$
Where $X = 1,000 \text{ ft}^2 \text{ GFA}$
 $T = \text{Total Vehicle Trips}$
Distribution = 17% entering and 83% exiting

5.3.3 Trip Generation – Service Area Employment Uses

The proposed Service Area Employment lands mainly consist of a combination of service, retail and office uses, serving the employment uses.

The trip generation related to the office component of the Service Area Employment lands was determined using the General Office (Land Use 710) code published in the ITE TRIP GENERATION MANUAL, 8TH EDITION, as detailed in Section 5.3.2.

The trip generation related to the service and retail components of the Service Area Employment lands were determined using the Shopping Centre (Land Use 820) code published in the ITE TRIP GENERATION MANUAL, 8TH EDITION. The Shopping Centre Land Use was used as it provides the most appropriate trip rates and associated trip generation related to the service and retail components of the Service Area Employment lands.

The following equation and directional distributions from the ITE publications were used in the analysis related to the service and retail uses:

Weekday A.M. Peak Hour: $\ln(T) = 0.59 \ln(X) + 2.32$
Where $X = 1,000 \text{ ft}^2 \text{ GFA}$
 $T = \text{Total Vehicle Trips}$
Distribution = 61% entering and 39% exiting

Weekday P.M. Peak Hour:

$$\ln(T) = 0.67 \ln(X) + 3.37$$

Where $X = 1,000 \text{ ft}^2 \text{ GFA}$

T = Total Vehicle Trips

Distribution = 49% entering and 51% exiting

Internal Trips

As noted, the proposed Service Area Employment lands (blocks) consist of service, retail, and office uses. The service and retail components of the development are intended to serve the people who work in the proximity. Thus, it is expected that some of the vehicle trips will be joint trips (internal) between the different uses within the subject property, rather than new trips that are coming from the external. These trips can be made either by walking or by driving using internal roadways within the individual blocks.

The internal trip estimation within the Service Area Employment blocks is based on the procedure outlined in the ITE Trip Generation Handbook (2nd Edition). It should be noted that no joint trips were assumed for the a.m. peak hour, since the amount of internal trips in the a.m. peak period are few and insignificant.

Table 5.3 summarizes the typical internal capture rates for trip origins and trip destinations within a multi-use development as outlined in the ITE Trip Generation Handbook.

Table 5.3 - Typical Internal Capture Rates for Trip Origins and Trip Destinations for the Weekday P.M. Peak Hour

Trip Origin to Trip Destination	Capture Rate for Trip Origin	Trip Destination from Trip Origin	Capture Rate for Trip Destination
From Office To Retail	23%	To Retail from Office	2%
From Retail To Office	3%	To office From Retail	31%

The internal capture percentages were applied to the appropriate directional trip generation value. For instance:

- A. Internal trips from office to retail = 23 percent x P.M. outbound trips related to the office use
- B. Internal trips to retail from office = 2 percent x P.M. inbound trips related to the retail uses

The two internal trip values are compared and the lower value is selected. For instance, if internal trips from office to retail (A) consist of 15 trips, while the internal trips to retail from office (B) consist of 11 trips, the controlling value is 11 internal trips.

These internal trips are assumed to be made by walking or driving within the Service Area Employment block without accessing the boundary road network. Thus, these internal trips are subtracted from the overall trip generation related to the Service Area Employment blocks.

Pass-by Trips

The Service Area Employment blocks are anticipated to attract some trips from drivers who are already travelling along a roadway adjacent to a Service Area Employment block, and choose to make an intermediate stop while on their way to their primary destination. These are referred to as pass-by-trips. The pass-by trip percentage is the proportion of vehicles entering the development that would have already been travelling by the property while heading to other destinations, but made this intermediate stop along the way. Therefore, the site generated trips added to the boundary road network by the proposed development is typically reduced to account for a certain percentage of site trips which would be on the road network for other purposes, even if the subject development was not there.

This is expected to be the case for the Service Area Employment Blocks which are proposed to be located at the major intersections along Dundas Street West. No pass-by trips were assumed for the a.m. peak hour, as it is expected that the amount of pass-by trips during this time are few and insignificant.

The following equation from the ITE TRIP GENERATION HANDBOOK (2ND EDITION) was used to develop the average pass-by trip percentage for the weekday p.m. peak period for shopping centre uses:

$$\begin{aligned} \text{Ln (T)} &= -0.29 \text{ Ln (X)} + 5.00 \\ \text{Where X} &= 1,000 \text{ ft}^2 \text{ GFA} \\ \text{T} &= \text{Average Pass-by Trip Percentage} \end{aligned}$$

The pass-by trip percentage reduction was applied after the internal trips are subtracted from the overall trip generation related to the individual Service Area Employment blocks.

5.3.4 Modal Split Adjustment

The subject property will be well served by various travel modes (e.g. bike path, transit, etc.). Since only nominal non-auto usage has been built into the ITE trip generation rates, further reduction was applied to reflect the growing transit services available in the NOWSP area and TDM initiatives implemented for the subject property, as well as the neighbouring lands.

For the purpose of the assessment, the following non-auto split adjustments were applied to the trip generation related to the office uses (i.e. General Office and Business Park) by Phase to account for the other travel modes.

Phase 1 (2016):	5 percent reduction
Phase 2 (2021):	10 percent reduction
Phase 3 (2031):	15 percent reduction

Tables 5.4A to 5.4C summarize the resulting trip generation related to the subject property, incorporating the non-auto split adjustment to the General Employment and Light Employment lands, and internal trip and pass-by trip reduction to the Service Area Employment lands by Phase.

Table 5.4A - Resulting Trip Generation – Phase 1 Lands (2016 Horizon)

Land	Trip Generation	Vehicle Trips					
		Weekday AM Peak Hour			Weekday PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
General Employment	Business Park (ITE)	167	32	199	47	159	206
	Trip Adjustment (5 percent reduction)*	8	2	10	2	8	10
	Sub-Total	159	30	189	45	151	196
Service Area Employment	General Office (ITE)	148	20	168	30	146	176
	Trip Adjustment (5 percent reduction)*	7	1	8	2	6	8
	Internal Trip Reduction	0	0	0	8	8	16
	Sub-Total	141	19	160	20	132	152
	Shopping Centre (ITE)	124	81	205	431	448	879
	Internal Trip Reduction	0	0	0	8	8	16
	Pass-By Trip Reduction	0	0	0	146	146	292
	Sub-Total	124	81	205	277	294	571
	TOTAL	424	130	554	342	577	919

**Applied to individual development blocks. The trip adjustments shown represent the total of the reduced trips by block.*

Table 5.4B - Resulting Trip Generation – Phase 1 and 2 Lands (2021 Horizon)

Land	Trip Generation	Vehicle Trips					
		Weekday AM Peak Hour			Weekday PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
General Employment	Business Park (ITE)	1,028	196	1,224	268	896	1,164
	Trip Adjustment (10 percent reduction)*	103	20	123	26	90	116
	Sub-Total	925	176	1,101	242	806	1,048
Service Area Employment	General Office (ITE)	148	20	168	30	146	176
	Trip Adjustment (10 percent reduction)*	15	2	17	3	14	17
	Internal Trip Reduction	0	0	0	8	8	16
	Sub-Total	133	18	151	19	124	143
	Shopping Centre (ITE)	124	81	205	431	448	879
	Internal Trip Reduction	0	0	0	8	8	16
	Pass-By Trip Reduction	0	0	0	146	146	292
	Sub-Total	124	81	205	277	294	571
	TOTAL	1,182	275	1,457	538	1,224	1,762

*Applied to individual development blocks. The trip adjustments shown represent the total of the reduced trips by block.

Table 5.4C - Resulting Trip Generation – Phase 1, 2, and 3 Lands (2031 Horizon)

Land	Trip Generation	Vehicle Trips					
		Weekday AM Peak Hour			Weekday PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Light Employment	General Office ITE	862	118	980	164	799	963
	Trip Adjustment (15 percent reduction)*	129	18	147	25	119	144
	Sub-Total	733	100	833	139	680	819
General Employment	Business Park	1028	196	1,224	268	896	1,164
	Trip Adjustment (15 percent reduction)*	155	29	184	40	134	174
	Sub-Total	873	167	1,040	228	762	990
Service Area Employment	General Office ITE	148	20	168	30	146	176
	Trip Adjustment (15 percent reduction)*	23	2	25	4	22	26
	Internal Trip Reduction	0	0	0	8	8	16
	Sub-Total	125	18	143	18	116	134
	Shopping Centre ITE	124	81	205	431	448	879
	Internal Trip Reduction	0	0	0	8	8	16
	Pass-By Trip Reduction	0	0	0	146	146	292
	Sub-Total	124	81	205	277	294	571
	TOTAL	1,855	366	2,221	662	1,852	2,514

*Applied to individual development blocks. The trip adjustments shown represent the total of the reduced trips by block.

5.4 Trip Distribution and Assignment

The 2006 Transportation Tomorrow Survey (TTS) findings were reviewed to determine the site traffic distribution to the boundary roadways. The “auto-driver” data was used to determine the distribution related to the subject property, located in the Oakville Planning District (PD 39). Table 5.5 summarizes the regional distributions to/from PD 39, indicating the employment based distribution.

Table 5.5 - Employment Based General Trip Distribution

Direction	Percentage
Within Oakville	34%
Toronto	6%
York Region	1%
Durham Region	1%
Peel Region	23%
Burlington	18%
Milton	4%
Halton Hills	2%
Hamilton-Wentworth Region	11%
Total	100%

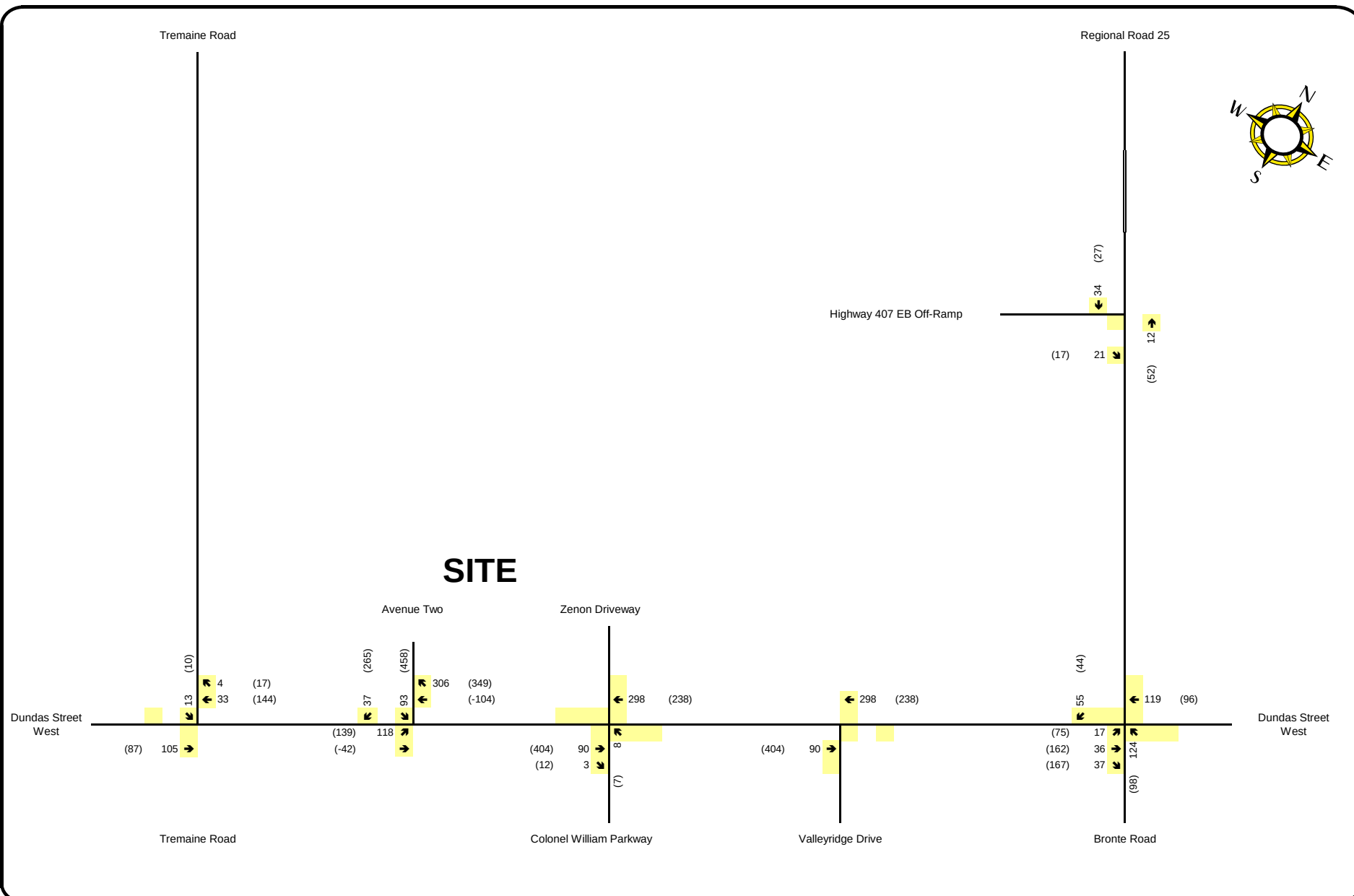
The traffic was assigned to the boundary road network accordingly based on the available road links anticipated to be in place during each phase.

Table 5.6 summarizes the trip assignments to the boundary road network by Phase, reflecting the respective assumed road network.

Table 5.6 - Trip Assignment by Phase

To/From	Trip Assignment Percentages		
	2016 (Phase 1)	2021 (Phase 2)	2031 (Phase 3)
Dundas Street East	28%	20%	20%
Dundas Street West	25%	23%	23%
Bronte Road North	4%	4%	4%
Bronte Road South	29%	23%	23%
Tremaine Road North	3%	3%	3%
Highway 407 East	4%	4%	4%
Highway 407 West	5%	7%	7%
NNOTC (Burnhamthorpe Road)	-	8%	8%
Colonel William Parkway	2%	4%	4%
Valleyridge Drive	-	4%	4%
Total	100%	100%	100%

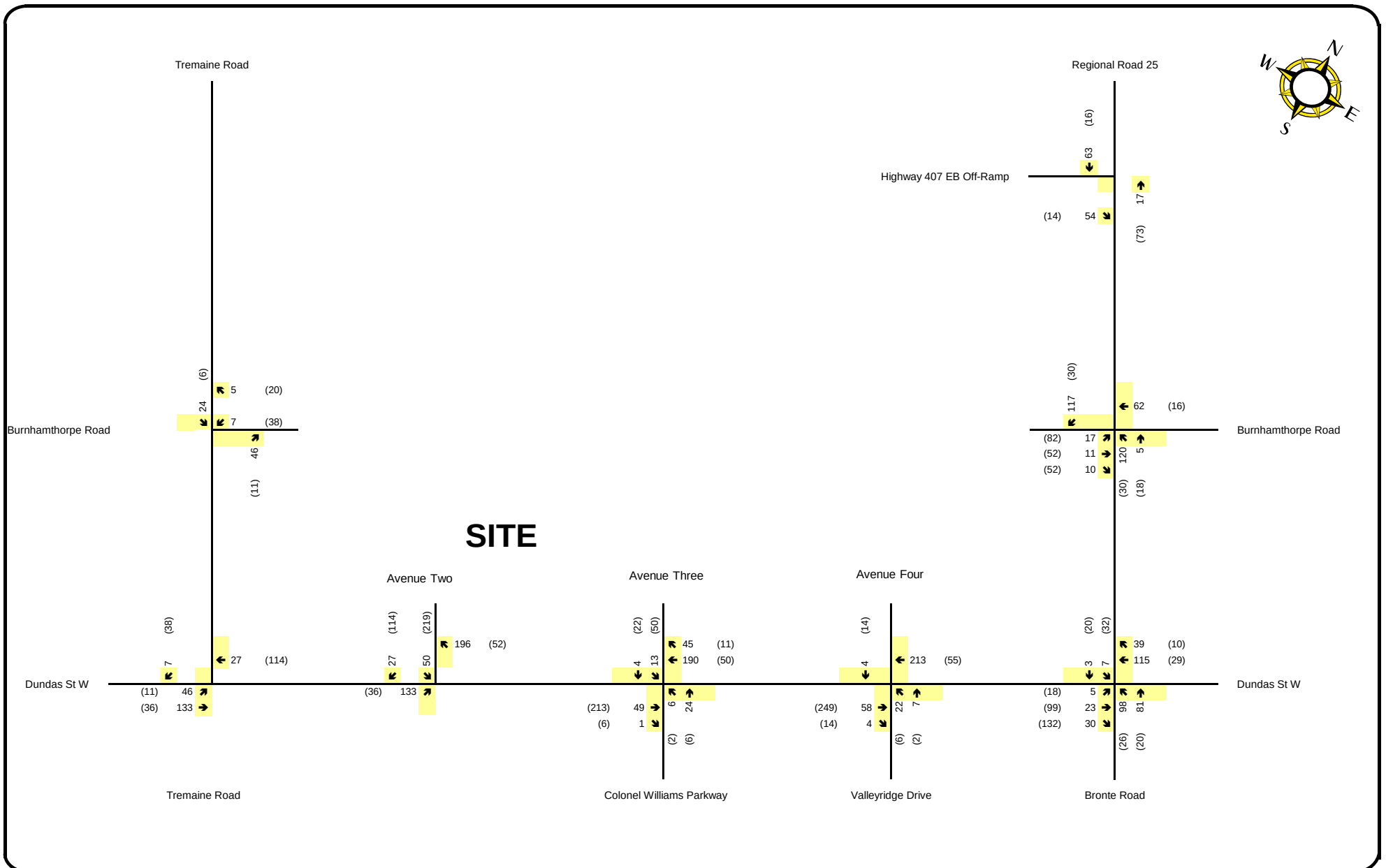
The resulting weekday a.m. and p.m. peak hour trip assignments related to the forecast site generated trips by Phase are illustrated in Figures 9A to 9C.



LEGEND

XX A.M. Peak Hour Volumes
 (XX) P.M. Peak Hour Volumes

FIGURE 9A
 2016 Site Generated Traffic Volumes



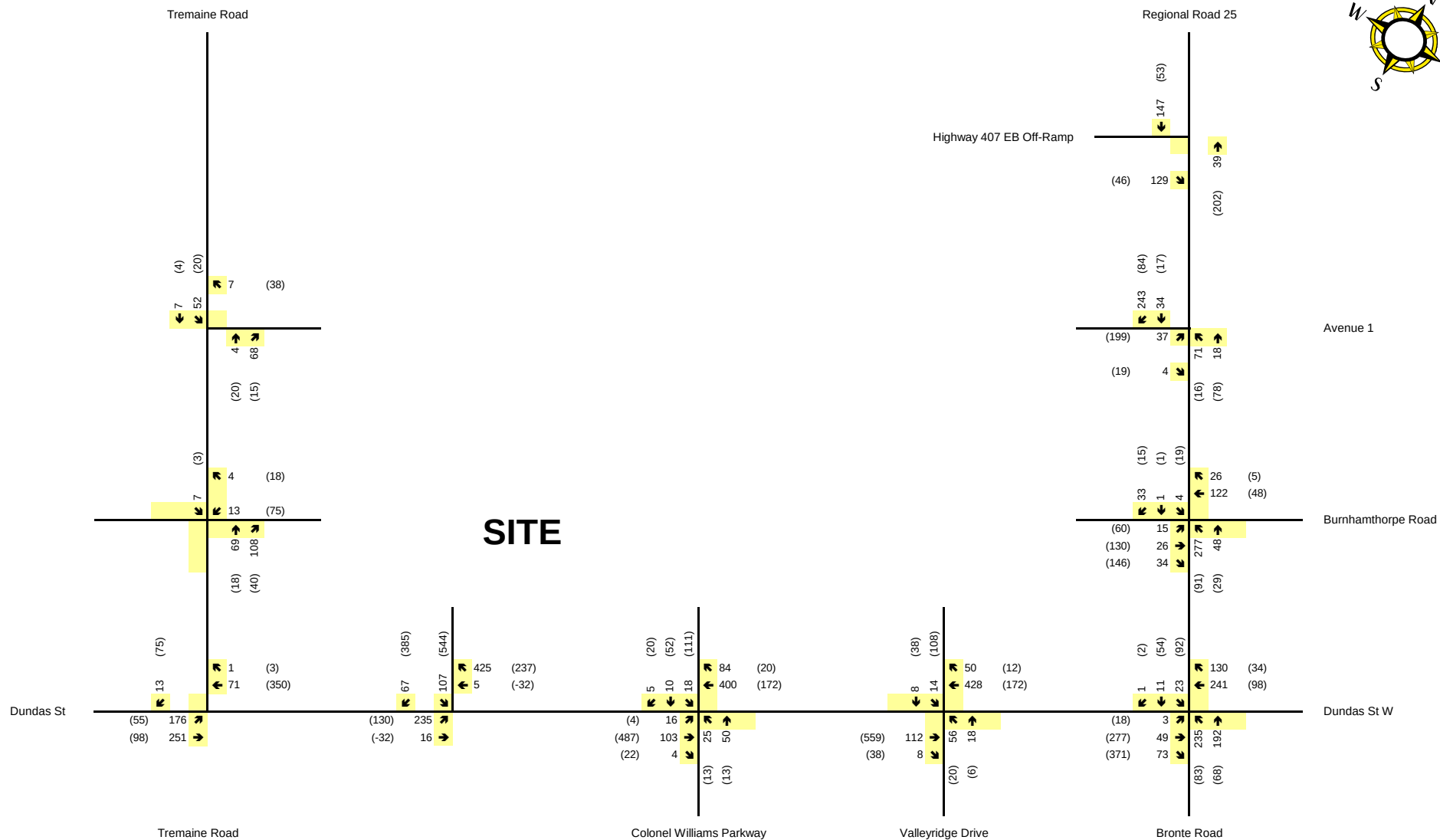
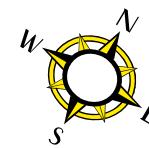


FIGURE 9C
 2031 Site Generated Traffic Volumes

6.0 Future Background Traffic Conditions

6.1 Methodology to Derive Future Background Traffic

The methodology in estimating the future background traffic conditions related to the 3 horizon years were calculated based on different approaches.

6.1.1 Phase 1 (Short Term)

The future background traffic forecasts for Phase 1 (2016) were developed by applying traffic growth rates, as well as adding the traffic related to the other developments, and superimposing them onto the 2011 existing traffic volumes illustrated in Figure 5.

6.1.2 Phases 2 and 3 (Long Term)

The future background traffic forecasts for Phases 2 (2021) and 3 (2031) were derived from the Halton Region's EMME/2 modeling lane volumes for the 2021 and 2031 horizons. It is our understanding that the 2021 and 2031 lane volumes from the EMME/2 model reflect the Region's planned land use scenario for the North Oakville West Secondary Plan. These include all of the potential developments within the 407 West Employment Area, all of the other potential developments in the proximity of the site, as well as the general traffic growth along the boundary roadways. Thus, the lane volumes under the future background traffic conditions were developed by subtracting the site generated traffic in accordance with the different phases.

6.2 Future Background Traffic Conditions in the Short Term

6.2.1 Future Through Traffic Growth (2016)

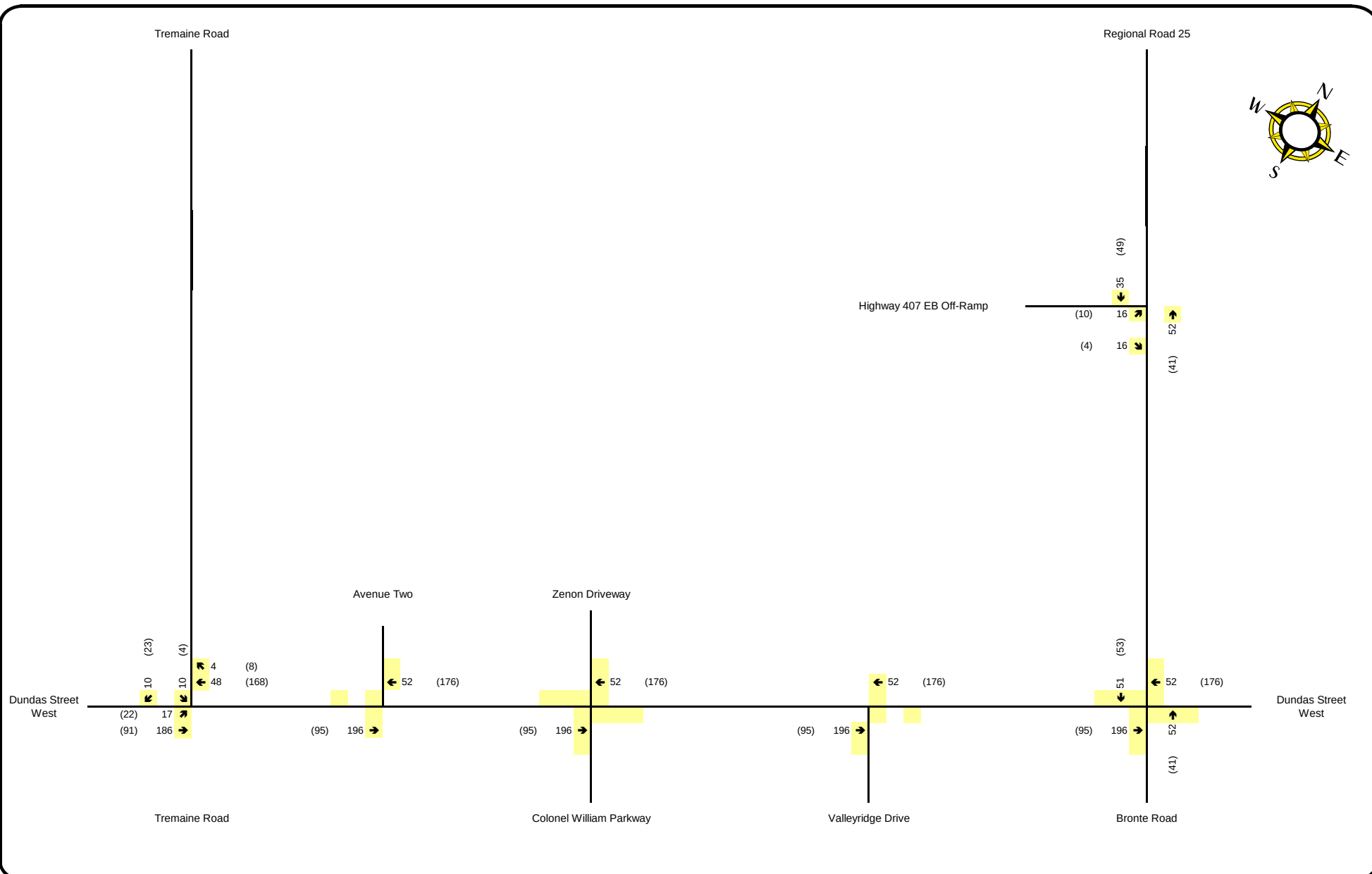
A through traffic growth rate of 1.5 percent per annum (linear) was applied to account for the general increases in traffic along the boundary major roadways, namely Dundas Street West, Bronte Road, and Tremaine Road. Figure 10 illustrates the traffic increases related to the general through traffic growth by 2016 for the weekday a.m. and p.m. peak hours.

6.2.2 Traffic Increases Related to Other Developments (2016)

In addition to the future through traffic growth noted, traffic related to other developments in the vicinity of the property have been included in the background traffic forecasts, namely the Bronte Creek Community and Pineberry Estates Inc. lands located south of Dundas Street West, as well as developments within the 407 West Employment Area, within the North Oakville West Secondary Plan.

Bronte Creek Community and Pineberry Estates

The Bronte Creek Community is located south of Dundas Street West and served by Colonel William Parkway. The Bronte Creek Community is currently being constructed in phases, with the majority of the development already built at the time when the turning movement counts were undertaken. Based on the Revised Phasing Plan of Proposed Subdivision related to the Bronte Creek Community dated December,



LEGEND
 XX A.M. Peak Hour Volumes
 (XX) P.M. Peak Hour Volumes

FIGURE 10
 2016 Through Traffic Growth Volumes

2009, a future increase of approximately 545 dwelling units is expected. These 545 dwelling units are conservatively assumed to be built by 2016.

Similarly, based on the Town of Oakville Planning and Development Council Report titled "Proposed Removal of "H" Holding Provision from lands identified on Schedule "B" in Zoning By-law No. 2002-38 Pineberry Estates" dated May 16, 2006, a future increase of approximately 104 dwelling units is expected for the Pineberry Estates lands, which is located east to the Bronte Creek Community. These 104 dwelling units are conservatively assumed to be built by 2016.

The trip generation related to these two residential developments was determined using the Single-Family Detached Housing (Land Use 210) and Residential Condominium/Townhouse (Land Use 230) codes published in the ITE TRIP GENERATION MANUAL, 8TH EDITION.

Table 6.1 summarizes the resulting trip generation.

Table 6.1 - Trip Generation Related to Bronte Creek Community and Pineberry Estates (2016 Horizon)

Land Use (ITE Land Use Category)	Magnitude (Units)*	Vehicle Trips					
		Weekday AM Peak Hour			Weekday PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single Dwelling Unit (LU 210)	294	54	162	216	175	102	277
Townhouses (LU 230)	306	21	105	126	101	50	150
Apartments (LU 230)	49	5	24	29	22	11	33
TOTAL	649	80	291	371	298	163	414

* Estimated unit counts

The 2006 TTS findings were reviewed to determine the site traffic distribution to the boundary roadways. The "auto-driver" data was used to determine the distribution related to the Bronte Creek Community and Pineberry Estates Inc. lands, located in 2006 GTA Zone 4045 (Oakville area south of Dundas Avenue West, West of Bronte Road, North of Upper Middle Road, and East of Bronte Creek Provincial Park).

Other Developments within the 407 West Employment Area

As the subject property is proposed to be developed in phases, it is expected that the other lands within the 407 West Employment Area will be developed in a similar fashion.

It should be noted that no formal development proposal has been submitted related to the other parcels of the 407 West Employment Area, at the time when this report is prepared.

Development assumptions were prepared by MMM for the entire 407 West Employment Area for the purposes of our analysis. The land use assumptions for the other developments within the 407 West Employment Area by phase are summarized in Table 6.2. The development assumptions assume a minimum overall density of 0.35 FSI for the 407 West Employment Area.

Table 6.2 - Development Proposal Related to Other Parcels within the 407 West Employment Area by Phase

Phase	Assumed GFA (Mixed Uses)
Phase 1	42,948 ft ²
Phase 2	1,152,040 ft ²
Phase 3	2,520,262 ft ²
TOTAL	3,715,250 ft ²

The same trip generation approach detailed in Section 5.3 was applied for these other developments within the 407 West Employment Area. Similar to the approach in developing the site generated traffic, modal split adjustments were applied to the trip generation related to the office uses (i.e., General Office and Business Park) by Phase (i.e., Phase 1: 5 percent reduction; Phase 2: 10 percent reduction; and Phase 3: 15 percent reduction) to account for the other travel modes.

For Service Area Employment lands of the other developments, internal trips and pass-by trips have been calculated using the same approach as that applied for site generated traffic.

The same trip distribution and assignment assumptions were applied to the other developments within the 407 West Employment Area.

Resulting Trip Generation Related to Other Developments for Phase 1

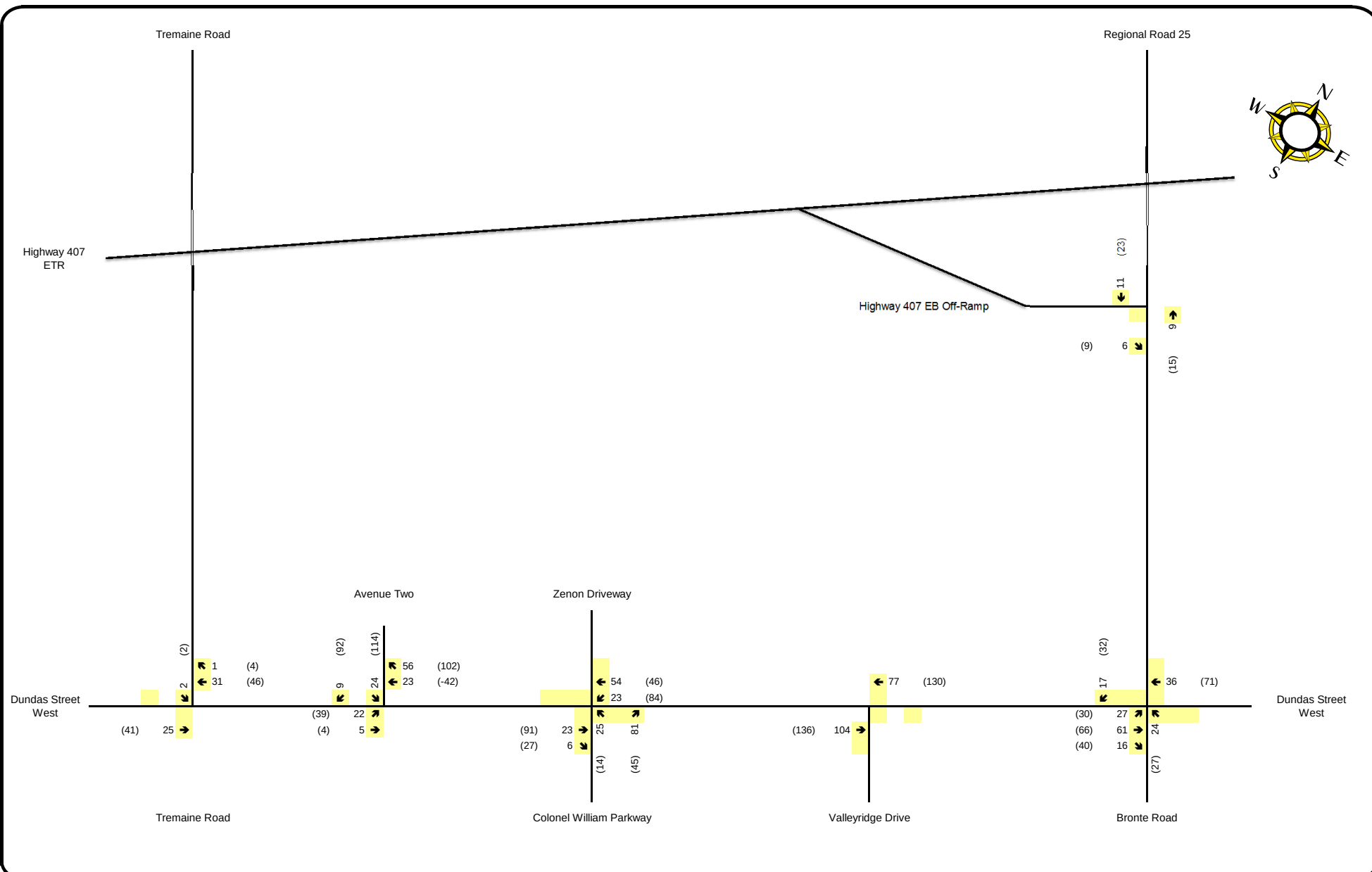
With Avenue Two and the Phase 1 developments of the subject property in place, the development located at the north-east corner of Dundas Street West/Avenue Two intersection is expected to be built by 2016. Table 6.3 summarizes the resulting trip generation related to this development.

Table 6.3 - Resulting Trip Generation Related to Other Development within the 407 West Employment Area (Phase 1 - 2016 Horizon)

Blocks	Trip Generation (Vehicle Trips)					
	Weekday AM Peak Hour			Weekday PM Peak Hour*		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Other 407 West Employment Area Development (Phase 1)	78	33	111	66	131	197

*Does not include 75 inbound/75 outbound pass-by trips.

Figure 11 illustrates the traffic generated by the Bronte Creek Community, Pineberry Estates Inc. lands, as well as other development within the 407 West Employment Area under horizon 2016 during the weekday a.m. and p.m. peak hours, assuming the boundary road network as indicated in Figure 6 by 2016.



6.2.3 Future Background Traffic Conditions for Short Term (2016)

The 2016 future background traffic were developed by superimposing the general through traffic growth indicated in Figure 10, as well as the traffic increases related to the other developments as indicated in Figure 11, onto the respective 2011 'existing' traffic volumes indicated in Figure 5.

Figure 12 illustrates the resulting 2016 future background traffic volumes during the weekday a.m. and p.m. peak hours.

The 2016 future background traffic were then analyzed on the basis of the 2016 background traffic volumes illustrated in Figure 12 for the weekday a.m. and p.m. peak hours. The resulting levels of service are outlined in Table 6.4.

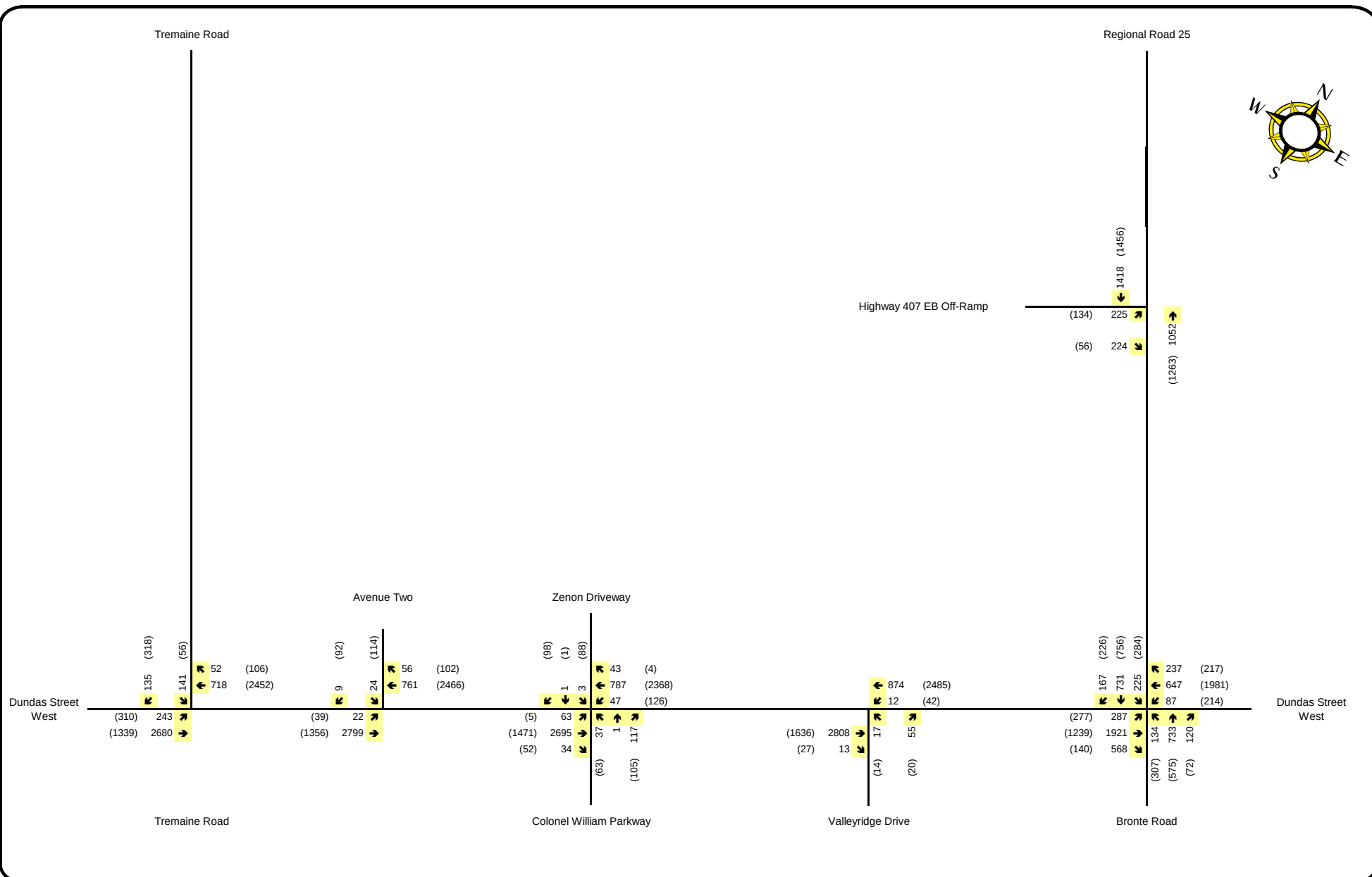
The traffic signal timings for key intersections during the a.m. and p.m. peak hours have been adjusted to optimize the intersections, while the cycle lengths remain the same.

Table 6.4 - Intersection Levels of Service Based on 2016 Future Background Traffic Volumes

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (delay in seconds)	Critical Movement(s) (v/c)	LOS (delay in seconds)	Critical Movement(s) (v/c)
Dundas Street West/ Bronte Road ⁽¹⁾	Signalized	C (30.2 sec)	-	E (66.2 sec)	EB-L (0.89) WB-TR (0.95) NB-L (0.89) NB-T (0.87) SB-L (0.93) SB-T (0.95)
Dundas Street West/ Valleyridge Drive ⁽¹⁾	Signalized	A (2.3 sec)	-	A (7.8 sec)	-
Dundas Street West/ Colonel William Parkway/ Private Driveway ⁽¹⁾	Signalized	A (6.0 sec)	WB-L (0.89) NB-R (0.89)	A (9.4 sec)	-
Dundas Street West/ Avenue Two ⁽¹⁾	Signalized	A (5.1 sec)	-	A (8.8 sec)	-
Dundas Street West/ Tremaine Road ⁽¹⁾	Signalized	A (8.2 sec)	-	A (9.1 sec)	-
Bronte Road/Highway 407 Eastbound Off-Ramp ⁽¹⁾	Signalized	B (13.1 sec)	-	A (6.9 sec)	-

⁽¹⁾ For signalized intersections, levels of service are based on the overall intersection delay.

As indicated in Table 6.4, all intersections which were analyzed are expected to continue operating at good to acceptable Levels of Service based on the projected 2016 future background traffic volumes.



With the general through traffic increases along Bronte Road and Dundas Street West, as well as traffic related the other developments in the area, the Dundas Street West/Bronte Road intersection is expected to operate at acceptable overall Level of Service 'E' during the p.m. peak hour, with some movements expected to operate close to capacity.

The intersection operations of Dundas Street West/Tremaine Road are expected to improve from LOS 'B' and 'C' under the 2011 'existing' conditions to LOS 'A' under the 2016 future background conditions during the weekday a.m. and p.m. peak hours, respectively, due to the planned Dundas Street West widening from a four lane to a six lane cross section. No critical movements (movements with volume-to-capacity value of 0.85 or above) are identified at this intersection.

6.3 Future Background Traffic Conditions for Long Term (2021)

6.3.1 *Future Through Traffic Growth*

The 2021 and 2031 p.m. peak hour screenline volumes related to the boundary major roadways were obtained from Halton Region. These screenline volumes were derived from the Halton Region EMME/2 model based on the Halton Region land use assumptions in accordance with the North Oakville West Secondary Plan area.

Dundas Street West

A review of the screenline volumes indicated that the traffic volumes along Dundas Street West east of Tremaine Road are expected to decrease between 2006 and 2021. This is likely due to the fact that the proposed east-west New North Oakville Transportation Corridor (NNOTC), east of Bronte Road and the Burnhamthorpe Road extension will provide further relief to Dundas Street West to accommodate the potential traffic growth in the vicinity of this area. Thus, no through traffic growth along Dundas Street West was assumed between 2006 and 2021.

Bronte Road and Tremaine Road

Traffic volumes along Bronte Road and Tremaine Road north of Dundas Street are expected to increase between 2006 and 2021. In order to derive the general through traffic growth for these two roadways between 2016 and 2021, the 2021 EMME/2 screenline volumes were subtracted by the 2016 screenline volumes which were developed from the Phase 1 (2016) future total traffic assessment, and the site generated traffic related to Phase 2 for the subject property, as well as all the known other developments in the vicinity of the subject property. The difference in volumes is expected to be the general traffic growth for the associated roadways.

This methodology was applied to both Bronte Road and Tremaine Road to estimate the general through traffic growth. It should be noted that the Halton Region EMME/2 model does not generate screenline volumes for the a.m. peak hour. In order to derive the a.m. peak hour screenline volumes using the p.m. peak hour volume, a factor was applied to the 2021 p.m. peak hour screenline volumes, as follows:

$$2021 \text{ NB AM volumes} = \frac{2021 \text{ SB PM volumes} * 2009 \text{ NB AM volumes}}{2009 \text{ SB PM volumes}}$$

It is recognized that the methodology for applying growth rates varies for the three boundary roadways. However, the resulting overall traffic forecast is consistent with the Halton Region screenline volumes.

6.3.2 *Traffic Increases Related to Other Developments (2021)*

Other developments in the vicinity of the property have been included in the background traffic forecasts for the 2021 horizon, including the proposed Halton Healthcare Services New Oakville Hospital and assumed ORC lands, as well as the assumed Phase 2 developments within the 407 West Employment Area within the North Oakville West Secondary Plan.

New Oakville Hospital and Assumed ORC Lands

The New Oakville Hospital by the Halton Healthcare Service is located at the north-west corner of Dundas Street West and Third Line, which is currently a greenfield. The New Oakville Hospital is scheduled to open in 2014. The first major hospital expansion is expected in 2020, and the final hospital expansion will happen in 2023.

The traffic impact related to the New Oakville Hospital is not considered in the 2016 horizon, due to the fact that the proposed NNOTC segment that extends to Bronte Road is not expected to begin until 2016. Thus, the hospital related traffic is expected to be captured within the general through traffic growth in 2016 horizon.

The traffic increases related to the New Oakville Hospital site in 2021 horizon were based on the Halton Healthcare Services, New Oakville Hospital Transportation Impact Study prepared by IBI Group in June, 2010. The study also analyzed the traffic impacts related to the ORC lands adjacent to the New Oakville Hospital, in the Sixteen Hollow Employment Lands in the North Oakville West Secondary Plan area.

Thus, the turning movements related to these lands at the Bronte Road/NNOTC (Burnhamthorpe Road) under the 2021 horizon were taken directly from the IBI Group June, 2010 report results, with some adjustments, recognizing the fact that Burnhamthorpe Road extension, which provides an east-west alternative to Dundas Street West, would be in place by 2021.

It should be noted that the final hospital expansion in 2023 is not expected to generate a significant number of trips above and beyond the 2020 scenario, according to the June, 2010 IBI Group study.

Other Developments within the 407 West Employment Area (2021)

The trip generation approach applied to other developments within the 407 West Employment Area under Phase 2 is similar to that for Phase 1.

A 10 percent modal split reduction was applied to the trip generation related to the office uses under Phase 2 to reflect the increased non-auto modal split as a result of better transit usage and TDM initiatives.

Table 6.5 summarizes the resulting trip generation related to other developments within the 407 West Employment Area under Phase 2.

Table 6.5 - Resulting Trip Generation Related to Other Developments within the 407 West Employment Area (Phase 1 and 2 - 2021 Horizon)

	Trip Generation (Vehicle Trips)					
	Weekday AM Peak Hour			Weekday PM Peak Hour*		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Other 407 West Employment Area Developments (Phase 1 and 2)	1,412	346	1,758	757	1,649	2,407

**Does not include 338 inbound/338 outbound pass-by trips.*

Figure 13 illustrates the traffic generated by these other developments (Phase 1 and 2) within the 407 West Employment Area under horizon 2021 during the weekday a.m. and p.m. peak hours, assuming the boundary road network as indicated in Figure 7 by 2021.

