

Panzini conseil inc.

PROJET PORTE SAINTE-MARIE

*VERSION MODIFIÉE DU PLAN D'AMÉNAGEMENT*

*Étude d'impact complémentaire sur la circulation*

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ANNEXES - Analyses de capacité

## **1. INTRODUCTION**

En février 2003, notre firme a déposé l'étude d'impact sur la circulation du projet Porte Sainte-Marie. Le projet prévoyait l'aménagement d'une nouvelle rue en forme de «L» reliant la rue Sainte-Catherine à la rue Parthenais. Par la suite, des modifications ont été apportées au projet initial, comprenant, entre autre, la transformation de la rue en forme de «L» par une rue en forme de «T» avec raccordement au boulevard René-Lévesque.

La présente étude complémentaire d'impact sur la circulation reprend certaines analyses déjà effectuées et présentées dans le rapport initial, afin de tenir compte du projet modifié. On retrouve les sections suivantes:

- Description du projet;
- Génération, affectation et distribution de la circulation;
- Impacts sur la fluidité de la circulation;
- Mesures d'atténuation;
- Recommandations.

## 2. DESCRIPTION DU PROJET

Le projet de développement occupe le quadrilatère René-Lévesque, de Lorimier, Sainte-Catherine et Parthenais. Il est prévu d'y développer des immeubles à vocation résidentielle, commerciale et à bureaux ayant les caractéristiques suivantes :

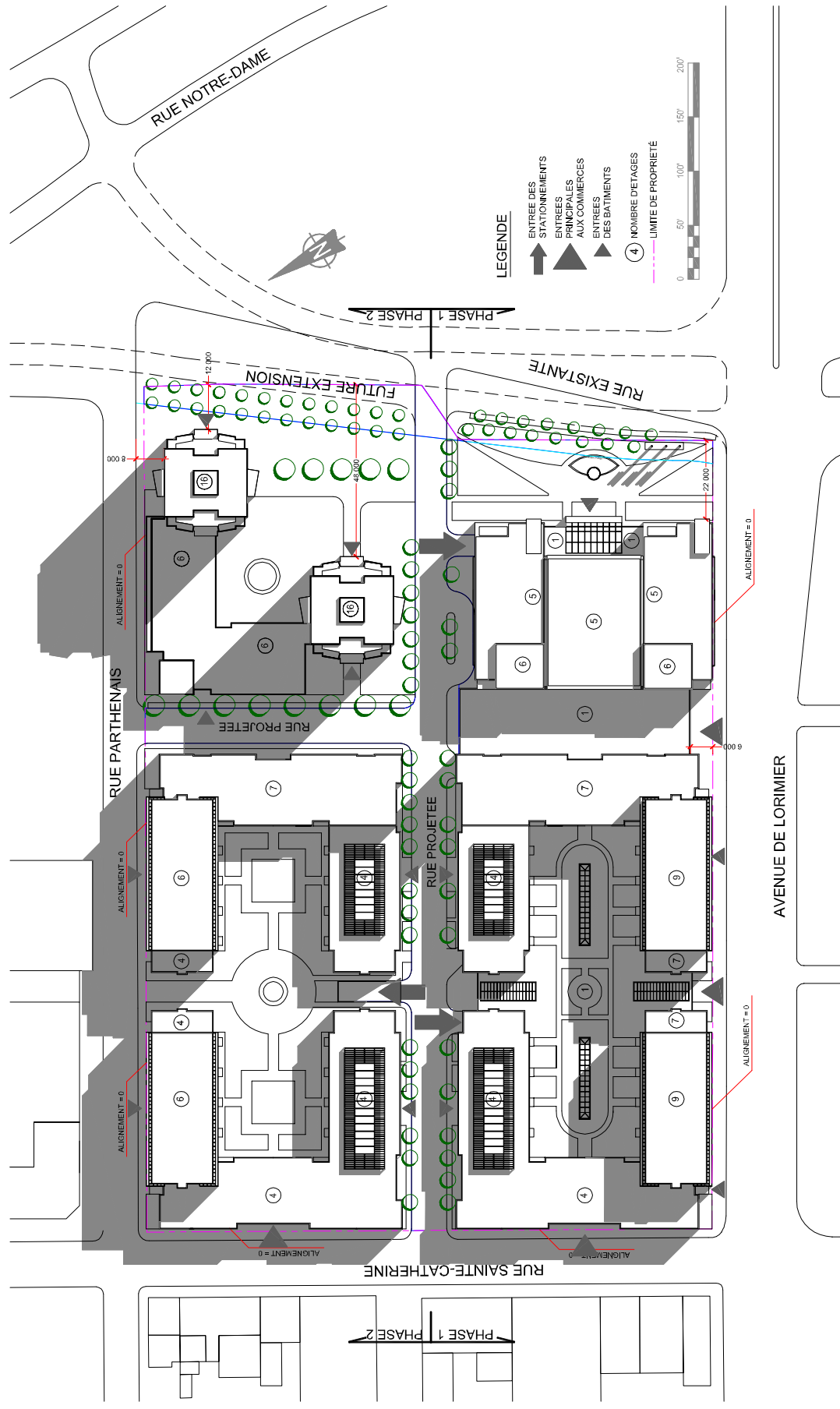
**Tableau 1: Description du développement**

Développement	Nombre d'unités / superficie
Développement résidentiel	
- logement pour personnes âgées	244
- appartement	422
- condominium	153
Bureaux	85 000 pi.ca.
Développement commercial	
- commerce d'alimentation	40 000 pi.ca.
- SAQ	28 000 pi.ca.
- autres	69 500 pi.ca.

Par rapport au projet initial, on retrouve moins de logis (819 au lieu de 1357) mais une plus grande superficie commerciale (137 500 pi.ca. au lieu de 95 000 pi.ca.).

Il est prévu d'aménager une rue en forme de « T » reliant la rue Sainte-Catherine au boulevard René-Lévesque dans l'axe nord-sud et jusqu'à la rue Parthenais dans l'axe est-ouest (voir figure 1).

Un stationnement intérieur d'environ 1685 places est accessible par la nouvelle rue à l'intérieur du site, dont 400 places pour la SAQ, près de 860 places pour les commerces et 425 places pour les résidences. Trois accès y sont prévus, tous trois sur la nouvelle rue nord-sud. Quatre quais de chargement pour les camions de livraison sont prévus, accessibles par le stationnement intérieur.



### 3. ÉVALUATION DES IMPACTS

#### 3.1 Génération et affectation des déplacements

La clientèle générée par le développement conçu par le promoteur est de différents types. Une partie importante se déplacera en autobus et en métro vu la proximité du métro et du centre-ville. Le taux de génération choisi provient d'études de l'ITE (Trip Generation). Cet organisme qui publie les taux de génération, avertit les utilisateurs que les dits taux peuvent varier considérablement pour un site donné et qu'ils doivent être utilisés avec parcimonie et appliqués avec beaucoup de jugement.

Les taux de génération ont été adaptés en fonction de la localisation du site en périphérie centre-ville et des services de transport en commun. Ces taux ajustés sont similaires à ceux obtenus par la ville de Montréal lors d'études antérieures pour des développements résidentiels et de bureaux.

Le tableau 2 présente les débits générés par le projet aux périodes de pointe des travailleurs. À l'heure de pointe du matin, près de 280 véhicules entrent au site et près de 250 en sortent. Pour l'heure de pointe du soir, environ 580 véhicules entrent au site et près de 600 en sortent. Sur ce il faut préciser que près de 50 véhicules qui entrent et qui sortent du site à des fins commerciales circulent déjà aux abords du site (Pass-by).