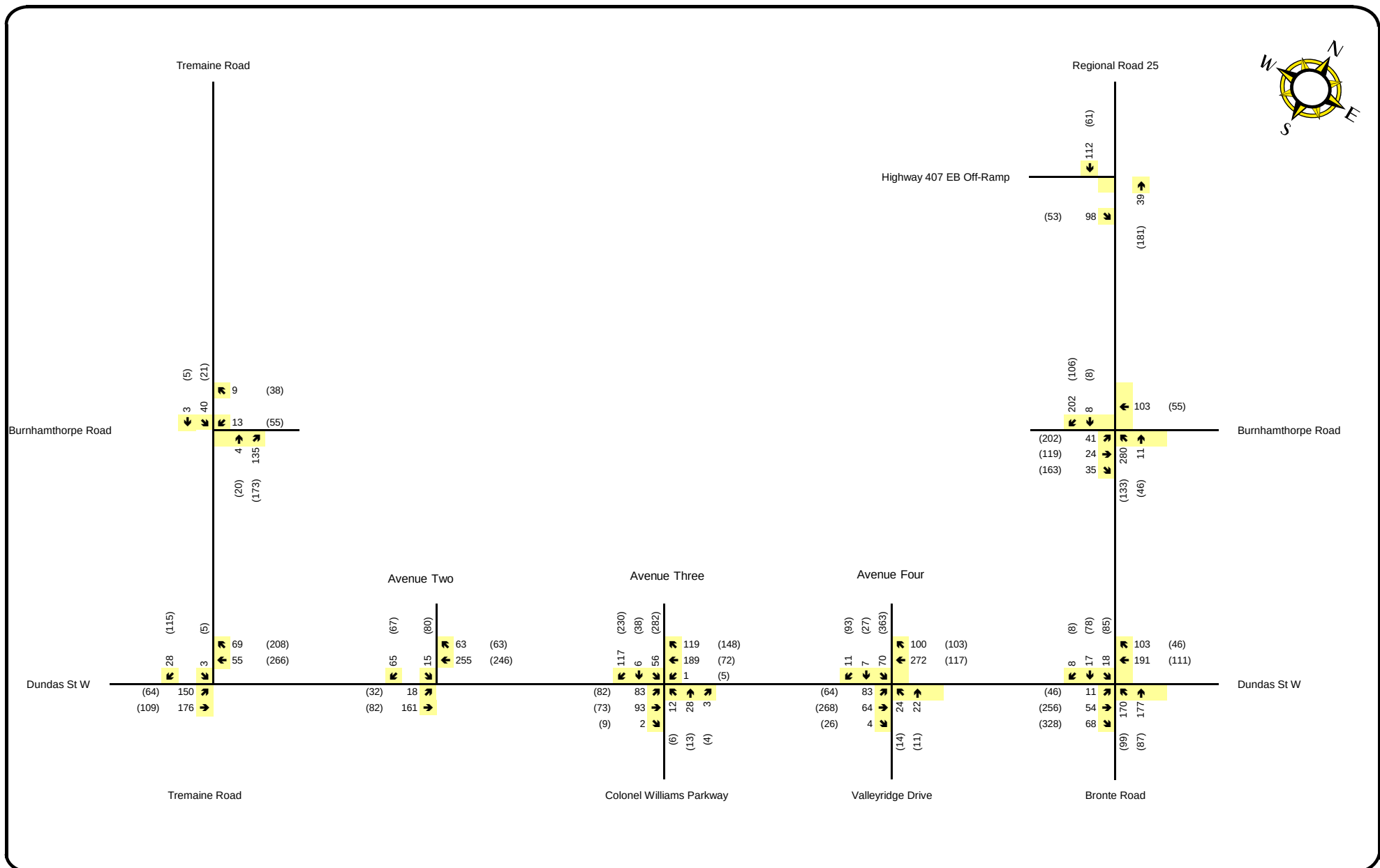
6.3.3 Future Background Traffic Conditions (2021)

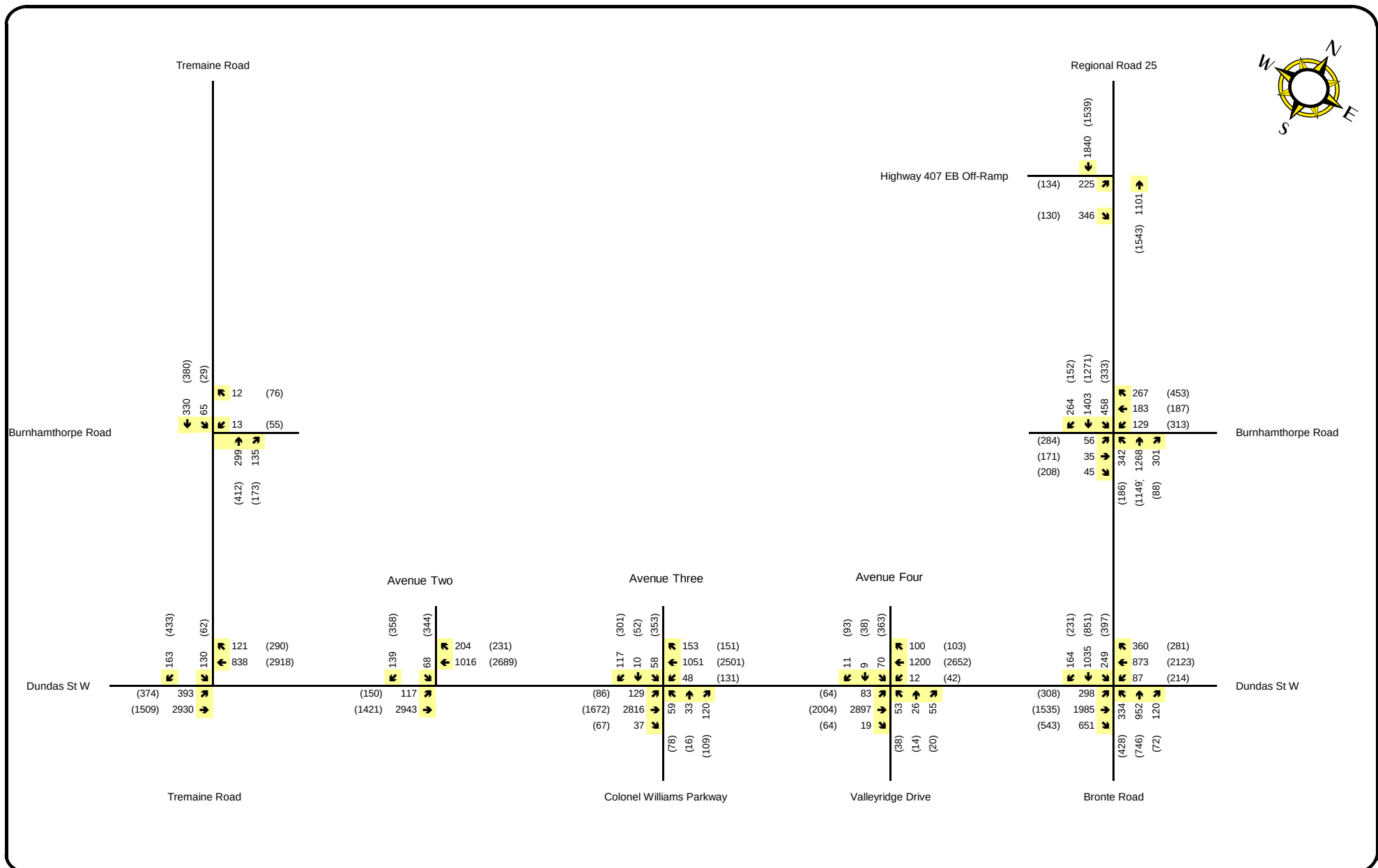
The 2021 future background traffic forecast was developed by subtracting the traffic increases related to the other developments within the 407 West Employment Area under Phase 1 from the 2016 future background traffic volumes, and superimposing the general through traffic growth, the traffic increases related to the other developments, as well as the turning movement traffic in the New Oakville Hospital study.

Figure 14 illustrates the resulting 2021 future background traffic volumes during the weekday a.m. and p.m. peak hours.

The 2021 future background traffic were then analyzed on the basis of the 2021 background traffic volumes illustrated in Figures 14 for the weekday a.m. and p.m. peak hours. The resulting levels of service are outlined in Table 6.6.

As noted, the traffic signal timings for key intersections during the a.m. and p.m. peak hours have been adjusted to optimize the intersections, while the cycle lengths remain the same.





LEGEND
 XX A.M. Peak Hour Volumes
 (XX) P.M. Peak Hour Volumes

FIGURE 14
 2021 Future Background
 Traffic Volumes

Table 6.6 - Intersection Levels of Service Based on 2021 Future Background Traffic Volumes

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (delay in seconds)	Critical Movement(s) (v/c)	LOS (delay in seconds)	Critical Movement(s) (v/c)
Dundas Street West/ Bronte Road – Without Intersection Improvement ⁽¹⁾	Signalized	D (39.8 sec)	EB-L (0.87) EB-T (0.92) NB-L (0.92) NB-T (0.90) SB-L (0.88) SB-T (0.95)	F (88.6 sec)	EB-L (1.02) WB-TR (1.05) NB-L (0.97) NB-T (1.03) SB-L (1.04) SB-T (0.91)
Dundas Street West/ Bronte Road – With Intersection Improvement (WB-R, Double SB-L) ⁽¹⁾	Signalized	D (37.0 sec)	EB-T (0.92) NB-L (0.92) NB-T (0.90) SB-T (0.95)	E (62.5 sec)	EB-L (0.97) WB-T (0.90) NB-L (0.97) NB-T (0.88) SB-L (0.91) SB-T (0.98)
Dundas Street West/ Valleyridge Drive/ Avenue Four ⁽¹⁾	Signalized	A (5.1 sec)	-	C (21.6 sec)	WB-T (0.88) SB-L (0.90)
Dundas Street West/ Colonel William Parkway/ Avenue Three ⁽¹⁾	Signalized	A (6.0 sec)	-	B (20.0 sec)	-
Dundas Street West/ Avenue Two ⁽¹⁾	Signalized	A (6.3 sec)	-	B (15.3 sec)	EB-L (0.86) WB-T (0.86)
Dundas Street West/ Tremaine Road ⁽¹⁾	Signalized	A (9.1 sec)	-	B (15.8 sec)	WB-T (0.88) SB-R (0.88)
Bronte Road/ Burnhamthorpe Road ⁽¹⁾	Signalized	C (24.6 sec)	-	C (26.4 sec)	-
Bronte Road/Highway 407 Eastbound Off-Ramp ⁽¹⁾	Signalized	B (19.5 sec)	EB-R (0.87) SB-T (0.87)	A (8.1 sec)	-
Tremaine Road/ Burnhamthorpe Road ⁽¹⁾	Signalized	A (2.6 sec)	-	A (6.3 sec)	-

(1) For signalized intersections, levels of service are based on the overall intersection delay.

As indicated in Table 6.6, with the assumed through traffic growth and traffic increases related to other developments in the area by horizon 2021, as well as the assumed road network in the 407 West Employment Area (i.e., Burnhamthorpe Road from Tremaine Road to Bronte Road), the intersections which were analyzed are expected to operate at slightly worse Level of Service (LOS) based on delay during the weekday a.m. and p.m. peak hours under the 2021 future background conditions, as compared to the 2016 future background conditions, with the exception of the Dundas Street West/Bronte Road intersection.

It is acknowledged that some individual movements at the Bronte Road/Highway 407 Eastbound Off-Ramp intersection during the weekday a.m. peak hour, and Dundas Street West/Valleyridge Drive/Avenue Four, Dundas Street West/Avenue Two, and Dundas Street West/Tremaine Road intersections during the weekday p.m. peak hour are forecast to continue to operate close to capacity.

The Dundas Street West/Bronte Road intersection is forecast to operate at LOS 'F' during the weekday p.m. peak hour under the 2021 future background conditions, with the EB-L, WB-TR, NB-T, and SB-L movements operating slightly over capacity.

In order to improve the traffic operations at this intersection, the following road improvements are recommended:

- Addition of an exclusive westbound right turn lane
- Conversion of the existing single southbound left turn lane to double left turn lane

With these improvements in place, this intersection is expected to operate at LOS 'D' and 'E' during the weekday a.m. and p.m. peak hours, respectively, with v/c ratios less than 1.0 for all the critical movements.

6.4 Future Background Traffic Conditions (2031)

As noted, all the proposed developments within the 407 West Employment Area are expected to be built and occupied by 2031.

6.4.1 Future Through Traffic Growth (2031)

Similar to horizon 2021, the future through traffic growth in horizon 2031 has been derived from the p.m. peak hour screenline volumes in the Halton Region EMME model obtained from Halton Region staff.

Dundas Street West

Based on the Halton Region EMME/2 model, the future traffic growth rates are summarized as follow:

2006 to 2021 - 0.5% per annum (Eastbound)
 - 2.0% per annum (Westbound)

2021 to 2031 + 0.2% per annum (Eastbound)
 - 1.6% per annum (Westbound)

These growth rates were applied to the 2011 'Existing' through traffic to estimate the background traffic growth along Dundas Street West.

Bronte Road and Tremaine Road

In order to derive the general through traffic growth for Bronte Road and Tremaine Road between 2021 and 2031, the 2031 EMME/2 screenline volumes were subtracted by the 2021 screenline volumes which were developed from the Phase 2 (2021) future total traffic assessment, and the site generated traffic related to Phase 2 for the subject property, as well as all the known other developments in the vicinity of the subject property. The difference in volumes is expected to be the general traffic growth for the associated roadways.

This methodology was applied to both Bronte Road and Tremaine Road to estimate the general through traffic growth. Again, it should be noted that the Halton Region EMME/2 model does not generate screenline volumes for the a.m. peak hour. In order to derive the a.m. peak hour screenline volumes using the p.m. peak hour volume, a factor was applied to the 2031 p.m. peak hour screenline volumes, as follows:

$$2031 \text{ NB AM volumes} = \frac{2031 \text{ SB PM volumes} * 2009 \text{ NB AM volumes}}{2009 \text{ SB PM volumes}}$$

Again, the methodology for applying growth rates varies for all three boundary roadways. However, the resulting overall traffic forecast is consistent with the Halton Region screenline volumes.

6.4.2 Traffic Increases Related to Other Developments (2031)

Other developments in the vicinity of the property have been included in the background traffic forecasts for 2031 horizon, including the Tremaine and Dundas Secondary Plan area, as well as the assumed Phase 3 developments within the 407 West Employment Area within the North Oakville West Secondary Plan.

Tremaine and Dundas Secondary Plan Area

The Tremaine and Dundas Secondary Plan area is located on the west side of Tremaine Road, in the City of Burlington. The traffic impact related to the lands within the Tremaine and Dundas Secondary Plan area was studied in the Tremaine and Dundas Secondary Plan Transportation Report prepared by Dillon Consulting Limited in September, 2009.

As noted in the Dillon report, the development timeframe of the Tremaine and Dundas Secondary Plan area is uncertain. However, the traffic related to the potential developments in the Tremaine and Dundas Secondary Plan and roadway connections onto Tremaine Road detailed in the Dillon report have been included in this study. This represents a conservative approach. Three land use concepts were considered in the Dillon report. Mixed use represented a more aggressive option, which would generate the most traffic.

Thus, the traffic increases related to the potential developments in the Tremaine and Dundas Secondary Plan area were based on the mixed use option examined in the September, 2009, Dillon report.

Other Developments within the 407 West Employment Area (2031)

Other developments in the vicinity of the property have been included in the background traffic forecasts for 2031 horizon, including the assumed Phase 3 developments within the 407 West Employment Area within the North Oakville West Secondary Plan.

The trip generation approach applied to other developments within the 407 West Employment Area under Phase 3 is similar to that for Phase 1 and 2.

A 15 percent reduction is applied to the trip generation rates related to the office uses under Phase 3 to reflect the increased non-auto modal split as a result of better transit usage and TDM initiatives.

Table 6.7 summarizes the resulting trip generation related to other developments within the 407 West Employment Area under Phase 3.

Table 6.7 - Resulting Trip Generation Related to Other Developments within the 407 West Employment Area (Phase 1, 2 and 3 - 2031 Horizon)

Blocks	Trip Generation (Vehicle Trips)					
	Weekday AM Peak Hour			Weekday PM Peak Hour*		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Other 407 West Employment Area Developments (Phase 1, 2, and 3)	3,788	742	4,530	1,298	3,765	5,064

**Does not include 338 inbound/338 outbound pass-by trips.*

Figure 15 illustrates the traffic generated by these other developments (Phase 1, 2, and 3) within the 407 West Employment Area under horizon 2031 during the weekday a.m. and p.m. peak hours, assuming the boundary road network as indicated in Figure 9 by 2031.

6.4.3 Future Background Traffic Conditions (2031)

The 2031 future background traffic were developed by subtracting the traffic increases related to the other developments within the 407 West Employment Area under Phase 1 and 2 from the 2021 future background traffic volumes, and superimposing the general through traffic growth, and the traffic increases related to the other developments.

Figure 16 illustrate the resulting 2031 future background traffic volumes during the weekday a.m. and p.m. peak hours.

The 2031 future background traffic were then analyzed on the basis of the 2031 background traffic volumes illustrated in Figures 16 for the weekday a.m. and p.m. peak hours. The resulting levels of service are outlined in Table 6.8.

LEGEND

XX A.M. Peak Hour Volumes
(XX) P.M. Peak Hour Volumes

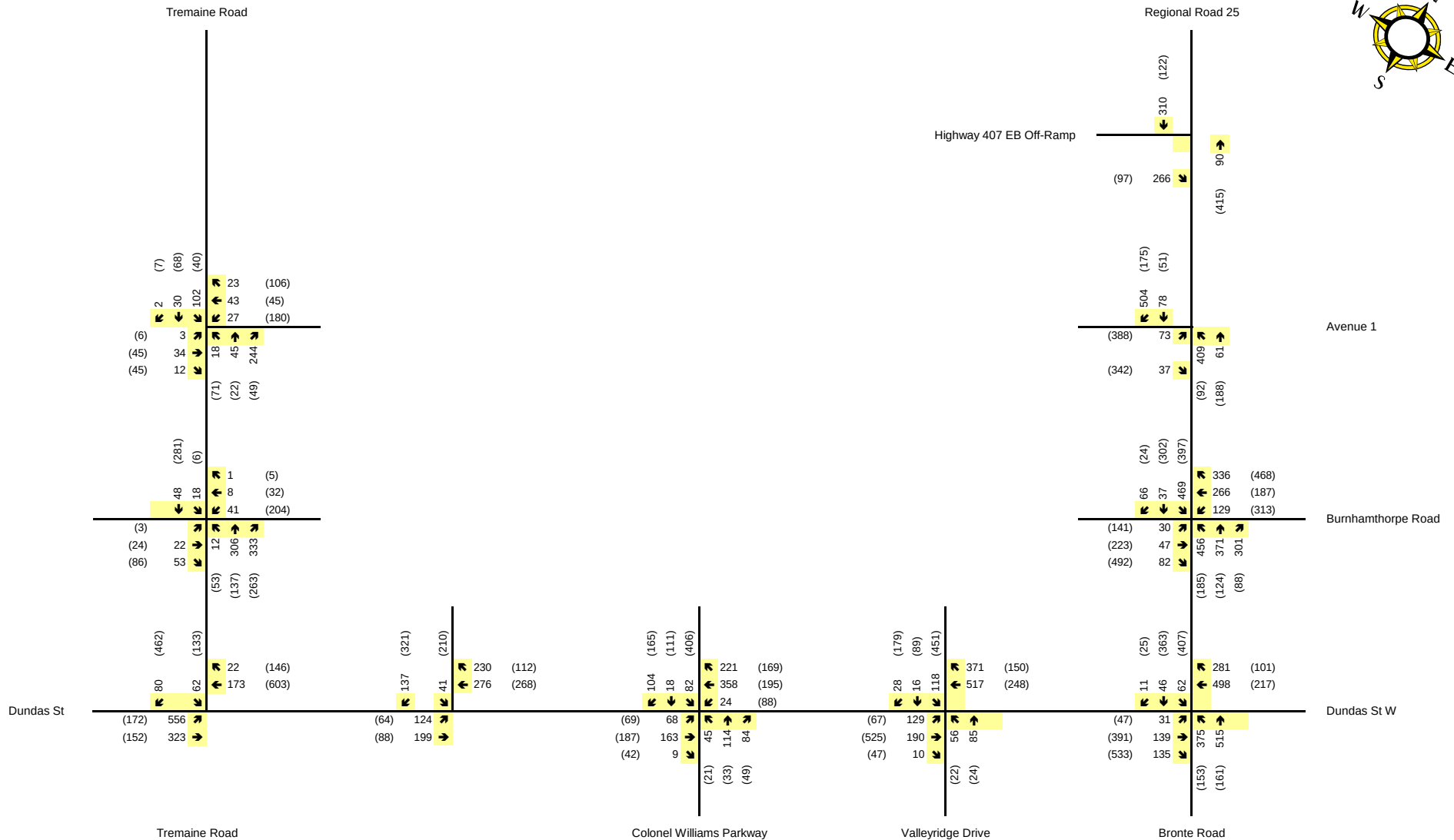
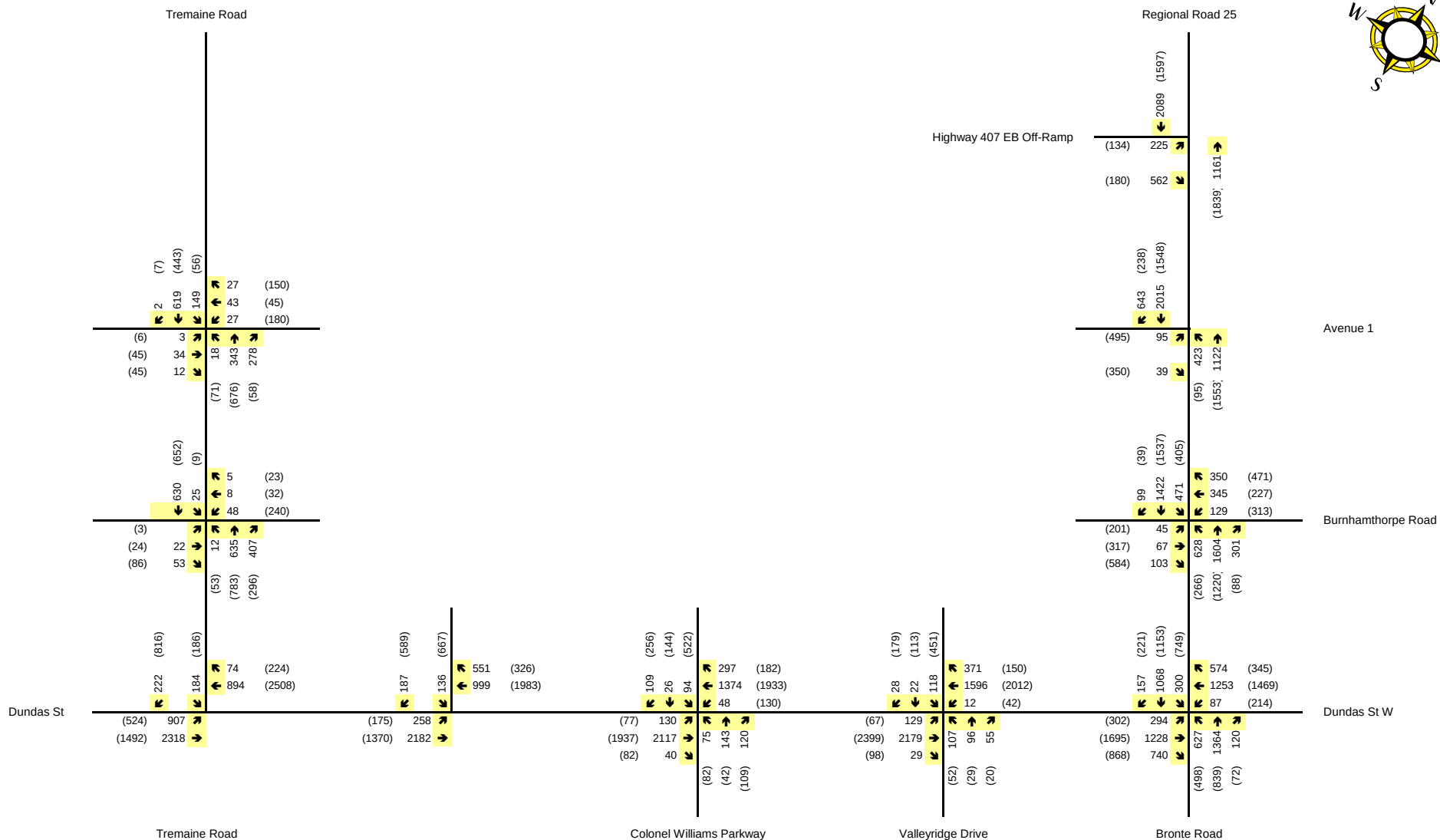


FIGURE 15

Other Developments in 2031
Background Traffic Volumes



LEGEND

XX A.M. Peak Hour Volumes
(XX) P.M. Peak Hour Volumes

FIGURE 16
2031 Future Background
Traffic Volumes

As noted, the traffic signal timings for key intersections during the a.m. and p.m. peak hours have been adjusted to optimize the intersections, while the cycle lengths remain the same.

Table 6.8 - Intersection Levels of Service Based on 2031 Future Background Traffic Volumes

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (delay in seconds)	Critical Movement(s) (v/c)	LOS (delay in seconds)	Critical Movement(s) (v/c)
Dundas Street West/ Bronte Road – Without Intersection Improvement ⁽¹⁾	Signalized	E (63.3 sec)	EB-L (1.07) EB-R (0.93) WB-TR (1.01) NB-L (1.07) NB-T (1.04) SB-L (1.06) SB-T (0.98)	F (81.7 sec)	EB-L (1.17) EB-T (0.98) EB-R (1.09) WB-L (0.98) WB-TR (1.08) NB-L (0.94) NB-T (1.17) WB-L (1.20) SB-T (0.91)
Dundas Street West/ Bronte Road – With Intersection Improvement (WB-R, and Double SB-L) ⁽¹⁾	Signalized	D (46.2 sec)	EB-L (0.97) EB-R (0.96) NB-L (0.94) NB-T (0.98) SB-T (0.96)	E (55.4 sec)	EB-L (1.17) EB-T (1.03) EB-R (1.00) WB-L (0.98) WB-T (0.93) SB-L (0.89) SB-T (1.06)
Dundas Street West/ Valleyridge Drive/ Avenue Four ⁽¹⁾	Signalized	B (10.5 sec)	-	B (18.9 sec)	-
Dundas Street West/ Colonel William Parkway/ Avenue Three ⁽¹⁾	Signalized	B (11.8 sec)	-	C (27.9 sec)	SB-L (0.90)
Dundas Street West/ Avenue Two ⁽¹⁾	Signalized	A (6.7 sec)	-	C (24.5 sec)	EB-L (0.93) WB-T (0.89) SB-L (0.91)
Dundas Street West/ Tremaine Road - Without Intersection Improvement ⁽¹⁾	Signalized	C (20.4 sec)	EB-L (0.94)	D (35.4 sec)	WB-T (1.02) SB-R (1.07)
Dundas Street West/ Tremaine Road - With Intersection Improvement (Channelized Southbound Right Turn) ⁽¹⁾	Signalized	B (19.1 sec)	EB-L (0.94)	B (17.1 sec)	EB-L (0.93) WB-T (0.91)
Bronte Road/ Burnhamthorpe Road ⁽¹⁾	Signalized	D (36.6 sec)	NB-L (0.92) NB-T (0.90) SB-L (0.88) SB-T (0.95)	D (43.9 sec)	EB-R (0.96) WB-L (0.96) SB-L (0.87) SB-T (0.99)

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (delay in seconds)	Critical Movement(s) (v/c)	LOS (delay in seconds)	Critical Movement(s) (v/c)
Bronte Road/ Avenue One ⁽¹⁾	Signalized	C (24.0 sec)	NB-L (0.96) SB-T (0.93)	C (28.1 sec)	EB-L (0.86) SB-T (0.86)
Bronte Road/Highway 407 Eastbound Off-Ramp(1) - Without Intersection Improvement ⁽¹⁾	Signalized	D (37.7 sec)	EB-R (1.04) SB-T (1.02)	B (10.3 sec)	-
Bronte Road/Highway 407 Eastbound Off-Ramp - With Intersection Improvement (Shared Eastbound Left-Right Lane) ⁽¹⁾	Signalized	B (16.9 sec)	EB-R (0.82) SB-T (0.87)	A (7.8 sec)	-
Tremaine Road/ Burnhamthorpe Road ⁽¹⁾	Signalized	A (9.7 sec)	-	C (26.0 sec)	WB-L (0.98) NB-TR (0.90)
Tremaine Road/ Avenue One ⁽¹⁾	Signalized	A (8.9 sec)	-	A (9.5 sec)	

⁽¹⁾ For signalized intersections, levels of service are based on the overall intersection delay.

The capacity analyses indicate that all the boundary road intersections are forecast to operate at acceptable levels of service during the roadway a.m. and p.m. peak hours, with the exception of Dundas Street West/Bronte Road, Dundas Street West/Tremaine Road and Bronte Road/Highway 407 Eastbound off-ramp intersections. Some individual movements at these three intersections are expected to operate over capacity.

Moreover, it is acknowledged that some individual movements at the following intersections are forecast to continue to operate close to capacity:

- Dundas Street West/Colonel William Parkway/Avenue Three during the p.m. peak hour
- Dundas Street West/Avenue Two during the p.m. peak hour
- Bronte Road/Burnhamthorpe Road during the weekday a.m. and p.m. peak hours
- Bronte Road/Avenue One during the weekday a.m. and p.m. peak hours
- Tremaine Road/Burnhamthorpe Road during the weekday p.m. peak hour

The findings related to the three intersections with some individual movements forecast to operate over capacity are summarized below:

Dundas Street West/Bronte Road

Intersection improvements have been proposed for the Dundas Street West/Bronte Road intersection for horizon 2021, including:

- Addition of a westbound exclusive right turn lane
- Converting the existing single southbound left turn lane into double left turn lane.

Without these proposed intersection improvements, the Dundas Street West/Bronte Road intersection is forecast to operate at LOS 'E' and 'F' during the a.m. and p.m. peak hour, respectively under the 2031 future background conditions. Many movements are forecast to operate over capacity (v/c ratio exceeding 1).

With the proposed intersection improvements in place, the intersection is expected to operate at improved Levels of Service 'D' and 'E' during the a.m. and p.m. peak hours, respectively. The volume-to-capacity ratios of critical movements at the intersection are also expected to be slightly reduced with the intersection improvement.

Dundas Street West/Tremaine Road

The Dundas Street West/Tremaine Road intersection is expected to operate at acceptable Levels of Service (LOS 'C' and 'D' during the a.m. and p.m. peak hours, based on delay), without any road improvements. However, the westbound through and southbound right turn movements are forecast to operate over capacity during the p.m. peak hour.

In order to accommodate the forecast traffic volumes, the existing southbound right turn lane is recommended to be converted to a channelized configuration. In conjunction, to allow the southbound right turn traffic to operate under free flow operations, an additional receiving taper lane is needed at the westerly leg of the intersection. This allows vehicles to merge into the westbound through traffic lane.

With the proposed intersection improvements, the intersection is forecast to operate at better LOS, with all critical movements operating below capacity.

Bronte Road/Highway 407 Eastbound Off-ramp

The Bronte Road/Highway 407 Eastbound Off-ramp intersection is expected to operate at acceptable Levels of Service (LOS 'D' and LOS 'B') during the a.m. and p.m. peak hours, based on delay, without any road improvements. However, the eastbound right turn and southbound through movements are forecast to operate over capacity during the a.m. peak hour.

Currently, the intersection has two left turn lanes and one right turn lane in the eastbound direction. To accommodate the anticipated traffic related to the potential developments in the area south of Highway 407, it is proposed that the lane configurations be modified to one left turn lane, one shared left/right lane, and one right turn lane in the eastbound direction. No changes are proposed to the lane configurations related to the other approaches.

With the proposed intersection improvements, the intersection is forecast to operate at better LOS, with all critical movements operating within capacity.

7.0 Future Total Traffic Conditions

7.1 Basis of Assessment

The future total traffic conditions were estimated by superimposing the site generated traffic volumes illustrated in Figures 9A through 9C onto the future background traffic volumes illustrated in Figures 12, 14, and 16. The resulting total traffic forecasts for the weekday a.m. and p.m. peak hours are illustrated in Figures 17A through 17C for the 2016, 2021, and 2031 horizons, respectively.

7.2 Future Total Traffic Intersection Operations

The future total traffic conditions for the three horizon years were analyzed on the basis of the future total traffic volumes illustrated in Figures 17A through 17C. The resulting Levels of Service are detailed in Tables 7.1A through 7.1C. The details related to the future total operations are provided in Appendix D.

Table 7.1A - Forecast Intersection Levels of Service Based on 2016 Future Total Traffic Volumes

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (delay in seconds)	Critical Movement(s) (v/c)	LOS (delay in seconds)	Critical Movement(s) (v/c)
Dundas Street West/ Bronte Road ⁽¹⁾	Signalized	C (31.4 sec)	-	E (72.3 sec)	EB-L (0.98) WB-TR (0.96) NB-L (0.98) SB-L (0.93) SB-T (0.97)
Dundas Street West/ Valleyridge Drive ⁽¹⁾	Signalized	A (3.4 sec)	-	A (9.1 sec)	-
Dundas Street West/ Colonel William Parkway/ Private Driveway ⁽¹⁾	Signalized	A (7.6 sec)	WB-L (0.89) NB-R (0.91)	A (8.5 sec)	-
Dundas Street West/ Avenue Two ⁽¹⁾	Signalized	A (4.9 sec)	-	C (27.0 sec)	EB-L (0.94) WB-T (0.94) SB-L (0.90)
Dundas Street West/ Tremaine Road ⁽¹⁾	Signalized	A (8.5 sec)	-	A (9.5 sec)	-
Bronte Road/Highway 407 Eastbound Off-Ramp ⁽¹⁾	Signalized	B (13.5 sec)	-	A (7.0 sec)	-

⁽¹⁾ For signalized intersections, levels of service are based on the overall intersection delay.

As indicated in Table 7.1A, on the basis of the 2016 future total traffic forecasts the boundary roadways intersections are expected to continue to operate at almost the same overall levels of service based on delay, as compared to the 2016 future background conditions. It is acknowledged that some individual

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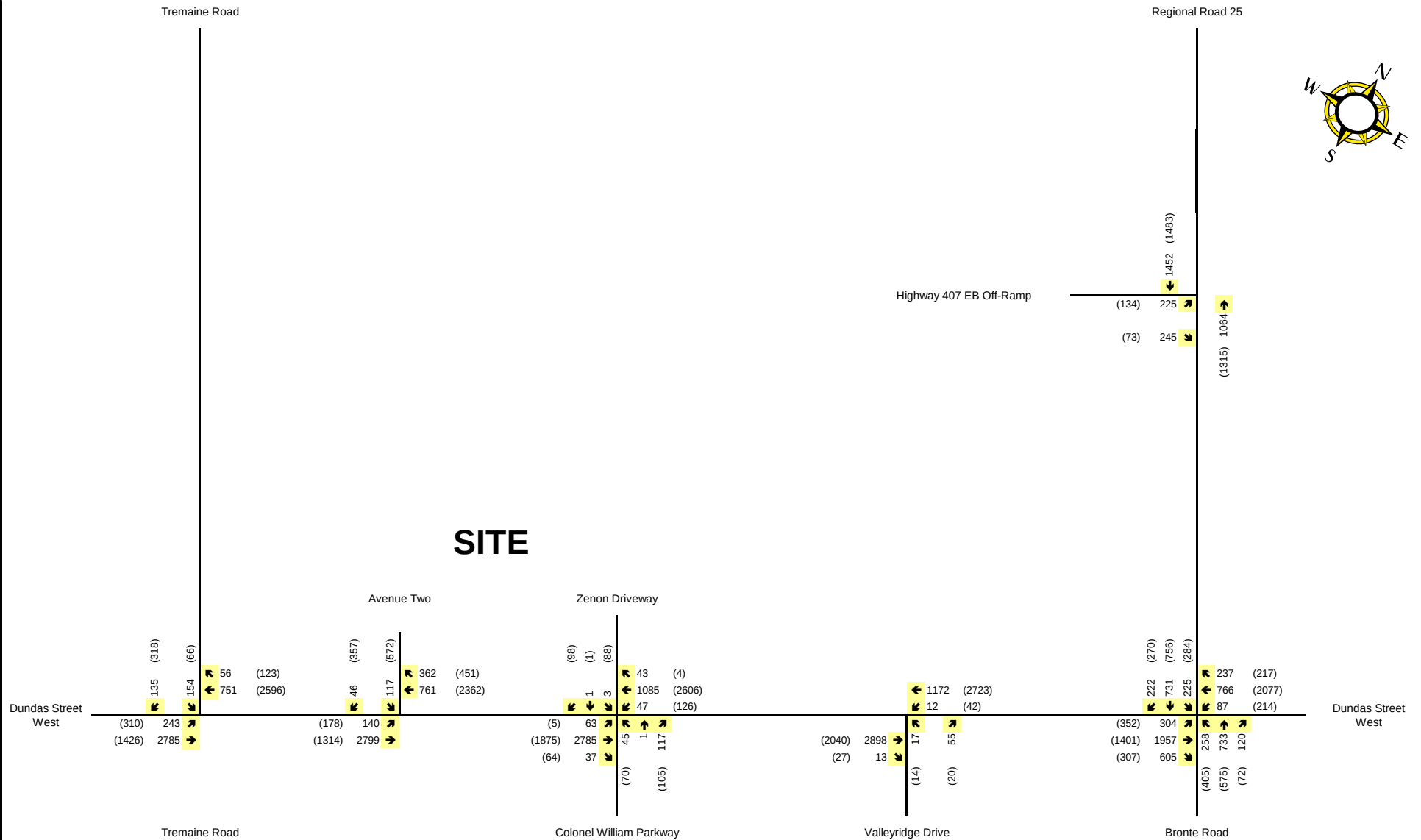
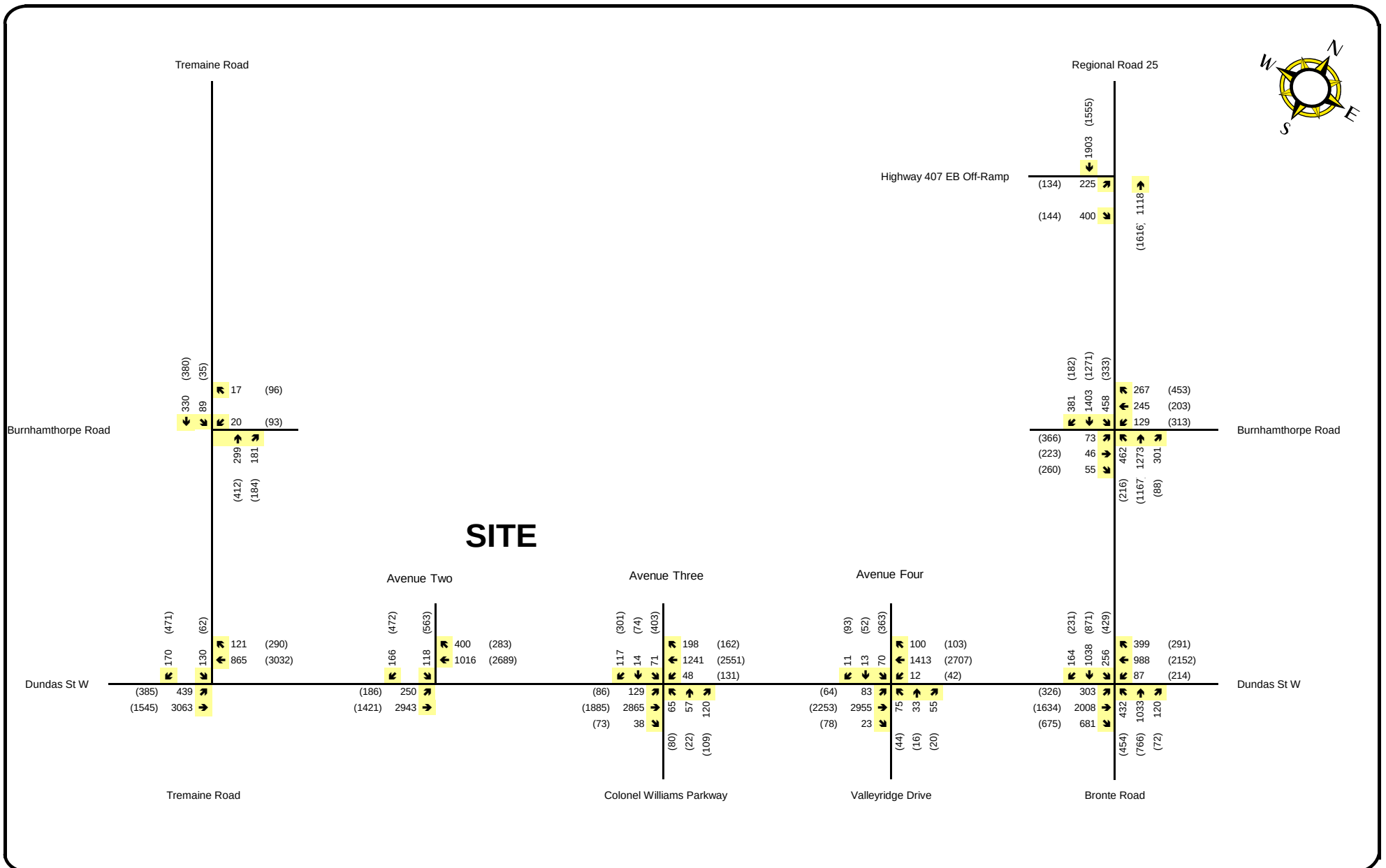
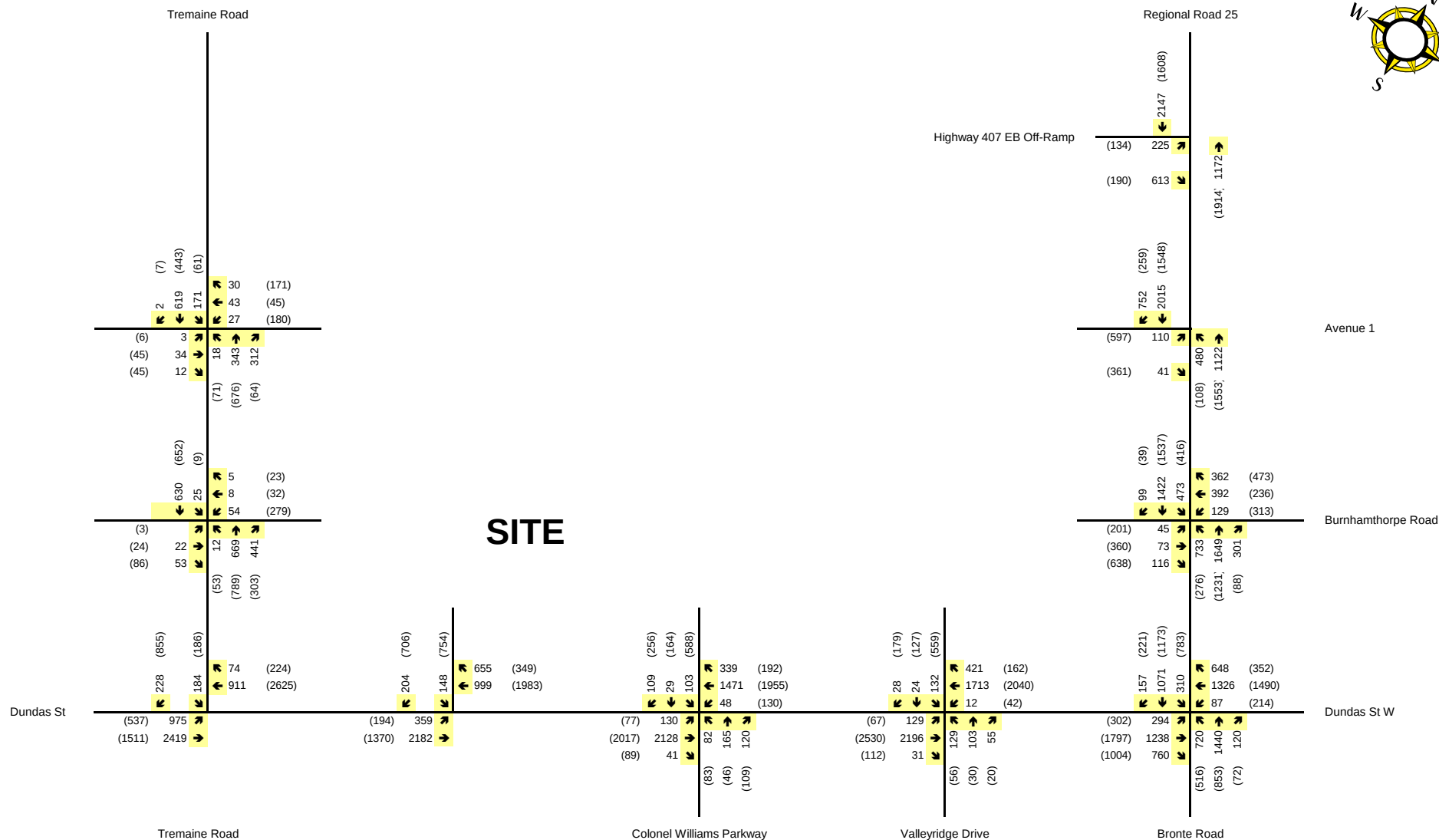


FIGURE 17A
 2016 Future Total
 Traffic Volumes





LEGEND

XX A.M. Peak Hour Volumes
 ((XX)) P.M. Peak Hour Volumes

FIGURE 17C
 2031 Future Total
 Traffic Volumes

movements at the Dundas Street West/Bronte Road intersection are forecast to continue to operate close to capacity.

Table 7.1B - Forecast Intersection Levels of Service Based on 2021 Future Total Traffic Volumes

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (delay in seconds)	Critical Movement(s) (v/c)	LOS (delay in seconds)	Critical Movement(s) (v/c)
Dundas Street West/ Bronte Road – Without Intersection Improvement ⁽¹⁾	Signalized	D (44.9 sec)	EB-L (0.92) EB-T (0.96) EB-R (0.85) NB-L (0.97) NB-T (0.90) SB-L (0.95) SB-T (0.98)	F (92.6 sec)	EB-L (1.08) WB-TR(1.09) NB-L (0.90) NB-T (1.06) SB-L (1.08) SB-T (0.97)
Dundas Street West/ Bronte Road – With Intersection Improvement (WB-R, and Double SB-L) ⁽¹⁾	Signalized	D (41.5 sec)	EB-T (0.96) EB-R (0.87) NB-L (0.97) SB-T (0.98)	E (69.4 sec)	EB-L (0.98) WB-T (0.97) NB-L (0.96) NB-T (0.85) SB-L (0.99) SB-T (0.97)
Dundas Street West/ Valleyridge Drive/ Avenue Four ⁽¹⁾	Signalized	A (6.9 sec)	-	C (24.8 sec)	EB-T (0.86) WB-T (0.92) SB-L (0.93)
Dundas Street West/ Colonel William Parkway/ Avenue Three ⁽¹⁾	Signalized	A (6.6 sec)	-	C (27.7 sec)	WB-T (0.95) SB-L (0.94)
Dundas Street West/ Avenue Two ⁽¹⁾	Signalized	A (6.1 sec)	-	C (35.6 sec)	EB-L (0.98) WB-T (0.97) SB-L (0.93)
Dundas Street West/ Tremaine Road ⁽¹⁾	Signalized	A (9.5 sec)	-	B (16.4 sec)	WB-T (0.93) SB-R (0.93)
Bronte Road/ Burnhamthorpe Road ⁽¹⁾	Signalized	C (24.4 sec)	NB-L (0.86) SB-L (0.85)	C (27.3 sec)	-
Bronte Road/Highway 407 Eastbound Off-Ramp ⁽¹⁾	Signalized	C (24.4 sec)	EB-R (0.93) SB-T (0.93)	A (9.1 sec)	-
Tremaine Road/ Burnhamthorpe Road ⁽¹⁾	Signalized	A (3.5 sec)	-	A (7.9 sec)	-

⁽¹⁾ For signalized intersections, levels of service are based on the overall intersection delay.

As indicated in Table 7.1B, most intersections which were analyzed are expected to continue to operate at similar levels of service as compared to the 2021 future background traffic conditions during the a.m. and p.m. peak hour.

The following three intersections are expected to operate at slightly worse levels of service, based on delay under the 2021 future total traffic conditions, as compared to the 2021 future background traffic conditions:

- Bronte Road/Burnhamthorpe Road during the a.m. peak hour
- Dundas Street West/Colonel William Parkway/Avenue Three during the p.m. peak hour
- Dundas Street West/Avenue Two during the p.m. peak hour

It is acknowledged that some movements at these intersections are forecast to operate close to capacity.

Similar to the 2021 future background traffic conditions, the Dundas Street West/Bronte Road intersection is forecast to operate at LOS 'F' during the p.m. peak hour under 2021 future total traffic conditions without any intersection improvements. With the proposed intersection improvements (i.e. addition of westbound exclusive right turn lane; northbound double left turn lane), the intersection is expected to operate at LOS 'E' during the p.m. peak hour. The volume-to-capacity ratios related to the critical movements at the intersection are expected to be reduced to less than 1.0 with the intersection improvements.