**Tableau 2: Débits générés par le projet**

Développement	Débits (véh/h)			
	Pointe du matin		Pointe du soir	
	<i>Entrant</i>	<i>Sortant</i>	<i>Entrant</i>	<i>Sortant</i>
Résidentiel				
- personnes âgées : 244 unités	9	6	23	19
- appartement: 422 unités	27	130	136	79
- condos: 153 unités	8	31	26	16
Bureaux : 85 000 pi.ca.	150	38	28	137
Commercial				
Commerce alimentaire 40 000 pi.ca <sup>1</sup>	29	13	110	106
SAQ 28 000 pi.ca.	Négl.	Négl.	78	59
Autres 69 500 pi.ca.	58	34	182	182
<b>TOTAL</b>	<b>281</b>	<b>252</b>	<b>583</b>	<b>598</b>

Source: Trip Generation, ITE, avec adaptation pour la périphérie au centre-ville  
1 : Les déplacements «Pass-by» sont exclus (30%)

Les débits générés (pass-by exclus) par ce scénario de développement sont du même ordre de grandeur que ceux du scénario initial.

### 3.2 Distribution et affectation des déplacements

Les débits générés ont été distribués dans le réseau routier en fonction des débits existants et de la localisation des accès. La figure 2 ci-dessous illustre les débits générés.

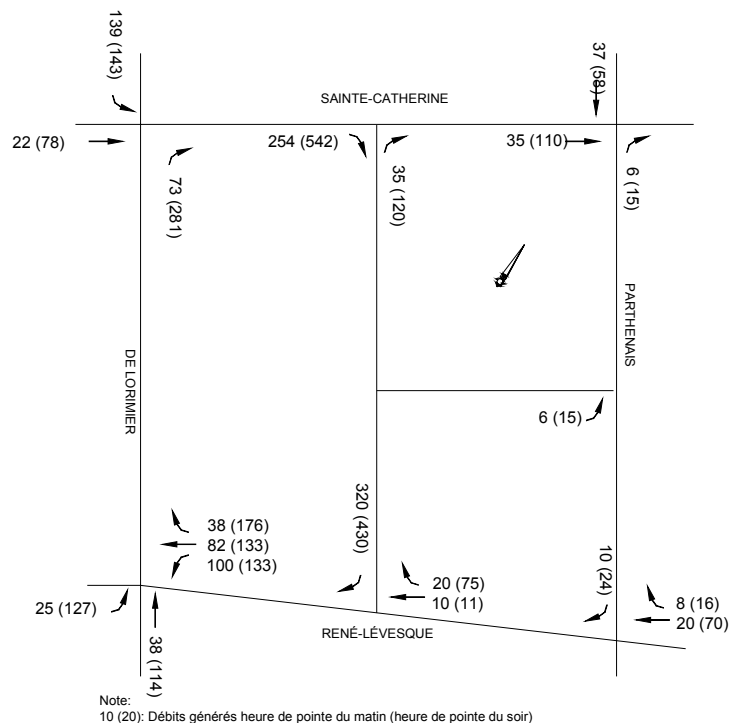


Figure 2 : Distribution et affectation des débits générés

La distribution des déplacements utilisée pour les fins d'analyse correspond au patron de la circulation existante et à l'attrait de l'axe de la rue Notre-Dame et de l'autoroute Ville-Marie. Le projet de modernisation de la rue Notre-Dame affectera, entre autre, le patron de la circulation dans le secteur. Compte tenu que le concept final n'est pas encore définitif ainsi que son impact sur la circulation n'est pas encore complètement connu, les impacts évalués concernent le projet en tenant compte de l'aménagement existant.

Au carrefour formé du boulevard René-Lévesque et de la nouvelle rue, quelques 220 véhicules effectuent un virage à droite du nord vers l'ouest à l'heure de pointe du matin. En pointe du soir, ce débit atteint les 430 véh/h.

### 3.3 Impacts sur la fluidité de la circulation

Les débits générés sont ajoutés à la circulation existante afin d'évaluer les impacts sur la fluidité de la circulation. Le tableau 3 présente les retards (sec/véh) et niveaux de service moyens pour la circulation totale (existante plus générée) aux quatre carrefours dotés de feux de circulation aux abords du site.

Tableau 3: Impact sur la fluidité de la circulation

CARREFOUR	APPROCHE	MOUVEMENT	Situation Actuelle				Situation Future (sans atténuation)				
			DÉBIT/CAPACITÉ		RETARD(sec/véh) ET NIVEAU DE SERVICE		DÉBIT/CAPACITÉ		RETARD(sec/véh) ET NIVEAU DE SERVICE		
			AM	PM	AM	PM	AM	PM	AM	PM	
René-Lévesque/ de Lorimier (SIDRA)	Nord	Tout droit	0,82	0,64	35,6 (D)	28,7 (C)	0,82	0,64	35,6 (D)	28,7 (C)	
		Virage à droite	0,72	0,30	25,0 (C)	17,1 (B)	0,72	0,30	25,0 (C)	17,1 (B)	
	Ouest	Virage à gauche	0,44	1,48	61,1 (E)	279,8 (F)	0,50	1,70	62,9 (E)	379,2 (F)	
		Virage à droite	0,50	0,43	63,4 (E)	49,7 (D)	0,50	0,43	63,4 (E)	49,7 (D)	
	Sud	Virage à gauche	0,25	0,81	29,1 (C)	82,8 (F)	0,26	0,81	28,7 (C)	82,8 (F)	
		Tout droit	0,25	0,68	21,3 (C)	28,2 (C)	0,26	0,72	21,5 (C)	31,3 (C)	
	Est	Virage à gauche	0,52	0,26	51,1 (D)	37,9 (D)	0,78	0,58	62,8 (E)	44,7 (D)	
		Tout droit	0,82	0,93	58,3 (E)	63,1 (E)	0,97	1,29	81,4 (F)	185,0 (F)	
		Virage à droite	0,82	0,93	58,5 (E)	63,7 (E)	0,97	1,29	81,9 (F)	187,2 (F)	
					39,2 (D)	89,0 (F)			45,4 (D)	136,3 (F)	
René-Lévesque/ Parthenais (SIDRA)	Nord	Virage à droite	0,31	0,18	21,1 (C)	26,8 (C)	0,64	0,32	27,5 (C)	24,2 (C)	
	Sud	Virage à gauche	0,01	0,13	19,7 (B)	28,0 (C)	0,01	0,14	18,4 (B)	21,8 (C)	
	Est	Tout droit	0,00	0,45	12,9 (B)	19,7 (B)	0,01	0,14	18,4 (B)	21,8 (C)	
		Tout droit	0,23	0,25	15,0 (B)	9,7 (A)	0,24	0,33	15,3 (B)	13,8 (B)	
		Virage à droite	0,23	0,25	15,1 (B)	10,1 (B)	0,24	0,33	15,5 (B)	14,3 (B)	
				20,9 (C)	15,8 (B)			19,8 (B)	15,7 (B)		
Ste-Catherine/ de Lorimier (TRANSYT-7F)	Nord	Virage à gauche	0,58	0,84	19,0 (B)	64,1 (E)	0,89	1,54	44,4 (D)	>500 (F)	
		Tout droit	0,97	0,57	34,2 (C)	13,6 (B)	0,96	0,56	32,5 (C)	13,4 (B)	
	Ouest	Virage à gauche	0,26	0,37	23,1 (C)	20,8 (C)	0,27	0,41	23,2 (C)	21,3 (C)	
		Tout droit	0,26	0,37	23,1 (C)	20,8 (C)	0,27	0,41	23,2 (C)	21,3 (C)	
	Sud	Virage à droite	0,26	0,37	23,1 (C)	20,8 (C)	0,27	0,41	23,2 (C)	21,3 (C)	
		Tout droit	0,31	0,84	15,0 (B)	27,1 (C)	0,35	0,97	15,4 (B)	43,8 (D)	
		Virage à droite	0,31	0,84	15,0 (B)	27,1 (C)	0,35	0,97	15,4 (B)	43,8 (D)	
					27,6 (C)	24,3 (C)			29,5 (C)	124,7 (F)	
	Ste-Catherine/ Parthenais (TRANSYT-7F)	Nord	Virage à gauche	0,02	0,12	16,7 (B)	25,9 (C)	0,02	0,14	16,7 (B)	27,3 (C)
			Tout droit	0,28	0,25	22,1 (C)	29,2 (C)	0,29	0,29	22,2 (C)	30,5 (C)
Ouest		Tout droit	0,27	0,28	6,6 (A)	2,4 (A)	0,28	0,29	7,2 (A)	2,1 (A)	
		Virage à droite	0,27	0,28	7,7 (A)	2,6 (A)	0,28	0,29	8,4 (A)	2,1 (A)	
Sud		Virage à droite	0,01	0,17	20,0 (B)	27,9 (C)	0,01	0,21	20,0 (B)	29,1 (C)	
				10,9 (B)	8,0 (A)			10,1 (B)	8,2 (A)		

À l'heure de pointe du matin, l'ajout du développement ne présente pas de contraintes significatives sur la fluidité de la circulation aux quatre carrefours bordant le site. Seule l'approche est du carrefour René-Lévesque/de Lorimier voit un niveau de service passer de E à F avec un rapport débit/capacité de 0,97 pour les mouvements tout droit et virage à droite.



À l'heure de pointe du soir, les deux carrefours sur Parthenais, soit à la hauteur de Sainte-Catherine et René-Lévesque ne présente pas d'augmentation significative du retard, les niveaux de service variant de A à C. Cependant, un impact important est envisageable aux deux carrefours sur de Lorimier. Au carrefour René-Lévesque/de Lorimier, les mouvements affectés comprennent le virage à gauche de l'approche ouest avec un retard passant de 280 à 379 sec/véh, et le retard à l'approche est pour les mouvements tout droit et virage à droite passe de 63 à 185 sec/véh. Au carrefour Sainte-Catherine/de Lorimier, le virage à gauche à l'approche nord devient problématique avec un rapport débit/capacité passant de 0,84 à 1,54. Des pistes de solution sont présentées au chapitre 4.

### **3.4 Impact sur le contrôle de la circulation**

Les débits de circulation prévus au nouveau carrefour René-Lévesque/nouvelle rue sont suffisamment élevés pour justifier des feux de circulation. En effet, à l'heure de pointe du soir, le débit sur René-Lévesque est de l'ordre de 900 véh/h. À ce niveau, le débit requis sur la rue transversale pour justifier des feux de circulation est d'environ 330 véh/h pour une voie de circulation et de 425 véh/h pour deux voies de circulation. Le débit prévu est de 430 véh/h. Il est à noter que la proximité de ce nouveau carrefour avec les carrefours René-Lévesque/de Lorimier (100m de part et d'autre) requiert une synchronisation et une gestion efficace des feux de circulation afin de permettre un écoulement optimal de la circulation. Il est à noter que la circulation est plus élevée sur la nouvelle rue en pointe du soir due aux commerces et aux bureaux, alors que la circulation sur le boulevard René-Lévesque est plus faible qu'en pointe du matin.

## 4. MESURES D'ATTÉNUATION

Étant donné les impacts du développement du site sur la circulation, des mesures d'atténuation doivent être implantées pour améliorer la fluidité de la circulation, l'accessibilité au site et la sécurité pour l'ensemble des usagers.

### 4.1 Fluidité de la circulation

Les mesures d'atténuation proposées afin de réduire les impacts du projet sur la fluidité de la circulation comprennent ce qui suit :

#### Carrefour René-Lévesque/de Lorimier

- Ajout d'une voie de circulation pour le virage à droite à l'approche est sur René-Lévesque afin d'obtenir quatre voies de circulation ;
- Augmentation de la durée du feu vert de 1 sec. à l'approche est sur René-Lévesque et de 3 secondes à l'approche ouest au détriment de l'avenue de Lorimier en pointe du soir.

#### Carrefour Sainte-Catherine/de Lorimier

- Transfert de 7 sec. de la durée du feu vert de Sainte-Catherine vers la phase de virage à gauche à l'approche nord en pointe du soir.

Le tableau 4 présente les analyses de capacité en tenant compte des mesures identifiées ci-avant. Au carrefour René-Lévesque/de Lorimier, les retards du mouvement tout droit et des virages à droite passent respectivement de 185 sec/véh à 73,9 sec/véh et de 187 sec/véh à 43 sec/véh à l'approche ouest. Les retards du virage à gauche de l'approche ouest diminuent à 269 sec/véh, alors qu'ils étaient à 380 sec/véh. Aux approches nord et sud de la rue de Lorimier, les retards augmentent légèrement, mais seul le niveau de service du mouvement tout droit augmente de C à D, les autres demeurant au même niveau. Au carrefour Sainte-Catherine/de Lorimier, le rapport débit/capacité du virage à gauche du nord vers l'est passe de 1,54 à 0,97, tout en demeurant au niveau F.

Ces modifications aux réglages des feux de circulation pourront faire l'objet d'optimisation et d'ajustement en fonction de la situation réelle, tout en tenant compte du milieu présentement congestionné à proximité du pont Jacques-Cartier. L'utilisation de feux de circulation «intelligents» permettra d'appliquer une programmation qui s'adapte à la demande en fonction de l'heure de la journée et du jour de la semaine.

**Tableau 4: Impact des mesures d'atténuation sur la fluidité de la circulation**

CARREFOUR	APPROCHE	MOUVEMENT	Situation future sans mesure				Situation future avec atténuation			
			DÉBIT/CAPACITÉ		RETARD(sec/véh) ET NIVEAU DE SERVICE		DÉBIT/CAPACITÉ		RETARD(sec/véh) ET NIVEAU DE SERVICE	
			AM	PM	AM	PM	AM	PM	AM	PM
René-Lévesque/ de Lorimier (SIDRA)	Nord	Tout droit	0,82	0,64	35,6 (D)	28,7 (C)	0,82	0,71	35,6 (D)	34,4 (C)
		Virage à droite	0,72	0,30	25,0 (C)	17,1 (B)	0,72	0,31	25,0 (C)	17,6 (B)
	Ouest	Virage à gauche	0,50	1,70	62,9 (E)	379,2 (F)	0,50	1,46	62,9 (E)	269,5 (F)
		Virage à droite	0,50	0,43	63,4 (E)	49,7 (D)	0,50	0,37	63,4 (E)	45,6 (D)
	Sud	Virage à gauche	0,26	0,81	28,7 (C)	82,8 (F)	0,26	0,96	28,7 (C)	120,4 (F)
		Tout droit	0,26	0,72	21,5 (C)	31,3 (C)	0,26	0,79	21,5 (C)	38,5 (D)
	Est	Virage à gauche	0,78	0,58	62,8 (E)	44,7 (D)	0,78	0,56	62,8 (E)	43,2 (D)
		Tout droit	0,97	1,29	81,4 (F)	185,0 (F)	0,91	0,99	69,1 (E)	73,9 (E)
		Virage à droite	0,97	1,29	81,9 (F)	187,2 (F)	0,12	0,52	43,4 (D)	42,2 (D)
					45,4 (D)	136,3 (F)			42,7 (D)	92,5 (F)
Ste-Catherine/ de Lorimier (TRANSYT-7F)	Nord	Virage à gauche	0,89	1,54	44,4 (D)	>500 (F)		0,97		96,3 (F)
		Tout droit	0,96	0,56	32,5 (C)	13,4 (B)		0,48		8,8 (A)
	Ouest	Virage à gauche	0,27	0,41	23,2 (C)	21,3 (C)	N/A	0,57	N/A	28,2 (C)
		Tout droit	0,27	0,41	23,2 (C)	21,3 (C)		0,57		28,2 (C)
	Sud	Virage à droite	0,27	0,41	23,2 (C)	21,3 (C)		0,57		28,2 (C)
		Tout droit	0,35	0,97	15,4 (B)	43,8 (D)		0,97		43,8 (D)
		Virage à droite	0,35	0,97	15,4 (B)	43,8 (D)		0,97		43,8 (D)
					29,5 (C)	124,7 (F)				36,8 (D)

## 4.2 Protection des piétons

Afin de tenir compte de l'accroissement de l'achalandage des piétons et des véhicules, des signaux pour piétons à décompte numérique devraient être installés aux principaux carrefours en bordure du site, principalement aux deux carrefours sur de Lorimier qui sont croisés par un grand nombre de véhicules.