Table 7.1C - Intersection Levels of Service Based on 2031 Future Total Traffic Volumes

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (delay in seconds)	Critical Movement(s) (v/c)	LOS (delay in seconds)	Critical Movement(s) (v/c)
Dundas Street West/ Bronte Road – Without Intersection Improvement ⁽¹⁾	Signalized	E (77.3 sec)	EB-L (1.14) EB-R (0.91) WB-TR (1.06) NB-L (1.08) NB-T (1.08) SB-L (1.15) SB-T (1.07)	F (93.8 sec)	EB-L (1.17) EB-T (1.01) EB-R (1.12) WB-L (1.04) WB-TR (1.10) NB-T (1.19) SB-L (1.26) SB-T (1.11)
Dundas Street West/ Bronte Road – With Intersection Improvement (WB-R, and Double SB-L) ⁽¹⁾	Signalized	E (56.2 sec)	EB-L (1.07) EB-R (0.91) WB-R (1.06) NB-L (1.08) NB-T (1.01) SB-L (0.99) SB-T (1.07)	E (63.0 sec)	EB-L (1.04) EB-T (1.03) EB-R (1.12) WB-L (1.04) WB-T (0.97) SB-L (0.95) SB-T (1.11)
Dundas Street West/ Valleyridge Drive/ Avenue Four ⁽¹⁾	Signalized	B (16.6 sec)	-	C (29.0 sec)	EB-TR (0.95) SB-L (0.97)
Dundas Street West/ Colonel William Parkway/ Avenue Three ⁽¹⁾	Signalized	B (16.0 sec)	-	C (30.6 sec)	EB-T (0.89) WB-T (0.86) SB-L (0.93)
Dundas Street West/ Avenue Two ⁽¹⁾	Signalized	A (9.5 sec)	EB-L (0.91)	C (29.0 sec)	EB-L (0.93) WB-T (0.96) SB-L (0.97)
Dundas Street West/ Tremaine Road - Without Intersection Improvement ⁽¹⁾	Signalized	C (23.6 sec)	EB-L (0.98)	D (43.6 sec)	WB-T (1.05) SB-R (1.14)
Dundas Street West/ Tremaine Road - With Intersection Improvement (Channelized Right Turn Southbound Lane) ⁽¹⁾	Signalized	C (23.2 sec)	EB-L (0.98)	B (18.3 sec)	EB-L (0.97) WB-T (0.95)
Bronte Road/ Burnhamthorpe Road ⁽¹⁾	Signalized	D (43.4 sec)	NB-L (0.99) NB-T (0.92) SB-L (0.90) SB-T (1.04)	D (44.1 sec)	EB-R (0.99) WB-L (0.98) SB-L (0.89) SB-T (0.98)
Bronte Road/ Avenue One ⁽¹⁾	Signalized	C (27.3 sec)	NB-L (0.92) SB-T (0.96)	C (33.7 sec)	EB-L (0.94) SB-T (0.91)

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (delay in seconds)	Critical Movement(s) (v/c)	LOS (delay in seconds)	Critical Movement(s) (v/c)
Bronte Road/Highway 407 Eastbound Off-Ramp - Without Intersection Improvement ⁽¹⁾	Signalized	D (42.3 sec)	EB-R (1.07) SB-T (1.04)	B (10.5 sec)	-
Bronte Road/Highway 407 Eastbound Off-Ramp - With Intersection Improvement (Eastbound Shared Left- Right Lane) ⁽¹⁾	Signalized	B (17.7 sec)	EB-R (0.82) SB-T (0.88)	A (8.0 sec)	-
Tremaine Road/ Burnhamthorpe Road ⁽¹⁾	Signalized	B (11.9 sec)	-	C (30.4 sec)	WB-L (0.98) NB-TR (0.95)
Tremaine Road/ Avenue One ⁽¹⁾	Signalized	A (8.1 sec)	-	A (9.0 sec)	-

⁽¹⁾ For signalized intersections, levels of service are based on the overall intersection delay.

Similar to the 2031 future background traffic conditions, the capacity analyses indicate that all the boundary road intersections are forecast to operate at acceptable levels of service during the roadway a.m. and p.m. peak hours, with the exception of Dundas Street West/Bronte Road, Dundas Street West/Tremaine Road and Bronte Road/Highway 407 Eastbound off-ramp intersections. However, it should be noted that these three critical intersections are forecast to operate at similar levels of service, as compared to those under 2031 future background traffic volumes.

It is acknowledged that some individual movements at the following intersections are forecast to continue to operate close to capacity:

- Dundas Street West/Valleyridge Drive/Avenue Four
- Dundas Street West/Colonel William Parkway/Avenue Three
- Dundas Street West/Avenue Two
- Bronte Road/Burnhamthorpe Road
- Bronte Road/Avenue One
- Tremaine Road/Burnhamthorpe Road

The findings related to the three critical intersections with some individual movements operating over capacity are summarized below:

Dundas Street West/Bronte Road

Intersection improvements have been proposed for the Dundas Street West/Bronte Road intersection for horizon 2021, including:

- Addition of a westbound exclusive right turn lane; and
- Converting the existing single southbound left turn lane into double left turn lane.

Without these proposed intersection improvements, the Dundas Street West/Bronte Road intersection is forecast to operate at LOS 'E' and 'F' during the a.m. and p.m. peak hour, respectively under the 2031 future total conditions. Many movements are forecast to operate over capacity (v/c ratio exceeding 1).

With the proposed intersection improvements in place, the intersection is expected to operate at improved Levels of Service 'E' during the a.m. and p.m. peak hours. The volume-to-capacity ratios of critical movements at the intersection are also expected to be slightly reduced with the intersection improvements.

Dundas Street West/Tremaine Road

The Dundas Street West/Tremaine Road intersection is expected to operate at acceptable Levels of Service (LOS 'C' and 'D' during the a.m. and p.m. peak hours, respectively, based on delay), without any road improvements. However, the westbound through and southbound right turn movements are forecast to operate over capacity during the p.m. peak hour.

In order to accommodate the forecast traffic volumes, the existing southbound right turn lane is recommended to be converted to a channelized configuration. In conjunction, to allow the southbound right turn traffic to operate under free flow operations, an additional receiving taper lane is needed at the westerly leg of the intersection. This allows vehicles to merge into the westbound through traffic lane.

With the proposed intersection improvements, the intersection is forecast to operate at better LOS, with all critical movements operating below capacity.

Bronte Road/Highway 407 Eastbound Off-Ramp

The Bronte Road/Highway 407 Eastbound Off-ramp intersection is expected to operate at acceptable Levels of Service (LOS 'D' and LOS 'B' during the a.m. and p.m. peak hours, based on delay), without any road improvements. However, the eastbound right turn movement is forecast to operate over capacity during the a.m. peak hour.

Currently, the intersection has two left turn lanes and one right turn lane in the eastbound direction. To accommodate the anticipated traffic related to the potential developments in the area south of Highway 407, it is proposed that the lane configurations be modified to one left turn lane, one shared left/right lane, and one right turn lane in the eastbound direction. No changes are proposed to the lane configurations related to the other approaches.

With the proposed intersection improvements, the intersection is forecast to operate at better LOS, with all critical movements operating within capacity.

It should be noted that the current assessment only includes road improvements which were identified in the Halton Region Capital Projects (2010-2020). It is expected that more road improvements will be identified beyond 2020 to accommodate the potential traffic growth within the Region in the future.

Moreover, the road network within the NOWSP area is intended to reflect the principles of continuity and connectivity of roads. These principles are viewed as key elements of the secondary plan. A network of roads, with direct connections to existing roads, provides an efficient way for future workers to travel, whether by automobile, transit, walking or cycling.

Furthermore, a 15 percent modal split has been applied to the office uses in the trip generation calculation under the 2031 horizon year. However, it is conceivable that higher transit use would be achieved with the full implementation of high-order transit in the Dundas Street corridor, as envisioned in Metrolinx' the Big Move, and the protected Highway 407 Transitway along the south side of existing Highway 407. With high-frequency BRT or equivalent services operating in these corridors and connecting to a network of high-order transit providing convenient and attractive transit between North Oakville and adjacent urban areas of the Region and surroundings, it is likely that even more people could choose to use transit as congestion and delays on area roads and highways continue to increase. The details related to the future transit service are discussed in Section 8.0.

8.0 Transit

8.1 Town's Transit-First Planning Approach

Transit is being promoted as an integral part of the transportation and land use plans for the North Oakville Secondary Plan areas. As part of the North Oakville West Secondary Plan (NOWSP) area, the proposed development is subject to the Town's Transit-First planning approach being promoted for North Oakville.

As a basic premise of the Transit-First planning approach, the transportation network and corridor designs reflect a desire for an increased reliance and priority on transit in the future. The early introduction of transit services and the need for transit to provide a viable travel alternative at all stages of development is a fundamental element of the transportation policies and network in North Oakville.

Transit-First's emphasis is aimed at capturing transit ridership prior to people in new development areas establishing travel habits that rely solely on the automobile.

Transit-First has the benefit of being environmentally friendly and supporting land use intensification and reduced roadway rights-of-way from the very onset of development, which promotes the fundamental objective of environmental sustainability.

8.2 Transit Service Concept

8.2.1 *Inter-regional Transit Corridors*

The transit network and hierarchy of services in the Town's NOWSP reflect the anticipated intensity and mix of uses in corridors and utilize the continuous and connected grid network of planned roads. At the top of this hierarchy is the GO Rail service, meeting the needs of the inter-regional traveler. Currently focused primarily on the commuter trip to Toronto, increasing levels of service, including reverse flow trips will make GO Rail an effective choice for a wider range of inter-regional travel, including midday trips, trips to the eastern GTA, as well as Burlington and Hamilton.

GO Transit is continually expanding its inter-regional bus network to serve demands, and expanded services in the Highway 407 and Highway 403 corridors will eventually lead to the development of bus rapid transit (BRT) services with high-frequency connections to the rest of the GTA.

In addition, there is a 407 GO bus service that currently serves a park and ride stop at the Highway 407 interchange with Bronte Road. In the future, the planned Highway 407 Transitway along the south side of the existing Highway 407 will provide high-frequency BRT adjacent to the property. As part of the development of the Highway 407 Transitway, a planned Transitway station is to be located in the southeast quadrant of Highway 407 and Bronte Road, in close proximity of the property. It is anticipated that GO Transit and Oakville Transit routes will serve this terminal.

8.2.2 Town Services

Within Oakville, future transit services are designed to be implemented in two layers: corridor services, comprising Primary and Secondary Corridors, and Community Services.

These transit services are intended to provide connections to terminals, major destinations, and neighbourhoods. This is intended to make travel by transit convenient and attractive and thus maximize the ability of residents and employees to use transit.

Corridor services provide the basic grid of the service, including inter-municipal connections and connections to the inter-regional network of transit services. Primary and secondary corridors are distinguished by the level of service they offer.

Primary Transit Corridors

Primary Transit Corridor services provide high-frequency service connections within Oakville, as well as inter-municipal connections and connections to the inter-regional network of services. Transit service in the Primary Transit Corridors is ultimately expected to operate in the range of 2 to 5 minutes, with initial service frequencies of 3 to 10 minutes. To ensure that services in these Primary Corridors operate with minimum delay, additional infrastructure will be used to provide transit priority. This will include Reserved Bus Lanes (RBL) and High Occupancy Vehicle (HOV) lanes and transit priority measures at intersections, including possible signal priority measures and queue-jump lanes.

Dundas Street within the Town is identified as a Primary Transit Corridor and is identified in the Metrolinx 15-year plan as a potential rapid transit corridor. Dundas Street is envisioned to transform over time from the introduction of HOV lanes to RBLs, ultimately. In accordance with the Oakville Transit's current Service Design Standards, minimum peak service frequency is anticipated to be in the range of 10 to 20 minutes.

Secondary Transit Corridors

Secondary Transit Corridors are similar to the Primary Transit Corridors in that they provide a high level of service, operate on the grid network of streets and provide cross-boundary connections. Ultimately, Secondary Corridors are expected to have service levels in the 10- to 15-minute range.

In the vicinity of the proposed development, Bronte Road and Burnhamthorpe Road, east of Bronte Road, are identified as Secondary Transit Corridors. In accordance with the Oakville Transit's current Service Design Standards, minimum peak service frequency is anticipated to be in the range of 20 to 40 minutes.

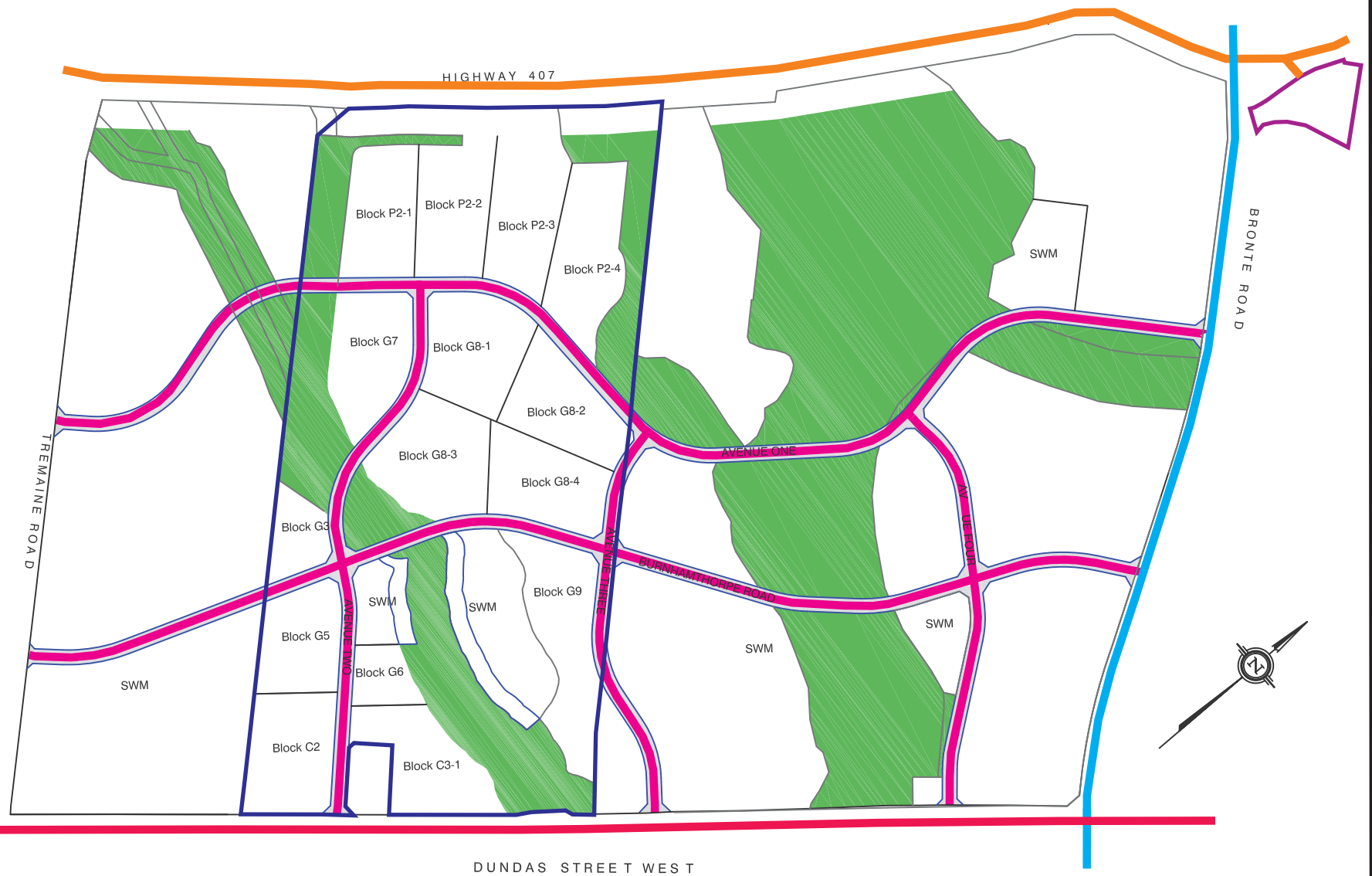
In addition to planned service levels, the Town's standard designs for transit streets - Arterials, Avenues and Connectors - have been developed specifically to accommodate the function and frequency of the transit service that is planned. Therefore, planned roadway facilities in these corridors appropriately reflect the anticipated transit types and service levels in the corridors.

Community Services

Community, or local, services are planned to operate on the interconnected and continuous grid network of planned roads. Local services provide the highest degree of local access. Routes are expected to operate at levels of service between 15 and 30 minutes. These routes are intended to provide direct access to lower demand areas, and are expected to operate on the network of arterial, avenue and connector roads. Riders will use these routes to access local destinations and as connections to the corridor routes for longer distance trips.

Within the subject property, Burnhamthorpe Road and Avenue One, between Bronte Road and Tremaine Road, and Avenue Two, Avenue Three and Avenue Four, between Dundas Street and Avenue One, are intended to accommodate Community Services, in accordance with the NOWSP. In accordance with the Oakville Transit's current Service Design Standards, minimum peak service frequency is anticipated to be in the range of 20 to 60 minutes.

The proposed transit services serving the subject property are shown in Figure 18.



Legend

- Site Area
- Inter-Regional Transit Service Corridor
- Primary Transit Service Corridor
- Secondary Transit Corridor Service
- Community Service
- Highway 407 Transit Terminal

**Figure 18: Transit Corridors
Bentall - 407 West Employment Area
Oakville, Ontario**

8.3 Transit Infrastructure Requirements

Roads within the subject property are to be designed in accordance with the Town's Standard right-of-way for an Avenue/Transit Corridor (22.0m ROW) - Employment Area. The Town standard is designed to accommodate transit service, and comprises a 3.75m travel lane and a 2.5m curb-side parking lane in each direction, for a total pavement width of 12.5m.

It is anticipated that on-street parking will be prohibited in proximity of intersections to accommodate transit stops.

Intersection curb radii are to be designed to accommodate transit vehicles, as well as heavy trucks, while recognizing objectives related to increased walking and cycling and safety.

As a general guideline, roadway infrastructure requirements for the hierarchy of transit services in and adjacent to the subject property are considered for implementation at the service thresholds outlined in Table 8.1.

Table 8.1 - Typical Service and Technology Levels

Transit Service Type	Combined Headway*	Road Infrastructure Requirement
Community Service	15 to 30 minutes	Not typically
Secondary Transit Corridor	10 to 15 minutes	Transit priorities at congested areas
Primary Transit Corridor	3 to 10 minutes 2 to 5 minutes	HOV lanes Reserved Bus Lanes
Inter-regional Transit Corridor	less than 3 minutes	Separate ROW

** Combined headway is defined as the average time between all scheduled bus services in the corridor.*

At service levels consistent with the current Oakville Transit Service Design Standards, transit infrastructure improvements or enhancements are not warranted for the roadways in or adjacent to the subject property.

As previously identified, Dundas Street is envisioned to transform over time from the introduction of HOV lanes to Reserved Bus Lanes in its ultimate configuration.

8.4 Bus Stops and Passenger Amenities

Passenger amenities are to be based upon the needs and volumes of passengers at each stop type and location in accordance with the approved Oakville Transit Service Design Standards and direction provided by the Town's North Oakville Secondary Plan, Transit Plan, August 2009.

Passenger amenities are to be placed with consideration to the pedestrian circulation and an unobstructed landing pad to ensure that ramps can be deployed for accessibility at stops.

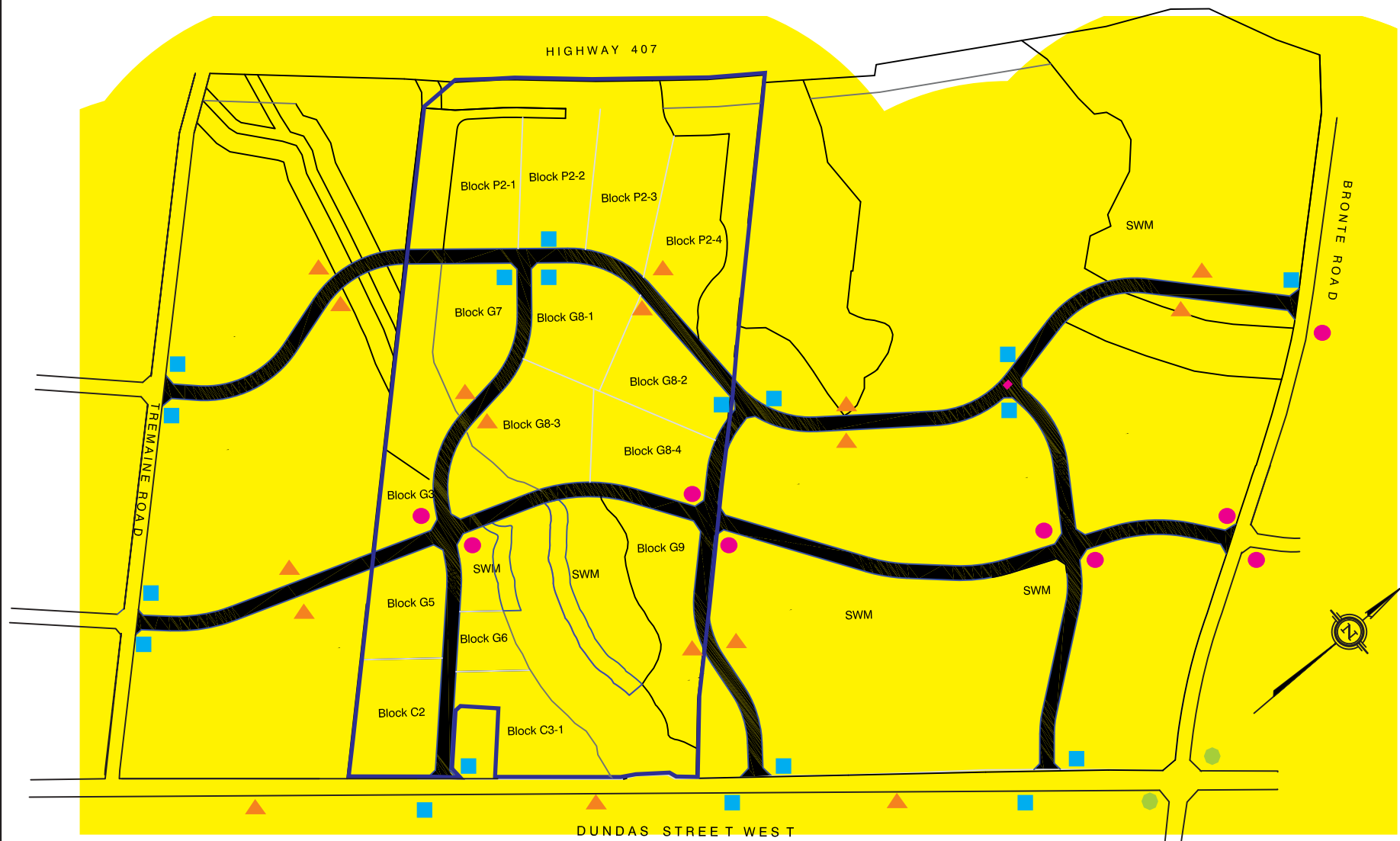
In accordance with the North Oakville Secondary Plan Transit Plan guidelines, bus stops are to be located so that all employees are generally within 400 metres walking distance of a bus stop. To achieve this goal, bus stops are to have a maximum spacing of approximately 250m along a transit route.

Figure 19 shows the proposed spacing of bus stops, by type within the subject property and adjacent lands in the NOWSP area. The location of bus stops is generally consistent with the objective of achieving a maximum spacing of 250m along transit routes.

The bus stop types shown in Figure 19 have been established based on the Town's bus stop types and warrants for bus stop amenities, as presented in the North Oakville Secondary Plan Transit Plan.

Table 8.2 presents the warrants for the proposed bus stop locations within the subject property and adjacent lands in the NOWSP area.

Where appropriate, consideration has been given to locating bus stops on the near side of intersections to minimize interference to roadway operations when traffic is heavy on the far side of the intersection. With near-side bus stop locations, buses can service passengers while stopped at a red light and drivers will have an opportunity to look for on-coming traffic, including other buses that may have passengers loading and unloading. Relative to near-side stop locations, far-side stop locations may increase the potential for rear-end accidents, since drivers often do not anticipate buses stopping after having just proceeded through the intersection. For multi-lane roads where there is sufficient opportunity for vehicles to pass a stopped bus without substantial impedance, a far-side stop location may be preferred due to the improved driver sightlines that this typically creates.



Legend	
 Transit Coverage	 Stop A Near-Side
 Site Area	 Stop D Mid-Block
 Stop A	 Transit Node

Figure 19: Transit Stop Locations
Bentall - 407 West Employment Area
Oakville, Ontario

Table 8.2 - Warrants for Bus Stop Locations and Passenger Amenities

		Boarding/Transfer	Mobility Needs	Activity	Exposure	Wait Time	Request	Total	Stop Type	Intersection Location
Dundas Street										
	intersection with Bronte Rd	10	0	0	3	0	0	13	Transit Node	Near-side
	intersection with Avenue	10	0	0	3	0	0	13	Stop A	Near-side
	mid-block	0	0	0	3	0	0	3	Stop D	Mid-block
Bronte Road										
	intersection with Dundas St	10	0	0	3	2	0	15	Transit Node	Far-side
	intersection with Burnhamthorpe Rd	10	0	0	3	2	0	15	Stop A	Near-side
	intersection with Avenue	10	0	0	3	2	0	15	Stop A	Near-side
	mid-block	0	0	0	3	2	0	5	Stop D	Mid-block
Burnhamthorpe Road										
	intersection with Bronte Rd	10	0	0	3	2	0	15	Stop A	Far-side
	intersection with Tremaine Rd	10	0	0	3	2	0	15	Stop A	Near-side
	intersection with Avenue	10	0	0	3	2	0	15	Stop A	Far-side
	mid-block	0	0	0	3	2	0	5	Stop D	Mid-block
Tremaine Road										
	intersection with Dundas St	10	0	0	3	2	0	15	Stop A	Far-side
	intersection with Burnhamthorpe Rd	10	0	0	3	2	0	15	Stop A	Near-side
	intersection with Avenue	10	0	0	3	2	0	15	Stop A	Near-side
	mid-block	0	0	0	3	2	0	5	Stop D	Mid-block
Avenues										
	intersection with Dundas St	10	0	0	0	2	0	12	Stop A	Far-side
	intersection with Bronte Rd	10	0	0	0	2	0	12	Stop A	Far-side
	intersection with Tremaine Rd	10	0	0	0	2	0	12	Stop A	Near-side
	intersection with Burnhamthorpe Rd	10	0	0	0	2	0	12	Stop A	Near-side
	intersection with Avenue	10	0	0	0	2	0	12	Stop A	Near-side
	mid-block	0	0	0	0	2	0	2	Stop D	Mid-block

In addition to these important considerations, the proposed locations also take into account the anticipated primary flow of passenger transfers at the proposed locations and the desire to locate stops in the same quadrant of the intersection to reduce walking distances for passengers that are transferring between routes.

Sufficient right-of-way is to be provided at all stop locations to accommodate the required bus stop amenities.

8.5 Transit Market Potential

Figure 19 illustrates the transit service coverage within the subject property and adjacent lands in the NOWSP area, based on the anticipated transit corridors and proposed bus stop locations. It is evident from the figure that the vast majority of future employees within the subject property and adjacent lands in the NOWSP area will be within a convenient and comfortable walk of transit service.

Based on the proposed uses and anticipated transit service, transit market potential estimates were derived for the NOWSP area.

The anticipated transit service and proposed employment uses are estimated to lead to increased transit use in the NOWSP area relative to the base case analysis (i.e., presumption of limited transit use, similar to existing levels). Compared to the 2031 base case, the proposed Transit Concept is estimated to generate in the order of 530 and 520 “new” potential transit trips during the a.m. and p.m. peak hours, respectively, at complete build-out. These are trips that would otherwise be expected to use private automobiles for travel, if transit was not implemented in the NOWSP area at the levels envisioned.

Projected future transit market potential related to development of the subject property, is considerably less. For the subject property, compared to the base case, the new potential transit trips are estimated to be in the order of 175 and 170 trips during the a.m. and p.m. peak hours, respectively, at complete build-out.

Based on the estimated employment uses in NOWSP area by 2031, these levels of anticipated transit use likely represent an increase in transit use during the roadway a.m. and p.m. peak hours approaching 7 and 5 percent, respectively, relative to the base case for the entire NOWSP area.

8.6 Implementation

It is anticipated that local transit service can be provided to the subject property either as extensions of existing routes or through the creation of new routes, in accordance with existing Oakville Transit Service Design Standards. The determination of future transit routing and service levels would be at the discretion of Oakville Transit.

It is anticipated that services will be phased in over time, so that initial services are convenient and timely, but cost-effective to deliver. As previously noted, the subject property is served by Oakville Transit Route 5

(Dundas), which runs between the Uptown Core Terminal (Trafalgar Road/Dundas Street) and Dundas Street West/Colonel Williams Parkway. This route currently loops around Colonel William Parkway, Richview Boulevard, and Bronte Road at the west tip of the route. It is possible that this existing transit route could be modified and extended to the subject property (at least initially) as a way to introduce service at levels similar to the existing Route 5 service frequencies. These initial transit services could then be intensified as demand grows to establish regularly scheduled local routes consistent with the NOWSP policies and Oakville Transit Service Design Standards.

Actual service levels and, thus, the number of buses required will be dependent on available resources, service standards and policies at the time of implementation, and matching service levels with demand.

9.0 Cycling and Pedestrians

The Town of Oakville Active Transportation Master Plan, September 2009, recommends a convenient and continuous Town-wide pedestrian and cycling network that minimizes risk to users and is integrated with other facilities (Regional, bordering municipalities, transit, end of trip, etc.). The Active Transportation Master Plan (ATMP) is based on principles that comprise:

Safety: Reducing risks to users and providing comfortable facilities will be key considerations when selecting routes for the network, while recognizing that every street in Oakville should accommodate pedestrians and cyclists.

Visible: The routes should be a visible component of the transportation system.

Direct / Connected: All routes should be connected to form an overall pedestrian and cycling network that supports connections between existing and planned neighbourhoods, and between different land uses.

Destinations: Active Transportation routes should provide access to major destinations in the town including natural, cultural and service facilities, as well as routes to schools, community and neighbourhood parks and shopping facilities.

Integration with other modes: The active transportation network should be integrated with other modes of transportation, particularly public transit. Routes should be selected to provide access to transit stops and stations.

Attractive and Scenic: Active Transportation routes should take advantage of attractive and scenic areas, views and vistas.

Diverse: The active transportation network should provide a diverse on and off-road walking and cycling experience, which recognizes both utilitarian and recreational uses, and provides a range of route types and interests.

Easily accessible: Active Transportation routes should be easily accessible from local neighbourhoods within the town, and every effort should be made to integrate these routes with local area networks.

Complete Streets: All streets in redevelopment areas and proposed new or widened road rights-of-way whether designated in the Active Transportation network or not should be planned and designed following the “Complete Streets” method where feasible to ensure streets are designed at a pedestrian and cycling scale and supported by appropriate urban design and streetscape principles. The method is premised on the idea that planning and engineering for users (pedestrians, cyclists, and motorists, which includes cars, buses and trucks) and municipal servicing requirements (sewers, utilities etc.) should not compete for space in the design process but rather be planned in an inclusive and holistic process. This may result in some deviation from typical engineering and design guidelines.

Supporting Services and Facilities: Supportive services and facilities such as benches, bicycle parking, information stops and garbage receptacles should be available along routes and at destinations. Attention should also be given to accommodating year-round use on key primary routes, and this will include a review of winter maintenance and night time illumination policies. Routes should be selected that provide opportunities to develop supporting facilities.

Building on these principles and the ATMP proposed network of pedestrian and cycling facilities, a Pedestrian Circulation Plan and Cycling and Trails Network is proposed for the subject property and adjacent lands in the NOWSP area.

9.1 Pedestrian Circulation Plan

The Pedestrian Circulation Plan is shown in Figure 20. The proposed plan provides an extensive, fully connected network of sidewalks throughout the planned employment area, comprising 1.5m-wide sidewalks on both sides of all Avenues within the subject property and adjacent lands in the NOWSP area. The sidewalks are proposed to be provided and located in accordance with the Town's typical cross-section for an Avenue/Transit Corridor (22.0m ROW) - Employment Area.

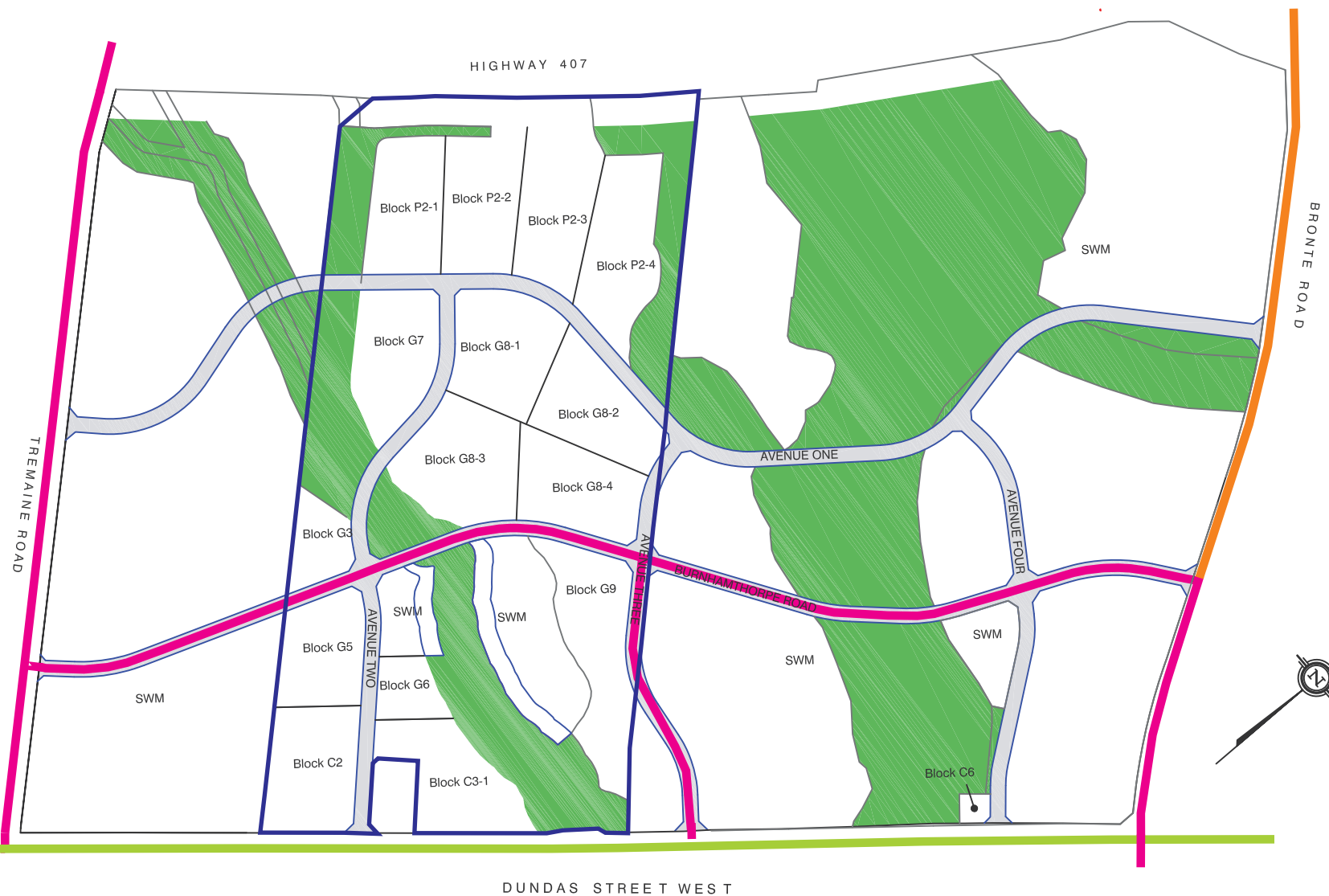
It is anticipated that marked pedestrian crossings will be provided at signalized intersections within the subject property and adjacent lands in the NOWSP area. Where applicable, pedestrian crossings are to be designed and implemented in accordance with Town or Region engineering design practices.

9.2 Cycling Facilities

The Cycling and Trails Network is shown in Figure 21. Bicycles are designated as a vehicle under the Highway Traffic Act (HTA) and as such are required to obey all of the same rules and regulations as automobiles when being operated on a public roadway. The cycling routes proposed as part of the Town's ATMP network comprise several facility types, each with its own set of minimum design parameters. These are generally consistent with the Ministry of Transportation (MTO) and the Transportation Association of Canada (TAC) guidelines for the design of on-road facilities and standards for signing the on-road cycling system.

The cycling component of the Town's ATMP network consists of on-road bike lanes, paved shoulder bikeways, signed only bicycle routes and multi-use trails. Within the subject property and adjacent lands in the NOWSP area, all bicycle facilities are proposed to be on-road signed bicycle routes.

The purpose of designating a signed only bicycle route is to promote a road for cycling because it is deemed to be well suited for cycling; it may provide an important connection between destinations, or it is a preferred route identified by cyclists. In the case of signed on-road bicycle routes, the travel lane is shared by motorists and cyclists. These are roads where traffic volumes and vehicle speeds are relatively low. Under these conditions, cyclists can share the road with motor vehicles and there is no need to create a designated space for cyclists. Bicycle route marker signs located at intersections and at regular intervals aid users with wayfinding.



Legend

- Site Area
- Paved Shoulder Bikeway (On-Road)
- Multi-Use Trail (Off-Road / In Boulevard)
- Signed Bike Route (On-Road)

Figure 21: Active Transportation Master Plan
Cycling and Trails Network
Bentall - 407 West Employment Area
Oakville, Ontario

On-road bicycle routes are proposed along Burnhamthorpe Road between Bronte Road and Tremaine Road, and along Avenue Three, between Burnhamthorpe Road and Dundas Street. These proposed on-road bicycle routes are to be accommodated within the Town's Avenue/Transit Corridor (22.0m ROW) - Employment Area. The proposed bicycle facilities provide connections to bike lanes along Burnhamthorpe Road, east of Bronte Road, and along Colonel William Parkway, south of Dundas Street.

The proposed on-road signed bicycle routes within the subject property and adjacent lands of the NOWSP area also connect to planned bicycle facilities on the Regional boundary roads, comprising:

- A combination of on-road paved shoulder bikeway and signed bicycle route on Bronte Road;
- A 3.0 m asphalt multi-use trail in the boulevard on Dundas Street; and
- A signed bicycle route on Tremaine Road.

It is anticipated that bicycle facilities crossing the Regional boundary roads will be provided at signalized intersections, and where applicable, these crossings are to be designed and implemented in accordance with recommendations of the Town's Active Transportation Master Plan.

9.3 Major Trails

The development proposal outlines the proposed natural heritage and open space system based on the Town's NOWSP and the North Oakville Creek Subwatershed Study (NOCSS), which has been further refined for the Subject Property based upon the recommendations of the Environmental Implementation Report and Functional Servicing Study (EIR/FSS). The central open space system and adjacent stormwater management will accommodate pedestrian trails and passive recreational uses, integrated with the adjacent employment development.

In the absence of a North Oakville West Trails Plan, the NOWSP provides the framework for trail planning within the 407 West Employment Areas and the Subject Property.

In addition the pedestrian and cycling facilities identified in Sections 9.1 and 9.2, the NOWSP, Figure NOW4, conceptually identifies a Major Trail System within the NHS, along the main stream corridor which traverses the Subject Property.

The NOWSP (S. 8.5.5.10) states that: "An extensive system of recreational trails will be developed related to the Natural Heritage and Open Space System as well as along certain public road rights of way. A conceptual major trail system which will form the basis for the development of this more extensive system is identified on Figure NOW4. However, any proposed trail development within the Natural Heritage and Open Space System shall be subject to further study as part of the Implementation Strategy to the satisfaction of the Town, in consultation with the Region of Halton and Conservation Halton. The system may be refined through the preparation of an EIR in accordance with the provisions of Section 8.8.3 a) of this Plan."

The NOWSP permits trails within stream corridors, other than Sixteen Mile Creek, which are adjacent to the valley and located within the buffer. Section 8.4.7.3 of the NOWSP notes that trails and related interpretative displays or signage or other similar passive recreation uses consistent with the purpose of the applicable designation are a permitted use in the NHS, subject to conditions. Trails in the NHS designation are to be designed and located to minimize any impact on the natural environment.

The NOCSS further notes that the Ministry of Natural Resources and Conservation Halton will need to be consulted as part of the evaluation of placement of trails within the NHS.

In keeping with the direction provided for the NOESP area in the Town's North Oakville East Trails Plan, May 2008, it is anticipated that Major Trails in the NOWSP area will be soft surface pathways used primarily by pedestrians, although cycling would not be restricted, and that they provide additional north and south connections to the main east-west pedestrian, cycling and trail facilities within the road rights-of-way.

Major Trails will be typically 3.0 metres wide, with a limestone screenings surface, and asphalt paving on slopes greater than 5 percent. Signage should be provided for recreational cyclists and pedestrians. Major trails within the NHS will not receive winter maintenance.

Mid-block crossings are to be minimized, with roadway crossings occurring where possible at signalized or stop-controlled intersections.

10.0 Summary and Conclusions

This Transportation Impact Study addresses the impacts of the proposed phased developments on the subject property in the 407 West Employment Area on the boundary roadway intersections in the vicinity of the property. The subject property is located mid-block between Bronte Road and Tremaine Road, and bounded by Dundas Street West to the south.

The proposed development is expected to generate the following number of vehicle trips under the 2016, 2021, 2031 horizon:

- 424 inbound/130 outbound vehicle trips and 342 inbound/577 outbound vehicle trips during the roadway a.m. and p.m. peak hours, respectively, under the 2016 horizon year;
- 1,182 inbound/275 outbound vehicle trips and 538 inbound/1,224 outbound vehicle trips during the roadway a.m. and p.m. peak hours, respectively, under the 2021 horizon year;
- 1,855 inbound/366 outbound vehicle trips and 662 inbound/1,852 outbound vehicle trips during the roadway a.m. and p.m. peak hours, respectively, under the 2031 horizon year.

Under the 2016, 2021, and 2031 future total traffic conditions, most of the boundary road intersections are expected to operate at good to acceptable levels of service, with the exception of Dundas Street West/Bronte Road intersection.

Road improvements have been identified as being needed to accommodate the forecast future growth in background traffic unrelated to the property. These include:

- Addition of a westbound exclusive right turn lane and conversion of the existing single southbound left turn lane to double left turn lanes at the Dundas Street West/Bronte Road intersection for horizon 2021;
- Channelization of the southbound right turn lane configuration, with the southbound right turn traffic operating under free flow operations at the Dundas Street/Tremaine Road intersection for horizon 2031;
- Conversion of the existing two eastbound left turn lanes to a left turn eastbound lane and a shared left/right eastbound lane at the Bronte Road/Highway 407 Eastbound Off-Ramp intersection for horizon 2031.

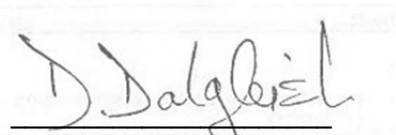
With the improvements related to the Dundas Street West/Bronte Road in place, the intersection is forecast to operate at LOS 'E', with some critical movements operating over capacity.

A network of transit, cycling and pedestrian facilities is planned for the subject property, with connections to future planned facilities within the rest of the NOWSP area and the Town. Facilities are intended to be located and designed in accordance with Town guidelines and standards. It is anticipated that the network of transit, cycling and pedestrian facilities can support in the order of a 15 percent reduction in travel during the roadway peak hours, relative to the 2031 base case.

Based on the study findings, it is concluded that the boundary road network can satisfactorily accommodate the additional traffic generated by the proposed development on the subject property.

Respectfully submitted,

MMM Group Limited

A handwritten signature in dark ink, appearing to read 'D. Dalglish', is written over a light blue rectangular stamp. The signature is fluid and cursive.

Derek Dalglish, M.P.I.
Senior Project Manager, Transportation Planning
Associate

APPENDIX A

Level of Service Definitions

LEVEL OF SERVICE DEFINITIONS AT SIGNALIZED INTERSECTIONS⁽¹⁾

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically for a 15-min analysis period. The criteria are given in the table below. Delay may be measured in the field or estimated using software such as Highway Capacity Software. Delay is a complex measure and is dependent upon a number of variables, including quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

Level of Service	Features	Control Delay per vehicle (sec)
A	LOS A describes operations with very low delay, up to 5 sec per vehicle. This level of service occurs when progression is extremely favourable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10
B	LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	$> 10 \text{ and } \leq 20$
C	LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.	$> 20 \text{ and } \leq 35$
D	LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavourable progression, long cycle lengths, of high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	$> 35 \text{ and } \leq 55$
E	LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	$> 55 \text{ and } \leq 80$
F	LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	> 80

(1) Highway Capacity Manual 2000

APPENDIX B

Capacity Analyses Existing Traffic Operations

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	226	2469	639	47	129	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	3510	3444	1585	1772	1585
Flt Permitted	0.407				0.950	
Satd. Flow (perm)	759	3510	3444	1585	1772	1585
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				47		125
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	1156.8		1625.4	
Travel Time (s)		26.8	52.1		73.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	226	2469	639	47	129	125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	226	2469	639	47	129	125
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm		Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4

2011 AM Existing 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	45.0	45.0	45.0	45.0	8.0	8.0
Minimum Split (s)	52.0	52.0	52.0	52.0	22.0	22.0
Total Split (s)	98.0	98.0	98.0	98.0	22.0	22.0
Total Split (%)	81.7%	81.7%	81.7%	81.7%	18.3%	18.3%
Maximum Green (s)	91.0	91.0	91.0	91.0	16.0	16.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	7.0	4.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	5.5	5.5	5.5	5.5	2.5	2.5
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	7.0	7.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	96.1	96.1	96.1	94.1	14.9	12.9
Actuated g/C Ratio	0.80	0.80	0.80	0.78	0.12	0.11
v/c Ratio	0.37	0.88	0.23	0.04	0.58	0.44
Control Delay	5.8	13.7	1.8	0.4	60.0	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	13.7	1.8	0.4	60.0	13.4
LOS	A	B	A	A	E	B
Approach Delay		13.0	1.7		37.1	
Approach LOS		B	A		D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 96 (80%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 93.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	63	2476	28	24	681	43	12	1	36	3	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	30.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3510	1512	1508	3444	1633	1674	1921	1585	1825	1921	0
Flt Permitted	0.381			0.045			0.870			0.870		
Satd. Flow (perm)	732	3510	1512	71	3444	1633	1533	1921	1585	1671	1921	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			28			43			20			
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		1156.8			284.1			333.6			448.4	
Travel Time (s)		52.1			12.8			24.0			32.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	8%	21%	6%	0%	9%	0%	3%	0%	0%	0%
Adj. Flow (vph)	63	2476	28	24	681	43	12	1	36	3	1	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	2476	28	24	681	43	12	1	36	3	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		

2011 AM Existing 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	20.0	20.0	20.0	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	8.0	27.0	27.0	27.0	27.0	27.0	13.0	13.0	13.0	13.0	13.0	
Total Split (s)	9.0	106.0	106.0	97.0	97.0	97.0	14.0	14.0	14.0	14.0	14.0	0.0
Total Split (%)	7.5%	88.3%	88.3%	80.8%	80.8%	80.8%	11.7%	11.7%	11.7%	11.7%	11.7%	0.0%
Maximum Green (s)	5.0	99.0	99.0	90.0	90.0	90.0	8.0	8.0	8.0	8.0	8.0	
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	5.0	5.0	7.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0	5.0	3.5	3.5	3.5	0.2	0.2	
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Pedestrian Calls (/hr)		0	0	0	0	0	0	0	0	0	0	
Act Effect Green (s)	109.8	108.8	107.6	100.5	100.5	98.9	7.0	7.0	7.0	7.0	7.0	
Actuated g/C Ratio	0.92	0.91	0.90	0.84	0.84	0.82	0.06	0.06	0.06	0.06	0.06	
v/c Ratio	0.09	0.78	0.02	0.41	0.24	0.03	0.13	0.01	0.32	0.03	0.01	
Control Delay	0.5	1.5	0.0	29.7	0.9	0.0	56.4	53.0	38.5	53.3	53.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	0.5	1.5	0.0	29.7	0.9	0.0	56.4	53.0	38.5	53.3	53.0	
LOS	A	A	A	C	A	A	E	D	D	D	D	
Approach Delay		1.5			1.8		43.2				53.3	
Approach LOS		A			A		D				D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 2.2

Intersection LOS: A

Intersection Capacity Utilization 92.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Private Driveway



2011 AM Existing 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑↑	↖	↖
Volume (vph)	2508	13	12	745	17	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	28.0		50.0	50.0
Storage Lanes		0	1		1	1
Taper Length (m)		65.0	70.0		25.0	25.0
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.999					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5027	0	1362	4948	1825	1471
Flt Permitted			0.045		0.950	
Satd. Flow (perm)	5027	0	65	4948	1825	1471
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	2					10
Link Speed (k/h)	60			60	50	
Link Distance (m)	243.9			243.0	345.0	
Travel Time (s)	14.6			14.6	24.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	47%	34%	6%	0%	11%
Adj. Flow (vph)	2508	13	12	745	17	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2521	0	12	745	17	55
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type			Perm			Perm
Protected Phases	2			6	8	
Permitted Phases			6			8

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Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	30.0		30.0	30.0	7.0	7.0
Minimum Split (s)	37.0		37.0	37.0	25.0	25.0
Total Split (s)	93.0	0.0	93.0	93.0	27.0	27.0
Total Split (%)	77.5%	0.0%	77.5%	77.5%	22.5%	22.5%
Maximum Green (s)	86.0		86.0	86.0	21.0	21.0
Yellow Time (s)	5.0		5.0	5.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	-2.0	-2.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	6.0		6.0	6.0	5.0	5.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	101.6		101.6	101.6	11.1	11.1
Actuated g/C Ratio	0.85		0.85	0.85	0.09	0.09
v/c Ratio	0.59		0.22	0.18	0.10	0.38
Control Delay	0.7		21.8	1.9	49.5	49.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	0.7		21.8	1.9	49.5	49.6
LOS	A		C	A	D	D
Approach Delay	0.7			2.2	49.6	
Approach LOS	A			A	D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 65 (54%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 2.1

Intersection LOS: A

Intersection Capacity Utilization 63.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Valleyridge Dr



2011 AM Existing 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔	↔	↔	↔↔↔	↔	↔↔	↔↔	↔	↔	↔↔	↔
Volume (vph)	260	1664	552	87	559	237	110	681	120	225	680	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.955				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	4995	1601	1587	4765	0	3340	3544	1555	1755	3444	1512
Flt Permitted	0.261			0.086			0.950			0.131		
Satd. Flow (perm)	487	4995	1601	144	4765	0	3340	3544	1555	242	3444	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			236			100			120			138
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			590.5	
Travel Time (s)		14.6			9.6			21.8			35.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	260	1664	552	87	559	237	110	681	120	225	680	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	260	1664	552	87	796	0	110	681	120	225	680	150
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

2011 AM Existing 7/17/2009 Base

Synchro 7 - Report
Page 7

Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	32.0	32.0	9.0	32.0	32.0
Total Split (s)	19.0	58.0	58.0	9.0	48.0	0.0	10.0	33.0	33.0	20.0	43.0	43.0
Total Split (%)	15.8%	48.3%	48.3%	7.5%	40.0%	0.0%	8.3%	27.5%	27.5%	16.7%	35.8%	35.8%
Maximum Green (s)	15.0	51.0	51.0	5.0	41.0		6.0	27.0	27.0	16.0	37.0	37.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	2.0	5.0	4.0	2.0	4.0	6.0	2.0	4.0	6.0
Lead/Lag	Lead	Lag	Lag	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			15.0	15.0		15.0	15.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	66.8	54.5	52.5	57.0	46.6		8.0	28.6	26.6	49.2	37.2	35.2
Actuated g/C Ratio	0.56	0.45	0.44	0.48	0.39		0.07	0.24	0.22	0.41	0.31	0.29
v/c Ratio	0.60	0.73	0.66	0.56	0.42		0.49	0.81	0.27	0.73	0.64	0.28
Control Delay	13.7	23.3	14.2	32.5	24.6		62.0	51.5	8.3	40.8	38.5	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	23.3	14.2	32.5	24.6		62.0	51.5	8.3	40.8	38.5	7.6
LOS	B	C	B	C	C		E	D	A	D	D	A
Approach Delay		20.3			25.4			47.1			34.6	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 28.5

Intersection LOS: C

Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 30: Dundas St W & Bronte Rd



2011 AM Existing 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖	↖↖	↖	↖	↖
Volume (vph)	288	1207	2238	94	50	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3544	3544	1585	1706	1601
Flt Permitted	0.051				0.950	
Satd. Flow (perm)	96	3544	3544	1585	1706	1601
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				57	158	
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	1156.8		1625.4	
Travel Time (s)		26.8	52.1		73.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	3%	3%	7%	2%
Adj. Flow (vph)	288	1207	2238	94	50	295
Shared Lane Traffic (%)						
Lane Group Flow (vph)	288	1207	2238	94	50	295
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4

2011 PM Existing 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	4.0	45.0	45.0	45.0	8.0	8.0
Minimum Split (s)	8.0	52.0	52.0	52.0	22.0	22.0
Total Split (s)	16.0	98.0	82.0	82.0	22.0	22.0
Total Split (%)	13.3%	81.7%	68.3%	68.3%	18.3%	18.3%
Maximum Green (s)	12.0	91.0	75.0	75.0	16.0	16.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	2.0	5.0	5.0	7.0	4.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	2.5
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	7.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	98.0	95.0	77.0	75.0	16.0	14.0
Actuated g/C Ratio	0.82	0.79	0.64	0.62	0.13	0.12
v/c Ratio	0.94	0.43	0.98	0.09	0.22	0.90
Control Delay	75.9	4.7	26.3	4.5	47.7	55.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.9	4.7	26.3	4.5	47.7	55.0
LOS	E	A	C	A	D	D
Approach Delay		18.4	25.4		53.9	
Approach LOS		B	C		D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 25.2

Intersection LOS: C

Intersection Capacity Utilization 95.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



2011 PM Existing 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	5	1285	25	42	2146	4	49	0	60	88	1	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	30.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.852	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3544	1633	1690	3544	1306	1644	1921	1555	1789	1637	0
Flt Permitted	0.051			0.208			0.668			0.757		
Satd. Flow (perm)	98	3544	1633	370	3544	1306	1156	1921	1555	1426	1637	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			25			4			128		68	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		1156.8			284.1			333.6			442.8	
Travel Time (s)		52.1			12.8			24.0			31.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	0%	8%	3%	25%	11%	0%	5%	2%	0%	0%
Adj. Flow (vph)	5	1285	25	42	2146	4	49	0	60	88	1	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1285	25	42	2146	4	49	0	60	88	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		

2011 PM Existing 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	20.0	20.0	20.0	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	8.0	27.0	27.0	27.0	27.0	27.0	12.0	12.0	12.0	12.0	12.0	
Total Split (s)	8.0	100.0	100.0	92.0	92.0	92.0	20.0	20.0	20.0	20.0	20.0	0.0
Total Split (%)	6.7%	83.3%	83.3%	76.7%	76.7%	76.7%	16.7%	16.7%	16.7%	16.7%	16.7%	0.0%
Maximum Green (s)	4.0	93.0	93.0	85.0	85.0	85.0	14.0	14.0	14.0	14.0	14.0	
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	5.0	5.0	7.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0	5.0	3.5	3.5	3.5	0.2	0.2	
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	
Pedestrian Calls (#/hr)		0	0	0	0	0	0	0	0	0	0	
Act Effect Green (s)	101.5	98.5	96.5	96.9	96.9	94.9	10.5		10.5	10.5	10.5	
Actuated g/C Ratio	0.85	0.82	0.80	0.81	0.81	0.79	0.09		0.09	0.09	0.09	
v/c Ratio	0.03	0.44	0.02	0.14	0.75	0.00	0.49		0.24	0.71	0.48	
Control Delay	2.0	3.5	1.0	4.9	13.2	4.2	67.3		2.2	81.7	27.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	2.0	3.5	1.0	4.9	13.2	4.2	67.3		2.2	81.7	27.6	
LOS	A	A	A	A	B	A	E		A	F	C	
Approach Delay		3.5			13.0						53.0	
Approach LOS		A			B						D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 34 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 12.2

Intersection LOS: B

Intersection Capacity Utilization 80.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Private Driveway



2011 PM Existing 7/17/2009 Base

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Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑↑	↖	↖
Volume (vph)	1405	27	42	2179	14	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	28.0		50.0	50.0
Storage Lanes		0	1		1	1
Taper Length (m)		65.0	70.0		25.0	25.0
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5079	0	1825	5092	1825	1633
Flt Permitted			0.151		0.950	
Satd. Flow (perm)	5079	0	290	5092	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	4					20
Link Speed (k/h)	60			60	50	
Link Distance (m)	243.9			243.0	345.0	
Travel Time (s)	14.6			14.6	24.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	0%	0%	3%	0%	0%
Adj. Flow (vph)	1405	27	42	2179	14	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1432	0	42	2179	14	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type			pm+pt			Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8

2011 PM Existing 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	68.0		11.0	87.0	20.0	20.0
Minimum Split (s)	75.0		15.0	94.0	26.0	26.0
Total Split (s)	79.0	0.0	15.0	94.0	26.0	26.0
Total Split (%)	65.8%	0.0%	12.5%	78.3%	21.7%	21.7%
Maximum Green (s)	72.0		11.0	87.0	20.0	20.0
Yellow Time (s)	5.0		3.0	5.0	4.0	4.0
All-Red Time (s)	2.0		1.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	-2.0	-2.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	2.0	5.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	6.0		3.0	6.0	5.0	5.0
Recall Mode	C-Max		None	C-Max	None	None
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	14.0			14.0	12.0	12.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	88.4		102.4	101.4	20.0	20.0
Actuated g/C Ratio	0.74		0.85	0.84	0.17	0.17
v/c Ratio	0.38		0.10	0.51	0.05	0.07
Control Delay	10.3		5.3	8.3	42.6	17.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	10.3		5.3	8.3	42.6	17.2
LOS	B		A	A	D	B
Approach Delay	10.3			8.2	27.7	
Approach LOS	B			A	C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 91 (76%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 9.2

Intersection LOS: A

Intersection Capacity Utilization 98.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Valleyridge Dr



2011 PM Existing 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	247	1078	100	214	1734	217	280	534	72	284	703	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5043	1601	1755	4968	0	3437	3444	1458	1789	3544	1585
Flt Permitted	0.075			0.198			0.950			0.165		
Satd. Flow (perm)	140	5043	1601	366	4968	0	3437	3444	1458	311	3544	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100		22				72			152
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			590.5	
Travel Time (s)		14.6			9.6			21.8			35.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	2%	4%	4%	2%	3%	6%	12%	2%	3%	3%
Adj. Flow (vph)	247	1078	100	214	1734	217	280	534	72	284	703	194
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	1078	100	214	1951	0	280	534	72	284	703	194
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

2011 PM Existing 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	19.0	56.0	56.0	18.0	55.0	0.0	14.0	26.0	26.0	20.0	32.0	32.0
Total Split (%)	15.8%	46.7%	46.7%	15.0%	45.8%	0.0%	11.7%	21.7%	21.7%	16.7%	26.7%	26.7%
Maximum Green (s)	15.0	49.0	49.0	14.0	48.0		10.0	20.0	20.0	16.0	26.0	26.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	2.0	5.0	4.0	2.0	4.0	6.0	2.0	4.0	6.0
Lead/Lag	Lead	Lag	Lag	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	71.8	53.7	51.7	67.7	51.3		12.0	22.3	20.3	43.9	27.9	25.9
Actuated g/C Ratio	0.60	0.45	0.43	0.56	0.43		0.10	0.19	0.17	0.37	0.23	0.22
v/c Ratio	0.83	0.48	0.13	0.59	0.91		0.81	0.84	0.24	0.86	0.85	0.42
Control Delay	55.7	14.2	2.7	18.3	40.0		72.0	59.8	11.9	54.7	55.3	13.7
Queue Delay	0.0	0.0	0.0	0.0	33.8		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	14.2	2.7	18.3	73.8		72.0	59.8	11.9	54.7	55.3	13.7
LOS	E	B	A	B	E		E	E	B	D	E	B
Approach Delay		20.6			68.4			59.8			48.3	
Approach LOS		C			E			E			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 50.8

Intersection LOS: D

Intersection Capacity Utilization 96.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 30: Dundas St W & Bronte Rd



2011 PM Existing 7/17/2009 Base

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APPENDIX C

Capacity Analyses Future Background Traffic Operations

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	243	2680	718	52	141	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	4948	1585	1772	1585
Flt Permitted	0.367				0.950	
Satd. Flow (perm)	685	5043	4948	1585	1772	1585
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				52		135
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	548.3		1625.4	
Travel Time (s)		26.8	24.7		73.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	243	2680	718	52	141	135
Shared Lane Traffic (%)						
Lane Group Flow (vph)	243	2680	718	52	141	135
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm		Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4

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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	45.0	45.0	45.0	45.0	8.0	8.0
Minimum Split (s)	52.0	52.0	52.0	52.0	22.0	22.0
Total Split (s)	96.0	96.0	96.0	96.0	24.0	24.0
Total Split (%)	80.0%	80.0%	80.0%	80.0%	20.0%	20.0%
Maximum Green (s)	89.0	89.0	89.0	89.0	18.0	18.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	7.0	4.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	5.5	5.5	5.5	5.5	2.5	2.5
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	7.0	7.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	95.0	95.0	95.0	93.0	16.0	14.0
Actuated g/C Ratio	0.79	0.79	0.79	0.78	0.13	0.12
v/c Ratio	0.45	0.67	0.18	0.04	0.60	0.44
Control Delay	7.6	6.9	2.9	1.1	59.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	6.9	2.9	1.1	59.2	12.5
LOS	A	A	A	A	E	B
Approach Delay		7.0	2.8		36.3	
Approach LOS		A	A		D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 103 (86%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 8.2

Intersection LOS: A

Intersection Capacity Utilization 94.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



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Page 2

Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	22	2799	761	56	24	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5043	4948	1633	1825	1633
Flt Permitted	0.347				0.950	
Satd. Flow (perm)	667	5043	4948	1633	1825	1633
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				56		9
Link Speed (k/h)		80	80		48	
Link Distance (m)		548.3	608.5		440.8	
Travel Time (s)		24.7	27.4		33.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	6%	0%	0%	0%
Adj. Flow (vph)	22	2799	761	56	24	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	2799	761	56	24	9
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm		Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6

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Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	4	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	22.0	22.0	22.0	22.0
Total Split (s)	96.0	96.0	96.0	96.0	24.0	24.0
Total Split (%)	80.0%	80.0%	80.0%	80.0%	20.0%	20.0%
Maximum Green (s)	89.0	89.0	90.0	90.0	18.0	18.0
Yellow Time (s)	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	90.6	90.6	91.6	89.6	18.4	18.4
Actuated g/C Ratio	0.76	0.76	0.76	0.75	0.15	0.15
v/c Ratio	0.04	0.74	0.20	0.05	0.09	0.03
Control Delay	1.3	5.3	3.3	1.5	45.0	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.3	5.3	3.3	1.5	45.0	23.3
LOS	A	A	A	A	D	C
Approach Delay		5.3	3.2		39.1	
Approach LOS		A	A		D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 102 (85%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 5.1

Intersection LOS: A

Intersection Capacity Utilization 66.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	63	2695	34	47	787	43	37	1	117	3	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	30.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5043	1512	1508	4948	1633	1674	1921	1585	1825	1921	0
Flt Permitted	0.334			0.043			0.757			0.757		
Satd. Flow (perm)	642	5043	1512	68	4948	1633	1334	1921	1585	1454	1921	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			34			43			13			
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		608.5			284.1			333.6			426.5	
Travel Time (s)		27.4			12.8			24.0			30.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	8%	21%	6%	0%	9%	0%	3%	0%	0%	0%
Adj. Flow (vph)	63	2695	34	47	787	43	37	1	117	3	1	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	2695	34	47	787	43	37	1	117	3	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		

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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	20.0	20.0	20.0	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	8.0	27.0	27.0	27.0	27.0	27.0	13.0	13.0	13.0	13.0	13.0	
Total Split (s)	8.0	105.0	105.0	97.0	97.0	97.0	15.0	15.0	15.0	15.0	15.0	0.0
Total Split (%)	6.7%	87.5%	87.5%	80.8%	80.8%	80.8%	12.5%	12.5%	12.5%	12.5%	12.5%	0.0%
Maximum Green (s)	4.0	98.0	98.0	90.0	90.0	90.0	9.0	9.0	9.0	9.0	9.0	
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	5.0	5.0	7.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0	5.0	3.5	3.5	3.5	0.2	0.2	
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	0	0	0	0	0	0	
Act Effect Green (s)	103.0	100.0	98.0	93.6	93.6	91.6	9.0	9.0	9.0	9.0	9.0	
Actuated g/C Ratio	0.86	0.83	0.82	0.78	0.78	0.76	0.08	0.08	0.08	0.08	0.08	
v/c Ratio	0.10	0.64	0.03	0.89	0.20	0.03	0.37	0.01	0.89	0.03	0.01	
Control Delay	0.2	0.6	0.0	120.1	1.2	0.1	63.9	52.0	103.5	52.3	52.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	0.2	0.6	0.0	120.1	1.2	0.1	63.9	52.0	103.5	52.3	52.0	
LOS	A	A	A	F	A	A	E	D	F	D	D	
Approach Delay		0.6			7.5			93.7			52.3	
Approach LOS		A			A			F			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 42 (35%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 6.0

Intersection LOS: A

Intersection Capacity Utilization 78.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Private Driveway



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Synchro 7 - Report
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Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑↑	↖	↖
Volume (vph)	2808	13	12	874	17	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	28.0		50.0	50.0
Storage Lanes		0	1		1	1
Taper Length (m)		65.0	70.0		25.0	25.0
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.999					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5028	0	1362	4948	1825	1471
Flt Permitted			0.040		0.950	
Satd. Flow (perm)	5028	0	57	4948	1825	1471
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	2					6
Link Speed (k/h)	60			60	50	
Link Distance (m)	243.9			243.0	345.0	
Travel Time (s)	14.6			14.6	24.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	47%	34%	6%	0%	11%
Adj. Flow (vph)	2808	13	12	874	17	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2821	0	12	874	17	55
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type		Perm			Perm	
Protected Phases	2			6	8	
Permitted Phases			6			8

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Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	30.0		30.0	30.0	7.0	7.0
Minimum Split (s)	37.0		37.0	37.0	25.0	25.0
Total Split (s)	95.0	0.0	95.0	95.0	25.0	25.0
Total Split (%)	79.2%	0.0%	79.2%	79.2%	20.8%	20.8%
Maximum Green (s)	88.0		88.0	88.0	19.0	19.0
Yellow Time (s)	5.0		5.0	5.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	-2.0	-2.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	5.0	5.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	6.0		6.0	6.0	5.0	5.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	101.3		101.3	101.3	11.4	11.4
Actuated g/C Ratio	0.84		0.84	0.84	0.10	0.10
v/c Ratio	0.66		0.25	0.21	0.10	0.38
Control Delay	1.0		26.6	2.0	49.1	52.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.0		26.6	2.0	49.1	52.4
LOS	A		C	A	D	D
Approach Delay	1.0			2.3	51.7	
Approach LOS	A			A	D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 2.3

Intersection LOS: A

Intersection Capacity Utilization 69.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Valleyridge Dr



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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖
Volume (vph)	287	1921	568	87	647	237	134	733	120	225	731	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.960				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	4995	1601	1587	4786	0	3340	3544	1555	1755	3444	1512
Flt Permitted	0.226			0.086			0.950			0.126		
Satd. Flow (perm)	422	4995	1601	144	4786	0	3340	3544	1555	233	3444	1512
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			252		86			110				136
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			590.5	
Travel Time (s)		14.6			9.6			21.8			35.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	287	1921	568	87	647	237	134	733	120	225	731	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	1921	568	87	884	0	134	733	120	225	731	167
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	32.0	32.0	9.0	32.0	32.0
Total Split (s)	22.0	61.0	61.0	9.0	48.0	0.0	11.0	34.0	34.0	16.0	39.0	39.0
Total Split (%)	18.3%	50.8%	50.8%	7.5%	40.0%	0.0%	9.2%	28.3%	28.3%	13.3%	32.5%	32.5%
Maximum Green (s)	18.0	54.0	54.0	5.0	41.0		7.0	28.0	28.0	12.0	33.0	33.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	2.0	5.0	4.0	2.0	4.0	6.0	2.0	4.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			15.0	15.0		15.0	15.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	68.3	56.2	54.2	56.8	46.7		9.0	29.7	27.7	47.7	34.7	32.7
Actuated g/C Ratio	0.57	0.47	0.45	0.47	0.39		0.08	0.25	0.23	0.40	0.29	0.27
v/c Ratio	0.67	0.82	0.66	0.56	0.46		0.54	0.84	0.27	0.83	0.73	0.33
Control Delay	13.9	24.3	12.3	33.3	25.8		61.9	52.5	10.0	53.6	43.6	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	24.3	12.3	33.3	25.8		61.9	52.5	10.0	53.6	43.6	10.7
LOS	B	C	B	C	C		E	D	B	D	D	B
Approach Delay		20.8			26.5			48.6			40.7	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 30.2

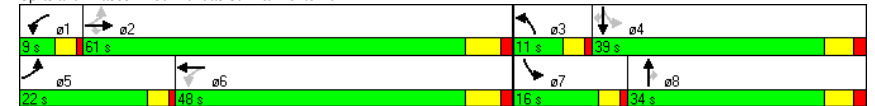
Intersection LOS: C

Intersection Capacity Utilization 88.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 30: Dundas St W & Bronte Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	310	1339	2452	106	56	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	5092	5092	1585	1706	1601
Flt Permitted	0.052				0.950	
Satd. Flow (perm)	98	5092	5092	1585	1706	1601
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				70	271	
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	548.3		1625.4	
Travel Time (s)		26.8	24.7		73.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	3%	3%	7%	2%
Adj. Flow (vph)	310	1339	2452	106	56	318
Shared Lane Traffic (%)						
Lane Group Flow (vph)	310	1339	2452	106	56	318
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4

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Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	4.0	45.0	45.0	45.0	8.0	8.0
Minimum Split (s)	8.0	52.0	52.0	52.0	22.0	22.0
Total Split (s)	25.0	96.0	71.0	71.0	24.0	24.0
Total Split (%)	20.8%	80.0%	59.2%	59.2%	20.0%	20.0%
Maximum Green (s)	21.0	89.0	64.0	64.0	18.0	18.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	5.0	5.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	2.5
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	7.0
Pedestrian Calls (/hr)		0	0	0	0	0
Act Effct Green (s)	100.7	97.7	74.4	74.4	11.3	11.3
Actuated g/C Ratio	0.84	0.81	0.62	0.62	0.09	0.09
v/c Ratio	0.81	0.32	0.78	0.10	0.35	0.80
Control Delay	50.0	3.3	4.3	0.3	55.2	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	3.3	4.3	0.3	55.2	25.6
LOS	D	A	A	A	E	C
Approach Delay		12.1	4.1		30.1	
Approach LOS		B	A		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 59 (49%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 9.1

Intersection LOS: A

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



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Synchro 7 - Report
Page 2

Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	39	1356	2466	102	114	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5092	5092	1633	1825	1633
Flt Permitted	0.050				0.950	
Satd. Flow (perm)	96	5092	5092	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				79	60	
Link Speed (k/h)		80	80		48	
Link Distance (m)		548.3	608.5		440.8	
Travel Time (s)		24.7	27.4		33.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%
Adj. Flow (vph)	39	1356	2466	102	114	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	39	1356	2466	102	114	92
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6

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Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.0	24.0	24.0	22.0	22.0
Total Split (s)	8.0	93.0	85.0	85.0	27.0	27.0
Total Split (%)	6.7%	77.5%	70.8%	70.8%	22.5%	22.5%
Maximum Green (s)	4.0	86.0	79.0	79.0	21.0	21.0
Yellow Time (s)	3.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	4.0	4.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (/hr)		0	0	0	0	0
Act Effect Green (s)	86.1	83.1	79.3	79.3	25.9	25.9
Actuated g/C Ratio	0.72	0.69	0.66	0.66	0.22	0.22
v/c Ratio	0.25	0.38	0.73	0.09	0.29	0.23
Control Delay	13.5	7.5	7.8	0.5	44.1	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	7.5	7.8	0.5	44.1	19.4
LOS	B	A	A	A	D	B
Approach Delay		7.7	7.5		33.1	
Approach LOS		A	A		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 113 (94%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 8.8

Intersection LOS: A

Intersection Capacity Utilization 62.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	5	1471	52	126	2368	4	63	0	105	88	1	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	30.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.852	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5092	1633	1690	5092	1306	1644	1921	1555	1789	1637	0
Flt Permitted	0.049			0.167			0.668			0.757		
Satd. Flow (perm)	94	5092	1633	297	5092	1306	1156	1921	1555	1426	1637	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			52			4			98		61	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		608.5			284.1			333.6			442.8	
Travel Time (s)		27.4			12.8			24.0			31.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	0%	8%	3%	25%	11%	0%	5%	2%	0%	0%
Adj. Flow (vph)	5	1471	52	126	2368	4	63	0	105	88	1	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1471	52	126	2368	4	63	0	105	88	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		

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Synchro 7 - Report
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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	20.0	20.0	20.0	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	8.0	27.0	27.0	27.0	27.0	27.0	12.0	12.0	12.0	12.0	12.0	
Total Split (s)	8.0	102.0	102.0	94.0	94.0	94.0	18.0	18.0	18.0	18.0	18.0	0.0
Total Split (%)	6.7%	85.0%	85.0%	78.3%	78.3%	78.3%	15.0%	15.0%	15.0%	15.0%	15.0%	0.0%
Maximum Green (s)	4.0	95.0	95.0	87.0	87.0	87.0	12.0	12.0	12.0	12.0	12.0	
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	5.0	5.0	7.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0	5.0	3.5	3.5	3.5	0.2	0.2	
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effect Green (s)	101.5	98.5	96.5	96.9	96.9	94.9	10.5	10.5	10.5	10.5	10.5	
Actuated g/C Ratio	0.85	0.82	0.80	0.81	0.81	0.79	0.09	0.09	0.09	0.09	0.09	
v/c Ratio	0.03	0.35	0.04	0.53	0.58	0.00	0.62		0.46	0.70	0.49	
Control Delay	1.8	2.7	0.9	18.0	7.5	3.0	77.9		18.5	81.0	31.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	1.8	2.7	0.9	18.0	7.5	3.0	77.9		18.5	81.0	31.5	
LOS	A	A	A	B	A	A	E		B	F	C	
Approach Delay		2.6			8.0						54.8	
Approach LOS		A			A						D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 10 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 9.4

Intersection LOS: A

Intersection Capacity Utilization 73.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Private Driveway



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Synchro 7 - Report
Page 6

Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑↑	↖	↖
Volume (vph)	1636	27	42	2485	14	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	28.0		50.0	50.0
Storage Lanes		0	1		1	1
Taper Length (m)		65.0	70.0		25.0	25.0
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.998					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5084	0	1825	5092	1825	1633
Flt Permitted			0.112		0.950	
Satd. Flow (perm)	5084	0	215	5092	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	4					20
Link Speed (k/h)	60			60	50	
Link Distance (m)	243.9			243.0	345.0	
Travel Time (s)	14.6			14.6	24.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	0%	0%	3%	0%	0%
Adj. Flow (vph)	1636	27	42	2485	14	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1663	0	42	2485	14	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type			pm+pt			Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8

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Synchro 7 - Report
Page 7

Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	68.0		11.0	87.0	20.0	20.0
Minimum Split (s)	75.0		15.0	94.0	26.0	26.0
Total Split (s)	79.0	0.0	15.0	94.0	26.0	26.0
Total Split (%)	65.8%	0.0%	12.5%	78.3%	21.7%	21.7%
Maximum Green (s)	72.0		11.0	87.0	20.0	20.0
Yellow Time (s)	5.0		3.0	5.0	4.0	4.0
All-Red Time (s)	2.0		1.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	-2.0	-2.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	2.0	5.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	6.0		3.0	6.0	5.0	5.0
Recall Mode	C-Max		None	C-Max	None	None
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	14.0			14.0	12.0	12.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	88.4		102.4	101.4	20.0	20.0
Actuated g/C Ratio	0.74		0.85	0.84	0.17	0.17
v/c Ratio	0.44		0.12	0.58	0.05	0.07
Control Delay	5.9		5.3	8.9	42.6	17.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	5.9		5.3	8.9	42.6	17.2
LOS	A		A	A	D	B
Approach Delay	5.9			8.9	27.7	
Approach LOS	A			A	C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 93 (78%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 7.8

Intersection LOS: A

Intersection Capacity Utilization 98.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Valleyridge Dr



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Synchro 7 - Report
Page 8

Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔↔	↔
Volume (vph)	277	1239	140	214	1981	217	307	575	72	284	756	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.985				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5043	1601	1755	4977	0	3437	3444	1458	1789	3544	1585
Flt Permitted	0.071			0.158			0.950			0.167		
Satd. Flow (perm)	132	5043	1601	292	4977	0	3437	3444	1458	315	3544	1585
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			140		20			72				161
Link Speed (k/h)		60			60			60				60
Link Distance (m)		243.0			159.6			362.5				590.5
Travel Time (s)		14.6			9.6			21.8				35.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	2%	4%	4%	2%	3%	6%	12%	2%	3%	3%
Adj. Flow (vph)	277	1239	140	214	1981	217	307	575	72	284	756	226
Shared Lane Traffic (%)												
Lane Group Flow (vph)	277	1239	140	214	2198	0	307	575	72	284	756	226
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

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Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	18.0	59.0	59.0	18.0	59.0	0.0	13.0	26.0	26.0	17.0	30.0	30.0
Total Split (%)	15.0%	49.2%	49.2%	15.0%	49.2%	0.0%	10.8%	21.7%	21.7%	14.2%	25.0%	25.0%
Maximum Green (s)	14.0	52.0	52.0	14.0	52.0		9.0	20.0	20.0	13.0	24.0	24.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	75.7	57.8	54.8	72.5	55.3		12.0	23.0	20.0	42.0	27.0	24.0
Actuated g/C Ratio	0.63	0.48	0.46	0.60	0.46		0.10	0.19	0.17	0.35	0.22	0.20
v/c Ratio	0.89	0.51	0.17	0.61	0.95		0.89	0.87	0.24	0.93	0.95	0.51
Control Delay	65.4	12.6	3.2	18.5	41.9		81.3	62.2	11.9	67.8	67.7	17.7
Queue Delay	0.0	0.0	0.0	0.0	68.3		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	12.6	3.2	18.5	110.2		81.3	62.2	11.9	67.8	67.7	17.7
LOS	E	B	A	B	F		F	E	B	E	E	B
Approach Delay		20.6			102.0			64.5			58.8	
Approach LOS		C			F			E			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 66.2

Intersection LOS: E

Intersection Capacity Utilization 103.4%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 30: Dundas St W & Bronte Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↩	↩	↩	↩	↩	↩
Volume (vph)	13	12	299	135	65	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.7	3.7	3.7	3.7
Storage Length (m)	0.0	0.0		0.0	25.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	2.5	2.5		2.5	2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.958			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	1566	1792	0	1789	1865
Flt Permitted	0.950				0.510	
Satd. Flow (perm)	1750	1566	1792	0	961	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		12	54			
Link Speed (k/h)	50		50			80
Link Distance (m)	585.6		298.1			1327.9
Travel Time (s)	42.2		21.5			59.8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	2%	2%	3%
Adj. Flow (vph)	13	12	299	135	65	330
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	12	434	0	65	330
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.0		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			CI+Ex			CI+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type		Perm			Perm	
Protected Phases	8		2			6

2021 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	22.0	22.0	22.0		22.0	22.0
Total Split (s)	24.0	24.0	56.0	0.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	0.0%	70.0%	70.0%
Maximum Green (s)	18.0	18.0	50.0		50.0	50.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max		C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	6.2	6.2	72.4		72.4	72.4
Actuated g/C Ratio	0.08	0.08	0.90		0.90	0.90
v/c Ratio	0.10	0.09	0.27		0.07	0.20
Control Delay	35.4	19.5	1.9		2.0	1.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	35.4	19.5	1.9		2.0	1.8
LOS	D	B	A		A	A
Approach Delay	27.8		1.9			1.9
Approach LOS	C		A			A

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.27

Intersection Signal Delay: 2.6

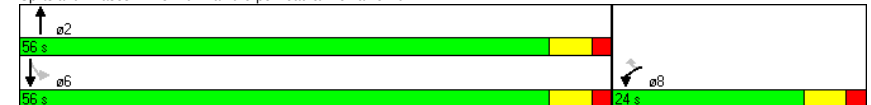
Intersection LOS: A

Intersection Capacity Utilization 45.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 13: Burnhamthorpe Road & Tremaine Rd



2021 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	56	35	45	129	183	267	342	1268	301	458	1403	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.636			0.674			0.116			0.113		
Satd. Flow (perm)	1172	3500	1566	1269	3579	1601	218	3579	1601	213	3579	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			45			267			127			110
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		307.6			284.2			435.3			147.1	
Travel Time (s)		22.1			17.1			26.1			8.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	56	35	45	129	183	267	342	1268	301	458	1403	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	35	45	129	183	267	342	1268	301	458	1403	264
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

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Synchro 7 - Report
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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	8.0	22.0	22.0	8.0	22.0	22.0	8.0	22.0	22.0
Total Split (s)	22.0	22.0	22.0	8.0	30.0	30.0	14.0	36.0	36.0	19.0	41.0	41.0
Total Split (%)	25.9%	25.9%	25.9%	9.4%	35.3%	35.3%	16.5%	42.4%	42.4%	22.4%	48.2%	48.2%
Maximum Green (s)	16.0	16.0	16.0	4.0	24.0	24.0	10.0	30.0	30.0	15.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	3.0	3.0	6.0	1.0	3.0	6.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	0
Act Effect Green (s)	12.5	12.5	9.5	21.2	19.2	16.2	55.0	35.7	32.7	61.8	41.5	38.5
Actuated g/C Ratio	0.15	0.15	0.11	0.25	0.23	0.19	0.65	0.42	0.38	0.73	0.49	0.45
v/c Ratio	0.33	0.07	0.21	0.35	0.23	0.51	0.74	0.84	0.43	0.79	0.80	0.34
Control Delay	36.5	29.9	12.8	27.1	26.2	7.4	29.8	29.9	14.0	29.8	24.3	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	29.9	12.8	27.1	26.2	7.4	29.8	29.9	14.0	29.8	24.3	11.0
LOS	D	C	B	C	C	A	C	C	B	C	C	B
Approach Delay		26.9			17.7			27.4			23.8	
Approach LOS		C			B			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 24.6

Intersection LOS: C

Intersection Capacity Utilization 84.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 21: Burnhamthorpe Road & Bronte Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	393	2930	838	121	130	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	4948	1585	1772	1585
Flt Permitted	0.322				0.950	
Satd. Flow (perm)	601	5043	4948	1585	1772	1585
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				121	163	
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	587.2		298.1	
Travel Time (s)		26.8	26.4		13.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	393	2930	838	121	130	163
Shared Lane Traffic (%)						
Lane Group Flow (vph)	393	2930	838	121	130	163
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm		Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4

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Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	45.0	45.0	45.0	45.0	8.0	8.0
Minimum Split (s)	52.0	52.0	52.0	52.0	22.0	22.0
Total Split (s)	98.0	98.0	98.0	98.0	22.0	22.0
Total Split (%)	81.7%	81.7%	81.7%	81.7%	18.3%	18.3%
Maximum Green (s)	91.0	91.0	91.0	91.0	16.0	16.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	7.0	3.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	5.5	5.5	5.5	5.5	2.5	2.5
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	7.0	7.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	97.0	97.0	97.0	94.0	16.0	13.0
Actuated g/C Ratio	0.81	0.81	0.81	0.78	0.13	0.11
v/c Ratio	0.81	0.72	0.21	0.10	0.55	0.51
Control Delay	23.5	6.9	3.1	1.7	57.0	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	6.9	3.1	1.7	57.0	13.3
LOS	C	A	A	A	E	B
Approach Delay		8.8	2.9		32.7	
Approach LOS		A	A		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 20 (17%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 9.1

Intersection LOS: A

Intersection Capacity Utilization 92.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	117	2943	1016	204	68	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5043	4948	1633	1825	1633
Flt Permitted	0.257				0.950	
Satd. Flow (perm)	494	5043	4948	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				204		139
Link Speed (k/h)		80	80		50	
Link Distance (m)		587.2	537.9		442.9	
Travel Time (s)		26.4	24.2		31.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	6%	0%	0%	0%
Adj. Flow (vph)	117	2943	1016	204	68	139
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	2943	1016	204	68	139
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm		Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6

2021 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	4	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	22.0	22.0	22.0	22.0
Total Split (s)	95.0	95.0	95.0	95.0	25.0	25.0
Total Split (%)	79.2%	79.2%	79.2%	79.2%	20.8%	20.8%
Maximum Green (s)	88.0	88.0	89.0	89.0	19.0	19.0
Yellow Time (s)	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	3.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	91.0	91.0	92.0	89.0	19.0	19.0
Actuated g/C Ratio	0.76	0.76	0.77	0.74	0.16	0.16
v/c Ratio	0.31	0.77	0.27	0.16	0.24	0.37
Control Delay	5.7	6.5	3.2	1.5	46.6	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	6.5	3.2	1.5	46.6	10.3
LOS	A	A	A	A	D	B
Approach Delay		6.5	2.9		22.2	
Approach LOS		A	A		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 117 (98%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 6.3

Intersection LOS: A

Intersection Capacity Utilization 69.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	129	2816	37	48	1051	153	59	33	120	58	10	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	0.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5043	1512	1508	4948	1633	1674	1921	1585	1789	1921	1633
Flt Permitted	0.260			0.043			0.751			0.736		
Satd. Flow (perm)	499	5043	1512	68	4948	1633	1324	1921	1585	1386	1921	1633
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			37			153			54			117
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		537.9			284.1			333.6			488.9	
Travel Time (s)		24.2			12.8			24.0			35.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	8%	21%	6%	0%	9%	0%	3%	2%	0%	0%
Adj. Flow (vph)	129	2816	37	48	1051	153	59	33	120	58	10	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	2816	37	48	1051	153	59	33	120	58	10	117
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4

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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

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	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	4.0	20.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	27.0	27.0	27.0	8.0	27.0	27.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	93.0	93.0	93.0	8.0	101.0	101.0	19.0	19.0	19.0	19.0	19.0	19.0
Total Split (%)	77.5%	77.5%	77.5%	6.7%	84.2%	84.2%	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%
Maximum Green (s)	86.0	86.0	86.0	4.0	94.0	94.0	13.0	13.0	13.0	13.0	13.0	13.0
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	1.0	4.0	7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.5	3.5	3.5	0.2	0.2	0.2
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)	7.0	7.0	7.0		7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	92.3	92.3	89.3	102.5	99.5	96.5	10.5	10.5	10.5	10.5	10.5	10.5
Actuated g/C Ratio	0.77	0.77	0.74	0.85	0.83	0.80	0.09	0.09	0.09	0.09	0.09	0.09
v/c Ratio	0.34	0.73	0.03	0.31	0.26	0.11	0.51	0.20	0.63	0.48	0.06	0.47
Control Delay	2.7	3.1	0.2	20.8	0.5	0.2	66.7	52.3	44.8	64.4	49.3	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	3.1	0.2	20.8	0.5	0.2	66.7	52.3	44.8	64.4	49.3	15.3
LOS	A	A	A	C	A	A	E	D	D	E	D	B
Approach Delay		3.0			1.2			52.1			32.5	
Approach LOS		A			A			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 53 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 6.0

Intersection LOS: A

Intersection Capacity Utilization 80.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Avenue Three



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Lanes, Volumes, Timings

28: Dundas St W & Avenue Four

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	↖	→	↗	↙	←	↖	↗	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	↖	
Volume (vph)	83	2897	19	12	1200	100	53	26	55	70	9	11	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (m)	25.0			0.0	28.0		25.0	50.0		50.0	25.0		
Storage Lanes	1		0	1		1	1		0	0		1	
Taper Length (m)	2.5		65.0	70.0		2.5	25.0		25.0	2.5		2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.999				0.850		0.898				0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1789	5024	0	1362	4948	1601	1825	1714	0	1789	1883	1601	
Flt Permitted	0.212			0.043			0.752			0.704			
Satd. Flow (perm)	399	5024	0	62	4948	1601	1445	1714	0	1326	1883	1601	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		2				100		5				11	
Link Speed (k/h)		60			60			50				50	
Link Distance (m)		243.9			243.0			345.0				419.2	
Travel Time (s)		14.6			14.6			24.8				30.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	2%	4%	47%	34%	6%	2%	0%	2%	0%	2%	2%	2%	
Adj. Flow (vph)	83	2897	19	12	1200	100	53	26	55	70	9	11	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	83	2916	0	12	1200	100	53	81	0	70	9	11	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.7			3.7			3.7				3.7	
Link Offset(m)		0.0			0.0			0.0				0.0	
Crosswalk Width(m)		1.6			1.6			1.6				1.6	
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Number of Detectors	1	2		1	2	1	1	2		1	2	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7				28.7	
Detector 2 Size(m)		1.8			1.8			1.8				1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex				CI+Ex	
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0				0.0	
Turn Type	Perm			Perm		Perm	Perm			Perm		Perm	
Protected Phases		2			6			8			4		
Permitted Phases	2			6		6	8			4		4	

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Synchro 7 - Report
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Lanes, Volumes, Timings

28: Dundas St W & Avenue Four

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	↖	→	↗	↙	←	↖	↗	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	2	2		6	6	6	8	8		4	4	4	
Switch Phase													
Minimum Initial (s)	68.0	68.0		87.0	87.0	87.0	20.0	20.0		4.0	4.0	4.0	
Minimum Split (s)	75.0	75.0		94.0	94.0	94.0	26.0	26.0		20.0	20.0	20.0	
Total Split (s)	94.0	94.0	0.0	94.0	94.0	94.0	26.0	26.0	0.0	26.0	26.0	26.0	
Total Split (%)	78.3%	78.3%	0.0%	78.3%	78.3%	78.3%	21.7%	21.7%	0.0%	21.7%	21.7%	21.7%	
Maximum Green (s)	87.0	87.0		87.0	87.0	87.0	20.0	20.0		22.0	22.0	22.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	4.0	4.0		3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	4.0	4.0	4.0	4.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0	
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0		3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		5.0	5.0	5.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0		11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0	
Act Effect Green (s)	93.6	96.0		96.0	96.0	93.6	20.0	20.0		18.9	18.9	18.9	
Actuated g/C Ratio	0.78	0.80		0.80	0.80	0.78	0.17	0.17		0.16	0.16	0.16	
v/c Ratio	0.27	0.73		0.24	0.30	0.08	0.22	0.28		0.33	0.03	0.04	
Control Delay	2.7	1.9		19.0	5.8	2.5	46.1	43.9		47.8	40.7	20.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	2.7	1.9		19.0	5.8	2.5	46.1	43.9		47.8	40.7	20.3	
LOS	A	A		B	A	A	D	D		D	D	C	
Approach Delay		1.9			5.7		44.8				43.7		
Approach LOS		A			A		D				D		

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 5.1

Intersection LOS: A

Intersection Capacity Utilization 160.0%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Avenue Four



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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

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	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	298	1985	651	87	873	360	334	952	120	249	1035	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	4995	1601	1587	4769	0	3340	3544	1555	1755	3444	1512
Flt Permitted	0.098			0.096			0.950			0.108		
Satd. Flow (perm)	183	4995	1601	160	4769	0	3340	3544	1555	199	3444	1512
Right Turn on Red			Yes		Yes		Yes		Yes		Yes	
Satd. Flow (RTOR)			274		94				108			97
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	298	1985	651	87	873	360	334	952	120	249	1035	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	298	1985	651	87	1233	0	334	952	120	249	1035	164
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

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	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	20.0	56.0	56.0	9.0	45.0	0.0	14.0	39.0	39.0	16.0	41.0	41.0
Total Split (%)	16.7%	46.7%	46.7%	7.5%	37.5%	0.0%	11.7%	32.5%	32.5%	13.3%	34.2%	34.2%
Maximum Green (s)	16.0	49.0	49.0	5.0	38.0		10.0	33.0	33.0	12.0	35.0	35.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	64.0	52.0	49.0	52.6	41.6		13.0	36.0	33.0	54.0	38.0	35.0
Actuated g/C Ratio	0.53	0.43	0.41	0.44	0.35		0.11	0.30	0.28	0.45	0.32	0.29
v/c Ratio	0.87	0.92	0.80	0.53	0.72		0.92	0.90	0.24	0.88	0.95	0.32
Control Delay	53.1	28.4	14.0	29.9	34.3		84.6	52.3	9.1	59.0	57.8	16.0
Queue Delay	0.0	0.0	0.5	0.0	0.2		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	28.4	14.4	29.9	34.5		84.6	52.3	9.1	59.0	57.8	16.0
LOS	D	C	B	C	C		F	D	A	E	E	B
Approach Delay		27.8			34.2			56.2			53.3	
Approach LOS		C			C			E			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 39.8

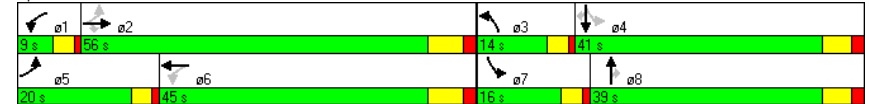
Intersection LOS: D

Intersection Capacity Utilization 96.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 30: Dundas St W & Bronte Rd



2021 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖	↖↖↖	↖	↖
Volume (vph)	298	1985	651	87	873	360	334	952	120	249	1035	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	4995	1601	1587	4948	1585	3340	3544	1555	3404	3444	1512
Flt Permitted	0.209			0.097			0.950			0.950		
Satd. Flow (perm)	390	4995	1601	162	4948	1585	3340	3544	1555	3404	3444	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			228			227			99			97
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	298	1985	651	87	873	360	334	952	120	249	1035	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	298	1985	651	87	873	360	334	952	120	249	1035	164
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6		8				4

2021 Future Background (with Improvements) AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0	37.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	23.0	56.0	56.0	9.0	42.0	42.0	14.0	43.0	43.0	12.0	41.0	41.0
Total Split (%)	19.2%	46.7%	46.7%	7.5%	35.0%	35.0%	11.7%	35.8%	35.8%	10.0%	34.2%	34.2%
Maximum Green (s)	19.0	49.0	49.0	5.0	35.0	35.0	10.0	37.0	37.0	8.0	35.0	35.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	7.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	64.0	52.0	49.0	52.2	41.2	38.2	13.0	40.0	37.0	11.0	38.0	35.0
Actuated g/C Ratio	0.53	0.43	0.41	0.44	0.34	0.32	0.11	0.33	0.31	0.09	0.32	0.29
v/c Ratio	0.70	0.92	0.83	0.52	0.51	0.55	0.92	0.81	0.22	0.80	0.95	0.32
Control Delay	23.5	28.3	18.2	30.8	33.2	15.9	84.6	42.8	9.5	72.7	57.8	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	28.3	18.2	30.8	33.2	15.9	84.6	42.8	9.5	72.7	57.8	16.0
LOS	C	C	B	C	C	B	F	D	A	E	E	B
Approach Delay		25.5			28.4			49.9			55.6	
Approach LOS		C			C			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 37.0

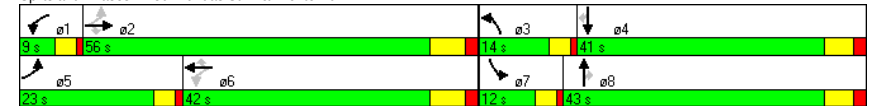
Intersection LOS: D

Intersection Capacity Utilization 94.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 30: Dundas St W & Bronte Rd



2021 Future Background (with Improvements) AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	←	←	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↗	↗	↗		↗	↗
Volume (vph)	55	76	412	173	29	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.7	3.7	3.7	3.7
Storage Length (m)	0.0	0.0		0.0	25.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	2.5	2.5		2.5	2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.960			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	1566	1796	0	1789	1865
Flt Permitted	0.950				0.421	
Satd. Flow (perm)	1750	1566	1796	0	793	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		76	50			
Link Speed (k/h)	50		50			80
Link Distance (m)	585.6		298.1			1327.9
Travel Time (s)	42.2		21.5			59.8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	2%	2%	3%
Adj. Flow (vph)	55	76	412	173	29	380
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	76	585	0	29	380
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.0		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			CI+Ex			CI+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type		Perm			Perm	
Protected Phases	8		2			6