## 5. CONCLUSION ET RECOMMANDATIONS

### 5.1 Conclusion

La version modifiée du plan d'aménagement du projet de développement Porte Sainte-Marie situé dans le quadrilatère René-Lévesque/de Lorimier/Sainte-Catherine/Parthenais prévoit l'aménagement de quelques 820 logis, dont plus de 240 pour personnes âgées, 85 000 pi.ca. de superficie de bureaux et plus de 137 000 pi.ca. de superficie commerciale. Le site est très bien desservi par le transport en commun et par le réseau routier artériel existants.

Le développement pourra générer environ 280 déplacements véhiculaires entrant et 250 sortant du site à l'heure de pointe du matin et environ 580 déplacements véhiculaires en pointe du soir tant entrant que sortant du site. Une nouvelle rue en forme de «T» est prévue reliant, dans l'axe nord-sud, la rue Sainte-Catherine au boulevard René-Lévesque et débouche sur la rue Parthenais.

Le projet de développement amène un impact sur la fluidité de la circulation aux carrefours René-Lévesque/de Lorimier et Sainte-Catherine/de Lorimier. Afin de minimiser les impacts sur la fluidité de la circulation, il y a lieu d'ajouter une voie de circulation sur le boulevard René-Lévesque à l'approche est de l'avenue de Lorimier, obtenant ainsi quatre voies de circulation. Les autres modifications concernent un ajustement des réglages des feux de circulation. Ces modifications permettent d'obtenir un retard et un niveau de service sensiblement comparables à la situation existante.

Le stationnement sur rue devrait être interdit aux entrées de la nouvelle rue en forme de T ainsi que de part et d'autre des accès aux stationnement pour faciliter les manœuvres d'entrée et de sortie. Le concept d'aménagement routier devra faire l'objet d'une révision lors de l'implantation de projet de modernisation de la rue Notre-Dame afin d'harmoniser les deux projets.

## 5.2 Recommandations

Nous recommandons les mesures suivantes :

- *Fluidité de la circulation*
  - Ajouter une voie de circulation sur René-Lévesque, à l'approche est de l'avenue de Lorimier afin de retrouver quatre voies de circulation plutôt que trois ;
  - Optimiser les réglages des feux de circulation aux abords du site.
  
- *Sécurité des piétons*
  - Ajouter des feux à décompte numérique aux carrefours contrôlés par des feux de circulation aux abords du site, et particulièrement aux carrefour René-Lévesque/de Lorimier et Sainte-Catherine/de Lorimier ;
  - Aménager de larges trottoirs confortables autour du site et le long de la nouvelle rue en forme de T.
  
- *Accessibilité aux stationnements et quais de livraison*
  - Interdire le stationnement sur la nouvelle rue en forme de T à l'approche des rues Sainte-Catherine et Parthenais et du boulevard René-Lévesque ainsi que de part et d'autre des accès aux stationnements et quais de livraison, sur une distance d'environ 50m.

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Chargé de projet

16 septembre 2003

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## ANNEXE - ANALYSE DE CAPACITÉ

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# *Situation actuelle*

ARRB Transport Research Ltd - SIDRA 5.20a

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 TRAFIX  
 TRAFIX Registered User No. M0213  
 Time and Date of Analysis 2:30 PM, Sep 16,2003

Ren,-L,vesque/Lorimier - AM - Actuel \* ACTAM1 \*

Intersection ID:

SIDRA US Highway Capacity Manual (1997) Version  
 Fixed-Time Signals, Cycle Time = 120

RUN INFORMATION

-----  
 \* Basic Parameters:  
 Intersection Type: Signalised - Fixed Time  
 Driving on the right-hand side of the road  
 SIDRA US Highway Capacity Manual (1997) Version  
 Input data specified in Metric units  
 Default Values File No. 30  
 Peak flow period (for performance): 15 minutes  
 Unit time (for volumes): 60 minutes (Total Flow Period)  
 Delay definition: Control delay  
                   Geometric delay included  
 Delay formula: Highway Capacity Manual  
 Level of Service based on: Delay (HCM)  
 Queue definition: Back of queue, 95th\_Percentile

\* No. of Main (Timing-Capacity) Iterations = 1  
 Comparison of last two iterations:  
 Difference in intersection degree of satn = 0.0 %  
 Difference in total vehicle capacity = 0.0 %  
 Largest difference in eff. green times = 0 secs  
 (max. value for stopping = 0 secs)

Ren,-L,vesque/Lorimier - AM - Actuel \* ACTAM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 120

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left		Through		Right		Flow Scale	Peak Flow Factor	
	LV	HV	LV	HV	LV	HV			
-----									
South:	South Approach								
1	7	0	0	0	0	0	1.00	0.90	
2	0	0	507	33	0	0	1.00	0.90	
-----									
East:	East Approach								
4	222	0	0	0	0	0	1.00	0.90	
5	0	0	659	41	0	0	1.00	0.90	
6	0	0	0	0	11	0	1.00	0.90	
-----									
North:	North Approach								
8	0	0	1347	53	0	0	1.00	0.90	
9	0	0	0	0	793	20	1.00	0.90	
-----									
West:	West Approach								
10	193	13	0	0	0	0	1.00	0.90	
12	0	0	0	0	207	20	1.00	0.90	
-----									
PEDESTRIANS	Flow (ped/hour)								
53	56							1.00	0.90
55	56							1.00	0.90
57	56							1.00	0.90
-----									

Based on unit time = 60 minutes.  
 Flow Scale and Peak Hour Factor effects included in flow values.

Ren,-L,vesque/Lorimier - AM - Actuel \* ACTAM1 \*



**Projet Porte Sainte-Marie**  
**Étude d'impact sur la circulation**

Intersection ID:  
 Fixed-Time Signals, Cycle Time = 120

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov No.	Mov Typ	P H A S E				M A T R I X				Lost Tim		Req.Mov.Time		Eff. Grn	
		First Green				Second Green				1st	2nd	1st	2nd	1st	2nd
		Fr	To	Op	Pr	Fr	To	Op	Pr	Grn	Grn	Grn	Grn	Grn	Grn
South: South Approach															
1	L	C	A	L						46		63.0Min		17	
2	T	C	A							5		63.0Min		58	
East: East Approach															
4	L	A	B							5		35.0Min		30	
5	T	*A	B							5		35.0Min		30	
6	R	A	B							5		35.0Min		30	
North: North Approach															
8	T	*C	A							5		63.0Min		58	
9	R	B	A							5		85.0Min		80	
West: West Approach															
10	L	B	C							5		22.0Min		17	
12	R	*B	C							5		22.0Min		17	
Pedestrians															
53	(Ped)	B	A							10		85.0Min		75	
55	(Ped)	A	B							10		35.0Min		25	
57	(Ped)	C	A							21		63.0Min		42	
Current Phase Sequence No.: 1															
Input phase sequence: A B C															
Output phase sequence: A B C															

Movement Types: Under heading 'Op':  
 Ped Pedestrian L "Left" turns are opposed  
 Dum Dummy R "Right" turns are opposed  
 Und Undetected in both green periods LR "Left and Right" opposed  
 Un1 Undetected in 1st green period C "Constant" saturation flow  
 Un2 Undetected in 2nd green period

Ren, -L, vesque/Lorimier - AM - Actuel \* ACTAM1 \*

Intersection ID:  
 Fixed-Time Signals, Cycle Time = 120

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh/h)	Satn Flow		Flow Ratio		Total Cap. (veh/h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
		1st Grn	2nd Grn	1st Grn	2nd Grn					
South: South Approach										
1	L	7	202		0.035	29	0.90	268	100	0.245
2	T	540	4559		0.118	2204	0.90	267	100	0.245
East: East Approach										
4	L	222	1714		0.130	428	0.90	74	100	0.518
5	T	700	3414		0.205	853	0.90	10	100	0.820
6	R	11	54		0.204	14	0.90	10	100	0.815
North: North Approach										
8	T	1400	3514		0.398	1698	0.90	9	100	0.824*
9	R	813	1685		0.482	1123	0.90	24	100	0.724
West: West Approach										
10	L	206	3281		0.063	465	0.90	103	100	0.443
12	R	227	3226		0.070	457	0.90	81	100	0.497
Pedestrians										
53		56	20000		0.003	12500	0.90		100	0.004
55		56	20000		0.003	4167	0.90		100	0.013
57		56	20000		0.003	7000	0.90		100	0.008

Ren,-L,vesque/Lorimier - AM - Actuel \* ACTAM1 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.3 - INTERSECTION PARAMETERS

Mov No.	App. Turn	Green Period	Phases		Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
			Fr	To				
5	E_T		A	B	35	-	-	35.0Min
12	W_R		B	C	22	-	-	22.0Min
8	N_T		C	A	63	-	-	63.0Min
Total:					120	0.000	0.000	120.0

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:  
Minimum = 120    Maximum = 120    Practical = 120    Chosen = 120  
(Cycle time specified by the user)

Degree of saturation (highest) = 0.824  
 Practical Spare Capacity (lowest) = 9 %  
 Total vehicle flow (veh/h) = 4126  
 Total pedestrian flow (ped/h) = 168  
 Total vehicle capacity, all lanes (veh/h) = 7271  
 Average intersection delay (s) = 38.6  
 Largest average movement delay (s) = 63.4  
 Total vehicle delay (veh-h/h) = 44.92  
 Total pedestrian delay (ped-h/h) = 1.11  
 Largest back of queue, 95% (m) = 225  
 Performance Index = 283.80  
 Total fuel (L/h) = 482.0  
 Total cost (\$/h) = 3124.47  
 Intersection Level of Service = D  
 Worst movement Level of Service = E

Ren,-L,vesque/Lorimier - AM - Actuel \* ACTAM1 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	5	30	35	0.292
B	35	40	17	22	0.183
C	57	62	58	63	0.525

Current Phase Sequence No.: 1  
 Input phase sequence: A B C  
 Output phase sequence: A B C

Ren,-L,vesque/Lorimier - AM - Actuel \* ACTAM1 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 95% Back (vehs)	Perf. Index	Aver. Speed (km/h)
South: South Approach							

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1 L	0.06	29.1	0.75	0.76	7.3	46	0.42	34.5
2 T	3.20	21.3	0.65	0.55	8.6	55	28.47	39.4
-----								
East: East Approach								
4 L	3.15	51.1	0.91	0.82	12.8	77	16.01	30.5
5 T	11.36	58.4	1.00	0.96	21.9	139	56.13	28.7
6 R	0.18	58.5	1.00	0.96	21.9	139	0.89	27.3
-----								
North: North Approach								
8 T	13.83	35.6	0.92	0.88	36.2	225	96.28	34.5
9 R	5.64	25.0	0.70	0.84	30.1	185	45.98	38.1
-----								
West: West Approach								
10 L	3.50	61.1	0.96	0.79	7.3	47	15.95	28.4
12 R	4.00	63.4	0.97	0.79	8.0	52	17.79	27.9
-----								
Pedestrians								
53	0.13	8.4	0.37	0.38	0.7	1	1.65	3.7
55	0.58	37.6	0.79	0.79	1.5	1	2.23	2.8
57	0.39	25.4	0.65	0.65	1.2	1	2.00	3.1
-----								

Ren, -L, vesque/Lorimier - AM - Actuel

\* ACTAM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 120

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
-----						
South: South Approach						
547	3.26	21.4	0.656	0.55	28.89	39.3
-----						
East: East Approach						
933	14.69	56.7	0.980	0.93	73.03	29.1
-----						
North: North Approach						
2213	19.48	31.7	0.845	0.87	142.26	35.7
-----						
West: West Approach						
433	7.49	62.3	0.966	0.79	33.74	28.2
-----						
Pedestrians						
168	1.11	23.8	0.606	0.61	5.88	3.2
-----						
ALL VEHICLES:						
4126	44.92	39.2	0.863	0.83	277.92	33.5
-----						
INTERSECTION:						
4294	46.03	38.6	0.853	0.82	283.80	32.3
-----						

Ren, -L, vesque/Lorimier - AM - Actuel

\* ACTAM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 120

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec)				Arv Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue	
		R1	G1	R2	G2						95% Back (vehs)	Shrt Lane (m)
-----												
South: South Approach												
1 LT	1, 2	78	42	0	0	137	559	0.245	29.1	0.63	7.3	46
2 T	2	62	58	0	0	205	837	0.245	18.9	0.53	8.6	55
3 T	2	62	58	0	0	205	837	0.245	18.9	0.53	8.6	55
-----												
East: East Approach												
1 L	4	90	30	0	0	222	429	0.518	51.1	0.82	12.8	77
2 T	5	90	30	0	0	356	433	0.820	58.3	0.96	21.9	139

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

3 TR 5, 90 30 0 0 355 433 0.820 58.5 0.96 21.9 139  
6

North: North Approach

1 T 8 62 58 0 0 700 849 0.824 35.6 0.88 36.2 225  
2 T 8 62 58 0 0 700 849 0.824 35.6 0.88 36.2 225  
3 R 9 40 80 0 0 813 1123 0.724 25.0 0.84 30.1 185

West: West Approach

1 L 10 103 17 0 0 103 232 0.443 61.1 0.79 7.3 47  
2 L 10 103 17 0 0 103 232 0.443 61.1 0.79 7.3 47  
3 R 12 103 17 0 0 114 228 0.497 63.4 0.79 8.0 52  
4 R 12 103 17 0 0 114 228 0.497 63.4 0.79 8.0 52

Ren, -L, vesque/Lorimier - AM - Actuel

\* ACTAM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 120

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov No.	Arv Flow (veh/h)			Lane Width (m)	Saturation Flow			End Cap (veh/h)	Tot Cap (veh/h)	Deg. Satn x	Lane Util %		
		Lef	Thru	Rig Tot		Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)						
South: South Approach														
1	LT	1, 2	7	130	0	137	3.30	1800	1597	0	32	559	0.245	100
2	T	2	0	205	0	205	3.30	1800	1731	0	0	837	0.245	100
3	T	2	0	205	0	205	3.30	1800	1731	0	0	837	0.245	100
East: East Approach														
1	L	4	222	0	0	222	3.30	1800	1714	0	0	429	0.518	100
2	T	5	0	356	0	356	3.30	1800	1734	0	0	433	0.820	100
3	TR	5, 6	0	344	11	355	3.30	1800	1733	0	0	433	0.820	100
North: North Approach														
1	T	8	0	700	0	700	3.30	1800	1757	0	0	849	0.824	100
2	T	8	0	700	0	700	3.30	1800	1757	0	0	849	0.824	100
3	R	9	0	0	813	813	3.30	1800	1685	0	0	1123	0.724	100
West: West Approach														
1	L	10	103	0	0	103	3.30	1800	1640	0	0	232	0.443	100
2	L	10	103	0	0	103	3.30	1800	1640	0	0	232	0.443	100
3	R	12	0	0	114	114	3.30	1800	1613	0	0	228	0.497	100
4	R	12	0	0	114	114	3.30	1800	1613	0	0	228	0.497	100

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Ren, -L, vesque/Lorimier - AM - Actuel