2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	←	←	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	22.0	22.0	22.0		22.0	22.0
Total Split (s)	24.0	24.0	56.0	0.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	0.0%	70.0%	70.0%
Maximum Green (s)	18.0	18.0	50.0		50.0	50.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max		C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	8.0	8.0	63.5		63.5	63.5
Actuated g/C Ratio	0.10	0.10	0.79		0.79	0.79
v/c Ratio	0.32	0.34	0.41		0.05	0.26
Control Delay	37.6	12.9	4.3		3.2	3.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	37.6	12.9	4.3		3.2	3.6
LOS	D	B	A		A	A
Approach Delay	23.3		4.3			3.6
Approach LOS	C		A			A

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 6.3

Intersection LOS: A

Intersection Capacity Utilization 46.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 13: Burnhamthorpe Road & Tremaine Rd

2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	284	171	208	313	187	453	186	1149	88	333	1271	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.634			0.576			0.119			0.116		
Satd. Flow (perm)	1168	3500	1566	1085	3579	1601	224	3579	1601	218	3579	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			167			258			39			70
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		307.6			284.2			435.3			147.1	
Travel Time (s)		22.1			17.1			26.1			8.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	284	171	208	313	187	453	186	1149	88	333	1271	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	171	208	313	187	453	186	1149	88	333	1271	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 3

Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	22.0	22.0	8.0	22.0	22.0	8.0	22.0	22.0	8.0	22.0	22.0
Total Split (s)	8.0	22.0	22.0	14.0	28.0	28.0	8.0	33.0	33.0	16.0	41.0	41.0
Total Split (%)	9.4%	25.9%	25.9%	16.5%	32.9%	32.9%	9.4%	38.8%	38.8%	18.8%	48.2%	48.2%
Maximum Green (s)	4.0	16.0	16.0	10.0	22.0	22.0	4.0	27.0	27.0	12.0	35.0	35.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	3.0	6.0	1.0	3.0	6.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	24.0	15.0	12.0	31.0	21.0	18.0	44.9	33.5	30.5	52.0	39.7	36.7
Actuated g/C Ratio	0.28	0.18	0.14	0.36	0.25	0.21	0.53	0.39	0.36	0.61	0.47	0.43
v/c Ratio	0.75	0.28	0.57	0.62	0.21	0.83	0.64	0.81	0.15	0.79	0.76	0.21
Control Delay	36.1	30.4	15.1	26.2	25.0	27.6	27.6	30.1	13.5	33.5	22.9	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	30.4	15.1	26.2	25.0	27.6	27.6	30.1	13.5	33.5	22.9	9.7
LOS	D	C	B	C	C	C	C	C	B	C	C	A
Approach Delay		28.0			26.6			28.7			23.8	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 26.4

Intersection LOS: C

Intersection Capacity Utilization 87.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 21: Burnhamthorpe Road & Bronte Rd

2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	374	1509	2918	290	62	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	5092	5092	1585	1706	1601
Flt Permitted	0.053				0.950	
Satd. Flow (perm)	100	5092	5092	1585	1706	1601
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				185	2	
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	587.2		298.1	
Travel Time (s)		26.8	26.4		13.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	3%	3%	7%	2%
Adj. Flow (vph)	374	1509	2918	290	62	433
Shared Lane Traffic (%)						
Lane Group Flow (vph)	374	1509	2918	290	62	433
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2			6		4

2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	5
Switch Phase						
Minimum Initial (s)	4.0	45.0	45.0	45.0	8.0	4.0
Minimum Split (s)	8.0	52.0	52.0	52.0	22.0	8.0
Total Split (s)	18.0	98.0	80.0	80.0	22.0	18.0
Total Split (%)	15.0%	81.7%	66.7%	66.7%	18.3%	15.0%
Maximum Green (s)	14.0	91.0	73.0	73.0	16.0	14.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	3.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	106.0	103.8	76.0	73.0	12.8	36.0
Actuated g/C Ratio	0.88	0.86	0.63	0.61	0.11	0.30
v/c Ratio	0.82	0.34	0.90	0.28	0.34	0.90
Control Delay	50.7	2.4	11.8	2.5	54.4	63.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	2.4	11.8	2.5	54.4	63.1
LOS	D	A	B	A	D	E
Approach Delay		12.0	11.0		62.0	
Approach LOS		B	B		E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 40 (33%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 15.8

Intersection LOS: B

Intersection Capacity Utilization 93.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	150	1421	2689	231	344	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5092	5092	1633	1825	1633
Flt Permitted	0.053				0.950	
Satd. Flow (perm)	102	5092	5092	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				136	60	
Link Speed (k/h)		80	80		50	
Link Distance (m)		587.2	537.9		442.9	
Travel Time (s)		26.4	24.2		31.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%
Adj. Flow (vph)	150	1421	2689	231	344	358
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	1421	2689	231	344	358
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6

2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.0	22.0	22.0	22.0	22.0
Total Split (s)	8.0	87.0	79.0	79.0	33.0	33.0
Total Split (%)	6.7%	72.5%	65.8%	65.8%	27.5%	27.5%
Maximum Green (s)	4.0	80.0	73.0	73.0	27.0	27.0
Yellow Time (s)	3.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	3.0	6.0	3.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effect Green (s)	86.0	83.0	76.0	73.0	30.0	27.0
Actuated g/C Ratio	0.72	0.69	0.63	0.61	0.25	0.22
v/c Ratio	0.86	0.40	0.83	0.22	0.75	0.86
Control Delay	70.1	7.7	6.9	0.3	53.4	58.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.1	7.7	6.9	0.3	53.4	58.6
LOS	E	A	A	A	D	E
Approach Delay		13.6	6.4		56.0	
Approach LOS		B	A		E	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 105 (88%), Referenced to phase 2: and 6:SBL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 15.3
Intersection Capacity Utilization 89.3%
Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	86	1672	67	131	2501	151	78	16	109	353	52	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	0.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5092	1633	1690	5092	1306	1644	1921	1555	1789	1921	1633
Flt Permitted	0.061			0.084			0.723			0.540		
Satd. Flow (perm)	117	5092	1633	149	5092	1306	1251	1921	1555	1017	1921	1633
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			67			120			104			69
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		537.9			284.1			333.6			488.9	
Travel Time (s)		24.2			12.8			24.0			35.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	0%	8%	3%	25%	11%	0%	5%	2%	0%	0%
Adj. Flow (vph)	86	1672	67	131	2501	151	78	16	109	353	52	301
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	1672	67	131	2501	151	78	16	109	353	52	301
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	pm+pt		Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4

2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	8	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	4.0	20.0	20.0	6.0	6.0	6.0	4.0	6.0	6.0
Minimum Split (s)	8.0	27.0	27.0	8.0	27.0	27.0	12.0	12.0	12.0	8.0	12.0	12.0
Total Split (s)	8.0	68.0	68.0	12.0	72.0	72.0	17.0	17.0	17.0	23.0	40.0	40.0
Total Split (%)	6.7%	56.7%	56.7%	10.0%	60.0%	60.0%	14.2%	14.2%	14.2%	19.2%	33.3%	33.3%
Maximum Green (s)	4.0	61.0	61.0	8.5	65.0	65.0	11.0	11.0	11.0	19.0	34.0	34.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	0.5	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	0.5	4.0	7.0	6.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	2.5	5.0	5.0	3.0	5.0	5.0	3.5	3.5	3.5	3.0	0.2	0.2
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)		7.0	7.0		7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effect Green (s)	75.4	65.1	62.1	80.1	70.2	67.2	10.4	10.4	10.4	35.4	33.4	33.4
Actuated g/C Ratio	0.63	0.54	0.52	0.67	0.58	0.56	0.09	0.09	0.09	0.30	0.28	0.28
v/c Ratio	0.49	0.61	0.08	0.54	0.84	0.19	0.72	0.10	0.47	0.84	0.10	0.60
Control Delay	24.7	16.4	5.5	34.5	13.5	4.4	87.3	51.5	18.1	55.9	32.4	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	16.4	5.5	34.5	13.5	4.4	87.3	51.5	18.1	55.9	32.4	33.9
LOS	C	B	A	C	B	A	F	D	B	E	C	C
Approach Delay		16.4			14.0			47.3			44.8	
Approach LOS		B			B			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 10 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 20.0

Intersection LOS: B

Intersection Capacity Utilization 91.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Avenue Three



2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

28: Dundas St W & Avenue Four

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	64	2004	64	42	2652	103	38	14	20	363	38	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	28.0		25.0	50.0		50.0	0.0		25.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	2.5		65.0	70.0		2.5	25.0		25.0	2.5		2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.995				0.850			0.850		0.894	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5071	0	1825	5092	1601	1825	1883	1633	3471	1684	0
Flt Permitted	0.063			0.062			0.673			0.950		
Satd. Flow (perm)	119	5071	0	119	5092	1601	1293	1883	1633	3471	1684	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				28			20		72	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		243.9			243.0			345.0			419.2	
Travel Time (s)		14.6			14.6			24.8			30.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	0%	0%	3%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	64	2004	64	42	2652	103	38	14	20	363	38	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	2068	0	42	2652	103	38	14	20	363	131	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt			pm+pt		Perm	Perm		Perm	Prot		
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6		6	8		8			

2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

28: Dundas St W & Avenue Four

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	6	8	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	23.0		11.0	23.0	23.0	20.0	20.0	20.0	4.0	4.0	
Minimum Split (s)	8.0	30.0		15.0	30.0	30.0	26.0	26.0	26.0	8.0	22.0	
Total Split (s)	8.0	61.0	0.0	15.0	68.0	68.0	26.0	26.0	26.0	18.0	44.0	0.0
Total Split (%)	6.7%	50.8%	0.0%	12.5%	56.7%	56.7%	21.7%	21.7%	21.7%	15.0%	36.7%	0.0%
Maximum Green (s)	4.0	54.0		11.0	61.0	61.0	20.0	20.0	20.0	14.0	38.0	
Yellow Time (s)	3.0	5.0		3.0	5.0	5.0	4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	1.0	4.0	7.0	6.0	6.0	6.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	6.0		3.0	6.0	6.0	5.0	5.0	5.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		7.0			7.0	7.0	7.0	7.0	7.0		5.0	
Flash Dont Walk (s)		14.0			14.0	14.0	12.0	12.0	12.0		11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0	0		0	
Act Effect Green (s)	73.8	65.2		80.2	70.8	67.8	20.0	20.0	20.0	14.0	32.8	
Actuated g/C Ratio	0.62	0.54		0.67	0.59	0.56	0.17	0.17	0.17	0.12	0.27	
v/c Ratio	0.37	0.75		0.15	0.88	0.11	0.18	0.04	0.07	0.90	0.26	
Control Delay	23.2	24.9		12.9	11.9	8.0	45.4	42.6	17.2	77.6	15.6	
Queue Delay	0.0	0.0		0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	23.2	24.9		12.9	11.9	8.0	45.4	42.6	17.2	77.6	15.6	
LOS	C	C		B	B	A	D	D	B	E	B	
Approach Delay		24.9			11.8			37.0			61.2	
Approach LOS		C			B			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 4 (3%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 21.6

Intersection LOS: C

Intersection Capacity Utilization 91.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Avenue Four



2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔↔	↔
Volume (vph)	308	1535	543	214	2123	281	428	746	72	397	851	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	0.91	*1.00	*1.00	1.00	1.00	*1.00	1.00
Frt			0.850		0.982				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5542	1601	1755	5454	0	3544	3625	1458	1789	3730	1585
Flt Permitted	0.081			0.093			0.950			0.160		
Satd. Flow (perm)	151	5542	1601	172	5454	0	3544	3625	1458	301	3730	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			351		28			72				159
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	2%	4%	4%	2%	3%	6%	12%	2%	3%	3%
Adj. Flow (vph)	308	1535	543	214	2123	281	428	746	72	397	851	231
Shared Lane Traffic (%)												
Lane Group Flow (vph)	308	1535	543	214	2404	0	428	746	72	397	851	231
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	17.0	51.0	51.0	20.0	54.0	0.0	16.0	27.0	27.0	22.0	33.0	33.0
Total Split (%)	14.2%	42.5%	42.5%	16.7%	45.0%	0.0%	13.3%	22.5%	22.5%	18.3%	27.5%	27.5%
Maximum Green (s)	13.0	44.0	44.0	16.0	47.0		12.0	21.0	21.0	18.0	27.0	27.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	67.9	49.6	46.6	68.4	50.0		15.0	24.0	21.0	48.0	30.0	27.0
Actuated g/C Ratio	0.57	0.41	0.39	0.57	0.42		0.12	0.20	0.18	0.40	0.25	0.22
v/c Ratio	1.02	0.67	0.65	0.68	1.05		0.97	1.03	0.23	1.04	0.91	0.48
Control Delay	90.5	32.9	19.0	33.1	67.8		87.6	88.2	11.6	90.4	58.7	17.0
Queue Delay	0.0	0.0	0.0	0.0	96.6		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.5	32.9	19.0	33.1	164.4		87.6	88.2	11.6	90.4	58.7	17.0
LOS	F	C	B	C	F		F	F	B	F	E	B
Approach Delay		37.1			153.7			83.6			60.7	
Approach LOS		D			F			F			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 88.6

Intersection LOS: F

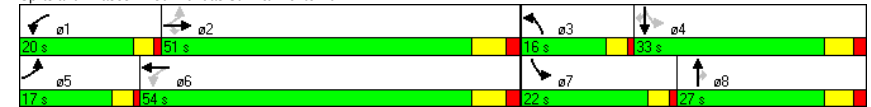
Intersection Capacity Utilization 120.3%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



2021 Future Background (without Intersection Improvement) PM PEAK HOUR 7/17/2009 Base

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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖
Volume (vph)	308	1535	543	214	2123	281	428	746	72	397	851	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	*1.00	*1.00	1.00	0.97	*1.00	1.00
Frt			0.850			0.850			0.850		0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5542	1601	1755	5542	1601	3544	3625	1458	3471	3730	1585
Flt Permitted	0.077			0.113			0.950			0.950		
Satd. Flow (perm)	144	5542	1601	209	5542	1601	3544	3625	1458	3471	3730	1585
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			327			218			72			156
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	2%	4%	4%	2%	3%	6%	12%	2%	3%	3%
Adj. Flow (vph)	308	1535	543	214	2123	281	428	746	72	397	851	231
Shared Lane Traffic (%)												
Lane Group Flow (vph)	308	1535	543	214	2123	281	428	746	72	397	851	231
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6		8				4

2021 Future Background (with Improvements) PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0	37.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	18.0	57.0	57.0	16.0	55.0	55.0	16.0	31.0	31.0	16.0	31.0	31.0
Total Split (%)	15.0%	47.5%	47.5%	13.3%	45.8%	45.8%	13.3%	25.8%	25.8%	13.3%	25.8%	25.8%
Maximum Green (s)	14.0	50.0	50.0	12.0	48.0	48.0	12.0	25.0	25.0	12.0	25.0	25.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	7.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	72.0	54.0	51.0	68.0	51.0	48.0	15.0	28.0	25.0	15.0	28.0	25.0
Actuated g/C Ratio	0.60	0.45	0.42	0.57	0.42	0.40	0.12	0.23	0.21	0.12	0.23	0.21
v/c Ratio	0.97	0.61	0.62	0.72	0.90	0.36	0.97	0.88	0.20	0.91	0.98	0.51
Control Delay	79.2	29.5	17.6	33.1	38.6	7.6	87.6	57.6	10.3	78.6	71.6	18.7
Queue Delay	0.0	0.0	0.0	0.0	63.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.2	29.5	17.6	33.1	102.2	7.6	87.6	57.6	10.3	78.6	71.6	18.7
LOS	E	C	B	C	F	A	F	E	B	E	E	B
Approach Delay		33.2			86.4			65.2			65.2	
Approach LOS		C			F			E			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 62.5

Intersection LOS: E

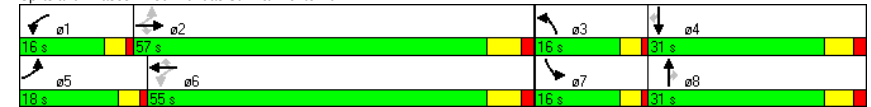
Intersection Capacity Utilization 107.2%

ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



2021 Future Background (with Improvements) PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	↖	↗	↖	↑	↓	↗
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖	↗		↑↑↑	↑↑	
Volume (vph)	225	562	0	1161	2089	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	112.0	0.0			0.0
Storage Lanes	2	1	0			0
Taper Length (m)	2.5	50.0	2.5			2.5
Lane Util. Factor	0.97	1.00	1.00	0.91	0.95	1.00
Frt	0.850					
Flt Protected	0.950					
Satd. Flow (prot)	3340	1617	0	4995	3411	0
Flt Permitted	0.950					
Satd. Flow (perm)	3340	1617	0	4995	3411	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	9					
Link Speed (k/h)	50			60	60	
Link Distance (m)	326.0			103.9	510.7	
Travel Time (s)	23.5			6.2	30.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	1%	0%	5%	7%	0%
Adj. Flow (vph)	225	562	0	1161	2089	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	562	0	1161	2089	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Turn Type	Perm					
Protected Phases	4			2	6	
Permitted Phases	4					
Minimum Split (s)	12.0	12.0		26.0	26.0	
Total Split (s)	31.0	31.0	0.0	54.0	54.0	0.0
Total Split (%)	36.5%	36.5%	0.0%	63.5%	63.5%	0.0%
Maximum Green (s)	25.0	25.0		48.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	3.0	3.0	4.0	3.0	3.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	28.0	28.0		51.0	51.0	
Actuated g/C Ratio	0.33	0.33		0.60	0.60	
v/c Ratio	0.20	1.04		0.39	1.02	
Control Delay	21.1	80.3		9.3	43.8	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	21.1	80.3		9.3	43.8	

2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C	F		A	D	
Approach Delay	63.3			9.3	43.8	
Approach LOS	E			A	D	
Intersection Summary						
Area Type:	Other					
Cycle Length: 85						
Actuated Cycle Length: 85						
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 100						
Control Type: Pretimed						
Maximum v/c Ratio: 1.04						
Intersection Signal Delay: 37.7				Intersection LOS: D		
Intersection Capacity Utilization 99.2%				ICU Level of Service F		
Analysis Period (min) 15						

Splits and Phases: 3: 407 Off Ramp & Bronte Rd



2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings

4: Avenue One & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖		↖	↖		↖	↖		↖	↖	↖
Volume (vph)	3	34	12	27	43	27	18	343	278	149	619	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.942			0.933				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1810	0	1789	1774	0	1789	1757	0	1789	1883	0
Flt Permitted	0.711			0.727			0.345			0.345		
Satd. Flow (perm)	1339	1810	0	1369	1774	0	650	1757	0	650	1883	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			27			97				
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		230.0			749.1			419.3			908.6	
Travel Time (s)		16.6			53.9			18.9			40.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	34	12	27	43	27	18	343	278	149	619	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	46	0	27	70	0	18	621	0	149	621	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	24.0	24.0	0.0	24.0	24.0	0.0	56.0	56.0	0.0	56.0	56.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	70.0%	70.0%	0.0%	70.0%	70.0%	0.0%
Maximum Green (s)	18.0	18.0		18.0	18.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	18.0	18.0		18.0	18.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.62	0.62		0.62	0.62	
v/c Ratio	0.01	0.11		0.09	0.17		0.04	0.55		0.37	0.53	
Control Delay	24.3	20.5		25.6	18.3		3.4	4.3		10.5	10.4	

2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 3

Lanes, Volumes, Timings

4: Avenue One & Tremaine Rd

5/13/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.3	20.5		25.6	18.3		3.4	4.3		10.5	10.4	
LOS	C	C		C	B		A	A		B	B	
Approach Delay		20.8			20.3			4.3			10.4	
Approach LOS		C			C			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 13 (16%), Referenced to phase 2:NBT and 6:SBTL, Start of Green												
Natural Cycle: 55												
Control Type: Pretimed												
Maximum v/c Ratio: 0.55												
Intersection Signal Delay: 8.9							Intersection LOS: A					
Intersection Capacity Utilization 66.5%							ICU Level of Service C					
Analysis Period (min) 15												

Splits and Phases: 4: Avenue One & Tremaine Rd



2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 4

Lanes, Volumes, Timings
12: Avenue One & Bronte Rd

5/13/2011

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↱	↱
Volume (vph)	95	39	423	1122	2015	643
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.7	3.7	3.7	3.7
Storage Length (m)	0.0	0.0	25.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5	2.5	2.5			2.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1750	1566	1789	3579	3579	1601
Flt Permitted	0.950		0.054			
Satd. Flow (perm)	1750	1566	102	3579	3579	1601
Right Turn on Red		Yes			Yes	
Satd. Flow (RTOR)		39			480	
Link Speed (k/h)	50			60	60	
Link Distance (m)	597.8			298.1	355.9	
Travel Time (s)	43.0			17.9	21.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	95	39	423	1122	2015	643
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	39	423	1122	2015	643
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				CI+Ex	CI+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6

2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 5

Lanes, Volumes, Timings
12: Avenue One & Bronte Rd

5/13/2011

	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	8.0	22.0	22.0	22.0
Total Split (s)	22.0	22.0	22.0	98.0	76.0	76.0
Total Split (%)	18.3%	18.3%	18.3%	81.7%	63.3%	63.3%
Maximum Green (s)	16.0	16.0	18.0	92.0	70.0	70.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	-3.0	-3.0	-3.0	0.0
Total Lost Time (s)	6.0	6.0	1.0	3.0	3.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effect Green (s)	11.7	11.7	101.3	99.3	73.0	70.0
Actuated g/C Ratio	0.10	0.10	0.84	0.83	0.61	0.58
v/c Ratio	0.56	0.21	0.96	0.38	0.93	0.57
Control Delay	63.3	17.0	71.0	3.2	29.9	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	17.0	71.0	3.2	29.9	5.5
LOS	E	B	E	A	C	A
Approach Delay	49.8			21.8	24.0	
Approach LOS	D			C	C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 24.0

Intersection LOS: C

Intersection Capacity Utilization 96.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 12: Avenue One & Bronte Rd



2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖		↖	↖		↖	↖		↖	↖	↖	
Volume (vph)	0	22	53	48	8	5	12	635	407	25	630	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	25.0		0.0	
Storage Lanes	1		0	1		0	1		0	1		0	
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.894			0.942			0.941					
Flt Protected				0.950			0.950			0.950			
Satd. Flow (prot)	1842	1647	0	1750	1735	0	1789	1762	0	1789	1865	0	
Flt Permitted				0.708			0.395			0.191			
Satd. Flow (perm)	1842	1647	0	1304	1735	0	744	1762	0	360	1865	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		53			5			82					
Link Speed (k/h)		50			50			80			80		
Link Distance (m)		143.6			595.2			292.4			419.3		
Travel Time (s)		10.3			42.9			13.2			18.9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	3%	2%	
Adj. Flow (vph)	0	22	53	48	8	5	12	635	407	25	630	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	75	0	48	13	0	12	1042	0	25	630	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		7.0			7.0			3.7			3.7		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		1.6			1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Number of Detectors	1	2		1	2		1	2		1	2		
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru		
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5		
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8		
Detector 1 Type	CI+Ex	CH+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)		28.7			28.7			28.7			28.7		
Detector 2 Size(m)		1.8			1.8			1.8			1.8		
Detector 2 Type		CH+Ex			CI+Ex			CI+Ex			CI+Ex		
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0			0.0		
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		

2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	4			8			2			6			
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0		
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	58.0	58.0	0.0	58.0	58.0	0.0	
Total Split (%)	27.5%	27.5%	0.0%	27.5%	27.5%	0.0%	72.5%	72.5%	0.0%	72.5%	72.5%	0.0%	
Maximum Green (s)	16.0	16.0		16.0	16.0		52.0	52.0		52.0	52.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effct Green (s)		8.5		8.5	8.5		63.0	63.0		63.0	63.0		
Actuated g/C Ratio		0.11		0.11	0.11		0.79	0.79		0.79	0.79		
v/c Ratio		0.34		0.35	0.07		0.02	0.74		0.09	0.43		
Control Delay	18.3	39.3		25.6			3.4	10.5		4.7	5.0		
Queue Delay	0.0	0.0		0.0			0.0	0.0		0.0	0.0		
Total Delay	18.3	39.3		25.6			3.4	10.5		4.7	5.0		
LOS	B			D	C		A	B		A	A		
Approach Delay	18.3			36.4			10.4			5.0			
Approach LOS	B			D			B			A			

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 9.7

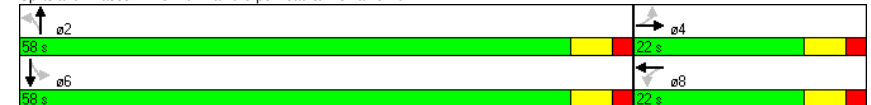
Intersection LOS: A

Intersection Capacity Utilization 77.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 13: Burnhamthorpe Road & Tremaine Rd



2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	45	67	103	129	345	350	628	1604	301	471	1422	99	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
Storage Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0	
Storage Lanes	1		1	1		1	1		1	1		1	
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frt			0.850			0.850			0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1750	3500	1566	1789	3579	1601	1789	3579	1601	1789	3579	1601	
Flt Permitted	0.545			0.659			0.080			0.082			
Satd. Flow (perm)	1004	3500	1566	1241	3579	1601	151	3579	1601	154	3579	1601	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			44			14			104			28	
Link Speed (k/h)		50			60			60			60		
Link Distance (m)		307.6			284.2			435.3			147.1		
Travel Time (s)		22.1			17.1			26.1			8.8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	45	67	103	129	345	350	628	1604	301	471	1422	99	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	45	67	103	129	345	350	628	1604	301	471	1422	99	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.7			3.7			3.7			3.7		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		1.6			1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7		
Detector 2 Size(m)		1.8			1.8			1.8			1.8		
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex		
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0			0.0		
Turn Type	Perm		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		Perm	
Protected Phases		4	5	3	8	1	5	2	3	1	6		
Permitted Phases		4	4	8		8	2		2	6			

2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	←	→	↙	↘	←	↙	↘	→	↙	↘	→	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	4	4	5	3	8	1	5	2	3	1	6	6	
Switch Phase													
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	22.0	8.0	8.0	22.0	8.0	8.0	22.0	8.0	8.0	22.0	22.0	
Total Split (s)	22.0	22.0	37.0	8.0	30.0	27.0	37.0	63.0	8.0	27.0	53.0	53.0	
Total Split (%)	18.3%	18.3%	30.8%	6.7%	25.0%	22.5%	30.8%	52.5%	6.7%	22.5%	44.2%	44.2%	
Maximum Green (s)	16.0	16.0	33.0	4.0	24.0	23.0	33.0	57.0	4.0	23.0	47.0	47.0	
Yellow Time (s)	4.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	
Total Lost Time (s)	3.0	3.0	4.0	1.0	3.0	4.0	1.0	3.0	4.0	1.0	3.0	6.0	
Lead/Lag	Lag	Lag	Lead	Lead		Lead	Lead	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	C-Max	
Walk Time (s)	5.0	5.0			5.0			5.0			5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0			11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0			0			0	0	
Act Effct Green (s)	13.8	13.8	52.9	23.5	21.5	53.0	94.5	60.0	69.1	83.5	50.0	47.0	
Actuated g/C Ratio	0.12	0.12	0.44	0.20	0.18	0.44	0.79	0.50	0.58	0.70	0.42	0.39	
v/c Ratio	0.39	0.17	0.14	0.45	0.54	0.49	0.92	0.90	0.31	0.88	0.95	0.15	
Control Delay	57.7	47.3	11.6	46.2	47.3	25.7	31.0	29.3	9.0	52.7	48.9	17.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	57.7	47.3	11.6	46.2	47.3	25.7	31.0	29.3	9.0	52.7	48.9	17.5	
LOS	E	D	B	D	D	C	C	C	A	D	D	B	
Approach Delay		32.4			38.0			27.3			48.2		
Approach LOS		C			D			C			D		

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 9 (8%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 36.6

Intersection LOS: D

Intersection Capacity Utilization 100.3%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 21: Burnhamthorpe Road & Bronte Rd



2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	907	2318	894	74	184	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	4948	1585	1772	1585
Flt Permitted	0.179				0.950	
Satd. Flow (perm)	334	5043	4948	1585	1772	1585
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				74	13	
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	594.9		292.4	
Travel Time (s)		26.8	26.8		13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	907	2318	894	74	184	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	907	2318	894	74	184	222
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2			6		4

2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	5
Switch Phase						
Minimum Initial (s)	4.0	30.0	30.0	30.0	8.0	4.0
Minimum Split (s)	8.0	37.0	37.0	37.0	22.0	8.0
Total Split (s)	61.0	98.0	37.0	37.0	22.0	61.0
Total Split (%)	50.8%	81.7%	30.8%	30.8%	18.3%	50.8%
Maximum Green (s)	57.0	91.0	30.0	30.0	16.0	57.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	3.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?	Yes					Yes
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	98.3	95.3	36.4	33.4	17.7	75.6
Actuated g/C Ratio	0.82	0.79	0.30	0.28	0.15	0.63
v/c Ratio	0.94	0.58	0.60	0.15	0.70	0.22
Control Delay	38.4	5.5	35.8	9.8	63.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	5.5	35.8	9.8	63.5	9.0
LOS	D	A	D	A	E	A
Approach Delay		14.8	33.8		33.7	
Approach LOS		B	C		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 85 (71%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 20.4

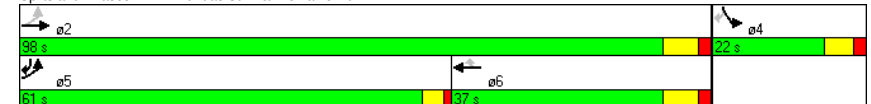
Intersection LOS: C

Intersection Capacity Utilization 95.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	258	2182	999	551	136	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5043	4948	1633	1825	1633
Flt Permitted	0.261				0.950	
Satd. Flow (perm)	501	5043	4948	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				551	187	
Link Speed (k/h)		80	80		50	
Link Distance (m)		594.9	556.7		446.2	
Travel Time (s)		26.8	25.1		32.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	6%	0%	0%	0%
Adj. Flow (vph)	258	2182	999	551	136	187
Shared Lane Traffic (%)						
Lane Group Flow (vph)	258	2182	999	551	136	187
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm		Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6

2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	4	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	22.0	22.0
Total Split (s)	98.0	98.0	98.0	98.0	22.0	22.0
Total Split (%)	81.7%	81.7%	81.7%	81.7%	18.3%	18.3%
Maximum Green (s)	91.0	91.0	91.0	91.0	16.0	16.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	7.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	87.2	87.2	87.2	84.2	22.8	22.8
Actuated g/C Ratio	0.73	0.73	0.73	0.70	0.19	0.19
v/c Ratio	0.71	0.60	0.28	0.42	0.39	0.40
Control Delay	16.0	5.7	3.3	1.4	49.7	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	5.7	3.3	1.4	49.7	9.5
LOS	B	A	A	A	D	A
Approach Delay		6.8	2.6		26.4	
Approach LOS		A	A		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 25 (21%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 6.7

Intersection LOS: A

Intersection Capacity Utilization 58.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	←	→	↙	↘	←	↙	↘	→	↙	↘	→	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↙	↙↙↙	↙	↙	↙↙↙	↙	↙	↙	↙	↙	↙	↙	
Volume (vph)	130	2117	40	48	1374	297	75	143	120	94	26	109	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	0.0		25.0	
Storage Lanes	1		1	1		1	1		1	1		1	
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt			0.850			0.850			0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1825	5043	1512	1508	4948	1633	1674	1921	1585	1789	1921	1633	
Flt Permitted	0.183			0.055			0.740			0.388			
Satd. Flow (perm)	352	5043	1512	87	4948	1633	1304	1921	1585	731	1921	1633	
Right Turn on Red			Yes			Yes			Yes		Yes		
Satd. Flow (RTOR)			40			297			85			85	
Link Speed (k/h)		80			80			50			50		
Link Distance (m)		556.7			284.1			333.6			488.9		
Travel Time (s)		25.1			12.8			24.0			35.2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	4%	8%	21%	6%	0%	9%	0%	3%	2%	0%	0%	
Adj. Flow (vph)	130	2117	40	48	1374	297	75	143	120	94	26	109	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	130	2117	40	48	1374	297	75	143	120	94	26	109	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.7			3.7			3.7			3.7		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		1.6			1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7		
Detector 2 Size(m)		1.8			1.8			1.8			1.8		
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex		
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0			0.0		
Turn Type	Perm		Perm	pm+pt		Perm	Perm		Perm	pm+pt		Perm	
Protected Phases		2			1		6		8		7		4
Permitted Phases	2		2		6		6		8		4		4

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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	←	→	↙	↘	←	↙	↘	→	↙	↘	→	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	2	2	2	1	6	6	8	8	8	7	4	4	
Switch Phase													
Minimum Initial (s)	20.0	20.0	20.0	4.0	20.0	20.0	6.0	6.0	6.0	4.0	6.0	6.0	
Minimum Split (s)	27.0	27.0	27.0	8.0	27.0	27.0	12.0	12.0	12.0	8.0	12.0	12.0	
Total Split (s)	82.0	82.0	82.0	8.0	90.0	90.0	21.0	21.0	21.0	9.0	30.0	30.0	
Total Split (%)	68.3%	68.3%	68.3%	6.7%	75.0%	75.0%	17.5%	17.5%	17.5%	7.5%	25.0%	25.0%	
Maximum Green (s)	75.0	75.0	75.0	4.0	83.0	83.0	15.0	15.0	15.0	5.0	24.0	24.0	
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0	4.0	3.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	7.0	1.0	4.0	7.0	6.0	6.0	6.0	4.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.5	3.5	3.5	3.0	0.2	0.2	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None	
Walk Time (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)	7.0	7.0	7.0		7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0	
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0	
Act Effct Green (s)	80.8	80.8	77.8	90.7	87.7	84.7	13.3	13.3	13.3	24.3	22.3	22.3	
Actuated g/C Ratio	0.67	0.67	0.65	0.76	0.73	0.71	0.11	0.11	0.11	0.20	0.19	0.19	
v/c Ratio	0.55	0.62	0.04	0.30	0.38	0.24	0.52	0.67	0.48	0.49	0.07	0.29	
Control Delay	19.4	10.3	2.7	21.7	3.0	0.7	62.8	66.6	23.9	49.2	39.9	14.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	19.4	10.3	2.7	21.7	3.0	0.7	62.8	66.6	23.9	49.2	39.9	14.9	
LOS	B	B	A	C	A	A	E	E	C	D	D	B	
Approach Delay		10.7			3.1			50.6			31.9		
Approach LOS		B			A			D			C		

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 24 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 11.8

Intersection LOS: B

Intersection Capacity Utilization 72.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Avenue Three



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Synchro 7 - Report
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Lanes, Volumes, Timings
28: Dundas St W & Avenue Four

5/13/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					 		
Volume (vph)	129	2179	29	12	1596	371	107	96	55	118	22	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	28.0		25.0	50.0		50.0	0.0		25.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	2.5		65.0	70.0		2.5	25.0		25.0	2.5		2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.998				0.850		0.945			0.916	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5006	0	1362	4948	1601	1825	1793	0	3471	1725	0
Flt Permitted	0.102			0.059			0.724			0.470		
Satd. Flow (perm)	192	5006	0	85	4948	1601	1391	1793	0	1717	1725	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				169		21			28	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		243.9			243.0			345.0			419.2	
Travel Time (s)		14.6			14.6			24.8			30.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	4%	47%	34%	6%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	129	2179	29	12	1596	371	107	96	55	118	22	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	2208	0	12	1596	371	107	151	0	118	50	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm		Perm	Perm			pm+pt			
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2			6		6	8			4		

2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
28: Dundas St W & Avenue Four

5/13/2011

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	5	2		6	6	6	8	8		7	4		
Switch Phase													
Minimum Initial (s)	4.0	50.0		50.0	50.0	50.0	20.0	20.0		4.0	4.0		
Minimum Split (s)	8.0	57.0		57.0	57.0	57.0	26.0	26.0		8.0	22.0		
Total Split (s)	14.0	83.0	0.0	69.0	69.0	69.0	29.0	29.0	0.0	8.0	37.0	0.0	
Total Split (%)	11.7%	69.2%	0.0%	57.5%	57.5%	57.5%	24.2%	24.2%	0.0%	6.7%	30.8%	0.0%	
Maximum Green (s)	10.0	76.0		62.0	62.0	62.0	23.0	23.0		4.0	31.0		
Yellow Time (s)	3.0	5.0		5.0	5.0	5.0	4.0	4.0		3.0	4.0		
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0		1.0	2.0		
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	1.0	4.0	4.0	4.0	4.0	7.0	6.0	6.0	4.0	4.0	6.0	4.0	
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag		Lead			
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes			
Vehicle Extension (s)	3.0	6.0		6.0	6.0	6.0	5.0	5.0		3.0	3.0		
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None		
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0			5.0		
Flash Dont Walk (s)		14.0		14.0	14.0	14.0	12.0	12.0			11.0		
Pedestrian Calls (#/hr)		0		0	0	0	0	0			0		
Act Effct Green (s)	84.4	81.4		69.2	69.2	66.2	20.6	20.6		30.6	28.6		
Actuated g/C Ratio	0.70	0.68		0.58	0.58	0.55	0.17	0.17		0.26	0.24		
v/c Ratio	0.45	0.65		0.24	0.56	0.39	0.45	0.46		0.24	0.12		
Control Delay	15.8	10.9		7.2	3.7	1.5	51.0	43.3		35.6	20.0		
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0		
Total Delay	15.8	10.9		7.2	3.7	1.5	51.0	43.3		35.6	20.0		
LOS	B	B		A	A	A	D	D		D	B		
Approach Delay		11.2			3.3		46.5				30.9		
Approach LOS		B			A		D				C		

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 14 (12%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 10.5

Intersection LOS: B

Intersection Capacity Utilization 121.1%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Avenue Four



2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 18

Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖		↖	↖↖	↖	↖	↖↖	↖
Volume (vph)	294	1228	740	87	1253	574	627	1364	120	300	1068	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	0.91	0.97	*1.00	1.00	1.00	*1.00	1.00
Frt			0.850		0.953				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5489	1601	1587	5228	0	3340	3730	1555	1755	3625	1512
Flt Permitted	0.098			0.171			0.950			0.111		
Satd. Flow (perm)	183	5489	1601	286	5228	0	3340	3730	1555	205	3625	1512
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			343		103			85				92
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	294	1228	740	87	1253	574	627	1364	120	300	1068	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	294	1228	740	87	1827	0	627	1364	120	300	1068	157
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6					8	4		4

2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	15.0	50.0	50.0	9.0	44.0	0.0	22.0	45.0	45.0	16.0	39.0	39.0
Total Split (%)	12.5%	41.7%	41.7%	7.5%	36.7%	0.0%	18.3%	37.5%	37.5%	13.3%	32.5%	32.5%
Maximum Green (s)	11.0	43.0	43.0	5.0	37.0		18.0	39.0	39.0	12.0	33.0	33.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	58.0	46.0	43.0	51.0	40.0		21.0	42.0	39.0	53.0	36.0	33.0
Actuated g/C Ratio	0.48	0.38	0.36	0.42	0.33		0.18	0.35	0.32	0.44	0.30	0.28
v/c Ratio	1.07	0.58	0.93	0.42	1.01		1.07	1.04	0.21	1.06	0.98	0.33
Control Delay	111.9	23.5	32.2	23.6	61.0		104.9	75.7	11.3	86.1	39.9	9.1
Queue Delay	0.0	0.0	0.0	0.0	30.1		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.9	23.5	32.2	23.6	91.1		104.9	75.7	11.3	86.1	39.9	9.1
LOS	F	C	C	C	F		F	E	B	F	D	A
Approach Delay		37.8			88.0			80.7			45.8	
Approach LOS		D			F			F			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 63.3

Intersection LOS: E

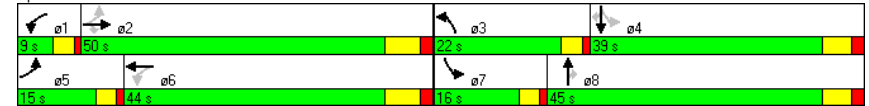
Intersection Capacity Utilization 121.0%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



2031 Future Background AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	↗	↘	↙	↑	↓	↖
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔↔	↗		↔↔↔	↗	
Volume (vph)	225	562	0	1161	2089	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	112.0	0.0			0.0
Storage Lanes	2	1	0			0
Taper Length (m)	2.5	50.0	2.5			2.5
Lane Util. Factor	0.97	0.91	1.00	0.91	0.95	1.00
Frt	0.917	0.850				
Flt Protected	0.978					
Satd. Flow (prot)	3238	1471	0	4995	3411	0
Flt Permitted	0.978					
Satd. Flow (perm)	3238	1471	0	4995	3411	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	19	19				
Link Speed (k/h)	50			60	60	
Link Distance (m)	326.0			103.9	510.7	
Travel Time (s)	23.5			6.2	30.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	1%	0%	5%	7%	0%
Adj. Flow (vph)	225	562	0	1161	2089	0
Shared Lane Traffic (%)		50%				
Lane Group Flow (vph)	506	281	0	1161	2089	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	12.0	12.0		26.0	26.0	
Total Split (s)	22.0	22.0	0.0	63.0	63.0	0.0
Total Split (%)	25.9%	25.9%	0.0%	74.1%	74.1%	0.0%
Maximum Green (s)	16.0	16.0		57.0	57.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	3.0	3.0	4.0	3.0	3.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effect Green (s)	19.0	19.0		60.0	60.0	
Actuated g/C Ratio	0.22	0.22		0.71	0.71	
v/c Ratio	0.68	0.82		0.33	0.87	
Control Delay	34.6	50.0		5.1	14.8	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	34.6	50.0		5.1	14.8	

2031 Future Background (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	↗	↘	↙	↑	↓	↖
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C	D		A	B	
Approach Delay	40.1			5.1	14.8	
Approach LOS	D			A	B	
Intersection Summary						
Area Type:	Other					
Cycle Length: 85						
Actuated Cycle Length: 85						
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 55						
Control Type: Pretimed						
Maximum v/c Ratio: 0.87						
Intersection Signal Delay: 16.9	Intersection LOS: B					
Intersection Capacity Utilization 87.6%	ICU Level of Service E					
Analysis Period (min) 15						

Splits and Phases: 3: 407 Off Ramp & Bronte Rd



2031 Future Background (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↖	↗	↘
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖↖	↖↖↖	↖	↖	↖
Volume (vph)	907	2318	894	74	184	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	4948	1585	1772	1585
Flt Permitted	0.179				0.950	
Satd. Flow (perm)	334	5043	4948	1585	1772	1585
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				74		222
Link Speed (k/h)		80	80		80	
Link Distance (m)		96.5	594.9		292.4	
Travel Time (s)		4.3	26.8		13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	907	2318	894	74	184	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	907	2318	894	74	184	222
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Free
Protected Phases	5	2	6		4	
Permitted Phases	2			6		Free

2031 Future Background (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 3

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↖	↗	↘
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	
Switch Phase						
Minimum Initial (s)	4.0	30.0	30.0	30.0	8.0	
Minimum Split (s)	8.0	37.0	37.0	37.0	22.0	
Total Split (s)	61.0	98.0	37.0	37.0	22.0	0.0
Total Split (%)	50.8%	81.7%	30.8%	30.8%	18.3%	0.0%
Maximum Green (s)	57.0	91.0	30.0	30.0	16.0	
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes					
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	
Recall Mode	None	C-Max	C-Max	C-Max	None	
Walk Time (s)		0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	98.3	95.3	36.5	33.5	17.7	120.0
Actuated g/C Ratio	0.82	0.79	0.30	0.28	0.15	1.00
v/c Ratio	0.94	0.58	0.59	0.15	0.70	0.14
Control Delay	38.7	5.5	31.1	8.4	63.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	5.5	31.1	8.4	63.5	0.2
LOS	D	A	C	A	E	A
Approach Delay		14.8	29.3		28.9	
Approach LOS		B	C		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 85 (71%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 19.1

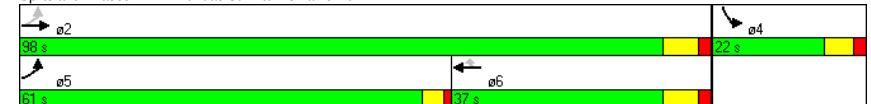
Intersection LOS: B

Intersection Capacity Utilization 95.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



2031 Future Background (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 4

Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖
Volume (vph)	294	1228	740	87	1253	574	627	1364	120	300	1068	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	0.97	*1.00	1.00	0.97	*1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5489	1601	1587	5437	1585	3340	3730	1555	3404	3625	1512
Flt Permitted	0.114			0.164			0.950			0.950		
Satd. Flow (perm)	213	5489	1601	274	5437	1585	3340	3730	1555	3404	3625	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			375			27			87			93
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	294	1228	740	87	1253	574	627	1364	120	300	1068	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	294	1228	740	87	1253	574	627	1364	120	300	1068	157
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6		8				4

2031 Future Background (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	7	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	5.0	5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0	9.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	17.0	46.0	46.0	9.0	38.0	18.0	25.0	47.0	47.0	18.0	40.0	40.0
Total Split (%)	14.2%	38.3%	38.3%	7.5%	31.7%	15.0%	20.8%	39.2%	39.2%	15.0%	33.3%	33.3%
Maximum Green (s)	13.0	39.0	39.0	5.0	31.0	14.0	21.0	41.0	41.0	14.0	34.0	34.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	2.5	2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	54.0	42.0	39.0	45.0	34.0	51.3	24.0	44.7	41.7	16.3	37.0	34.0
Actuated g/C Ratio	0.45	0.35	0.32	0.38	0.28	0.43	0.20	0.37	0.35	0.14	0.31	0.28
v/c Ratio	0.97	0.64	0.96	0.46	0.81	0.83	0.94	0.98	0.20	0.65	0.96	0.32
Control Delay	83.6	32.3	40.2	27.9	45.1	40.6	70.3	58.0	10.4	59.7	33.1	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.6	32.3	40.2	27.9	45.2	50.4	70.3	58.0	10.4	59.7	33.1	7.6
LOS	F	C	D	C	D	D	E	E	B	E	C	A
Approach Delay		41.6			46.0			59.0			35.7	
Approach LOS		D			D			E			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 46.2

Intersection LOS: D

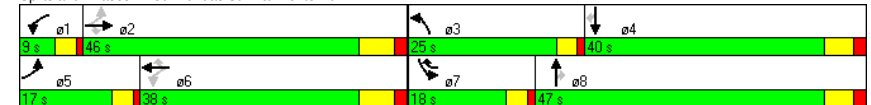
Intersection Capacity Utilization 102.0%

ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



2031 Future Background (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
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Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱	↱		↰↱↱	↰↱	
Volume (vph)	134	180	0	1839	1597	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	112.0	0.0			0.0
Storage Lanes	2	1	0			0
Taper Length (m)	2.5	50.0	2.5			2.5
Lane Util. Factor	0.97	1.00	1.00	0.91	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3340	1617	0	4995	3411	0
Flt Permitted	0.950					
Satd. Flow (perm)	3340	1617	0	4995	3411	0
Right Turn on Red		Yes			Yes	
Satd. Flow (RTOR)		44				
Link Speed (k/h)	50			60	60	
Link Distance (m)	326.0			103.9	510.7	
Travel Time (s)	23.5			6.2	30.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	1%	0%	5%	7%	0%
Adj. Flow (vph)	134	180	0	1839	1597	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	180	0	1839	1597	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	12.0	12.0		26.0	26.0	
Total Split (s)	22.0	22.0	0.0	63.0	63.0	0.0
Total Split (%)	25.9%	25.9%	0.0%	74.1%	74.1%	0.0%
Maximum Green (s)	16.0	16.0		57.0	57.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-3.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	3.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effect Green (s)	16.0	16.0		60.0	57.0	
Actuated g/C Ratio	0.19	0.19		0.71	0.67	
v/c Ratio	0.21	0.53		0.52	0.70	
Control Delay	30.2	29.7		6.5	10.8	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	30.2	29.7		6.5	10.8	

2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C	C		A	B	
Approach Delay	29.9			6.5	10.8	
Approach LOS	C			A	B	
Intersection Summary						
Area Type:	Other					
Cycle Length: 85						
Actuated Cycle Length: 85						
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 55						
Control Type: Pretimed						
Maximum v/c Ratio: 0.70						
Intersection Signal Delay: 10.3				Intersection LOS: B		
Intersection Capacity Utilization 65.3%				ICU Level of Service C		
Analysis Period (min) 15						

Splits and Phases: 3: 407 Off Ramp & Bronte Rd



2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings

4: Avenue One & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖		↖	↖		↖	↖		↖	↖		
Volume (vph)	6	45	45	180	45	150	71	673	58	56	443	7	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0			0.0	0.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0	
Taper Length (m)	2.5			2.5	2.5		2.5		2.5	2.5		2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.925			0.885			0.988			0.998		
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1789	1742	0	1789	1667	0	1789	1861	0	1789	1880	0	
Flt Permitted	0.600			0.699			0.449			0.251			
Satd. Flow (perm)	1130	1742	0	1317	1667	0	846	1861	0	473	1880	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		45			150			9			2		
Link Speed (k/h)		50			50			80			80		
Link Distance (m)		230.0			749.1			419.3			908.6		
Travel Time (s)		16.6			53.9			18.9			40.9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	6	45	45	180	45	150	71	673	58	56	443	7	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	6	90	0	180	195	0	71	731	0	56	450	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.7			3.7			3.7			3.7		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		1.6			1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0		
Total Split (s)	27.0	27.0	0.0	27.0	27.0	0.0	53.0	53.0	0.0	53.0	53.0	0.0	
Total Split (%)	33.8%	33.8%	0.0%	33.8%	33.8%	0.0%	66.3%	66.3%	0.0%	66.3%	66.3%	0.0%	
Maximum Green (s)	21.0	21.0		21.0	21.0		47.0	47.0		47.0	47.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	
Lead/Lag													
Lead-Lag Optimize?													
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effect Green (s)	21.0	21.0		21.0	21.0		47.0	47.0		47.0	47.0		
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.59	0.59		0.59	0.59		
v/c Ratio	0.02	0.18		0.52	0.36		0.14	0.67		0.20	0.41		
Control Delay	22.2	14.2		31.6	9.2		1.6	3.7		10.0	10.3		

2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 3

Lanes, Volumes, Timings

4: Avenue One & Tremaine Rd

5/13/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.2	14.2		31.6	9.2		1.6	3.7		10.0	10.3	
LOS	C	B		C	A		A	A		B	B	
Approach Delay		14.7			19.9			3.5			10.3	
Approach LOS		B			B			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 13 (16%), Referenced to phase 2:NBT and 6:SBTL, Start of Green												
Natural Cycle: 60												
Control Type: Pretimed												
Maximum v/c Ratio: 0.67												
Intersection Signal Delay: 9.5							Intersection LOS: A					
Intersection Capacity Utilization 73.9%							ICU Level of Service D					
Analysis Period (min) 15												

Splits and Phases: 4: Avenue One & Tremaine Rd



2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 4

Lanes, Volumes, Timings
12: Avenue One & Bronte Rd

5/13/2011

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↱	↱
Volume (vph)	495	350	95	1553	1548	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.7	3.7	3.7	3.7
Storage Length (m)	0.0	0.0	25.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5	2.5	2.5			2.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1750	1566	1789	3579	3579	1601
Flt Permitted	0.950		0.065			
Satd. Flow (perm)	1750	1566	122	3579	3579	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		122				238
Link Speed (k/h)	50			60	60	
Link Distance (m)	597.8			298.1	355.9	
Travel Time (s)	43.0			17.9	21.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	495	350	95	1553	1548	238
Shared Lane Traffic (%)						
Lane Group Flow (vph)	495	350	95	1553	1548	238
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				CI+Ex	CI+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm	pm+pt		pm+ov	
Protected Phases	4		5	2	6	4
Permitted Phases		4	2			6

2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
12: Avenue One & Bronte Rd

5/13/2011

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0	22.0
Total Split (s)	52.0	52.0	10.0	68.0	58.0	52.0
Total Split (%)	43.3%	43.3%	8.3%	56.7%	48.3%	43.3%
Maximum Green (s)	46.0	46.0	6.0	62.0	52.0	46.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	-3.0	-3.0	-3.0	0.0
Total Lost Time (s)	6.0	6.0	1.0	3.0	3.0	6.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effect Green (s)	39.4	39.4	73.6	71.6	60.7	103.1
Actuated g/C Ratio	0.33	0.33	0.61	0.60	0.51	0.86
v/c Ratio	0.86	0.59	0.45	0.73	0.86	0.17
Control Delay	52.9	24.5	21.4	20.9	33.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	24.5	21.4	20.9	33.0	0.4
LOS	D	C	C	C	C	A
Approach Delay	41.2			21.0	28.6	
Approach LOS	D			C	C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 28.1

Intersection LOS: C

Intersection Capacity Utilization 87.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 12: Avenue One & Bronte Rd



2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖		↖	↖		↖	↖		↖	↖	↖	
Volume (vph)	3	24	86	240	32	23	53	780	296	9	652	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	25.0		0.0	
Storage Lanes	1		0	1		0	1		0	1		0	
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.883			0.937			0.959					
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1750	1627	0	1750	1726	0	1789	1793	0	1789	1865	0	
Flt Permitted	0.721			0.422			0.333			0.080			
Satd. Flow (perm)	1328	1627	0	777	1726	0	627	1793	0	151	1865	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		86			23			36					
Link Speed (k/h)		50			50			80			80		
Link Distance (m)		143.6			595.2			292.4			419.3		
Travel Time (s)		10.3			42.9			13.2			18.9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	3%	2%	
Adj. Flow (vph)	3	24	86	240	32	23	53	780	296	9	652	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	3	110	0	240	55	0	53	1076	0	9	652	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		7.0			7.0			3.7			3.7		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		1.6			1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Number of Detectors	1	2		1	2		1	2		1	2		
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru		
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5		
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8		
Detector 1 Type	CI+Ex	CH+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)		28.7			28.7			28.7			28.7		
Detector 2 Size(m)		1.8			1.8			1.8			1.8		
Detector 2 Type		CH+Ex			CI+Ex			CI+Ex			CI+Ex		
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0			0.0		
Turn Type	Perm			pm+pt			Perm			Perm			
Protected Phases		4			3			8			2		

2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 7

Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	4			8			2			6			
Detector Phase	4	4		3	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	22.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0		
Total Split (s)	22.0	22.0	0.0	10.0	32.0	0.0	48.0	48.0	0.0	48.0	48.0	0.0	
Total Split (%)	27.5%	27.5%	0.0%	12.5%	40.0%	0.0%	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%	
Maximum Green (s)	16.0	16.0		6.0	26.0		42.0	42.0		42.0	42.0		
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	4.0	4.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	
Lead/Lag	Lag	Lag		Lead									
Lead-Lag Optimize?	Yes	Yes		Yes									
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effect Green (s)	7.5	7.5		17.5	15.5		52.5	52.5		52.5	52.5		
Actuated g/C Ratio	0.09	0.09		0.22	0.19		0.66	0.66		0.66	0.66		
v/c Ratio	0.02	0.48		0.98	0.16		0.13	0.90		0.09	0.53		
Control Delay	31.3	18.7		81.8	17.1		7.7	26.3		9.3	8.6		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	31.3	18.7		81.8	17.1		7.7	26.3		9.3	8.6		
LOS	C	B		F	B		A	C		A	A		
Approach Delay		19.1			69.7			25.4			8.6		
Approach LOS		B			E			C			A		

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 26.0

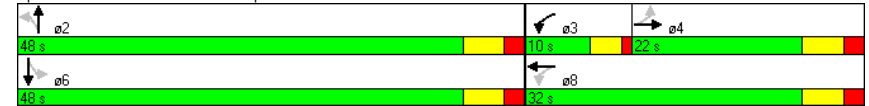
Intersection LOS: C

Intersection Capacity Utilization 89.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 13: Burnhamthorpe Road & Tremaine Rd



2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↘	↙	←	↖	↗	↘	↙	↖	↗	↘	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	
Volume (vph)	201	317	584	312	227	471	266	1220	88	405	1537	39	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
Storage Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0	
Storage Lanes	1		1	1		1	1		1	1		1	
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frt			0.850			0.850			0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1750	3500	1566	1789	3579	1601	1789	3579	1601	1789	3579	1601	
Flt Permitted	0.472			0.324			0.077			0.077			
Satd. Flow (perm)	869	3500	1566	610	3579	1601	145	3579	1601	145	3579	1601	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			30			81			38			14	
Link Speed (k/h)	50				60			60			60		
Link Distance (m)	307.6				284.2			435.3			147.1		
Travel Time (s)	22.1				17.1			26.1			8.8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	201	317	584	312	227	471	266	1220	88	405	1537	39	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	201	317	584	312	227	471	266	1220	88	405	1537	39	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)	3.7				3.7			3.7			3.7		
Link Offset(m)	0.0				0.0			0.0			0.0		
Crosswalk Width(m)	1.6				1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7		
Detector 2 Size(m)		1.8			1.8			1.8			1.8		
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex		
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0			0.0		
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7	
Permitted Phases	4		4	8		8	2		2	6		6	

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Synchro 7 - Report
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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↘	↙	←	↖	↗	↘	↙	↖	↗	↘	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7	
Switch Phase													
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	22.0	8.0	8.0	22.0	8.0	8.0	22.0	8.0	8.0	22.0	8.0	
Total Split (s)	16.0	22.0	27.0	16.0	22.0	29.0	27.0	53.0	16.0	29.0	55.0	16.0	
Total Split (%)	13.3%	18.3%	22.5%	13.3%	18.3%	24.2%	22.5%	44.2%	13.3%	24.2%	45.8%	13.3%	
Maximum Green (s)	12.0	16.0	23.0	12.0	16.0	25.0	23.0	47.0	12.0	25.0	49.0	12.0	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	
Total Lost Time (s)	1.0	3.0	4.0	1.0	3.0	4.0	1.0	3.0	4.0	1.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None	
Walk Time (s)		5.0			5.0			5.0			5.0		
Flash Dont Walk (s)		11.0			11.0			11.0			11.0		
Pedestrian Calls (/hr)		0			0			0			0		
Act Effct Green (s)	34.6	17.9	45.0	35.1	18.1	45.1	79.9	52.1	67.1	80.4	52.0	66.8	
Actuated g/C Ratio	0.29	0.15	0.38	0.29	0.15	0.38	0.67	0.43	0.56	0.67	0.43	0.56	
v/c Ratio	0.56	0.61	0.96	0.96	0.42	0.72	0.57	0.79	0.10	0.87	0.99	0.04	
Control Delay	39.7	53.0	64.2	78.5	48.6	33.1	15.5	20.6	7.6	51.8	54.9	8.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	39.7	53.0	64.2	78.5	48.6	33.1	15.5	20.6	7.6	51.8	54.9	8.8	
LOS	D	D	E	E	D	C	B	C	A	D	D	A	
Approach Delay		56.5			50.6		19.0				53.4		
Approach LOS		E			D		B				D		

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 12 (10%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 43.9

Intersection LOS: D

Intersection Capacity Utilization 105.9%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 21: Burnhamthorpe Road & Bronte Rd

↖	↖	↖	↖
23 s	53 s	16 s	22 s
↖	↖	↖	↖
27 s	55 s	16 s	22 s

2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	524	1492	2508	224	186	816
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	*1.00	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	5437	1585	1772	1585
Flt Permitted	0.073				0.950	
Satd. Flow (perm)	136	5043	5437	1585	1772	1585
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				124		
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	594.9		292.4	
Travel Time (s)		26.8	26.8		13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	524	1492	2508	224	186	816
Shared Lane Traffic (%)						
Lane Group Flow (vph)	524	1492	2508	224	186	816
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2			6		4

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Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	5
Switch Phase						
Minimum Initial (s)	4.0	30.0	30.0	30.0	8.0	4.0
Minimum Split (s)	10.0	37.0	37.0	37.0	22.0	10.0
Total Split (s)	40.0	98.0	58.0	58.0	22.0	40.0
Total Split (%)	33.3%	81.7%	48.3%	48.3%	18.3%	33.3%
Maximum Green (s)	36.0	91.0	51.0	51.0	16.0	36.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	3.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?	Yes					Yes
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	98.3	95.3	54.0	51.0	17.7	58.0
Actuated g/C Ratio	0.82	0.79	0.45	0.42	0.15	0.48
v/c Ratio	0.79	0.37	1.02	0.30	0.71	1.07
Control Delay	38.2	4.0	39.1	2.3	63.9	82.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	4.0	39.1	2.3	63.9	82.4
LOS	D	A	D	A	E	F
Approach Delay		12.9	36.1		79.0	
Approach LOS		B	D		E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 98 (82%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 35.4

Intersection LOS: D

Intersection Capacity Utilization 105.7%

ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 22: Dundas St W & Tremaine Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	175	1370	1983	326	667	589
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5043	4948	1633	1825	1633
Flt Permitted	0.074				0.950	
Satd. Flow (perm)	142	5043	4948	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				117	101	
Link Speed (k/h)		80	80		50	
Link Distance (m)		594.9	556.7		446.2	
Travel Time (s)		26.8	25.1		32.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	6%	0%	0%	0%
Adj. Flow (vph)	175	1370	1983	326	667	589
Shared Lane Traffic (%)						
Lane Group Flow (vph)	175	1370	1983	326	667	589
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			pm+ov		Perm
Protected Phases	7	4	8	6	6	
Permitted Phases	4			8		6

2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	6	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.0	22.0	22.0	22.0	22.0
Total Split (s)	9.0	66.0	57.0	54.0	54.0	54.0
Total Split (%)	7.5%	55.0%	47.5%	45.0%	45.0%	45.0%
Maximum Green (s)	5.0	59.0	51.0	48.0	48.0	48.0
Yellow Time (s)	3.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	3.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effect Green (s)	65.0	62.0	54.0	105.0	48.0	48.0
Actuated g/C Ratio	0.54	0.52	0.45	0.88	0.40	0.40
v/c Ratio	0.93	0.53	0.89	0.23	0.91	0.82
Control Delay	80.5	16.7	15.3	0.4	52.7	37.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.5	16.7	15.3	0.4	52.7	37.7
LOS	F	B	B	A	D	D
Approach Delay		24.0	13.2		45.7	
Approach LOS		C	B		D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 8 (7%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 24.5

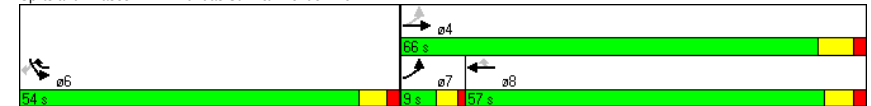
Intersection LOS: C

Intersection Capacity Utilization 96.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	77	1937	82	130	1933	182	82	42	109	522	144	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	0.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5043	1512	1508	4948	1633	1674	1921	1585	1789	1921	1633
Flt Permitted	0.072			0.070			0.833			0.455		
Satd. Flow (perm)	138	5043	1512	111	4948	1633	1468	1921	1585	857	1921	1633
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			82			182			56			66
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		556.7			284.1			333.6			488.9	
Travel Time (s)		25.1			12.8			24.0			35.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	8%	21%	6%	0%	9%	0%	3%	2%	0%	0%
Adj. Flow (vph)	77	1937	82	130	1933	182	82	42	109	522	144	256
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	1937	82	130	1933	182	82	42	109	522	144	256
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6	8		8	4		4

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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	4.0	20.0	4.0	4.0	20.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0
Minimum Split (s)	8.0	27.0	8.0	8.0	27.0	8.0	8.0	12.0	8.0	8.0	12.0	8.0
Total Split (s)	10.0	58.0	12.0	11.0	59.0	39.0	12.0	12.0	11.0	39.0	39.0	10.0
Total Split (%)	8.3%	48.3%	10.0%	9.2%	49.2%	32.5%	10.0%	10.0%	9.2%	32.5%	32.5%	8.3%
Maximum Green (s)	6.0	51.0	8.0	7.0	52.0	35.0	8.0	6.0	7.0	35.0	33.0	6.0
Yellow Time (s)	3.0	5.0	3.5	3.0	5.0	3.0	3.5	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	1.0	2.0	0.5	1.0	2.0	1.0	0.5	2.0	1.0	1.0	2.0	1.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	1.0	4.0	4.0	6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	3.5	3.0	3.0	0.2	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		0.0			0.0			0.0			0.0	
Flash Dont Walk (s)		7.0			7.0			5.0			5.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	69.0	57.0	68.7	71.1	58.1	96.4	14.1	6.0	16.7	43.9	30.2	42.2
Actuated g/C Ratio	0.58	0.48	0.57	0.59	0.48	0.80	0.12	0.05	0.14	0.37	0.25	0.35
v/c Ratio	0.38	0.81	0.09	0.71	0.81	0.14	0.44	0.44	0.41	0.90	0.30	0.41
Control Delay	22.8	26.3	2.0	46.8	24.0	0.6	36.6	69.8	28.2	53.6	37.1	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	26.3	2.0	46.8	24.0	0.6	36.6	69.8	28.2	53.6	37.1	23.0
LOS	C	C	A	D	C	A	D	E	C	D	D	C
Approach Delay		25.2			23.4			38.7			42.5	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 50 (42%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 27.9

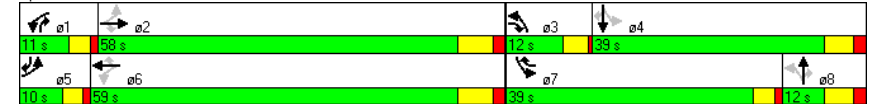
Intersection LOS: C

Intersection Capacity Utilization 93.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Avenue Three



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Lanes, Volumes, Timings
28: Dundas St W & Avenue Four

5/13/2011

	↖	→	↗	↘	↙	↘	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖↖	↖↖	↖
Volume (vph)	67	2399	98	42	2012	150	52	29	20	451	113	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0			0.0	28.0		25.0	50.0		50.0	0.0	25.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	2.5		65.0	70.0		2.5	25.0		25.0	2.5		2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	0.95	0.95
Frt		0.994				0.850		0.939			0.908	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	4933	0	1362	4948	1601	1825	1783	0	3471	3249	0
Flt Permitted	0.059			0.054			0.573			0.580		
Satd. Flow (perm)	111	4933	0	77	4948	1601	1101	1783	0	2119	3249	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		9				83		20			70	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		243.9			243.0			345.0			419.2	
Travel Time (s)		14.6			14.6			24.8			30.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	4%	47%	34%	6%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	67	2399	98	42	2012	150	52	29	20	451	113	179
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	2497	0	42	2012	150	52	49	0	451	292	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt			pm+pt		pm+ov	Perm			pm+pt		
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6		8		4		

2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 17

Lanes, Volumes, Timings
28: Dundas St W & Avenue Four

5/13/2011

	↖	→	↗	↘	↙	↘	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	23.0		4.0	23.0	4.0	20.0	20.0		4.0	4.0	
Minimum Split (s)	8.0	30.0		8.0	30.0	8.0	26.0	26.0		8.0	22.0	
Total Split (s)	8.0	74.0	0.0	8.0	74.0	12.0	26.0	26.0	0.0	12.0	38.0	0.0
Total Split (%)	6.7%	61.7%	0.0%	6.7%	61.7%	10.0%	21.7%	21.7%	0.0%	10.0%	31.7%	0.0%
Maximum Green (s)	4.0	67.0		4.0	67.0	8.0	20.0	20.0		8.0	32.0	
Yellow Time (s)	3.0	5.0		3.0	5.0	3.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	1.0	4.0	4.0	6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	6.0		3.0	6.0	3.0	5.0	5.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0			5.0	
Flash Dont Walk (s)		14.0			14.0		12.0	12.0			11.0	
Pedestrian Calls (#/hr)		0			0		0	0			0	
Act Effect Green (s)	84.8	76.2		84.8	76.2	89.6	20.0	20.0		29.4	27.4	
Actuated g/C Ratio	0.71	0.64		0.71	0.64	0.75	0.17	0.17		0.24	0.23	
v/c Ratio	0.37	0.80		0.32	0.64	0.12	0.28	0.16		0.73	0.37	
Control Delay	13.2	18.8		25.3	11.6	2.4	48.6	30.1		46.7	29.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	13.2	18.8		25.3	11.6	2.4	48.6	30.1		46.7	29.3	
LOS	B	B		C	B	A	D	C		D	C	
Approach Delay		18.6			11.2		39.6				39.9	
Approach LOS		B			B		D				D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 102 (85%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 18.9

Intersection LOS: B

Intersection Capacity Utilization 96.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Avenue Four



2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖		↖	↖↖	↖	↖	↖↖	↖
Volume (vph)	302	1695	868	214	1469	345	498	839	72	749	1153	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	0.91	0.97	*1.00	1.00	1.00	*1.00	1.00
Frt			0.850		0.971				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5489	1601	1587	5308	0	3340	3730	1555	1755	3625	1512
Flt Permitted	0.105			0.108			0.950			0.167		
Satd. Flow (perm)	196	5489	1601	180	5308	0	3340	3730	1555	308	3625	1512
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			38		51			67				129
Link Speed (k/h)		60			60			60				60
Link Distance (m)		243.0			159.6			362.5				435.3
Travel Time (s)		14.6			9.6			21.8				26.1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	302	1695	868	214	1469	345	498	839	72	749	1153	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	302	1695	868	214	1814	0	498	839	72	749	1153	221
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		pm+ov	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	3	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	5.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	9.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	14.0	42.0	20.0	13.0	41.0	0.0	20.0	26.0	26.0	39.0	45.0	45.0
Total Split (%)	11.7%	35.0%	16.7%	10.8%	34.2%	0.0%	16.7%	21.7%	21.7%	32.5%	37.5%	37.5%
Maximum Green (s)	10.0	35.0	16.0	9.0	34.0		16.0	20.0	20.0	35.0	39.0	39.0
Yellow Time (s)	3.0	5.0	3.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	2.5	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0			15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0			7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	54.0	38.0	58.0	52.0	37.0		19.0	23.0	20.0	64.0	42.0	39.0
Actuated g/C Ratio	0.45	0.32	0.48	0.43	0.31		0.16	0.19	0.17	0.53	0.35	0.32
v/c Ratio	1.17	0.98	1.09	0.98	1.08		0.94	1.17	0.23	1.20	0.91	0.38
Control Delay	137.5	48.6	75.4	85.5	87.5		77.3	135.2	13.5	120.7	36.0	8.3
Queue Delay	0.0	0.0	0.0	0.0	19.4		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.5	48.6	75.4	85.5	106.9		77.3	135.2	13.5	120.7	36.0	8.3
LOS	F	D	E	F	F		E	F	B	F	D	A
Approach Delay		66.1			104.7			108.5			63.0	
Approach LOS		E			F			F			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 81.7

Intersection LOS: F

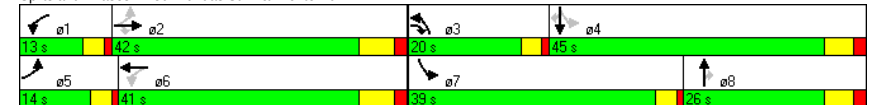
Intersection Capacity Utilization 130.8%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



2031 Future Background PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 20

Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖↖	↗		↖↖↖	↖↖	
Volume (vph)	134	180	0	1839	1597	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	112.0	0.0			0.0
Storage Lanes	2	1	0			0
Taper Length (m)	2.5	50.0	2.5			2.5
Lane Util. Factor	0.97	0.91	1.00	0.91	0.95	1.00
Frt	0.943	0.850				
Flt Protected	0.970					
Satd. Flow (prot)	3274	1471	0	4995	3411	0
Flt Permitted	0.970					
Satd. Flow (perm)	3274	1471	0	4995	3411	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	55	55				
Link Speed (k/h)	50			60	60	
Link Distance (m)	326.0			103.9	510.7	
Travel Time (s)	23.5			6.2	30.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	1%	0%	5%	7%	0%
Adj. Flow (vph)	134	180	0	1839	1597	0
Shared Lane Traffic (%)		45%				
Lane Group Flow (vph)	215	99	0	1839	1597	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	12.0	12.0		26.0	26.0	
Total Split (s)	18.0	18.0	0.0	67.0	67.0	0.0
Total Split (%)	21.2%	21.2%	0.0%	78.8%	78.8%	0.0%
Maximum Green (s)	12.0	12.0		61.0	61.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-3.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	3.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effect Green (s)	12.0	12.0		64.0	61.0	
Actuated g/C Ratio	0.14	0.14		0.75	0.72	
v/c Ratio	0.42	0.39		0.49	0.65	
Control Delay	27.5	22.0		4.6	8.0	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	27.5	22.0		4.6	8.0	

2031 Future Background (with Improvements) PM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C	C		A	A	
Approach Delay	25.7			4.6	8.0	
Approach LOS	C			A	A	
Intersection Summary						
Area Type:	Other					
Cycle Length: 85						
Actuated Cycle Length: 85						
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 45						
Control Type: Pretimed						
Maximum v/c Ratio: 0.65						
Intersection Signal Delay: 7.8	Intersection LOS: A					
Intersection Capacity Utilization 61.6%	ICU Level of Service B					
Analysis Period (min) 15						

Splits and Phases: 3: 407 Off Ramp & Bronte Rd



2031 Future Background (with Improvements) PM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖↖	↖↖↖	↖	↖	↖
Volume (vph)	524	1492	2508	224	186	816
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	*1.00	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	5437	1585	1772	1585
Flt Permitted	0.065				0.950	
Satd. Flow (perm)	121	5043	5437	1585	1772	1585
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				134		498
Link Speed (k/h)		80	80		80	
Link Distance (m)		96.5	594.9		292.4	
Travel Time (s)		4.3	26.8		13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	524	1492	2508	224	186	816
Shared Lane Traffic (%)						
Lane Group Flow (vph)	524	1492	2508	224	186	816
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Free
Protected Phases	5	2	6		4	
Permitted Phases	2			6		Free

2031 Future Background (with Improvements) PM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 3

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	
Switch Phase						
Minimum Initial (s)	4.0	30.0	30.0	30.0	8.0	
Minimum Split (s)	10.0	37.0	37.0	37.0	22.0	
Total Split (s)	35.0	98.0	63.0	63.0	22.0	0.0
Total Split (%)	29.2%	81.7%	52.5%	52.5%	18.3%	0.0%
Maximum Green (s)	31.0	91.0	56.0	56.0	16.0	
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes					
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	
Recall Mode	None	C-Max	C-Max	C-Max	None	
Walk Time (s)		0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	98.3	95.3	60.7	57.7	17.7	120.0
Actuated g/C Ratio	0.82	0.79	0.51	0.48	0.15	1.00
v/c Ratio	0.93	0.37	0.91	0.27	0.71	0.51
Control Delay	58.8	4.0	19.2	1.3	63.9	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	4.0	19.2	1.3	63.9	1.2
LOS	E	A	B	A	E	A
Approach Delay		18.3	17.7		12.8	
Approach LOS		B	B		B	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 98 (82%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 17.1

Intersection LOS: B

Intersection Capacity Utilization 97.8%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 22: Dundas St W & Tremaine Rd



2031 Future Background (with Improvements) PM PEAK HOUR 7/17/2009

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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖
Volume (vph)	302	1695	868	214	1469	345	498	839	72	749	1153	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0			0.0	190.0	75.0	180.0		50.0
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	0.97	*1.00	1.00	0.97	*1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5489	1601	1587	5437	1585	3340	3730	1555	3404	3625	1512
Flt Permitted	0.111			0.114			0.950			0.950		
Satd. Flow (perm)	207	5489	1601	190	5437	1585	3340	3730	1555	3404	3625	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			37			317			72			120
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	302	1695	868	214	1469	345	498	839	72	749	1153	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	302	1695	868	214	1469	345	498	839	72	749	1153	221
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		pm+ov	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6		6		8				4

2031 Future Background (with Improvements) PM PEAK HOUR 7/17/2009

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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	3	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	5.0	5.0	30.0	30.0	5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	9.0	9.0	37.0	37.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	14.0	40.0	28.0	13.0	39.0	39.0	28.0	36.0	36.0	31.0	39.0	39.0
Total Split (%)	11.7%	33.3%	23.3%	10.8%	32.5%	32.5%	23.3%	30.0%	30.0%	25.8%	32.5%	32.5%
Maximum Green (s)	10.0	33.0	24.0	9.0	32.0	32.0	24.0	30.0	30.0	27.0	33.0	33.0
Yellow Time (s)	3.0	5.0	3.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	1.0	4.0	7.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	2.5	2.5	6.0	6.0	2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		15.0			15.0	15.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effect Green (s)	52.0	36.0	64.0	50.0	35.0	32.0	27.0	33.4	30.4	29.6	36.0	33.0
Actuated g/C Ratio	0.43	0.30	0.53	0.42	0.29	0.27	0.22	0.28	0.25	0.25	0.30	0.28
v/c Ratio	1.17	1.03	1.00	0.98	0.93	0.53	0.66	0.81	0.16	0.89	1.06	0.44
Control Delay	137.4	63.6	41.2	85.6	52.3	8.5	47.3	47.6	8.9	44.6	69.4	11.7
Queue Delay	0.0	0.0	1.1	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.4	63.6	42.3	85.6	53.7	8.5	47.3	47.6	8.9	44.6	69.4	11.7
LOS	F	E	D	F	D	A	D	D	A	D	E	B
Approach Delay		64.9			49.4			45.5			54.7	
Approach LOS		E			D			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 55.4

Intersection LOS: E

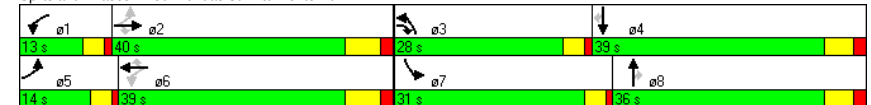
Intersection Capacity Utilization 107.5%

ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



2031 Future Background (with Improvements) PM PEAK HOUR 7/17/2009

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APPENDIX D

Capacity Analyses Future Total Traffic Operations

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	243	2785	751	56	154	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	4948	1585	1772	1585
Flt Permitted	0.355				0.950	
Satd. Flow (perm)	662	5043	4948	1585	1772	1585
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				56	135	
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	548.3		1625.4	
Travel Time (s)		26.8	24.7		73.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	243	2785	751	56	154	135
Shared Lane Traffic (%)						
Lane Group Flow (vph)	243	2785	751	56	154	135
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm		Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4

2016 Future Total AM PEAK HOUR 7/17/2009 Base

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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	45.0	45.0	45.0	45.0	8.0	8.0
Minimum Split (s)	52.0	52.0	52.0	52.0	22.0	22.0
Total Split (s)	97.0	97.0	97.0	97.0	23.0	23.0
Total Split (%)	80.8%	80.8%	80.8%	80.8%	19.2%	19.2%
Maximum Green (s)	90.0	90.0	90.0	90.0	17.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	7.0	4.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	5.5	5.5	5.5	5.5	2.5	2.5
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	7.0	7.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	94.7	94.7	94.7	92.7	16.3	14.3
Actuated g/C Ratio	0.79	0.79	0.79	0.77	0.14	0.12
v/c Ratio	0.46	0.70	0.19	0.05	0.64	0.44
Control Delay	8.0	7.5	1.4	0.6	61.1	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	7.5	1.4	0.6	61.1	12.4
LOS	A	A	A	A	E	B
Approach Delay		7.5	1.3		38.4	
Approach LOS		A	A		D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 23 (19%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 8.5

Intersection LOS: A

Intersection Capacity Utilization 95.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	140	2799	761	362	117	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0			50.0	120.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5043	4948	1633	1825	1633
Flt Permitted	0.350				0.950	
Satd. Flow (perm)	672	5043	4948	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				362	46	
Link Speed (k/h)		80	80		50	
Link Distance (m)		548.3	608.5		440.8	
Travel Time (s)		24.7	27.4		31.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	6%	0%	0%	0%
Adj. Flow (vph)	140	2799	761	362	117	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	140	2799	761	362	117	46
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm		Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6

2016 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	4	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	22.0	22.0
Total Split (s)	97.0	97.0	97.0	97.0	23.0	23.0
Total Split (%)	80.8%	80.8%	80.8%	80.8%	19.2%	19.2%
Maximum Green (s)	90.0	90.0	90.0	90.0	17.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	7.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	91.6	91.6	91.6	89.6	17.4	17.4
Actuated g/C Ratio	0.76	0.76	0.76	0.75	0.14	0.14
v/c Ratio	0.27	0.73	0.20	0.28	0.44	0.17
Control Delay	3.2	4.2	1.7	1.0	53.1	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.2	4.2	1.7	1.0	53.1	14.6
LOS	A	A	A	A	D	B
Approach Delay		4.1	1.5		42.2	
Approach LOS		A	A		D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 4.9

Intersection LOS: A

Intersection Capacity Utilization 69.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	←	→	↖	↗	←	↖	↗	→	↖	↗	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖	↖	↖	↖	↖	
Volume (vph)	63	2785	37	47	1085	43	45	1	117	3	1	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	30.0		0.0	
Storage Lanes	1		1	1		1	1		1	1		0	
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt			0.850			0.850			0.850				
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1825	5043	1512	1508	4948	1633	1674	1921	1585	1825	1921	0	
Flt Permitted	0.239			0.043			0.757			0.757			
Satd. Flow (perm)	459	5043	1512	68	4948	1633	1334	1921	1585	1454	1921	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			37			43			11				
Link Speed (k/h)		80			80			50			50		
Link Distance (m)		608.5			284.1			333.6			426.5		
Travel Time (s)		27.4			12.8			24.0			30.7		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	4%	8%	21%	6%	0%	9%	0%	3%	0%	0%	0%	
Adj. Flow (vph)	63	2785	37	47	1085	43	45	1	117	3	1	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	63	2785	37	47	1085	43	45	1	117	3	1	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.7			3.7			3.7			3.7		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		1.6			1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2		
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru		
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)		28.7			28.7			28.7			28.7		
Detector 2 Size(m)		1.8			1.8			1.8			1.8		
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex		
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0			0.0		
Turn Type	pm+pt		Perm	Perm		Perm	Perm		Perm	Perm			
Protected Phases	5	2			6			8			4		
Permitted Phases	2		2	6		6	8		8	4			

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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	←	→	↖	↗	←	↖	↗	→	↖	↗	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	5	2	2	6	6	6	8	8	8	4	4		
Switch Phase													
Minimum Initial (s)	4.0	20.0	20.0	20.0	20.0	20.0	6.0	6.0	6.0	6.0	6.0		
Minimum Split (s)	8.0	27.0	27.0	27.0	27.0	27.0	13.0	13.0	13.0	13.0	13.0		
Total Split (s)	8.0	105.0	105.0	97.0	97.0	97.0	15.0	15.0	15.0	15.0	15.0	0.0	
Total Split (%)	6.7%	87.5%	87.5%	80.8%	80.8%	80.8%	12.5%	12.5%	12.5%	12.5%	12.5%	0.0%	
Maximum Green (s)	4.0	98.0	98.0	90.0	90.0	90.0	9.0	9.0	9.0	9.0	9.0		
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0		
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	2.0	5.0	7.0	5.0	5.0	7.0	6.0	6.0	6.0	6.0	6.0	4.0	
Lead/Lag	Lead			Lag	Lag	Lag							
Lead-Lag Optimize?													
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0	5.0	3.5	3.5	3.5	0.2	0.2		
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None		
Walk Time (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		
Pedestrian Calls (#/hr)		0	0	0	0	0	0	0	0	0	0		
Act Effect Green (s)	103.0	100.0	98.0	93.6	93.6	91.6	9.0	9.0	9.0	9.0	9.0		
Actuated g/C Ratio	0.86	0.83	0.82	0.78	0.78	0.76	0.08	0.08	0.08	0.08	0.08		
v/c Ratio	0.14	0.66	0.03	0.89	0.28	0.03	0.45	0.01	0.91	0.03	0.01		
Control Delay	1.6	3.4	0.5	116.1	0.8	0.0	68.0	52.0	107.8	52.3	52.0		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	1.6	3.4	0.5	116.1	0.8	0.0	68.0	52.0	107.8	52.3	52.0		
LOS	A	A	A	F	A	A	E	D	F	D	D		
Approach Delay		3.3			5.4			96.5			52.3		
Approach LOS		A			A			F			D		

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 37 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 7.6

Intersection LOS: A

Intersection Capacity Utilization 80.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Private Driveway



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Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑↑	↖	↖
Volume (vph)	2898	13	12	1172	17	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	28.0		50.0	50.0
Storage Lanes		0	1		1	1
Taper Length (m)		65.0	70.0		25.0	25.0
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.999					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5029	0	1362	4948	1825	1471
Flt Permitted			0.040		0.950	
Satd. Flow (perm)	5029	0	57	4948	1825	1471
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	1					4
Link Speed (k/h)	60			60	50	
Link Distance (m)	243.9			243.0	345.0	
Travel Time (s)	14.6			14.6	24.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	47%	34%	6%	0%	11%
Adj. Flow (vph)	2898	13	12	1172	17	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2911	0	12	1172	17	55
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type		Perm			Perm	
Protected Phases	2			6	8	
Permitted Phases			6			8

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Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	30.0		30.0	30.0	7.0	7.0
Minimum Split (s)	37.0		37.0	37.0	25.0	25.0
Total Split (s)	95.0	0.0	95.0	95.0	25.0	25.0
Total Split (%)	79.2%	0.0%	79.2%	79.2%	20.8%	20.8%
Maximum Green (s)	88.0		88.0	88.0	21.0	21.0
Yellow Time (s)	5.0		5.0	5.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	4.0	7.0	7.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	6.0		6.0	6.0	5.0	5.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	12.0	12.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	101.2		101.2	101.2	11.5	11.5
Actuated g/C Ratio	0.84		0.84	0.84	0.10	0.10
v/c Ratio	0.69		0.25	0.28	0.10	0.38
Control Delay	2.5		23.4	2.6	48.9	53.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	2.5		23.4	2.6	48.9	53.9
LOS	A		C	A	D	D
Approach Delay	2.5			2.8	52.7	
Approach LOS	A			A	D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 71 (59%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 3.4

Intersection LOS: A

Intersection Capacity Utilization 71.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Valleyridge Dr



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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	304	1957	605	87	766	237	258	733	120	225	731	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.965				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	4995	1601	1587	4807	0	3340	3544	1555	1755	3444	1512
Flt Permitted	0.179			0.089			0.950			0.126		
Satd. Flow (perm)	334	4995	1601	149	4807	0	3340	3544	1555	233	3444	1512
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			308		70			111				175
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			590.5	
Travel Time (s)		14.6			9.6			21.8			35.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	304	1957	605	87	766	237	258	733	120	225	731	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	304	1957	605	87	1003	0	258	733	120	225	731	222
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	32.0	32.0	9.0	32.0	32.0
Total Split (s)	25.0	61.0	61.0	9.0	45.0	0.0	14.0	34.0	34.0	16.0	36.0	36.0
Total Split (%)	20.8%	50.8%	50.8%	7.5%	37.5%	0.0%	11.7%	28.3%	28.3%	13.3%	30.0%	30.0%
Maximum Green (s)	21.0	54.0	54.0	5.0	38.0		10.0	28.0	28.0	12.0	30.0	30.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	2.0	5.0	4.0	2.0	4.0	6.0	2.0	4.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			15.0	15.0		15.0	15.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	68.4	56.2	54.2	55.2	45.1		12.0	29.7	27.7	47.6	31.6	29.6
Actuated g/C Ratio	0.57	0.47	0.45	0.46	0.38		0.10	0.25	0.23	0.40	0.26	0.25
v/c Ratio	0.74	0.84	0.68	0.56	0.54		0.77	0.84	0.27	0.83	0.81	0.44
Control Delay	30.5	21.0	8.7	34.4	29.2		68.9	52.5	9.8	53.7	49.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	21.0	8.7	34.4	29.2		68.9	52.5	9.8	53.7	49.2	12.5
LOS	C	C	A	C	C		E	D	A	D	D	B
Approach Delay		19.4			29.6			51.7			43.1	
Approach LOS		B			C			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 31.4

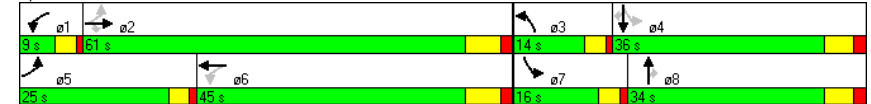
Intersection LOS: C

Intersection Capacity Utilization 89.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 30: Dundas St W & Bronte Rd



2016 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	310	1426	2596	123	66	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	5092	5092	1585	1706	1601
Flt Permitted	0.053				0.950	
Satd. Flow (perm)	100	5092	5092	1585	1706	1601
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				75	248	
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	548.3		1625.4	
Travel Time (s)		26.8	24.7		73.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	3%	3%	7%	2%
Adj. Flow (vph)	310	1426	2596	123	66	318
Shared Lane Traffic (%)						
Lane Group Flow (vph)	310	1426	2596	123	66	318
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4

2016 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	4.0	45.0	45.0	45.0	8.0	8.0
Minimum Split (s)	8.0	52.0	52.0	52.0	22.0	22.0
Total Split (s)	23.0	95.0	72.0	72.0	25.0	25.0
Total Split (%)	19.2%	79.2%	60.0%	60.0%	20.8%	20.8%
Maximum Green (s)	19.0	88.0	65.0	65.0	19.0	19.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	2.5
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	7.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effect Green (s)	100.7	97.7	75.1	72.1	15.3	12.3
Actuated g/C Ratio	0.84	0.81	0.63	0.60	0.13	0.10
v/c Ratio	0.80	0.34	0.81	0.13	0.30	0.82
Control Delay	48.5	3.4	5.1	0.4	49.5	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	3.4	5.1	0.4	49.5	30.4
LOS	D	A	A	A	D	C
Approach Delay		11.5	4.9		33.7	
Approach LOS		B	A		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 62 (52%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 9.5

Intersection LOS: A

Intersection Capacity Utilization 84.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



2016 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	178	1314	2362	451	572	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5092	5092	1633	1825	1633
Flt Permitted	0.067				0.950	
Satd. Flow (perm)	129	5092	5092	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				222	91	
Link Speed (k/h)		80	80		48	
Link Distance (m)		548.3	608.5		440.8	
Travel Time (s)		24.7	27.4		33.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%
Adj. Flow (vph)	178	1314	2362	451	572	357
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	1314	2362	451	572	357
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6

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Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.0	23.0	23.0	22.0	22.0
Total Split (s)	9.0	72.0	63.0	63.0	48.0	48.0
Total Split (%)	7.5%	60.0%	52.5%	52.5%	40.0%	40.0%
Maximum Green (s)	5.0	65.0	56.0	56.0	42.0	42.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effect Green (s)	71.0	68.0	59.0	56.0	42.0	42.0
Actuated g/C Ratio	0.59	0.57	0.49	0.47	0.35	0.35
v/c Ratio	0.94	0.46	0.94	0.51	0.90	0.57
Control Delay	87.1	14.2	26.2	9.1	55.3	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.1	14.2	26.2	9.1	55.3	27.1
LOS	F	B	C	A	E	C
Approach Delay		22.9	23.4		44.5	
Approach LOS		C	C		D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 108 (90%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 27.0

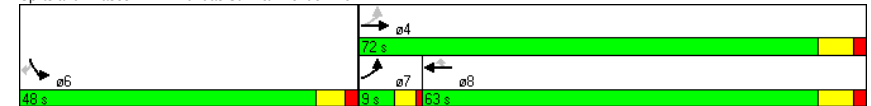
Intersection LOS: C

Intersection Capacity Utilization 98.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	↖	→	↗	↘	←	↖	↗	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	5	1875	64	126	2606	4	70	0	105	88	1	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	30.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.852	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5092	1633	1690	5092	1306	1644	1921	1555	1789	1637	0
Flt Permitted	0.041			0.105			0.658			0.757		
Satd. Flow (perm)	79	5092	1633	187	5092	1306	1139	1921	1555	1426	1637	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			64			4			55			57
Link Speed (k/h)		80				80			50			50
Link Distance (m)		608.5			284.1				333.6			442.8
Travel Time (s)		27.4			12.8				24.0			31.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	0%	8%	3%	25%	11%	0%	5%	2%	0%	0%
Adj. Flow (vph)	5	1875	64	126	2606	4	70	0	105	88	1	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1875	64	126	2606	4	70	0	105	88	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7				3.7			3.7
Link Offset(m)		0.0			0.0				0.0			0.0
Crosswalk Width(m)		1.6			1.6				1.6			1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		

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Lanes, Volumes, Timings

26: Dundas St W & Private Driveway

5/13/2011

	↖	→	↗	↘	←	↖	↗	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	20.0	20.0	20.0	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	8.0	27.0	27.0	27.0	27.0	27.0	12.0	12.0	12.0	12.0	12.0	
Total Split (s)	8.0	105.0	105.0	97.0	97.0	97.0	15.0	15.0	15.0	15.0	15.0	0.0
Total Split (%)	6.7%	87.5%	87.5%	80.8%	80.8%	80.8%	12.5%	12.5%	12.5%	12.5%	12.5%	0.0%
Maximum Green (s)	4.0	98.0	98.0	90.0	90.0	90.0	9.0	9.0	9.0	9.0	9.0	
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	4.0	4.0	7.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0	5.0	3.5	3.5	3.5	0.2	0.2	
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	
Pedestrian Calls (#/hr)		0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)	104.0	101.0	98.0	99.4	99.4	96.4	9.0		9.0	9.0	9.0	
Actuated g/C Ratio	0.87	0.84	0.82	0.83	0.83	0.80	0.08		0.08	0.08	0.08	
v/c Ratio	0.03	0.44	0.05	0.81	0.62	0.00	0.82		0.62	0.82	0.56	
Control Delay	0.8	3.0	1.0	43.8	2.2	0.5	113.0		44.6	104.0	38.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	0.8	3.0	1.0	43.8	2.2	0.5	113.0		44.6	104.0	38.4	
LOS	A	A	A	D	A	A	F		D	F	D	
Approach Delay		2.9			4.2						69.3	
Approach LOS		A			A						E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 8.5

Intersection LOS: A

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Private Driveway



2016 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 6

Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑↑	↖	↖
Volume (vph)	2040	27	42	2723	14	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	28.0		50.0	50.0
Storage Lanes		0	1		1	1
Taper Length (m)		65.0	70.0		25.0	25.0
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.998					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5084	0	1825	5092	1825	1633
Flt Permitted			0.065		0.950	
Satd. Flow (perm)	5084	0	125	5092	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	3					20
Link Speed (k/h)	60			60	50	
Link Distance (m)	243.9			243.0	345.0	
Travel Time (s)	14.6			14.6	24.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	0%	0%	3%	0%	0%
Adj. Flow (vph)	2040	27	42	2723	14	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2067	0	42	2723	14	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type			pm+pt			Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8

2016 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 7

Lanes, Volumes, Timings
28: Dundas St W & Valleyridge Dr

5/13/2011

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	68.0		11.0	87.0	20.0	20.0
Minimum Split (s)	75.0		15.0	94.0	26.0	26.0
Total Split (s)	79.0	0.0	15.0	94.0	26.0	26.0
Total Split (%)	65.8%	0.0%	12.5%	78.3%	21.7%	21.7%
Maximum Green (s)	72.0		11.0	87.0	20.0	20.0
Yellow Time (s)	5.0		3.0	5.0	4.0	4.0
All-Red Time (s)	2.0		1.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	0.0	-3.0	-3.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	1.0	4.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	6.0		3.0	6.0	5.0	5.0
Recall Mode	C-Max		None	C-Max	None	None
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	14.0			14.0	12.0	12.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	89.2		103.4	102.0	20.0	20.0
Actuated g/C Ratio	0.74		0.86	0.85	0.17	0.17
v/c Ratio	0.55		0.14	0.63	0.05	0.07
Control Delay	9.2		6.9	8.8	42.6	17.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	9.2		6.9	8.8	42.6	17.2
LOS	A		A	A	D	B
Approach Delay	9.2			8.8	27.7	
Approach LOS	A			A	C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 95 (79%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 9.1

Intersection LOS: A

Intersection Capacity Utilization 97.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Valleyridge Dr



2016 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 8

Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	352	1401	307	214	2077	217	405	575	72	284	756	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	0.91	*1.00	*1.00	1.00	1.00	*1.00	1.00
Frt			0.850		0.986				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5542	1601	1755	5474	0	3544	3625	1458	1789	3730	1585
Flt Permitted	0.075			0.158			0.950			0.167		
Satd. Flow (perm)	140	5542	1601	292	5474	0	3544	3625	1458	315	3730	1585
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			307		21			72				199
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			590.5	
Travel Time (s)		14.6			9.6			21.8			35.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	2%	4%	4%	2%	3%	6%	12%	2%	3%	3%
Adj. Flow (vph)	352	1401	307	214	2077	217	405	575	72	284	756	270
Shared Lane Traffic (%)												
Lane Group Flow (vph)	352	1401	307	214	2294	0	405	575	72	284	756	270
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