\* ACTAM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 120

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total \$/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
South: South Approach							
1 L	0.8	5.17	0.003	0.08	0.003	2.0	0.00006
2 T	57.2	342.77	0.193	5.79	0.221	142.3	0.00458
	58.0	347.95	0.196	5.87	0.224	144.3	0.00464
East: East Approach							
4 L	26.8	182.48	0.096	2.54	0.097	66.9	0.00214
5 T	88.7	587.59	0.324	9.73	0.347	220.8	0.00710
6 R	1.4	10.03	0.005	0.13	0.005	3.5	0.00011

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

	116.9	780.10	0.424	12.41	0.448	291.2	0.00935
North: North Approach							
8 T	160.3	992.21	0.562	17.52	0.635	399.5	0.01282
9 R	90.5	554.56	0.307	9.33	0.353	225.8	0.00724
	250.8	1546.77	0.870	26.84	0.987	625.3	0.02006
West: West Approach							
10 L	26.5	181.82	0.095	2.65	0.100	66.0	0.00212
12 R	29.8	204.10	0.108	3.06	0.114	74.1	0.00239
	56.4	385.93	0.203	5.71	0.214	140.0	0.00451
Pedestrians							
53		18.38					
55		23.82					
57		21.53					
		63.73					
ALL VEHICLES:	482.0	3060.74	1.693	50.83	1.874	1198.3	0.03856
INTERSECTION:	482.0	3124.47	1.693	50.83	1.874	1198.3	0.03856

Ren, -L, vesque/Lorimier - AM - Actuel

\* ACTAM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 120

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	95% Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: South Approach												
1 LT	7	130	0	137	6	1800	42		0.245	29.1	46	
2 T	0	205	0	205	6	1800	58		0.245	18.9	55	
3 T	0	205	0	205	6	1800	58		0.245	18.9	55	
	7	540	0	547	6				0.245	21.4	55	
East: East Approach												
1 L	222	0	0	222	0	1800	30		0.518	51.1	77	
2 T	0	356	0	356	6	1800	30		0.820	58.3	139	
3 TR	0	344	11	355	6	1800	30		0.820	58.5	139	
	222	700	11	933	4				0.820	56.7	139	
North: North Approach												
1 T	0	700	0	700	4	1800	58		0.824	35.6	225	
2 T	0	700	0	700	4	1800	58		0.824	35.6	225	
3 R	0	0	813	813	2	1800	80		0.724	25.0	185	
	0	1400	813	2213	3				0.824	31.7	225	
West: West Approach												
1 L	103	0	0	103	6	1800	17		0.443	61.1	47	
2 L	103	0	0	103	6	1800	17		0.443	61.1	47	
3 R	0	0	114	114	9	1800	17		0.497	63.4	52	
4 R	0	0	114	114	9	1800	17		0.497	63.4	52	
	206	0	227	433	8				0.497	62.3	52	
Pedestrians												
Across E approach				56			75		0.004	8.4	0.7	
Across N approach				56			25		0.013	37.6	1.5	
Across W approach				56			42		0.008	25.4	1.2	
=====												
ALL VEHICLES				Tot	%		Cycle		Max	Aver.	Max	
				Arv.	HV		Time		X	Delay	Queue	
				4126	4		120		0.824	38.6	225	
=====												

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Values printed in this table are back of queue.

Ren, -L, vesque/Lorimier - AM - Actuel

\* ACTAM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 120

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Time Ratio (g/C)		Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
		1st grn	2nd grn					
South: South Approach								
1	L	0.142		7	29	0.245	29.1	C
2	T	0.483		540	2204	0.245	21.3	C
				547	2232	0.245	21.4	C
East: East Approach								
4	L	0.250		222	428	0.518	51.1	D
5	T	0.250*		700	853	0.820	58.4	E
6	R	0.250		11	14	0.815	58.5	E
				933	1296	0.820	56.7	E
North: North Approach								
8	T	0.483*		1400	1698	0.824*	35.6	D
9	R	0.667		813	1123	0.724	25.0	C
				2213	2822	0.824	31.7	C
West: West Approach								
10	L	0.142		206	465	0.443	61.1	E
12	R	0.142*		227	457	0.497	63.4	E
				433	922	0.497	62.3	E
Pedestrians								
53	(Ped)	0.625		56	12500	0.004	8.4	A
55	(Ped)	0.208		56	4167	0.013	37.6	D
57	(Ped)	0.350		56	7000	0.008	25.4	C
				168	23667	0.013	23.8	C
ALL VEHICLES:				4126	7271	0.824	39.2	D
INTERSECTION:				4294	7271	0.824	38.6	D

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help. Intersection capacity is calculated considering vehicle movements only.

\* Maximum v/c ratio, or critical green periods

Ren, -L, vesque/Lorimier - AM - Actuel

\* ACTAM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 120

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings				
						1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax	
South: South Approach										
1	FT	No	3	1.000	1.000	58	NA			
2	FT	No	3	1.000	1.000	58	NA			

-----							
East:	East Approach						
4	FT	No	3	1.000	1.000	30	NA
5	FT	No	3	1.000	1.000	30	NA
6	FT	No	3	1.000	1.000	30	NA
-----							
North:	North Approach						
8	FT	No	3	1.000	1.000	58	NA
9	FT	No	3	1.000	1.000	80	NA
-----							
West:	West Approach						
10	FT	No	3	1.000	1.000	17	NA
12	FT	No	3	1.000	1.000	17	NA
-----							
Pedestrians							
53	FT	No	3	1.000	1.000		
55	FT	No	3	1.000	1.000		
57	FT	No	3	1.000	1.000		
-----							

--- End of SIDRA Output ---

ARRB Transport Research Ltd - SIDRA 5.20a

-----  
 TRAFIX Consultants  
 TRAFIX Consultants Registered User No. M0213  
 Time and Date of Analysis 12:47 PM, Feb 11,2003

Ren,-L,vesque/Parthenais - AM - Actuel \* ACTAM2 \*

Intersection ID:

SIDRA US Highway Capacity Manual (1997) Version  
 Fixed-Time Signals, Cycle Time = 70

RUN INFORMATION

-----  
 \* Basic Parameters:  
 Intersection Type: Signalised - Fixed Time  
 Driving on the right-hand side of the road  
 SIDRA US Highway Capacity Manual (1997) Version  
 Input data specified in Metric units  
 Default Values File No. 30  
 Peak flow period (for performance): 15 minutes  
 Unit time (for volumes): 60 minutes (Total Flow Period)  
 Delay definition: Control delay  
                   Geometric delay included  
 Delay formula: Highway Capacity Manual  
 Level of Service based on: Delay (HCM)  
 Queue definition: Back of queue, 90th\_Percentile

\* No. of Main (Timing-Capacity) Iterations = 1  
 Comparison of last two iterations:  
 Difference in intersection degree of satn = 0.0 %  
 Difference in total vehicle capacity = 0.0 %  
 Largest difference in eff. green times = 0 secs  
 (max. value for stopping = 0 secs)

Ren,-L,vesque/Parthenais - AM - Actuel \* ACTAM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left		Through		Right		Flow Scale	Peak Flow Factor	
	LV	HV	LV	HV	LV	HV			
-----									
South:	South Approach								
1	4	0	0	0	0	0	1.00	0.90	
2	0	0	1	0	0	0	1.00	0.90	
-----									
East:	East Approach								
5	0	0	449	44	0	0	1.00	0.90	
6	0	0	0	0	4	0	1.00	0.90	
-----									
North:	North Approach								
9	0	0	0	0	431	18	1.00	0.90	
-----									
PEDESTRIANS	Flow (ped/hour)								
51							56	1.00	0.90
53							56	1.00	0.90
55							56	1.00	0.90

-----  
 Based on unit time = 60 minutes.  
 Flow Scale and Peak Hour Factor effects included in flow values.