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Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	21.0	59.0	59.0	18.0	56.0	0.0	15.0	26.0	26.0	17.0	28.0	28.0
Total Split (%)	17.5%	49.2%	49.2%	15.0%	46.7%	0.0%	12.5%	21.7%	21.7%	14.2%	23.3%	23.3%
Maximum Green (s)	17.0	52.0	52.0	14.0	49.0		11.0	20.0	20.0	13.0	22.0	22.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	76.0	57.7	54.7	69.3	52.0		14.0	23.0	20.0	42.0	25.0	22.0
Actuated g/C Ratio	0.63	0.48	0.46	0.58	0.43		0.12	0.19	0.17	0.35	0.21	0.18
v/c Ratio	0.98	0.53	0.34	0.62	0.96		0.98	0.83	0.24	0.93	0.97	0.60
Control Delay	84.2	8.9	1.5	20.1	44.5		92.8	57.9	11.9	67.8	73.7	18.8
Queue Delay	0.0	0.0	0.0	0.0	87.3		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.2	8.9	1.5	20.1	131.8		92.8	57.9	11.9	67.8	73.7	18.8
LOS	F	A	A	C	F		F	E	B	E	E	B
Approach Delay		20.7			122.3			68.2			61.1	
Approach LOS		C			F			E			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 72.3

Intersection LOS: E

Intersection Capacity Utilization 110.2%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↩	↩	↩	↩	↩	↩
Volume (vph)	20	17	299	181	89	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.7	3.7	3.7	3.7
Storage Length (m)	0.0	0.0		0.0	25.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	2.5	2.5		2.5	2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.949			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	1566	1777	0	1789	1865
Flt Permitted	0.950				0.489	
Satd. Flow (perm)	1750	1566	1777	0	921	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		17	73			
Link Speed (k/h)	50		50			80
Link Distance (m)	585.6		298.1			1327.9
Travel Time (s)	42.2		21.5			59.8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	2%	2%	3%
Adj. Flow (vph)	20	17	299	181	89	330
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	17	480	0	89	330
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.0		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			CI+Ex			CI+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type		Perm			Perm	
Protected Phases	8		2			6

2021 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	22.0	22.0	22.0		22.0	22.0
Total Split (s)	24.0	24.0	56.0	0.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	0.0%	70.0%	70.0%
Maximum Green (s)	18.0	18.0	50.0		50.0	50.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max		C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	6.5	6.5	68.5		68.5	68.5
Actuated g/C Ratio	0.08	0.08	0.86		0.86	0.86
v/c Ratio	0.14	0.12	0.31		0.11	0.21
Control Delay	35.9	17.8	2.6		2.6	2.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	35.9	17.8	2.6		2.6	2.5
LOS	D	B	A		A	A
Approach Delay	27.6		2.6			2.5
Approach LOS	C		A			A

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.31

Intersection Signal Delay: 3.5

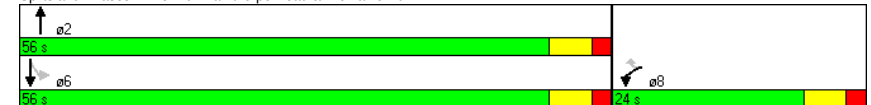
Intersection LOS: A

Intersection Capacity Utilization 50.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 13: Burnhamthorpe Road & Tremaine Rd



2021 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↗	↙	←	↖	↙	↗	↘	↖	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	73	46	55	129	245	267	462	1273	301	458	1403	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.513			0.725			0.098			0.098		
Satd. Flow (perm)	945	3500	1566	1365	3579	1601	185	3579	1601	185	3579	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			55			267			139			159
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		307.6			284.2			435.3			147.1	
Travel Time (s)		22.1			17.1			26.1			8.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	73	46	55	129	245	267	462	1273	301	458	1403	381
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	46	55	129	245	267	462	1273	301	458	1403	381
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↗	↙	←	↖	↙	↗	↘	↖	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (%)	25.9%	25.9%	25.9%	25.9%	25.9%	25.9%	25.9%	25.9%	25.9%	25.9%	25.9%	25.9%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	18.0	35.0	35.0	18.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	3.0	3.0	6.0	3.0	3.0	6.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	0
Act Effect Green (s)	16.0	16.0	13.0	16.0	16.0	13.0	63.7	40.7	37.7	64.2	40.9	37.9
Actuated g/C Ratio	0.19	0.19	0.15	0.19	0.19	0.15	0.75	0.48	0.44	0.76	0.48	0.45
v/c Ratio	0.41	0.07	0.19	0.50	0.36	0.57	0.86	0.74	0.38	0.85	0.81	0.47
Control Delay	36.6	27.1	10.4	37.2	30.9	9.3	38.4	22.1	10.6	36.3	24.8	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	27.1	10.4	37.2	30.9	9.3	38.4	22.1	10.6	36.3	24.8	12.3
LOS	D	C	B	D	C	A	D	C	B	D	C	B
Approach Delay		25.8			23.2			24.1			25.0	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 24.4

Intersection LOS: C

Intersection Capacity Utilization 88.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 21: Burnhamthorpe Road & Bronte Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖↖	↖↖↖	↖	↖	↖
Volume (vph)	439	3063	865	121	130	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	4948	1585	1772	1585
Flt Permitted	0.294				0.950	
Satd. Flow (perm)	548	5043	4948	1585	1772	1585
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				121		170
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	587.2		298.1	
Travel Time (s)		26.8	26.4		13.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	439	3063	865	121	130	170
Shared Lane Traffic (%)						
Lane Group Flow (vph)	439	3063	865	121	130	170
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4

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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	4.0	45.0	45.0	45.0	8.0	8.0
Minimum Split (s)	8.0	52.0	52.0	52.0	22.0	22.0
Total Split (s)	28.0	98.0	70.0	70.0	22.0	22.0
Total Split (%)	23.3%	81.7%	58.3%	58.3%	18.3%	18.3%
Maximum Green (s)	24.0	91.0	63.0	63.0	16.0	16.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes					
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	2.5
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	7.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effect Green (s)	100.0	97.0	79.5	76.5	16.0	13.0
Actuated g/C Ratio	0.83	0.81	0.66	0.64	0.13	0.11
v/c Ratio	0.70	0.75	0.26	0.11	0.55	0.53
Control Delay	9.8	7.5	9.2	3.5	57.0	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	7.5	9.2	3.5	57.0	13.2
LOS	A	A	A	A	E	B
Approach Delay		7.8	8.5		32.2	
Approach LOS		A	A		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46 (38%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 9.5

Intersection LOS: A

Intersection Capacity Utilization 79.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	250	2943	1016	400	118	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5043	4948	1633	1825	1633
Flt Permitted	0.259				0.950	
Satd. Flow (perm)	498	5043	4948	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				400	166	
Link Speed (k/h)		80	80		50	
Link Distance (m)		587.2	537.9		442.9	
Travel Time (s)		26.4	24.2		31.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	6%	0%	0%	0%
Adj. Flow (vph)	250	2943	1016	400	118	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	250	2943	1016	400	118	166
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm		Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6

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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	4	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	22.0	22.0	22.0	22.0
Total Split (s)	97.0	97.0	97.0	97.0	23.0	23.0
Total Split (%)	80.8%	80.8%	80.8%	80.8%	19.2%	19.2%
Maximum Green (s)	90.0	90.0	91.0	91.0	17.0	17.0
Yellow Time (s)	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	3.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	93.0	93.0	94.0	91.0	17.0	17.0
Actuated g/C Ratio	0.78	0.78	0.78	0.76	0.14	0.14
v/c Ratio	0.65	0.75	0.26	0.30	0.46	0.44
Control Delay	9.7	5.3	2.7	2.0	53.6	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	5.3	2.7	2.0	53.6	10.9
LOS	A	A	A	A	D	B
Approach Delay		5.6	2.5		28.6	
Approach LOS		A	A		C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 6.1
Intersection Capacity Utilization 71.7%
Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	129	2865	38	48	1241	198	65	57	120	71	14	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	0.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5043	1512	1508	4948	1633	1674	1921	1585	1789	1921	1633
Flt Permitted	0.213			0.043			0.748			0.720		
Satd. Flow (perm)	409	5043	1512	68	4948	1633	1318	1921	1585	1356	1921	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			38			198			53			117
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		537.9			284.1			333.6			488.9	
Travel Time (s)		24.2			12.8			24.0			35.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	8%	21%	6%	0%	9%	0%	3%	2%	0%	0%
Adj. Flow (vph)	129	2865	38	48	1241	198	65	57	120	71	14	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	2865	38	48	1241	198	65	57	120	71	14	117
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases		2			1	6			8		4	
Permitted Phases	2		2	6		6	8		8	4		4

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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	4.0	20.0	20.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	27.0	27.0	27.0	8.0	27.0	27.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	93.0	93.0	93.0	8.0	101.0	101.0	19.0	19.0	19.0	19.0	19.0	19.0
Total Split (%)	77.5%	77.5%	77.5%	6.7%	84.2%	84.2%	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%
Maximum Green (s)	86.0	86.0	86.0	4.0	94.0	94.0	13.0	13.0	13.0	13.0	13.0	13.0
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	1.0	4.0	7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.5	3.5	3.5	0.2	0.2	0.2
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)	7.0	7.0	7.0		7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	92.2	92.2	89.2	102.2	99.2	96.2	10.8	10.8	10.8	10.8	10.8	10.8
Actuated g/C Ratio	0.77	0.77	0.74	0.85	0.83	0.80	0.09	0.09	0.09	0.09	0.09	0.09
v/c Ratio	0.41	0.74	0.03	0.31	0.30	0.15	0.55	0.33	0.63	0.58	0.08	0.46
Control Delay	4.3	3.5	0.2	20.3	0.5	0.2	68.7	55.5	44.4	70.6	49.6	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	3.5	0.2	20.3	0.5	0.2	68.7	55.5	44.4	70.6	49.6	15.0
LOS	A	A	A	C	A	A	E	E	D	E	D	B
Approach Delay		3.5			1.1		53.5				37.0	
Approach LOS		A			A		D				D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 53 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 6.6

Intersection LOS: A

Intersection Capacity Utilization 81.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Avenue Three



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Lanes, Volumes, Timings

28: Dundas St W & Avenue Four

5/13/2011

	↖	→	↗	↙	←	↖	↙	↗	↘	↖	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖↖	↖	↖
Volume (vph)	83	2955	23	12	1413	100	75	33	55	70	13	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	28.0		25.0	50.0		50.0	25.0		25.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	2.5		65.0	70.0		2.5	25.0		25.0	2.5		2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.999				0.850		0.906			0.931	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5022	0	1362	4948	1601	1825	1728	0	3471	1753	0
Flt Permitted	0.161			0.044			0.742			0.700		
Satd. Flow (perm)	303	5022	0	63	4948	1601	1425	1728	0	2558	1753	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				90		5			11	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		243.9			243.0			345.0			419.2	
Travel Time (s)		14.6			14.6			24.8			30.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	4%	47%	34%	6%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	83	2955	23	12	1413	100	75	33	55	70	13	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	2978	0	12	1413	100	75	88	0	70	24	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		

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Lanes, Volumes, Timings

28: Dundas St W & Avenue Four

5/13/2011

	↖	→	↗	↙	←	↖	↙	↗	↘	↖	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	68.0	68.0		87.0	87.0	87.0	20.0	20.0		4.0	4.0	
Minimum Split (s)	75.0	75.0		94.0	94.0	94.0	26.0	26.0		20.0	20.0	
Total Split (s)	94.0	94.0	0.0	94.0	94.0	94.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	78.3%	78.3%	0.0%	78.3%	78.3%	78.3%	21.7%	21.7%	0.0%	21.7%	21.7%	0.0%
Maximum Green (s)	87.0	87.0		87.0	87.0	87.0	20.0	20.0		22.0	22.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	4.0	4.0		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.5	0.5	
Lost Time Adjust (s)	0.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	4.0	4.0	4.0	4.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		5.0	5.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	87.0	90.0		90.0	90.0	87.0	20.0	20.0		22.0	22.0	
Actuated g/C Ratio	0.72	0.75		0.75	0.75	0.72	0.17	0.17		0.18	0.18	
v/c Ratio	0.38	0.79		0.26	0.38	0.08	0.32	0.30		0.15	0.07	
Control Delay	5.1	3.4		16.8	7.8	3.5	48.2	44.6		42.2	27.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.1	3.4		16.8	7.8	3.5	48.2	44.6		42.2	27.8	
LOS	A	A		B	A	A	D	D		D	C	
Approach Delay		3.4			7.6			46.2			38.5	
Approach LOS		A			A			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 82 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 6.9

Intersection LOS: A

Intersection Capacity Utilization 160.9%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Avenue Four



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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	303	2008	681	87	988	399	432	1033	120	256	1038	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.957				0.850			0.850
Frt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	4995	1601	1587	4774	0	3340	3544	1555	1755	3444	1512
Frt Permitted	0.097			0.100			0.950			0.108		
Satd. Flow (perm)	181	4995	1601	167	4774	0	3340	3544	1555	199	3444	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			284			91			103			95
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	303	2008	681	87	988	399	432	1033	120	256	1038	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	303	2008	681	87	1387	0	432	1033	120	256	1038	164
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	19.0	54.0	54.0	9.0	44.0	0.0	17.0	42.0	42.0	15.0	40.0	40.0
Total Split (%)	15.8%	45.0%	45.0%	7.5%	36.7%	0.0%	14.2%	35.0%	35.0%	12.5%	33.3%	33.3%
Maximum Green (s)	15.0	47.0	47.0	5.0	37.0		13.0	36.0	36.0	11.0	34.0	34.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	62.0	50.0	47.0	51.1	40.1		16.0	39.0	36.0	53.0	37.0	34.0
Actuated g/C Ratio	0.52	0.42	0.39	0.43	0.33		0.13	0.32	0.30	0.44	0.31	0.28
v/c Ratio	0.92	0.96	0.85	0.52	0.84		0.97	0.90	0.22	0.95	0.98	0.33
Control Delay	59.0	34.5	17.8	29.7	40.0		88.0	50.0	9.2	75.0	64.1	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.3		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.0	34.5	17.8	29.7	40.3		88.0	50.0	9.2	75.0	64.1	16.8
LOS	E	C	B	C	D		F	D	A	E	E	B
Approach Delay		33.2			39.7			57.3			60.7	
Approach LOS		C			D			E			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 44.9

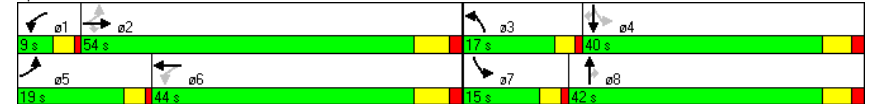
Intersection LOS: D

Intersection Capacity Utilization 100.9%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 30: Dundas St W & Bronte Rd



2021 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖
Volume (vph)	303	2008	681	87	988	399	432	1033	120	256	1038	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	4995	1601	1587	4948	1585	3340	3544	1555	3404	3444	1512
Flt Permitted	0.164			0.099			0.950			0.950		
Satd. Flow (perm)	306	4995	1601	165	4948	1585	3340	3544	1555	3404	3444	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			251			209			102			95
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	303	2008	681	87	988	399	432	1033	120	256	1038	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	303	2008	681	87	988	399	432	1033	120	256	1038	164
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6		8				4

2021 Future Total (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0	37.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	19.0	54.0	54.0	9.0	44.0	44.0	17.0	45.0	45.0	12.0	40.0	40.0
Total Split (%)	15.8%	45.0%	45.0%	7.5%	36.7%	36.7%	14.2%	37.5%	37.5%	10.0%	33.3%	33.3%
Maximum Green (s)	15.0	47.0	47.0	5.0	37.0	37.0	13.0	39.0	39.0	8.0	34.0	34.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	7.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	62.0	50.0	47.0	51.5	40.5	37.5	16.0	42.0	39.0	11.0	37.0	34.0
Actuated g/C Ratio	0.52	0.42	0.39	0.43	0.34	0.31	0.13	0.35	0.32	0.09	0.31	0.28
v/c Ratio	0.81	0.96	0.87	0.52	0.59	0.62	0.97	0.83	0.21	0.82	0.98	0.33
Control Delay	35.7	34.5	21.0	29.9	34.8	21.1	88.0	42.9	8.6	74.8	64.1	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	34.5	21.0	29.9	34.8	21.1	88.0	42.9	8.6	74.8	64.1	16.8
LOS	D	C	C	C	C	C	F	D	A	E	E	B
Approach Delay		31.5			30.8			52.6			60.7	
Approach LOS		C			C			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 41.5

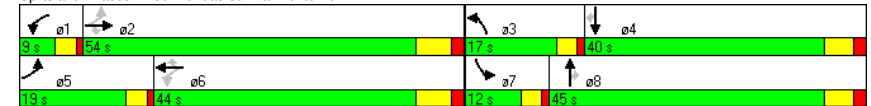
Intersection LOS: D

Intersection Capacity Utilization 98.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 30: Dundas St W & Bronte Rd



2021 Future Total (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
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Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	←	↖	↗	→	↘	↙
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗
Volume (vph)	93	96	412	184	35	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.7	3.7	3.7	3.7
Storage Length (m)	0.0	0.0		0.0	25.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	2.5	2.5		2.5	2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.958			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	1566	1792	0	1789	1865
Flt Permitted	0.950				0.409	
Satd. Flow (perm)	1750	1566	1792	0	770	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		96	54			
Link Speed (k/h)	50		50			80
Link Distance (m)	585.6		298.1			1327.9
Travel Time (s)	42.2		21.5			59.8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	2%	2%	3%
Adj. Flow (vph)	93	96	412	184	35	380
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	96	596	0	35	380
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.0		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			CI+Ex			CI+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type		Perm			Perm	
Protected Phases	8		2			6

2021 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	←	↖	↗	→	↘	↙
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	22.0	22.0	22.0		22.0	22.0
Total Split (s)	24.0	24.0	56.0	0.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	0.0%	70.0%	70.0%
Maximum Green (s)	18.0	18.0	50.0		50.0	50.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max		C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	9.6	9.6	62.0		62.0	62.0
Actuated g/C Ratio	0.12	0.12	0.78		0.78	0.78
v/c Ratio	0.44	0.35	0.43		0.06	0.26
Control Delay	38.6	10.9	5.1		4.0	4.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	38.6	10.9	5.1		4.0	4.3
LOS	D	B	A		A	A
Approach Delay	24.5		5.1			4.3
Approach LOS	C		A			A

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 7.9

Intersection LOS: A

Intersection Capacity Utilization 48.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 13: Burnhamthorpe Road & Tremaine Rd



2021 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	366	223	260	313	203	453	216	1167	88	333	1271	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.523			0.575			0.117			0.114		
Satd. Flow (perm)	963	3500	1566	1083	3579	1601	220	3579	1601	215	3579	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			186			55			38			84
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		307.6			284.2			435.3			147.1	
Travel Time (s)		22.1			17.1			26.1			8.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	366	223	260	313	203	453	216	1167	88	333	1271	182
Shared Lane Traffic (%)												
Lane Group Flow (vph)	366	223	260	313	203	453	216	1167	88	333	1271	182
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		pm+ov	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

2021 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	22.0	22.0	8.0	22.0	8.0	8.0	22.0	22.0	8.0	22.0	22.0
Total Split (s)	13.0	23.0	23.0	12.0	22.0	17.0	9.0	33.0	33.0	17.0	41.0	41.0
Total Split (%)	15.3%	27.1%	27.1%	14.1%	25.9%	20.0%	10.6%	38.8%	38.8%	20.0%	48.2%	48.2%
Maximum Green (s)	9.0	17.0	17.0	8.0	16.0	13.0	5.0	27.0	27.0	13.0	35.0	35.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	3.0	6.0	1.0	3.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	29.2	15.2	12.2	27.2	14.2	30.8	47.5	34.2	31.2	53.8	39.5	36.5
Actuated g/C Ratio	0.34	0.18	0.14	0.32	0.17	0.36	0.56	0.40	0.37	0.63	0.46	0.43
v/c Ratio	0.83	0.36	0.68	0.71	0.34	0.74	0.65	0.81	0.14	0.75	0.76	0.25
Control Delay	40.3	31.5	20.0	32.2	32.0	27.8	27.7	29.7	13.5	29.1	23.1	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	31.5	20.0	32.2	32.0	27.8	27.7	29.7	13.5	29.1	23.1	9.8
LOS	D	C	C	C	C	C	C	C	B	C	C	A
Approach Delay		31.8			30.1			28.4			22.8	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 27.3

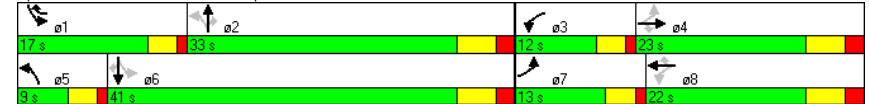
Intersection LOS: C

Intersection Capacity Utilization 90.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 21: Burnhamthorpe Road & Bronte Rd



2021 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖↖	↖↖↖	↖	↖	↖
Volume (vph)	385	1545	3032	290	62	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	5092	5092	1585	1706	1601
Flt Permitted	0.054				0.950	
Satd. Flow (perm)	102	5092	5092	1585	1706	1601
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				164	1	
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	587.2		298.1	
Travel Time (s)		26.8	26.4		13.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	3%	3%	7%	2%
Adj. Flow (vph)	385	1545	3032	290	62	471
Shared Lane Traffic (%)						
Lane Group Flow (vph)	385	1545	3032	290	62	471
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2			6		4

2021 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	5
Switch Phase						
Minimum Initial (s)	4.0	45.0	45.0	45.0	8.0	4.0
Minimum Split (s)	8.0	52.0	52.0	52.0	22.0	8.0
Total Split (s)	22.0	98.0	76.0	76.0	22.0	22.0
Total Split (%)	18.3%	81.7%	63.3%	63.3%	18.3%	18.3%
Maximum Green (s)	18.0	91.0	69.0	69.0	16.0	18.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	3.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	106.0	103.8	73.9	70.9	12.8	38.1
Actuated g/C Ratio	0.88	0.86	0.62	0.59	0.11	0.32
v/c Ratio	0.80	0.35	0.97	0.29	0.34	0.93
Control Delay	46.2	2.4	12.9	1.0	54.4	65.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	2.4	12.9	1.0	54.4	65.1
LOS	D	A	B	A	D	E
Approach Delay		11.1	11.8		63.8	
Approach LOS		B	B		E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 31 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 96.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



2021 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	186	1421	2689	283	563	472
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5092	5092	1633	1825	1633
Flt Permitted	0.062				0.950	
Satd. Flow (perm)	119	5092	5092	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				135	84	
Link Speed (k/h)		80	80		50	
Link Distance (m)		587.2	537.9		442.9	
Travel Time (s)		26.4	24.2		31.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%
Adj. Flow (vph)	186	1421	2689	283	563	472
Shared Lane Traffic (%)						
Lane Group Flow (vph)	186	1421	2689	283	563	472
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm	Perm	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6

2021 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.0	22.0	22.0	22.0	22.0
Total Split (s)	9.0	77.0	68.0	68.0	43.0	43.0
Total Split (%)	7.5%	64.2%	56.7%	56.7%	35.8%	35.8%
Maximum Green (s)	5.0	70.0	62.0	62.0	37.0	37.0
Yellow Time (s)	3.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	3.0	6.0	3.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effect Green (s)	76.0	73.0	65.0	62.0	40.0	37.0
Actuated g/C Ratio	0.63	0.61	0.54	0.52	0.33	0.31
v/c Ratio	0.98	0.46	0.97	0.31	0.93	0.84
Control Delay	94.6	12.4	39.3	9.3	61.5	46.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.6	12.4	39.3	9.3	61.5	46.5
LOS	F	B	D	A	E	D
Approach Delay		21.9	36.4		54.6	
Approach LOS		C	D		D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 80 (67%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 35.6

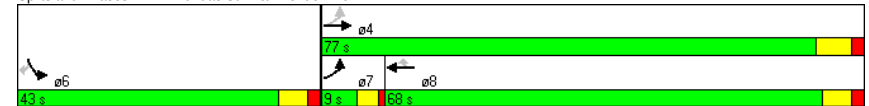
Intersection LOS: D

Intersection Capacity Utilization 103.5%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Synchro 7 - Report
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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	↖	→	↗	↙	←	↖	↙	↗	↘	↖	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	86	1885	73	131	2551	162	80	22	109	403	74	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	0.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5092	1633	1690	5092	1306	1644	1921	1555	1789	1921	1633
Flt Permitted	0.087			0.085			0.709			0.473		
Satd. Flow (perm)	167	5092	1633	151	5092	1306	1227	1921	1555	891	1921	1633
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			73			148			103			94
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		537.9			284.1			333.6			488.9	
Travel Time (s)		24.2			12.8			24.0			35.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	0%	8%	3%	25%	11%	0%	5%	2%	0%	0%
Adj. Flow (vph)	86	1885	73	131	2551	162	80	22	109	403	74	301
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	1885	73	131	2551	162	80	22	109	403	74	301
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	pm+pt		Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4

2021 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	↖	→	↗	↙	←	↖	↙	↗	↘	↖	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	8	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	4.0	20.0	20.0	6.0	6.0	6.0	4.0	6.0	6.0
Minimum Split (s)	8.0	27.0	27.0	8.0	27.0	27.0	12.0	12.0	12.0	8.0	12.0	12.0
Total Split (s)	8.0	50.0	50.0	8.0	50.0	50.0	13.0	13.0	13.0	19.0	32.0	32.0
Total Split (%)	8.9%	55.6%	55.6%	8.9%	55.6%	55.6%	14.4%	14.4%	14.4%	21.1%	35.6%	35.6%
Maximum Green (s)	4.0	43.0	43.0	4.0	43.0	43.0	7.0	7.0	7.0	15.0	26.0	26.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	7.0	6.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	2.5	5.0	5.0	3.0	5.0	5.0	3.5	3.5	3.5	3.0	0.2	0.2
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)		7.0	7.0		7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effect Green (s)	56.0	46.0	43.0	56.2	47.6	44.6	7.0	7.0	7.0	28.0	26.0	26.0
Actuated g/C Ratio	0.62	0.51	0.48	0.62	0.53	0.50	0.08	0.08	0.08	0.31	0.29	0.29
v/c Ratio	0.37	0.72	0.09	0.61	0.95	0.22	0.84	0.15	0.50	0.94	0.13	0.56
Control Delay	11.0	19.1	3.6	24.7	30.1	3.8	100.8	41.2	18.4	62.0	24.6	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	19.1	3.6	24.7	30.1	3.8	100.8	41.2	18.4	62.0	24.6	22.9
LOS	B	B	A	C	C	A	F	D	B	E	C	C
Approach Delay		18.2			28.4			52.0			43.3	
Approach LOS		B			C			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 27.7

Intersection LOS: C

Intersection Capacity Utilization 94.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Avenue Three



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Synchro 7 - Report
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Lanes, Volumes, Timings

28: Dundas St W & Avenue Four

5/13/2011

	↖	→	↗	↙	←	↖	↙	↗	↘	↖	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↙	↖↖↖	↙	↖	↙		↙	↙	↙
Volume (vph)	64	2253	78	42	2707	103	44	16	20	363	52	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	28.0		25.0	50.0		50.0	0.0		25.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5		65.0	70.0		2.5	25.0		25.0	2.5		2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	
Frt		0.995				0.850		0.917		0.953	0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5071	0	1825	5092	1601	1825	1746	0	1789	1705	1521
Flt Permitted	0.063			0.062			0.705			0.734		
Satd. Flow (perm)	119	5071	0	119	5092	1601	1354	1746	0	1382	1705	1521
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				28		20			20	69
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		243.9			243.0			345.0			419.2	
Travel Time (s)		14.6			14.6			24.8			30.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	0%	0%	3%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	64	2253	78	42	2707	103	44	16	20	363	52	93
Shared Lane Traffic (%)												26%
Lane Group Flow (vph)	64	2331	0	42	2707	103	44	36	0	363	76	69
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt			pm+pt		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6		6	8			4		4

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Synchro 7 - Report
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Lanes, Volumes, Timings

28: Dundas St W & Avenue Four

5/13/2011

	↖	→	↗	↙	←	↖	↙	↗	↘	↖	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	4.0	23.0		11.0	23.0	23.0	20.0	20.0		4.0	4.0	4.0
Minimum Split (s)	8.0	30.0		15.0	30.0	30.0	26.0	26.0		22.0	22.0	22.0
Total Split (s)	8.0	63.0	0.0	15.0	70.0	70.0	42.0	42.0	0.0	42.0	42.0	42.0
Total Split (%)	6.7%	52.5%	0.0%	12.5%	58.3%	58.3%	35.0%	35.0%	0.0%	35.0%	35.0%	35.0%
Maximum Green (s)	4.0	56.0		11.0	63.0	63.0	36.0	36.0		36.0	36.0	36.0
Yellow Time (s)	3.0	5.0		3.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	1.0	4.0	7.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	6.0		3.0	6.0	6.0	5.0	5.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		5.0	5.0	5.0
Flash Dont Walk (s)		14.0			14.0	14.0	12.0	12.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	0
Act Effect Green (s)	73.0	64.0		79.0	69.3	66.3	34.0	34.0		34.0	34.0	34.0
Actuated g/C Ratio	0.61	0.53		0.66	0.58	0.55	0.28	0.28		0.28	0.28	0.28
v/c Ratio	0.36	0.86		0.15	0.92	0.11	0.11	0.07		0.93	0.15	0.14
Control Delay	16.8	29.8		12.2	12.6	7.9	31.7	17.6		72.5	24.0	7.9
Queue Delay	0.0	0.0		0.0	0.2	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	16.8	29.8		12.2	12.8	7.9	31.7	17.6		72.5	24.0	7.9
LOS	B	C		B	B	A	C	B		E	C	A
Approach Delay		29.5			12.6			25.3			56.5	
Approach LOS		C			B			C			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 4 (3%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 23.5

Intersection LOS: C

Intersection Capacity Utilization 88.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Avenue Four



2021 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖		↖	↖↖	↖	↖	↖↖	↖
Volume (vph)	326	1634	675	214	2152	291	454	766	72	429	871	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	0.91	*1.00	*1.00	1.00	1.00	*1.00	1.00
Frt			0.850		0.982				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5542	1601	1755	5454	0	3544	3625	1458	1789	3730	1585
Flt Permitted	0.080			0.089			0.950			0.160		
Satd. Flow (perm)	149	5542	1601	164	5454	0	3544	3625	1458	301	3730	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			371		28			72				154
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	2%	4%	4%	2%	3%	6%	12%	2%	3%	3%
Adj. Flow (vph)	326	1634	675	214	2152	291	454	766	72	429	871	231
Shared Lane Traffic (%)												
Lane Group Flow (vph)	326	1634	675	214	2443	0	454	766	72	429	871	231
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6					8	4		4

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Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	17.0	56.0	56.0	14.0	53.0	0.0	18.0	27.0	27.0	23.0	32.0	32.0
Total Split (%)	14.2%	46.7%	46.7%	11.7%	44.2%	0.0%	15.0%	22.5%	22.5%	19.2%	26.7%	26.7%
Maximum Green (s)	13.0	49.0	49.0	10.0	46.0		14.0	21.0	21.0	19.0	26.0	26.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	69.0	52.1	49.1	64.9	49.0		17.0	24.0	21.0	49.0	29.0	26.0
Actuated g/C Ratio	0.58	0.43	0.41	0.54	0.41		0.14	0.20	0.18	0.41	0.24	0.22
v/c Ratio	1.08	0.68	0.77	0.82	1.09		0.90	1.06	0.23	1.08	0.97	0.50
Control Delay	104.0	28.1	19.2	51.5	82.2		73.3	95.5	11.6	101.9	68.2	18.4
Queue Delay	0.0	0.0	0.2	0.0	94.9		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.0	28.1	19.5	51.5	177.1		73.3	95.5	11.6	101.9	68.2	18.4
LOS	F	C	B	D	F		E	F	B	F	E	B
Approach Delay		35.3			166.9			83.0			70.1	
Approach LOS		D			F			F			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 92.6

Intersection LOS: F

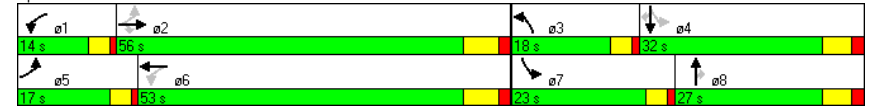
Intersection Capacity Utilization 124.4%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	326	1634	675	214	2152	291	454	766	72	429	871	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	*1.00	*1.00	1.00	0.97	*1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5542	1601	1755	5542	1601	3544	3625	1458	3471	3730	1585
Flt Permitted	0.082			0.093			0.950			0.950		
Satd. Flow (perm)	153	5542	1601	172	5542	1601	3544	3625	1458	3471	3730	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			313			214			72			154
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	2%	4%	4%	2%	3%	6%	12%	2%	3%	3%
Adj. Flow (vph)	326	1634	675	214	2152	291	454	766	72	429	871	231
Shared Lane Traffic (%)												
Lane Group Flow (vph)	326	1634	675	214	2152	291	454	766	72	429	871	231
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6		8				4

2021 Future Total (with Improvements) PM PEAK HOUR 7/17/2009

Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0	37.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	19.0	56.0	56.0	15.0	52.0	52.0	17.0	33.0	33.0	16.0	32.0	32.0
Total Split (%)	15.8%	46.7%	46.7%	12.5%	43.3%	43.3%	14.2%	27.5%	27.5%	13.3%	26.7%	26.7%
Maximum Green (s)	15.0	49.0	49.0	11.0	45.0	45.0	13.0	27.0	27.0	12.0	26.0	26.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	7.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	70.0	52.4	49.4	64.6	48.0	45.0	16.0	30.0	27.0	15.0	29.0	26.0
Actuated g/C Ratio	0.58	0.44	0.41	0.54	0.40	0.38	0.13	0.25	0.22	0.12	0.24	0.22
v/c Ratio	0.98	0.68	0.80	0.79	0.97	0.40	0.96	0.85	0.19	0.99	0.97	0.50
Control Delay	77.1	28.6	23.2	45.8	48.9	9.3	84.4	52.7	9.8	93.1	68.2	18.4
Queue Delay	0.0	0.0	0.2	0.0	81.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.1	28.6	23.4	45.8	130.1	9.3	84.4	52.7	9.8	93.1	68.2	18.4
LOS	E	C	C	D	F	A	F	D	A	F	E	B
Approach Delay		33.2			110.1			61.5			67.7	
Approach LOS		C			F			E			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 69.4

Intersection LOS: E

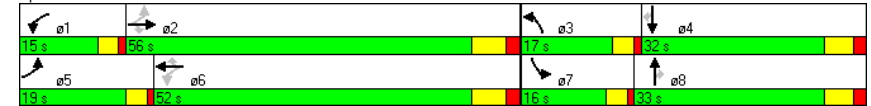
Intersection Capacity Utilization 110.0%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



2021 Future Total (with Improvements) PM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	225	613	0	1172	2147	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	112.0	0.0			0.0
Storage Lanes	2	1	0			0
Taper Length (m)	2.5	50.0	2.5			2.5
Lane Util. Factor	0.97	1.00	1.00	0.91	*1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3340	1617	0	4995	3591	0
Flt Permitted	0.950					
Satd. Flow (perm)	3340	1617	0	4995	3591	0
Right Turn on Red		Yes			Yes	
Satd. Flow (RTOR)		6				
Link Speed (k/h)	50			60	60	
Link Distance (m)	326.0			103.9	510.7	
Travel Time (s)	23.5			6.2	30.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	1%	0%	5%	7%	0%
Adj. Flow (vph)	225	613	0	1172	2147	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	613	0	1172	2147	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	12.0	12.0		26.0	26.0	
Total Split (s)	33.0	33.0	0.0	52.0	52.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	61.2%	61.2%	0.0%
Maximum Green (s)	27.0	27.0		46.0	46.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	3.0	3.0	4.0	3.0	3.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	30.0	30.0		49.0	49.0	
Actuated g/C Ratio	0.35	0.35		0.58	0.58	
v/c Ratio	0.19	1.07		0.41	1.04	
Control Delay	19.6	85.3		10.5	49.8	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	19.6	85.3		10.5	49.8	

2031 Future Total AM PEAK HOUR 7/17/2009 Base

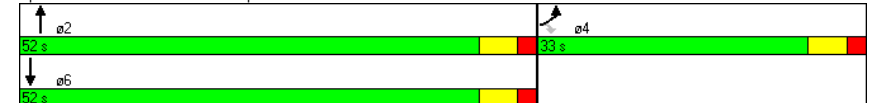
Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	B	F		B	D	
Approach Delay	67.7			10.5	49.8	
Approach LOS	E			B	D	
Intersection Summary						
Area Type:	Other					
Cycle Length: 85						
Actuated Cycle Length: 85						
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 100						
Control Type: Pretimed						
Maximum v/c Ratio: 1.07						
Intersection Signal Delay: 42.3				Intersection LOS: D		
Intersection Capacity Utilization 104.0%				ICU Level of Service G		
Analysis Period (min) 15						
* User Entered Value						

Splits and Phases: 3: 407 Off Ramp & Bronte Rd



2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings

4: Avenue One & Tremaine Rd

5/13/2011

	←	→	↙	↘	←	↙	↘	→	↙	↘	→	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↙	↘		↙	↘		↙	↘		↙	↘		
Volume (vph)	3	34	12	27	43	30	18	343	312	171	619	2	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	25.0		0.0	
Storage Lanes	1		0	1		0	1		0	1		0	
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.961			0.938			0.929					
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1789	1810	0	1789	1767	0	1789	1750	0	1789	1883	0	
Flt Permitted	0.709			0.727			0.351			0.330			
Satd. Flow (perm)	1335	1810	0	1369	1767	0	661	1750	0	622	1883	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		12			30			113					
Link Speed (k/h)		50			50			80			80		
Link Distance (m)		230.0			749.1			419.3			908.6		
Travel Time (s)		16.6			53.9			18.9			40.9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	3	34	12	27	43	30	18	343	312	171	619	2	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	3	46	0	27	73	0	18	655	0	171	621	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.7			3.7			3.7			3.7		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		1.6			1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0		
Total Split (s)	23.0	23.0	0.0	23.0	23.0	0.0	57.0	57.0	0.0	57.0	57.0	0.0	
Total Split (%)	28.8%	28.8%	0.0%	28.8%	28.8%	0.0%	71.3%	71.3%	0.0%	71.3%	71.3%	0.0%	
Maximum Green (s)	17.0	17.0		17.0	17.0		51.0	51.0		51.0	51.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	
Lead/Lag													
Lead-Lag Optimize?													
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effect Green (s)	17.0	17.0		17.0	17.0		51.0	51.0		51.0	51.0		
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.64	0.64		0.64	0.64		
v/c Ratio	0.01	0.12		0.09	0.18		0.04	0.57		0.43	0.52		
Control Delay	25.0	21.3		26.4	18.5		1.7	2.8		11.4	9.8		

2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 3

Lanes, Volumes, Timings

4: Avenue One & Tremaine Rd

5/13/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.0	21.3		26.4	18.5		1.7	2.8		11.4	9.8	
LOS	C	C		C	B		A	A		B	A	
Approach Delay		21.5			20.6			2.8			10.1	
Approach LOS		C			C			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 17 (21%), Referenced to phase 2:NBT and 6:SBTL, Start of Green												
Natural Cycle: 60												
Control Type: Pretimed												
Maximum v/c Ratio: 0.57												
Intersection Signal Delay: 8.1						Intersection LOS: A						
Intersection Capacity Utilization 69.8%						ICU Level of Service C						
Analysis Period (min) 15												

Splits and Phases: 4: Avenue One & Tremaine Rd



2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 4

Lanes, Volumes, Timings
12: Avenue One & Bronte Rd

5/13/2011

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↱	↱
Volume (vph)	110	41	480	1122	2015	752
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	25.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5	2.5	2.5			2.5
Lane Util. Factor	1.00	1.00	1.00	*1.00	*1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	3767	3767	1601
Flt Permitted	0.950		0.059			
Satd. Flow (perm)	1789	1601	111	3767	3767	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		7				493
Link Speed (k/h)	50			60	60	
Link Distance (m)	597.8			298.1	355.9	
Travel Time (s)	43.0			17.9	21.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	41	480	1122	2015	752
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	41	480	1122	2015	752
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				CI+Ex	CI+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6

2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
12: Avenue One & Bronte Rd

5/13/2011

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	8.0	8.0	22.0	22.0	22.0
Total Split (s)	22.0	28.0	28.0	98.0	70.0	70.0
Total Split (%)	18.3%	23.3%	23.3%	81.7%	58.3%	58.3%
Maximum Green (s)	16.0	24.0	24.0	92.0	64.0	64.0
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	1.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	-3.0	-3.0	-3.0	0.0
Total Lost Time (s)	6.0	4.0	1.0	3.0	3.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	5.0			5.0	5.0	5.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	12.4	46.0	100.6	98.6	67.0	64.0
Actuated g/C Ratio	0.10	0.38	0.84	0.82	0.56	0.53
v/c Ratio	0.60	0.07	0.92	0.36	0.96	0.69
Control Delay	64.3	20.7	59.3	3.3	37.6	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	20.7	59.3	3.3	37.6	10.2
LOS	E	C	E	A	D	B
Approach Delay	52.5			20.0	30.2	
Approach LOS	D			C	C	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 27.3
 Intersection Capacity Utilization 100.1%
 Analysis Period (min) 15
 * User Entered Value
 Intersection LOS: C
 ICU Level of Service G

Splits and Phases: 12: Avenue One & Bronte Rd



2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↘	↗	↖	↙	↘	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖		↖	↖		↖	↖		↖	↖	↖	
Volume (vph)	0	22	53	54	8	5	12	669	441	25	630	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	25.0		0.0	
Storage Lanes	1		0	1		0	1		0	1		0	
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.894			0.942			0.940					
Flt Protected				0.950			0.950			0.950			
Satd. Flow (prot)	1842	1647	0	1750	1735	0	1789	1760	0	1789	1865	0	
Flt Permitted				0.708			0.393			0.156			
Satd. Flow (perm)	1842	1647	0	1304	1735	0	740	1760	0	294	1865	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		53			5			85					
Link Speed (k/h)		50			50			80			80		
Link Distance (m)		143.6			595.2			292.4			419.3		
Travel Time (s)		10.3			42.9			13.2			18.9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	3%	2%	
Adj. Flow (vph)	0	22	53	54	8	5	12	669	441	25	630	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	75	0	54	13	0	12	1110	0	25	630	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Right	Left	Left	Right	Left	Left	Right	Right	
Median Width(m)		7.0			7.0			3.7			3.7		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		1.6			1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Number of Detectors	1	2		1	2		1	2		1	2		
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru		
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5		
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8		
Detector 1 Type	CI+Ex	CH+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)		28.7			28.7			28.7			28.7		
Detector 2 Size(m)		1.8			1.8			1.8			1.8		
Detector 2 Type		CH+Ex			CI+Ex			CI+Ex			CI+Ex		
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0			0.0		
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		

2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↘	↗	↖	↙	↘	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	4			8			2			6			
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0		
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	58.0	58.0	0.0	58.0	58.0	0.0	
Total Split (%)	27.5%	27.5%	0.0%	27.5%	27.5%	0.0%	72.5%	72.5%	0.0%	72.5%	72.5%	0.0%	
Maximum Green (s)	16.0	16.0		16.0	16.0		52.0	52.0		52.0	52.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effct Green (s)		8.8		8.8	8.8		62.7	62.7		62.7	62.7		
Actuated g/C Ratio		0.11		0.11	0.11		0.78	0.78		0.78	0.78		
v/c Ratio		0.33		0.38	0.07		0.02	0.79		0.11	0.43		
Control Delay	17.9	39.7		25.2	3.6	13.0		6.2		6.2	6.0		
Queue Delay	0.0			0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	17.9	39.7		25.2	3.6	13.0		6.2		6.2	6.0		
LOS	B			D	C		A	B		A	A		
Approach Delay	17.9			36.9		12.9				6.0			
Approach LOS	B			D		B				A			

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 11.5

Intersection LOS: B

Intersection Capacity Utilization 81.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 13: Burnhamthorpe Road & Tremaine Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↗	↘	←	↖	↗	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	45	73	116	129	392	362	733	1649	301	473	1422	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.520			0.657			0.088			0.089		
Satd. Flow (perm)	958	3500	1566	1237	3579	1601	166	3579	1601	168	3579	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			44			12			101			27
Link Speed (k/h)	50				60			60				60
Link Distance (m)	307.6				284.2			435.3				147.1
Travel Time (s)	22.1				17.1			26.1				8.8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	45	73	116	129	392	362	733	1649	301	473	1422	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	73	116	129	392	362	733	1649	301	473	1422	99
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.7				3.7			3.7				3.7
Link Offset(m)	0.0				0.0			0.0				0.0
Crosswalk Width(m)	1.6				1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		Perm
Protected Phases		4	5	3	8	1	5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		6

2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↗	↘	←	↖	↗	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	5	3	8	1	5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	8.0	8.0	22.0	8.0	8.0	22.0	8.0	8.0	22.0	22.0
Total Split (s)	22.0	22.0	41.0	8.0	30.0	27.0	41.0	63.0	8.0	27.0	49.0	49.0
Total Split (%)	18.3%	18.3%	34.2%	6.7%	25.0%	22.5%	34.2%	52.5%	6.7%	22.5%	40.8%	40.8%
Maximum Green (s)	16.0	16.0	37.0	4.0	24.0	23.0	37.0	57.0	4.0	23.0	43.0	43.0
Yellow Time (s)	4.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	3.0	3.0	4.0	1.0	3.0	4.0	1.0	3.0	4.0	1.0	3.0	6.0
Lead/Lag	Lag	Lag	Lead	Lead		Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0			5.0			5.0	5.0
Flash Dont Walk (s)	11.0	11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	14.1	14.1	56.6	24.1	22.1	53.0	93.9	60.0	69.4	78.9	46.0	43.0
Actuated g/C Ratio	0.12	0.12	0.47	0.20	0.18	0.44	0.78	0.50	0.58	0.66	0.38	0.36
v/c Ratio	0.40	0.18	0.15	0.44	0.59	0.51	0.99	0.92	0.31	0.90	1.04	0.17
Control Delay	58.1	47.1	10.9	45.5	48.3	26.3	39.9	29.7	7.4	55.7	70.9	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	47.1	10.9	45.5	48.3	26.3	39.9	29.7	7.4	55.7	70.9	19.8
LOS	E	D	B	D	D	C	D	C	A	E	E	B
Approach Delay		31.3			38.9		30.0				64.8	
Approach LOS		C			D		C				E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 10 (8%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 43.4

Intersection LOS: D

Intersection Capacity Utilization 107.4%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 21: Burnhamthorpe Road & Bronte Rd



2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	975	2419	911	74	184	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	4948	1585	1772	1585
Flt Permitted	0.152				0.950	
Satd. Flow (perm)	284	5043	4948	1585	1772	1585
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				74	12	
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	594.9		292.4	
Travel Time (s)		26.8	26.8		13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	975	2419	911	74	184	228
Shared Lane Traffic (%)						
Lane Group Flow (vph)	975	2419	911	74	184	228
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2			6		4

2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	5
Switch Phase						
Minimum Initial (s)	4.0	30.0	30.0	30.0	8.0	4.0
Minimum Split (s)	8.0	37.0	37.0	37.0	22.0	8.0
Total Split (s)	61.0	98.0	37.0	37.0	22.0	61.0
Total Split (%)	50.8%	81.7%	30.8%	30.8%	18.3%	50.8%
Maximum Green (s)	57.0	91.0	30.0	30.0	16.0	57.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	3.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?	Yes					Yes
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	98.3	95.3	33.0	30.0	17.7	79.0
Actuated g/C Ratio	0.82	0.79	0.28	0.25	0.15	0.66
v/c Ratio	0.98	0.60	0.67	0.16	0.70	0.22
Control Delay	48.1	5.8	41.5	8.8	63.5	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	5.8	41.5	8.8	63.5	8.3
LOS	D	A	D	A	E	A
Approach Delay		18.0	39.1		33.0	
Approach LOS		B	D		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 23.6

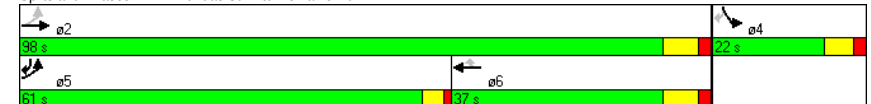
Intersection LOS: C

Intersection Capacity Utilization 99.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	359	2182	999	655	148	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5043	4948	1633	1825	1633
Flt Permitted	0.266				0.950	
Satd. Flow (perm)	511	5043	4948	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				655	204	
Link Speed (k/h)		80	80		50	
Link Distance (m)		594.9	556.7		446.2	
Travel Time (s)		26.8	25.1		32.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	6%	0%	0%	0%
Adj. Flow (vph)	359	2182	999	655	148	204
Shared Lane Traffic (%)						
Lane Group Flow (vph)	359	2182	999	655	148	204
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm		Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6

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Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	4	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	22.0	22.0
Total Split (s)	100.0	100.0	100.0	100.0	22.0	22.0
Total Split (%)	82.0%	82.0%	82.0%	82.0%	18.0%	18.0%
Maximum Green (s)	93.0	93.0	93.0	93.0	16.0	16.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	7.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	94.7	94.7	94.7	91.7	17.3	17.3
Actuated g/C Ratio	0.78	0.78	0.78	0.75	0.14	0.14
v/c Ratio	0.91	0.56	0.26	0.47	0.57	0.50
Control Delay	39.9	6.0	3.9	1.5	59.2	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	6.0	3.9	1.5	59.2	11.1
LOS	D	A	A	A	E	B
Approach Delay		10.8	3.0		31.3	
Approach LOS		B	A		C	

Intersection Summary

Area Type: Other
Cycle Length: 122
Actuated Cycle Length: 122
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 9.5
Intersection Capacity Utilization 69.6%
Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	130	2128	41	48	1471	339	82	165	120	103	29	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	0.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5043	1512	1508	4948	1633	1674	1921	1585	1789	1921	1633
Flt Permitted	0.163			0.055			0.738			0.335		
Satd. Flow (perm)	313	5043	1512	87	4948	1633	1301	1921	1585	631	1921	1633
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			41			339			76			73
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		556.7			284.1			333.6			488.9	
Travel Time (s)		25.1			12.8			24.0			35.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	8%	21%	6%	0%	9%	0%	3%	2%	0%	0%
Adj. Flow (vph)	130	2128	41	48	1471	339	82	165	120	103	29	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	2128	41	48	1471	339	82	165	120	103	29	109
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm		Perm	pm+pt		Perm	Perm		Perm	pm+pt		Perm
Protected Phases		2		1	6			8		7		4
Permitted Phases	2		2	6		6	8		8	4		4

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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	1	6	6	8	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	4.0	20.0	20.0	6.0	6.0	6.0	4.0	6.0	6.0
Minimum Split (s)	27.0	27.0	27.0	8.0	27.0	27.0	12.0	12.0	12.0	8.0	12.0	12.0
Total Split (s)	83.0	83.0	83.0	8.0	91.0	91.0	21.0	21.0	21.0	8.0	29.0	29.0
Total Split (%)	69.2%	69.2%	69.2%	6.7%	75.8%	75.8%	17.5%	17.5%	17.5%	6.7%	24.2%	24.2%
Maximum Green (s)	76.0	76.0	76.0	4.0	84.0	84.0	15.0	15.0	15.0	4.0	23.0	23.0
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	1.0	4.0	7.0	6.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.5	3.5	3.5	3.0	0.2	0.2
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flash Dont Walk (s)	7.0	7.0	7.0		7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effect Green (s)	81.5	81.5	78.5	91.1	88.1	85.1	13.9	13.9	13.9	23.9	21.9	21.9
Actuated g/C Ratio	0.68	0.68	0.65	0.76	0.73	0.71	0.12	0.12	0.12	0.20	0.18	0.18
v/c Ratio	0.61	0.62	0.04	0.31	0.41	0.27	0.54	0.74	0.48	0.63	0.08	0.30
Control Delay	27.2	12.2	2.6	16.4	10.2	4.2	63.5	71.1	26.9	59.3	40.7	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	12.2	2.6	16.4	10.2	4.2	63.5	71.1	26.9	59.3	40.7	18.7
LOS	C	B	A	B	B	A	E	E	C	E	D	B
Approach Delay		12.9			9.3			55.0			38.7	
Approach LOS		B			A			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 77 (64%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 16.0

Intersection LOS: B

Intersection Capacity Utilization 74.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Avenue Three



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Lanes, Volumes, Timings
28: Dundas St W & Avenue Four

5/13/2011

	←	→	↙	↘	↖	↗	↖	↗	↖	↗	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖↖	↖	↖
Volume (vph)	129	2196	31	12	1713	421	129	103	55	132	24	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0			0.0	28.0		25.0	50.0		50.0	0.0	25.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	2.5		65.0	70.0		2.5	25.0		25.0	2.5		2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.998				0.850		0.948			0.919	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5004	0	1362	4948	1601	1825	1798	0	3471	1731	0
Flt Permitted	0.077			0.062			0.723			0.950		
Satd. Flow (perm)	145	5004	0	89	4948	1601	1389	1798	0	3471	1731	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				173		20			28	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		243.9			243.0			345.0			419.2	
Travel Time (s)		14.6			14.6			24.8			30.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	4%	47%	34%	6%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	129	2196	31	12	1713	421	129	103	55	132	24	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	2227	0	12	1713	421	129	158	0	132	52	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm		Perm	Perm		Prot				
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2			6		6	8					

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Lanes, Volumes, Timings
28: Dundas St W & Avenue Four

5/13/2011

	←	→	↙	↘	↖	↗	↖	↗	↖	↗	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		6	6	6	8	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	50.0		50.0	50.0	50.0	20.0	20.0		4.0	4.0	
Minimum Split (s)	8.0	57.0		57.0	57.0	57.0	26.0	26.0		8.0	22.0	
Total Split (s)	12.0	79.0	0.0	67.0	67.0	67.0	28.0	28.0	0.0	13.0	41.0	0.0
Total Split (%)	10.0%	65.8%	0.0%	55.8%	55.8%	55.8%	23.3%	23.3%	0.0%	10.8%	34.2%	0.0%
Maximum Green (s)	8.0	72.0		60.0	60.0	60.0	22.0	22.0		9.0	35.0	
Yellow Time (s)	3.0	5.0		5.0	5.0	5.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	4.0	4.0	7.0	6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	6.0		6.0	6.0	6.0	5.0	5.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0			5.0	
Flash Dont Walk (s)		14.0		14.0	14.0	14.0	12.0	12.0			11.0	
Pedestrian Calls (#/hr)		0		0	0	0	0	0			0	
Act Effect Green (s)	79.6	76.6		64.8	64.8	61.8	20.8	20.8		8.6	33.4	
Actuated g/C Ratio	0.66	0.64		0.54	0.54	0.52	0.17	0.17		0.07	0.28	
v/c Ratio	0.53	0.70		0.25	0.64	0.46	0.54	0.48		0.53	0.10	
Control Delay	35.2	7.5		19.8	19.0	13.2	54.1	44.2		61.8	18.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	35.2	7.5		19.8	19.0	13.2	54.1	44.2		61.8	18.2	
LOS	D	A		B	B	B	D	D		E	B	
Approach Delay		9.0			17.8			48.7			49.5	
Approach LOS		A			B			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 16.6

Intersection LOS: B

Intersection Capacity Utilization 121.5%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Avenue Four



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Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖
Volume (vph)	294	1238	760	87	1326	648	720	1440	120	310	1071	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	0.91	0.97	*1.00	1.00	1.00	*1.00	1.00
Frt			0.850		0.951				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5489	1601	1587	5219	0	3340	3730	1555	1755	3625	1512
Flt Permitted	0.095			0.164			0.950			0.121		
Satd. Flow (perm)	177	5489	1601	274	5219	0	3340	3730	1555	224	3625	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			404		111				82			89
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	294	1238	760	87	1326	648	720	1440	120	310	1071	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	294	1238	760	87	1974	0	720	1440	120	310	1071	157
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	14.0	50.0	50.0	9.0	45.0	0.0	25.0	46.0	46.0	15.0	36.0	36.0
Total Split (%)	11.7%	41.7%	41.7%	7.5%	37.5%	0.0%	20.8%	38.3%	38.3%	12.5%	30.0%	30.0%
Maximum Green (s)	10.0	43.0	43.0	5.0	38.0		21.0	40.0	40.0	11.0	30.0	30.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	58.0	46.0	43.0	52.0	41.0		24.0	43.0	40.0	49.0	33.0	30.0
Actuated g/C Ratio	0.48	0.38	0.36	0.43	0.34		0.20	0.36	0.33	0.41	0.28	0.25
v/c Ratio	1.14	0.59	0.91	0.42	1.06		1.08	1.08	0.21	1.15	1.07	0.35
Control Delay	133.8	18.9	19.1	23.7	76.4		103.1	85.5	11.6	114.5	68.6	11.7
Queue Delay	0.0	0.0	16.3	0.0	40.4		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.8	18.9	35.3	23.7	116.8		103.1	85.5	11.6	114.5	68.6	11.7
LOS	F	B	D	C	F		F	F	B	F	E	B
Approach Delay		39.1			112.9			87.2			72.1	
Approach LOS		D			F			F			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 77.3

Intersection LOS: E

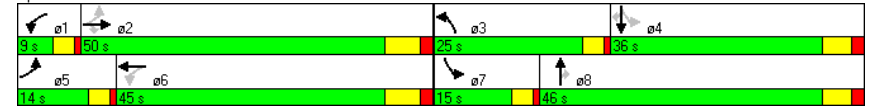
Intersection Capacity Utilization 126.7%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



2031 Future Total AM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	↗	↘	↖	↗	↘	↖
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖↖	↗		↗↗↗	↗↗	
Volume (vph)	225	613	0	1172	2147	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	112.0	0.0			0.0
Storage Lanes	2	1	0			0
Taper Length (m)	2.5	50.0	2.5			2.5
Lane Util. Factor	0.97	0.91	1.00	0.91	*1.00	1.00
Frt	0.913	0.850				
Flt Protected	0.979					
Satd. Flow (prot)	3231	1471	0	4995	3591	0
Flt Permitted	0.979					
Satd. Flow (perm)	3231	1471	0	4995	3591	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	15	15				
Link Speed (k/h)	50			60	60	
Link Distance (m)	326.0			103.9	510.7	
Travel Time (s)	23.5			6.2	30.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	1%	0%	5%	7%	0%
Adj. Flow (vph)	225	613	0	1172	2147	0
Shared Lane Traffic (%)		50%				
Lane Group Flow (vph)	532	306	0	1172	2147	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	12.0	12.0		26.0	26.0	
Total Split (s)	24.0	24.0	0.0	61.0	61.0	0.0
Total Split (%)	28.2%	28.2%	0.0%	71.8%	71.8%	0.0%
Maximum Green (s)	18.0	18.0		55.0	55.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	3.0	3.0	4.0	3.0	3.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	21.0	21.0		58.0	58.0	
Actuated g/C Ratio	0.25	0.25		0.68	0.68	
v/c Ratio	0.66	0.82		0.34	0.88	
Control Delay	32.4	48.0		5.9	16.2	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	32.4	48.0		5.9	16.2	

2031 Future Total (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	↗	↘	↖	↗	↘	↖
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C	D		A	B	
Approach Delay	38.1			5.9	16.2	
Approach LOS	D			A	B	

Intersection Summary

Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 17.7
 Intersection Capacity Utilization 91.3%
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 3: 407 Off Ramp & Bronte Rd



2031 Future Total (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↖	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖↖	↖↖↖	↖	↖	↖
Volume (vph)	975	2419	911	74	184	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	70.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	4948	1585	1772	1585
Flt Permitted	0.152				0.950	
Satd. Flow (perm)	284	5043	4948	1585	1772	1585
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				74		228
Link Speed (k/h)		80	80		80	
Link Distance (m)		96.5	594.9		292.4	
Travel Time (s)		4.3	26.8		13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	975	2419	911	74	184	228
Shared Lane Traffic (%)						
Lane Group Flow (vph)	975	2419	911	74	184	228
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Free
Protected Phases	5	2	6		4	
Permitted Phases	2			6		Free

2031 Future Total (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 3

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	↖	→	←	↖	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	
Switch Phase						
Minimum Initial (s)	4.0	30.0	30.0	30.0	8.0	
Minimum Split (s)	8.0	37.0	37.0	37.0	22.0	
Total Split (s)	61.0	98.0	37.0	37.0	22.0	0.0
Total Split (%)	50.8%	81.7%	30.8%	30.8%	18.3%	0.0%
Maximum Green (s)	57.0	91.0	30.0	30.0	16.0	
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes					
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	
Recall Mode	None	C-Max	C-Max	C-Max	None	
Walk Time (s)		0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	98.3	95.3	33.0	30.0	17.7	120.0
Actuated g/C Ratio	0.82	0.79	0.28	0.25	0.15	1.00
v/c Ratio	0.98	0.60	0.67	0.16	0.70	0.14
Control Delay	48.1	5.8	41.5	8.8	63.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	5.8	41.5	8.8	63.5	0.2
LOS	D	A	D	A	E	A
Approach Delay		18.0	39.1		28.5	
Approach LOS		B	D		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 23.2

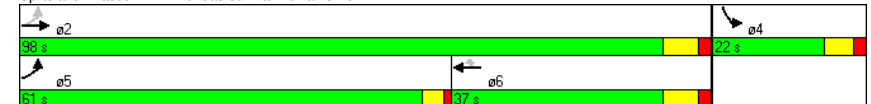
Intersection LOS: C

Intersection Capacity Utilization 99.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 22: Dundas St W & Tremaine Rd



2031 Future Total (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖↖↖	↖
Volume (vph)	294	1238	760	87	1326	648	720	1440	120	310	1071	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	0.97	*1.00	1.00	0.97	*1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5489	1601	1587	5437	1585	3340	3730	1555	3404	3625	1512
Flt Permitted	0.098			0.168			0.950			0.950		
Satd. Flow (perm)	183	5489	1601	281	5437	1585	3340	3730	1555	3404	3625	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			404			177			85			89
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	294	1238	760	87	1326	648	720	1440	120	310	1071	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	294	1238	760	87	1326	648	720	1440	120	310	1071	157
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6		8				4

2031 Future Total (with Improvements) AM PEAK HOUR 7/17/2009

Synchro 7 - Report
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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	←	→	↖	↗	←	→	↖	↗	←	→	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	37.0	9.0	37.0	37.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	15.0	50.0	50.0	9.0	44.0	44.0	25.0	49.0	49.0	12.0	36.0	36.0
Total Split (%)	12.5%	41.7%	41.7%	7.5%	36.7%	36.7%	20.8%	40.8%	40.8%	10.0%	30.0%	30.0%
Maximum Green (s)	11.0	43.0	43.0	5.0	37.0	37.0	21.0	43.0	43.0	8.0	30.0	30.0
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	7.0	1.0	4.0	7.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	58.0	46.0	43.0	51.0	40.0	37.0	24.0	46.0	43.0	11.0	33.0	30.0
Actuated g/C Ratio	0.48	0.38	0.36	0.42	0.33	0.31	0.20	0.38	0.36	0.09	0.28	0.25
v/c Ratio	1.07	0.59	0.91	0.42	0.73	1.06	1.08	1.01	0.20	0.99	1.07	0.35
Control Delay	112.0	19.1	19.3	23.8	38.2	83.3	103.1	62.7	10.2	90.0	67.9	11.1
Queue Delay	0.0	0.0	15.9	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.0	19.1	35.1	23.8	38.9	83.3	103.1	62.7	10.2	90.0	67.9	11.1
LOS	F	B	D	C	D	F	F	E	B	F	E	B
Approach Delay		36.3			52.2			72.7			66.6	
Approach LOS		D			D			E			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 56.2

Intersection LOS: E

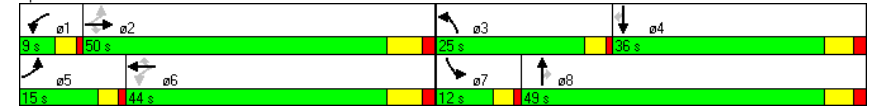
Intersection Capacity Utilization 108.7%

ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



2031 Future Total (with Improvements) AM PEAK HOUR 7/17/2009

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Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	↖	↗	↙	↕	↘	↗
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖	↗		↕↕↕	↕↕	
Volume (vph)	134	190	0	1914	1608	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	112.0	0.0			0.0
Storage Lanes	2	1	0			0
Taper Length (m)	2.5	50.0	2.5			2.5
Lane Util. Factor	0.97	1.00	1.00	0.91	0.95	1.00
Frt	0.850					
Flt Protected	0.950					
Satd. Flow (prot)	3340	1617	0	4995	3411	0
Flt Permitted	0.950					
Satd. Flow (perm)	3340	1617	0	4995	3411	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	43					
Link Speed (k/h)	50			60	60	
Link Distance (m)	326.0			103.9	510.7	
Travel Time (s)	23.5			6.2	30.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	1%	0%	5%	7%	0%
Adj. Flow (vph)	134	190	0	1914	1608	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	190	0	1914	1608	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Turn Type	Perm					
Protected Phases	4			2	6	
Permitted Phases	4					
Minimum Split (s)	12.0	12.0		26.0	26.0	
Total Split (s)	22.0	22.0	0.0	63.0	63.0	0.0
Total Split (%)	25.9%	25.9%	0.0%	74.1%	74.1%	0.0%
Maximum Green (s)	16.0	16.0		57.0	57.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-3.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	3.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	16.0	16.0		60.0	57.0	
Actuated g/C Ratio	0.19	0.19		0.71	0.67	
v/c Ratio	0.21	0.56		0.54	0.70	
Control Delay	30.2	31.2		6.7	10.9	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	30.2	31.2		6.7	10.9	

2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C	C		A	B	
Approach Delay	30.8			6.7	10.9	
Approach LOS	C			A	B	
Intersection Summary						
Area Type:	Other					
Cycle Length: 85						
Actuated Cycle Length: 85						
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 60						
Control Type: Pretimed						
Maximum v/c Ratio: 0.70						
Intersection Signal Delay: 10.5				Intersection LOS: B		
Intersection Capacity Utilization 66.2%				ICU Level of Service C		
Analysis Period (min) 15						

Splits and Phases: 3: 407 Off Ramp & Bronte Rd



2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

4: Avenue One & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖		↖	↖		↖	↖		↖	↖		
Volume (vph)	6	45	45	180	45	171	71	673	66	61	443	7	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0			0.0	0.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0	
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.925			0.881			0.987			0.998		
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1789	1742	0	1789	1659	0	1789	1859	0	1789	1880	0	
Flt Permitted	0.555			0.699			0.454			0.254			
Satd. Flow (perm)	1045	1742	0	1317	1659	0	855	1859	0	478	1880	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		45			171			11			2		
Link Speed (k/h)		50			50			80			80		
Link Distance (m)		230.0			749.1			419.3			908.6		
Travel Time (s)		16.6			53.9			18.9			40.9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	6	45	45	180	45	171	71	673	66	61	443	7	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	6	90	0	180	216	0	71	739	0	61	450	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.7			3.7			3.7			3.7		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		1.6			1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0		
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	54.0	54.0	0.0	54.0	54.0	0.0	
Total Split (%)	32.5%	32.5%	0.0%	32.5%	32.5%	0.0%	67.5%	67.5%	0.0%	67.5%	67.5%	0.0%	
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	
Lead/Lag													
Lead-Lag Optimize?													
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effect Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0		
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.60	0.60		0.60	0.60		
v/c Ratio	0.02	0.19		0.55	0.40		0.14	0.66		0.21	0.40		
Control Delay	23.2	14.8		33.4	9.3		0.9	2.5		9.7	9.7		

2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
Page 3

Lanes, Volumes, Timings

4: Avenue One & Tremaine Rd

5/13/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.2	14.8		33.4	9.3		0.9	2.5		9.7	9.7	
LOS	C	B		C	A		A	A		A	A	
Approach Delay		15.3			20.2			2.4			9.7	
Approach LOS		B			C			A			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 11 (14%), Referenced to phase 2:NBT and 6:SBTL, Start of Green												
Natural Cycle: 60												
Control Type: Pretimed												
Maximum v/c Ratio: 0.66												
Intersection Signal Delay: 9.0							Intersection LOS: A					
Intersection Capacity Utilization 74.4%							ICU Level of Service D					
Analysis Period (min) 15												

Splits and Phases: 4: Avenue One & Tremaine Rd



2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
12: Avenue One & Bronte Rd

5/13/2011

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↱	↰
Volume (vph)	597	361	108	1553	1548	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.7	3.7	3.7	3.7
Storage Length (m)	0.0	0.0	25.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5	2.5	2.5			2.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1750	1566	1789	3579	3579	1601
Flt Permitted	0.950		0.067			
Satd. Flow (perm)	1750	1566	126	3579	3579	1601
Right Turn on Red		Yes			Yes	
Satd. Flow (RTOR)		87			188	
Link Speed (k/h)	50			60	60	
Link Distance (m)	597.8			298.1	355.9	
Travel Time (s)	43.0			17.9	21.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	597	361	108	1553	1548	259
Shared Lane Traffic (%)						
Lane Group Flow (vph)	597	361	108	1553	1548	259
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				CI+Ex	CI+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6

2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
12: Avenue One & Bronte Rd

5/13/2011

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0	22.0
Total Split (s)	51.0	51.0	10.0	69.0	59.0	59.0
Total Split (%)	42.5%	42.5%	8.3%	57.5%	49.2%	49.2%
Maximum Green (s)	45.0	45.0	4.0	63.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	-3.0	-3.0	-3.0	0.0
Total Lost Time (s)	6.0	6.0	3.0	3.0	3.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effect Green (s)	43.4	43.4	67.6	67.6	57.0	54.0
Actuated g/C Ratio	0.36	0.36	0.56	0.56	0.48	0.45
v/c Ratio	0.94	0.58	0.61	0.77	0.91	0.31
Control Delay	61.8	26.9	33.1	23.9	38.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.8	26.9	33.1	23.9	38.8	7.3
LOS	E	C	C	C	D	A
Approach Delay	48.6			24.5	34.3	
Approach LOS	D			C	C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 33.7

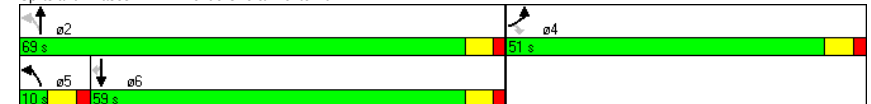
Intersection LOS: C

Intersection Capacity Utilization 93.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 12: Avenue One & Bronte Rd



2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖		↖	↖		↖	↖		↖	↖	↖	
Volume (vph)	3	24	86	279	32	23	53	788	304	9	652	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	25.0		0.0	
Storage Lanes	1		0	1		0	1		0	1		0	
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.883			0.937			0.958					
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1750	1627	0	1750	1726	0	1789	1792	0	1789	1865	0	
Flt Permitted	0.721			0.422			0.322			0.081			
Satd. Flow (perm)	1328	1627	0	777	1726	0	606	1792	0	153	1865	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		86			23			35					
Link Speed (k/h)		50			50			80			80		
Link Distance (m)		143.6			595.2			292.4			419.3		
Travel Time (s)		10.3			42.9			13.2			18.9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	3%	2%	
Adj. Flow (vph)	3	24	86	279	32	23	53	788	304	9	652	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	3	110	0	279	55	0	53	1092	0	9	652	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		7.0			7.0			3.7			3.7		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		1.6			1.6			1.6			1.6		
Two way Left Turn Lane													
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Number of Detectors	1	2		1	2		1	2		1	2		
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru		
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5		
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8		
Detector 1 Type	CI+Ex	CH+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)		28.7			28.7			28.7			28.7		
Detector 2 Size(m)		1.8			1.8			1.8			1.8		
Detector 2 Type		CH+Ex			CI+Ex			CI+Ex			CI+Ex		
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0			0.0		
Turn Type	Perm			pm+pt			Perm			Perm			
Protected Phases		4			3	8		2			6		

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Synchro 7 - Report
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Lanes, Volumes, Timings

13: Burnhamthorpe Road & Tremaine Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	4			8			2			6			
Detector Phase	4	4		3	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	22.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0		
Total Split (s)	22.0	22.0	0.0	12.0	34.0	0.0	46.0	46.0	0.0	46.0	46.0	0.0	
Total Split (%)	27.5%	27.5%	0.0%	15.0%	42.5%	0.0%	57.5%	57.5%	0.0%	57.5%	57.5%	0.0%	
Maximum Green (s)	16.0	16.0		8.0	28.0		40.0	40.0		40.0	40.0		
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	4.0	4.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	
Lead/Lag	Lag	Lag		Lead									
Lead-Lag Optimize?	Yes	Yes		Yes									
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effect Green (s)	7.5	7.5		19.2	17.2		50.8	50.8		50.8	50.8		
Actuated g/C Ratio	0.09	0.09		0.24	0.22		0.64	0.64		0.64	0.64		
v/c Ratio	0.02	0.48		0.98	0.14		0.14	0.95		0.09	0.55		
Control Delay	31.3	18.7		78.9	15.9		8.8	33.8		9.9	9.3		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	31.3	18.7		78.9	15.9		8.8	33.8		9.9	9.3		
LOS	C	B		E	B		A	C		A	A		
Approach Delay		19.1			68.5			32.6			9.3		
Approach LOS		B			E			C			A		

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 30.4

Intersection LOS: C

Intersection Capacity Utilization 92.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 13: Burnhamthorpe Road & Tremaine Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↘	↗	↖	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖	↖	↖	↖↖	↖	↖	↖↖	↖	↖	↖↖	↖
Volume (vph)	201	360	638	312	236	473	276	1231	88	416	1537	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	2.5		2.5	2.5		2.5	2.5		2.5	2.5		2.5
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	1.00	*1.00	1.00	1.00	*1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3684	1566	1789	3767	1601	1789	3767	1601	1789	3767	1601
Flt Permitted	0.512			0.281			0.078			0.103		
Satd. Flow (perm)	943	3684	1566	529	3767	1601	147	3767	1601	194	3767	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			26			79			42			14
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		307.6			284.2			435.3			147.1	
Travel Time (s)		22.1			17.1			26.1			8.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	201	360	638	312	236	473	276	1231	88	416	1537	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	360	638	312	236	473	276	1231	88	416	1537	39
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6

2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

21: Burnhamthorpe Road & Bronte Rd

5/13/2011

	↖	→	↘	↙	←	↖	↙	↘	↗	↖	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	22.0	8.0	8.0	22.0	8.0	8.0	22.0	8.0	8.0	22.0	8.0
Total Split (s)	15.0	22.0	29.0	16.0	23.0	27.0	29.0	55.0	16.0	27.0	53.0	15.0
Total Split (%)	12.5%	18.3%	24.2%	13.3%	19.2%	22.5%	24.2%	45.8%	13.3%	22.5%	44.2%	12.5%
Maximum Green (s)	11.0	16.0	25.0	12.0	17.0	23.0	25.0	49.0	12.0	23.0	47.0	11.0
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0
Lost Time Adjust (s)	-3.0	-3.0	-1.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	3.0	3.0	1.0	3.0	4.0	1.0	3.0	4.0	1.0	3.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	34.1	18.2	48.0	36.2	19.2	44.9	81.8	53.2	68.2	77.7	50.0	63.9
Actuated g/C Ratio	0.28	0.15	0.40	0.30	0.16	0.37	0.68	0.44	0.57	0.65	0.42	0.53
v/c Ratio	0.56	0.65	0.99	0.98	0.39	0.73	0.56	0.74	0.09	0.89	0.98	0.05
Control Delay	39.6	53.7	69.1	84.5	47.1	34.0	15.3	18.4	5.7	52.7	53.1	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	53.7	69.1	84.5	47.1	34.0	15.3	18.4	5.7	52.7	53.1	9.8
LOS	D	D	E	F	D	C	B	B	A	D	D	A
Approach Delay		59.5			52.5			17.1			52.1	
Approach LOS		E			D			B			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 10 (8%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 44.1

Intersection LOS: D

Intersection Capacity Utilization 109.3%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 21: Burnhamthorpe Road & Bronte Rd



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Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	540	1508	2625	224	186	855
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	*1.00	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	5437	1585	1772	1585
Flt Permitted	0.071				0.950	
Satd. Flow (perm)	132	5043	5437	1585	1772	1585
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				121		
Link Speed (k/h)		80	80		80	
Link Distance (m)		596.5	594.9		292.4	
Travel Time (s)		26.8	26.8		13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	540	1508	2625	224	186	855
Shared Lane Traffic (%)						
Lane Group Flow (vph)	540	1508	2625	224	186	855
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2			6		4

2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	5
Switch Phase						
Minimum Initial (s)	4.0	30.0	30.0	30.0	8.0	4.0
Minimum Split (s)	10.0	37.0	37.0	37.0	22.0	10.0
Total Split (s)	39.0	98.0	59.0	59.0	22.0	39.0
Total Split (%)	32.5%	81.7%	49.2%	49.2%	18.3%	32.5%
Maximum Green (s)	35.0	91.0	52.0	52.0	16.0	35.0
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	3.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?	Yes					Yes
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	98.3	95.3	55.0	52.0	17.7	57.0
Actuated g/C Ratio	0.82	0.79	0.46	0.43	0.15	0.48
v/c Ratio	0.84	0.38	1.05	0.30	0.71	1.14
Control Delay	42.6	4.0	47.6	2.9	63.9	107.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	4.0	47.6	2.9	63.9	107.7
LOS	D	A	D	A	E	F
Approach Delay		14.2	44.1		99.9	
Approach LOS		B	D		F	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 91 (76%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 43.6

Intersection LOS: D

Intersection Capacity Utilization 110.3%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 22: Dundas St W & Tremaine Rd



2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔↔↔	↔↔↔	↔	↔	↔
Volume (vph)	191	1370	1983	349	754	706
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			50.0	50.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	50.0			50.0	50.0	2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	5043	4948	1633	1825	1633
Flt Permitted	0.080				0.950	
Satd. Flow (perm)	154	5043	4948	1633	1825	1633
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				115	1	
Link Speed (k/h)		80	80		50	
Link Distance (m)		594.9	556.7		446.2	
Travel Time (s)		26.8	25.1		32.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	6%	0%	0%	0%
Adj. Flow (vph)	191	1370	1983	349	754	706
Shared Lane Traffic (%)						
Lane Group Flow (vph)	191	1370	1983	349	754	706
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			pm+ov		pm+ov
Protected Phases	7	4	8	6	6	7
Permitted Phases	4			8		6

2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
24: Dundas St W & Avenue Two

5/13/2011

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	6	6	7
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.0	22.0	22.0	22.0	8.0
Total Split (s)	10.0	63.0	53.0	57.0	57.0	10.0
Total Split (%)	8.3%	52.5%	44.2%	47.5%	47.5%	8.3%
Maximum Green (s)	6.0	56.0	47.0	51.0	51.0	6.0
Yellow Time (s)	3.0	5.0	4.0	4.0	4.0	3.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	3.0	6.0	6.0	4.0
Lead/Lag	Lead		Lag		Lead	
Lead-Lag Optimize?	Yes		Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	None
Walk Time (s)		5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	62.0	59.0	50.0	104.0	51.0	63.0
Actuated g/C Ratio	0.52	0.49	0.42	0.87	0.42	0.52
v/c Ratio	0.93	0.55	0.96	0.24	0.97	0.82
Control Delay	81.1	18.4	22.7	0.4	60.6	33.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.1	18.4	22.7	0.4	60.6	33.6
LOS	F	B	C	A	E	C
Approach Delay		26.1	19.3		47.6	
Approach LOS		C	B		D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 2 (2%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 29.0

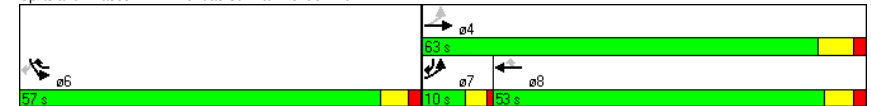
Intersection LOS: C

Intersection Capacity Utilization 102.3%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 24: Dundas St W & Avenue Two



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Synchro 7 - Report
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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	77	2017	89	130	1955	192	83	46	109	588	164	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		75.0	60.0		77.0	28.0		28.0	0.0		25.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0		70.0	100.0		82.0	25.0		25.0	40.0		2.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5043	1512	1508	4948	1633	1674	1921	1585	1789	1921	1633
Flt Permitted	0.075			0.074			0.833			0.455		
Satd. Flow (perm)	144	5043	1512	117	4948	1633	1468	1921	1585	857	1921	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84			192			54			67
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		556.7			284.1			333.6			488.9	
Travel Time (s)		25.1			12.8			24.0			35.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	4%	8%	21%	6%	0%	9%	0%	3%	2%	0%	0%
Adj. Flow (vph)	77	2017	89	130	1955	192	83	46	109	588	164	256
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	2017	89	130	1955	192	83	46	109	588	164	256
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6	8		8	4		4

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Lanes, Volumes, Timings

26: Dundas St W & Avenue Three

5/13/2011

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	4.0	20.0	4.0	4.0	20.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0
Minimum Split (s)	8.0	27.0	8.0	8.0	27.0	8.0	8.0	12.0	8.0	8.0	12.0	8.0
Total Split (s)	9.0	56.0	12.0	10.0	57.0	42.0	12.0	12.0	10.0	42.0	42.0	9.0
Total Split (%)	7.5%	46.7%	10.0%	8.3%	47.5%	35.0%	10.0%	10.0%	8.3%	35.0%	35.0%	7.5%
Maximum Green (s)	5.0	49.0	8.0	6.0	50.0	38.0	8.0	6.0	6.0	38.0	36.0	5.0
Yellow Time (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	1.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	3.5	3.0	3.0	0.2	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		0.0			0.0			0.0			0.0	
Flash Dont Walk (s)		7.0			7.0			5.0			5.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	65.4	54.2	66.0	67.6	55.4	97.2	14.1	6.0	16.0	47.4	33.7	44.8
Actuated g/C Ratio	0.54	0.45	0.55	0.56	0.46	0.81	0.12	0.05	0.13	0.40	0.28	0.37
v/c Ratio	0.40	0.89	0.10	0.74	0.86	0.14	0.45	0.48	0.42	0.93	0.30	0.39
Control Delay	23.8	30.6	1.4	45.6	26.2	2.3	35.9	72.3	29.8	55.3	34.9	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.8	30.6	1.4	45.6	26.2	2.3	35.9	72.3	29.8	55.3	34.9	21.3
LOS	C	C	A	D	C	A	D	E	C	E	C	C
Approach Delay		29.2			25.3			40.1			43.4	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 49 (41%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 30.6

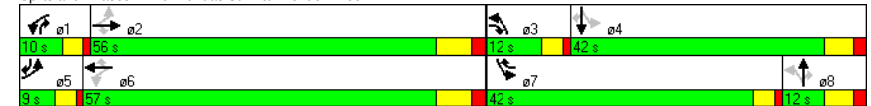
Intersection LOS: C

Intersection Capacity Utilization 98.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 26: Dundas St W & Avenue Three



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Lanes, Volumes, Timings

28: Dundas St W & Avenue Four

5/13/2011

	←	→	↙	↘	↖	↗	↖	↗	↖	↗	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖↖	↖	↖
Volume (vph)	67	2530	112	42	2040	162	56	30	20	559	127	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	28.0		25.0	50.0		50.0	0.0		25.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	2.5		65.0	70.0		2.5	25.0		25.0	2.5		2.5
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.994				0.850		0.940			0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	4926	0	1362	4948	1601	1825	1784	0	3471	1718	0
Flt Permitted	0.061			0.061			0.574			0.950		
Satd. Flow (perm)	115	4926	0	87	4948	1601	1103	1784	0	3471	1718	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				88		20			67	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		243.9			243.0			345.0			419.2	
Travel Time (s)		14.6			14.6			24.8			30.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	4%		34%	6%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	67	2530	112	42	2040	162	56	30	20	559	127	179
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	2642	0	42	2040	162	56	50	0	559	306	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt			pm+pt		pm+ov	Perm			Prot		
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6		8				

2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings

28: Dundas St W & Avenue Four

5/13/2011

	←	→	↙	↘	↖	↗	↖	↗	↖	↗	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	23.0		4.0	23.0	4.0	20.0	20.0		4.0	4.0	
Minimum Split (s)	8.0	30.0		8.0	30.0	8.0	26.0	26.0		8.0	22.0	
Total Split (s)	8.0	65.0	0.0	8.0	65.0	21.0	26.0	26.0	0.0	21.0	47.0	0.0
Total Split (%)	6.7%	54.2%	0.0%	6.7%	54.2%	17.5%	21.7%	21.7%	0.0%	17.5%	39.2%	0.0%
Maximum Green (s)	4.0	58.0		4.0	58.0	17.0	20.0	20.0		17.0	41.0	
Yellow Time (s)	3.0	5.0		3.0	5.0	3.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	0.0	0.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	1.0	4.0	4.0	6.0	6.0	4.0	1.0	3.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	6.0		3.0	6.0	3.0	5.0	5.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0			5.0	
Flash Dont Walk (s)		14.0			14.0		12.0	12.0			11.0	
Pedestrian Calls (/hr)		0			0		0	0			0	
Act Effect Green (s)	76.4	67.8		76.4	67.8	89.6	20.0	20.0		20.0	38.8	
Actuated g/C Ratio	0.64	0.56		0.64	0.56	0.75	0.17	0.17		0.17	0.32	
v/c Ratio	0.38	0.95		0.32	0.73	0.13	0.30	0.16		0.97	0.51	
Control Delay	12.0	31.5		26.8	14.4	0.7	49.1	30.4		79.7	27.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	12.0	31.5		26.8	14.4	0.7	49.1	30.4		79.7	27.2	
LOS	B	C		C	B	A	D	C		E	C	
Approach Delay		31.0			13.6			40.3			61.1	
Approach LOS		C			B			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 111 (93%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 29.0

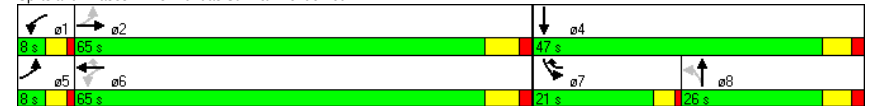
Intersection LOS: C

Intersection Capacity Utilization 101.7%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 28: Dundas St W & Avenue Four



2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	302	1797	1004	214	1490	352	516	853	72	783	1173	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	0.91	0.97	*1.00	1.00	1.00	*1.00	1.00
Frt			0.850		0.971				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5489	1601	1587	5308	0	3340	3730	1555	1755	3625	1512
Flt Permitted	0.105			0.108			0.950			0.167		
Satd. Flow (perm)	196	5489	1601	180	5308	0	3340	3730	1555	308	3625	1512
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			30		51			66				117
Link Speed (k/h)		60			60			60				60
Link Distance (m)		243.0			159.6			362.5				435.3
Travel Time (s)		14.6			9.6			21.8				26.1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	302	1797	1004	214	1490	352	516	853	72	783	1173	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	302	1797	1004	214	1842	0	516	853	72	783	1173	221
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		pm+ov	pm+pt		Prot		Perm	pm+pt		Perm	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6				8		4		4

2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	3	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	5.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	9.0	9.0	37.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	14.0	43.0	27.0	12.0	41.0	0.0	27.0	26.0	26.0	39.0	38.0	38.0
Total Split (%)	11.7%	35.8%	22.5%	10.0%	34.2%	0.0%	22.5%	21.7%	21.7%	32.5%	31.7%	31.7%
Maximum Green (s)	10.0	36.0	23.0	8.0	34.0		23.0	20.0	20.0	35.0	32.0	32.0
Yellow Time (s)	3.0	5.0	3.0	3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	1.0	4.0	4.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	2.5	2.5	6.0		2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Walk Time (s)		15.0			15.0			10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0			7.0			7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	54.0	39.0	66.0	51.0	37.0		26.0	23.0	20.0	64.0	35.0	32.0
Actuated g/C Ratio	0.45	0.32	0.55	0.42	0.31		0.22	0.19	0.17	0.53	0.29	0.27
v/c Ratio	1.17	1.01	1.12	1.04	1.10		0.71	1.19	0.23	1.26	1.11	0.45
Control Delay	129.2	55.6	79.3	104.6	93.6		49.8	142.6	13.9	143.8	89.7	12.8
Queue Delay	0.0	0.0	3.8	0.0	19.9		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	129.2	55.6	83.1	104.6	113.5		49.8	142.6	13.9	143.8	89.7	12.8
LOS	F	E	F	F	F		D	F	B	F	F	B
Approach Delay		71.7			112.6			102.9			101.4	
Approach LOS		E			F			F			F	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.26

Intersection Signal Delay: 93.8

Intersection LOS: F

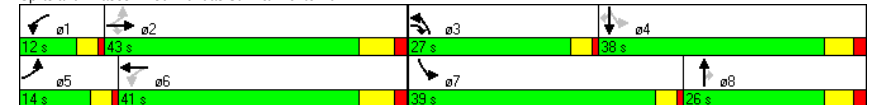
Intersection Capacity Utilization 133.7%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



2031 Future Total PM PEAK HOUR 7/17/2009 Base

Synchro 7 - Report
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Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	↗	↘	↙	↑	↓	↖
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔↔	↗		↔↔↔	↗	
Volume (vph)	134	190	0	1914	1608	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	112.0	0.0			0.0
Storage Lanes	2	1	0			0
Taper Length (m)	2.5	50.0	2.5			2.5
Lane Util. Factor	0.97	0.91	1.00	0.91	0.95	1.00
Frt	0.941	0.850				
Flt Protected	0.971					
Satd. Flow (prot)	3273	1471	0	4995	3411	0
Flt Permitted	0.971					
Satd. Flow (perm)	3273	1471	0	4995	3411	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	54	54				
Link Speed (k/h)	50			60	60	
Link Distance (m)	326.0			103.9	510.7	
Travel Time (s)	23.5			6.2	30.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	1%	0%	5%	7%	0%
Adj. Flow (vph)	134	190	0	1914	1608	0
Shared Lane Traffic (%)		46%				
Lane Group Flow (vph)	221	103	0	1914	1608	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	12.0	12.0		26.0	26.0	
Total Split (s)	18.0	18.0	0.0	67.0	67.0	0.0
Total Split (%)	21.2%	21.2%	0.0%	78.8%	78.8%	0.0%
Maximum Green (s)	12.0	12.0		61.0	61.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-3.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	3.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effect Green (s)	12.0	12.0		64.0	61.0	
Actuated g/C Ratio	0.14	0.14		0.75	0.72	
v/c Ratio	0.44	0.41		0.51	0.66	
Control Delay	28.0	23.1		4.8	8.0	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	28.0	23.1		4.8	8.0	

2031 Future Total (with Improvements) PM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
3: 407 Off Ramp & Bronte Rd

5/13/2011

	↗	↘	↙	↑	↓	↖
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C	C		A	A	
Approach Delay	26.5			4.8	8.0	
Approach LOS	C			A	A	
Intersection Summary						
Area Type:	Other					
Cycle Length: 85						
Actuated Cycle Length: 85						
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 45						
Control Type: Pretimed						
Maximum v/c Ratio: 0.66						
Intersection Signal Delay: 8.0	Intersection LOS: A					
Intersection Capacity Utilization 62.3%	ICU Level of Service B					
Analysis Period (min) 15						

Splits and Phases: 3: 407 Off Ramp & Bronte Rd



2031 Future Total (with Improvements) PM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	540	1508	2625	224	186	855
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			60.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			50.0	100.0	2.5
Lane Util. Factor	1.00	0.91	*1.00	1.00	1.00	1.00
Frt				0.850	0.850	
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	5043	5437	1585	1772	1585
Flt Permitted	0.065				0.950	
Satd. Flow (perm)	121	5043	5437	1585	1772	1585
Right Turn on Red				Yes	Yes	
Satd. Flow (RTOR)				132	477	
Link Speed (k/h)		80	80		80	
Link Distance (m)		96.5	594.9		292.4	
Travel Time (s)		4.3	26.8		13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	4%	6%	3%	3%	3%
Adj. Flow (vph)	540	1508	2625	224	186	855
Shared Lane Traffic (%)						
Lane Group Flow (vph)	540	1508	2625	224	186	855
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt			Perm		Free
Protected Phases	5	2	6		4	
Permitted Phases	2			6		Free

2031 Future Total (with Improvements) PM PEAK HOUR 7/17/2009

Synchro 7 - Report
Page 3

Lanes, Volumes, Timings
22: Dundas St W & Tremaine Rd

5/13/2011

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6	6	4	
Switch Phase						
Minimum Initial (s)	4.0	30.0	30.0	30.0	8.0	
Minimum Split (s)	10.0	37.0	37.0	37.0	22.0	
Total Split (s)	33.0	98.0	65.0	65.0	22.0	0.0
Total Split (%)	27.5%	81.7%	54.2%	54.2%	18.3%	0.0%
Maximum Green (s)	29.0	91.0	58.0	58.0	16.0	
Yellow Time (s)	3.0	5.0	5.0	5.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0	-3.0	0.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	7.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes					
Vehicle Extension (s)	3.0	5.5	5.5	5.5	2.5	
Recall Mode	None	C-Max	C-Max	C-Max	None	
Walk Time (s)		0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	98.3	95.3	61.0	58.0	17.7	120.0
Actuated g/C Ratio	0.82	0.79	0.51	0.48	0.15	1.00
v/c Ratio	0.97	0.38	0.95	0.27	0.71	0.54
Control Delay	66.6	4.0	20.4	1.3	63.9	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.6	4.0	20.4	1.3	63.9	1.3
LOS	E	A	C	A	E	A
Approach Delay		20.5	18.9		12.5	
Approach LOS		C	B		B	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 91 (76%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 18.3

Intersection LOS: B

Intersection Capacity Utilization 100.9%

ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 22: Dundas St W & Tremaine Rd



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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	302	1797	1004	214	1490	352	516	853	72	783	1173	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		80.0	110.0		0.0	190.0		75.0	180.0		50.0
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (m)	65.0		65.0	60.0		2.5	70.0		50.0	77.0		70.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	0.97	*1.00	1.00	0.97	*1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5489	1601	1587	5437	1585	3340	3730	1555	3404	3625	1512
Flt Permitted	0.114			0.118			0.950			0.950		
Satd. Flow (perm)	213	5489	1601	197	5437	1585	3340	3730	1555	3404	3625	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			29			315			72			117
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		243.0			159.6			362.5			435.3	
Travel Time (s)		14.6			9.6			21.8			26.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	15%	6%	3%	6%	3%	5%	4%	6%	8%
Adj. Flow (vph)	302	1797	1004	214	1490	352	516	853	72	783	1173	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	302	1797	1004	214	1490	352	516	853	72	783	1173	221
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		pm+ov	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6		6		8				4

2031 Future Total (with Improvements) PM PEAK HOUR 7/17/2009

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Lanes, Volumes, Timings

30: Dundas St W & Bronte Rd

5/13/2011

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	3	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	5.0	5.0	30.0	30.0	5.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	9.0	37.0	9.0	9.0	37.0	37.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	16.0	42.0	28.0	12.0	38.0	38.0	28.0	36.0	36.0	30.0	38.0	38.0
Total Split (%)	13.3%	35.0%	23.3%	10.0%	31.7%	31.7%	23.3%	30.0%	30.0%	25.0%	31.7%	31.7%
Maximum Green (s)	12.0	35.0	24.0	8.0	31.0	31.0	24.0	30.0	30.0	26.0	32.0	32.0
Yellow Time (s)	3.0	5.0	3.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	1.0	4.0	4.0	1.0	4.0	7.0	1.0	3.0	6.0	1.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	6.0	2.5	2.5	6.0	6.0	2.5	4.0	4.0	2.5	4.0	4.0
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		15.0			15.0	15.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effect Green (s)	53.0	38.0	66.0	48.0	34.0	31.0	27.0	33.0	30.0	29.0	35.0	32.0
Actuated g/C Ratio	0.44	0.32	0.55	0.40	0.28	0.26	0.22	0.28	0.25	0.24	0.29	0.27
v/c Ratio	1.04	1.03	1.12	1.04	0.97	0.55	0.69	0.83	0.16	0.95	1.11	0.45
Control Delay	88.1	64.6	79.7	103.1	59.1	9.5	48.1	49.1	8.9	49.4	89.2	12.3
Queue Delay	0.0	0.0	3.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.1	64.6	82.9	103.1	59.5	9.5	48.1	49.1	8.9	49.4	89.2	12.3
LOS	F	E	F	F	E	A	D	D	A	D	F	B
Approach Delay		72.8			55.5			46.7			67.1	
Approach LOS		E			E			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 63.0

Intersection LOS: E

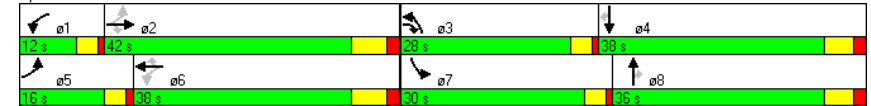
Intersection Capacity Utilization 116.4%

ICU Level of Service H

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 30: Dundas St W & Bronte Rd



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