Ren,-L,vesque/Parthenais - AM - Actuel \* ACTAM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS



Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

Mov No.	Mov Typ	P H A S E				M A T R I X				Lost Tim		Req.Mov.Time		Eff. Grn	
		First Green		Second Green		1st Grn	2nd Grn	1st Grn	2nd Grn	1st Grn	2nd Grn				
		Fr	To Op Pr	Fr	To Op Pr										
South: South Approach															
1	L	B	A			5		25.0Min		30					
2	T	B	A			5		25.0Min		30					
East: East Approach															
5	T	A	B			5		35.0Min		30					
6	R	*A	B			5		35.0Min		30					
North: North Approach															
9	R	*B	A			5		25.9		30					
Pedestrians															
51	(Ped)	A	B			6		35.0Min		29					
53	(Ped)	B	A			10		25.0Min		25					
55	(Ped)	A	B			7		35.0Min		28					
Current Phase Sequence No.: 1															
Input phase sequence: A B															
Output phase sequence: A B															

Movement Types: Under heading 'Op':  
 Ped Pedestrian L "Left" turns are opposed  
 Dum Dummy R "Right" turns are opposed  
 Und Undetected in both green periods LR "Left and Right" opposed  
 Un1 Undetected in 1st green period C "Constant" saturation flow  
 Un2 Undetected in 2nd green period

Ren, -L, vesque/Parthenais - AM - Actuel \* ACTAM2 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh/h)	Satn Flow		Flow Ratio		Total Cap. (veh/h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
		1st Grn	2nd Grn	1st Grn	2nd Grn					
South: South Approach										
1	L	4	1385		0.003	594	0.90	****	100	0.007
2	T	1	346		0.003	148	0.90	****	100	0.007
East: East Approach										
5	T	493	5063		0.097	2170	0.90	296	100	0.227
6	R	4	41		0.098	18	0.90	295	100	0.228
North: North Approach										
9	R	449	1667		0.269	714	0.90	43	100	0.628*
Pedestrians										
51		56	20000		0.003	8286	0.90		100	0.007
53		56	20000		0.003	7143	0.90		100	0.008
55		56	20000		0.003	8000	0.90		100	0.007

Ren, -L, vesque/Parthenais - AM - Actuel \* ACTAM2 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.3 - INTERSECTION PARAMETERS

Mov No.	App. & Turn	Green Period	Phases		Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
			Fr	To				
6	E_R		A	B	35	-	-	35.0Min
9	N_R		B	A	5	0.269	0.299	25.9

Total: 40 0.269 0.299 60.9

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
60	70	60	70

(Cycle time specified by the user)

Degree of saturation (highest)	=	0.628
Practical Spare Capacity (lowest)	=	43 %
Total vehicle flow (veh/h)	=	951
Total pedestrian flow (ped/h)	=	168
Total vehicle capacity, all lanes (veh/h)	=	3644
Average intersection delay (s)	=	19.6
Largest average movement delay (s)	=	27.1
Total vehicle delay (veh-h/h)	=	5.48
Total pedestrian delay (ped-h/h)	=	0.61
Largest back of queue, 90% (m)	=	75
Performance Index	=	49.06
Total fuel (L/h)	=	95.3
Total cost (\$/h)	=	652.42
Intersection Level of Service	=	B
Worst movement Level of Service	=	C

Ren, -L, vesque/Parthenais - AM - Actuel

\* ACTAM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	5	30	35	0.500
B	35	40	30	35	0.500

Current Phase Sequence No.: 1  
Input phase sequence: A B  
Output phase sequence: A B

Ren, -L, vesque/Parthenais - AM - Actuel

\* ACTAM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 90% Back (vehs)	Perf. Index	Aver. Speed (km/h)
South: South Approach							
1 L	0.02	18.4	0.58	0.68	0.1	1	0.17
2 T	0.01	18.4	0.58	0.46	0.1	1	0.04
East: East Approach							
5 T	2.06	15.0	0.66	0.60	4.0	26	20.75
6 R	0.02	15.1	0.66	0.76	4.0	26	0.17
North: North Approach							
9 R	3.38	27.1	0.83	0.83	12.0	75	22.55
Pedestrians							
51	0.19	12.0	0.58	0.59	0.6	1	1.77
53	0.22	14.5	0.64	0.64	0.7	1	1.83
55	0.20	12.6	0.60	0.60	0.7	1	1.78

Ren, -L, vesque/Parthenais - AM - Actuel

\* ACTAM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
South: South Approach						
5	0.03	18.4	0.589	0.64	0.21	40.0
East: East Approach						
497	2.08	15.0	0.669	0.61	20.92	41.5
North: North Approach						
449	3.38	27.1	0.837	0.83	22.55	36.7
Pedestrians						
168	0.61	13.0	0.610	0.61	5.38	3.5
ALL VEHICLES:						
951	5.48	20.8	0.748	0.71	43.68	39.1
INTERSECTION:						
1119	6.09	19.6	0.727	0.70	49.06	33.5

Ren, -L, vesque/Parthenais - AM - Actuel

\* ACTAM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec)				Arv Flow (veh/h)			Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Q u e u e		Shrt Lane (m)
		R1	G1	R2	G2	(veh/h)	(veh/h)	(veh)				90% Back (m)		
South: South Approach														
1 LT	1, 2	40	30	0	0	5	742	0.007	18.4	0.64	0.1	1		
East: East Approach														
1 T	5	40	30	0	0	166	729	0.227	15.0	0.60	4.0	26		
2 T	5	40	30	0	0	166	729	0.227	15.0	0.60	4.0	26		
3 TR	5, 6	40	30	0	0	166	729	0.227	15.1	0.61	4.0	26		
North: North Approach														
1 R	9	40	30	0	0	449	714	0.629	27.1	0.83	12.0	75		

Ren, -L, vesque/Parthenais - AM - Actuel

\* ACTAM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov No.	Arv Flow (veh/h)			Lane Width (m)	Saturation Flow (veh/h)			End Cap (veh/h)	Tot Cap (veh/h)	Deg. Satn x	Lane Util %	
		Lef	Thru	Rig		Basic (tcu)	1st (veh)	2nd (veh)					
South: South Approach													
1 LT	1, 2	4	1	0	5	3.30	1800	1731	0	0	742	0.007	100
East: East Approach													
1 T	5	0	166	0	166	3.30	1800	1701	0	0	729	0.227	100
2 T	5	0	166	0	166	3.30	1800	1701	0	0	729	0.227	100
3 TR	5, 6	0	162	4	166	3.30	1800	1702	0	0	729	0.227	100

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North: North Approach  
1 R 9 0 0 449 449 3.30 1800 1667 0 0 714 0.629 100

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Ren,-L,vesque/Parthenais - AM - Actuel

\* ACTAM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total \$/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
South: South Approach							
1 L	0.4	2.54	0.001	0.04	0.001	1.0	0.00003
2 T	0.1	0.57	0.000	0.01	0.000	0.2	0.00001
	0.5	3.11	0.002	0.04	0.002	1.2	0.00004
East: East Approach							
5 T	47.6	288.13	0.158	4.45	0.175	118.1	0.00381
6 R	0.4	2.54	0.001	0.04	0.001	1.0	0.00003
	48.0	290.66	0.160	4.48	0.177	119.1	0.00384
North: North Approach							
9 R	46.8	300.95	0.159	4.28	0.170	116.7	0.00375
	46.8	300.95	0.159	4.28	0.170	116.7	0.00375
Pedestrians							
51		19.04					
53		19.50					
55		19.15					
		57.69					
ALL VEHICLES:	95.3	594.73	0.321	8.81	0.348	236.1	0.00762
INTERSECTION:	95.3	652.42	0.321	8.81	0.348	236.1	0.00762

Ren,-L,vesque/Parthenais - AM - Actuel

\* ACTAM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	90% Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: South Approach												
1 LT	4	1	0	5	0	1800	30		0.007	18.4	1	
	4	1	0	5	0				0.007	18.4	1	
East: East Approach												
1 T	0	166	0	166	9	1800	30		0.227	15.0	26	
2 T	0	166	0	166	9	1800	30		0.227	15.0	26	
3 TR	0	162	4	166	9	1800	30		0.227	15.1	26	
	0	493	4	497	9				0.227	15.0	26	
North: North Approach												
1 R	0	0	449	449	4	1800	30		0.629	27.1	75	
	0	0	449	449	4				0.629	27.1	75	

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Pedestrians						
Across S approach	56		29	0.007	12.0	0.6
Across E approach	56		25	0.008	14.5	0.7
Across N approach	56		28	0.007	12.6	0.7
=====						
ALL VEHICLES	Tot	%	Cycle	Max	Aver.	Max
	Arv.	HV	Time	X	Delay	Queue
	951	7	70	0.628	19.6	75
=====						

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Values printed in this table are back of queue.

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Ratio (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
		1st grn	2nd grn				
-----							
South: South Approach							
1	L	0.429	4	594	0.007	18.4	B
2	T	0.429	1	148	0.007	18.4	B
			5	742	0.007	18.4	B
-----							
East: East Approach							
5	T	0.429	493	2170	0.227	15.0	B
6	R	0.429*	4	18	0.228	15.1	B
			497	2187	0.228	15.0	B
-----							
North: North Approach							
9	R	0.429*	449	714	0.628*	27.1	C
			449	714	0.628	27.1	C
-----							
Pedestrians							
51	(Ped)	0.414	56	8286	0.007	12.0	B
53	(Ped)	0.357	56	7143	0.008	14.5	B
55	(Ped)	0.400	56	8000	0.007	12.6	B
			168	23429	0.008	13.0	B
-----							
ALL VEHICLES:			951	3644	0.628	20.8	C
-----							
INTERSECTION:			1119	3644	0.628	19.6	B
-----							

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help. Intersection capacity is calculated considering vehicle movements only.

\* Maximum v/c ratio, or critical green periods

Ren, -L, vesque/Parthenais - AM - Actuel \* ACTAM2 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. 1st Grn Gmin	Grn. 2nd Grn Gmax	Settings Gmin Gmax
-----								

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---

South:	South Approach						
1	FT	No	3	1.000	1.000	20	NA
2	FT	No	3	1.000	1.000	20	NA
-----							
East:	East Approach						
5	FT	No	3	1.000	1.000	30	NA
6	FT	No	3	1.000	1.000	30	NA
-----							
North:	North Approach						
9	FT	No	3	1.000	1.000	20	NA
-----							
Pedestrians							
51	FT	No	3	1.000	1.000		
53	FT	No	3	1.000	1.000		
55	FT	No	3	1.000	1.000		
-----							

--- End of SIDRA Output ---

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-----  
 TRAFIX  
 TRAFIX Registered User No. M0213  
 Time and Date of Analysis 2:33 PM, Sep 16,2003  
 -----

Ren, -L, vesque/Lorimier - PM - Actuel \* ACTPM1 \*

Intersection ID:

SIDRA US Highway Capacity Manual (1997) Version  
 Fixed-Time Signals, Cycle Time = 100

RUN INFORMATION

-----  
 \* Basic Parameters:  
 Intersection Type: Signalised - Fixed Time  
 Driving on the right-hand side of the road  
 SIDRA US Highway Capacity Manual (1997) Version  
 Input data specified in Metric units  
 Default Values File No. 30  
 Peak flow period (for performance): 15 minutes  
 Unit time (for volumes): 60 minutes (Total Flow Period)  
 Delay definition: Control delay  
                     Geometric delay included  
 Delay formula: Highway Capacity Manual  
 Level of Service based on: Delay (HCM)  
 Queue definition: Back of queue, 95th\_Percentile

\* No. of Main (Timing-Capacity) Iterations = 1  
 Comparison of last two iterations:  
 Difference in intersection degree of satn = 0.0 %  
 Difference in total vehicle capacity = 0.0 %  
 Largest difference in eff. green times = 0 secs  
 (max. value for stopping = 0 secs)

Ren, -L, vesque/Lorimier - PM - Actuel \* ACTPM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 100

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left		Through		Right		Flow Scale	Peak Flow Factor	
	LV	HV	LV	HV	LV	HV			
-----									
South:	South Approach								
1	119	0	0	0	0	0	1.00	0.90	
2	0	0	867	22	0	0	1.00	0.90	
-----									
East:	East Approach								
4	119	0	0	0	0	0	1.00	0.90	
5	0	0	800	30	0	0	1.00	0.90	
6	0	0	0	0	52	0	1.00	0.90	
-----									
North:	North Approach								
8	0	0	822	61	0	0	1.00	0.90	
9	0	0	0	0	324	0	1.00	0.90	
-----									
West:	West Approach								
10	859	30	0	0	0	0	1.00	0.90	
12	0	0	0	0	200	37	1.00	0.90	
-----									
PEDESTRIANS	Flow (ped/hour)								
53							56	1.00	0.90
55							56	1.00	0.90
57							56	1.00	0.90
-----									

Based on unit time = 60 minutes.  
 Flow Scale and Peak Hour Factor effects included in flow values.

Ren, -L, vesque/Lorimier - PM - Actuel \* ACTPM1 \*

Intersection ID:

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

Fixed-Time Signals, Cycle Time = 100

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov No.	Mov Typ	P H A S E				M A T R I X				Lost Tim		Req.Mov.Time		Eff. Grn	
		First Green		Second Green		1st		2nd		1st	2nd	1st	2nd		
		Fr	To	Op	Pr	Fr	To	Op	Pr	Grn	Grn	Grn	Grn	Grn	Grn
South: South Approach															
1	L	C	A	L						25		45.0Min		20	
2	T	C	A							5		45.0Min		40	
East: East Approach															
4	L		A	B						5		32.0Min		27	
5	T		A	B						5		32.9		27	
6	R	*	A	B						5		32.9		27	
North: North Approach															
8	T		*C	A						5		45.0Min		40	
9	R		B	A						5		68.0Min		63	
West: West Approach															
10	L		*B	C						5		34.5		18	
12	R		B	C						5		23.0Min		18	
Pedestrians															
53	(Ped)	B	A							10		68.0Min		58	
55	(Ped)	A	B							18		32.0Min		14	
57	(Ped)	C	A							21		45.0Min		24	
Current Phase Sequence No.: 1															
Input phase sequence: A B C															
Output phase sequence: A B C															

Movement Types:	Under heading 'Op':
Ped Pedestrian	L "Left" turns are opposed
Dum Dummy	R "Right" turns are opposed
Und Undetected in both green periods	LR "Left and Right" opposed
Un1 Undetected in 1st green period	C "Constant" saturation flow
Un2 Undetected in 2nd green period	

Ren, -L, vesque/Lorimier - PM - Actuel \* ACTPM1 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh /h)	Satn Flow		Flow Ratio		Total Cap. (veh /h)	Prac. Deg. xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
		1st Grn	2nd Grn	1st Grn	2nd Grn					
South: South Approach										
1	L	119	731	0.163		146	0.90	11	100	0.814
2	T	889	3543	0.251		1417	0.90	43	77	0.627
East: East Approach										
4	L	119	1714	0.069		463	0.90	250	100	0.257
5	T	830	3305	0.251		892	0.90	-3	100	0.930
6	R	52	207	0.251		56	0.90	-3	100	0.930
North: North Approach										
8	T	883	3445	0.256		1378	0.90	40	100	0.641
9	R	324	1714	0.189		1080	0.90	200	100	0.300
West: West Approach										
10	L	889	3348	0.266		603	0.90	-39	100	1.475*
12	R	237	3085	0.077		555	0.90	111	100	0.427
Pedestrians										
53		56	20000	0.003		11600	0.90		100	0.005
55		56	20000	0.003		2800	0.90		100	0.020
57		56	20000	0.003		4800	0.90		100	0.012



Ren, -L, vesque/Lorimier - PM - Actuel \* ACTPM1 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.3 - INTERSECTION PARAMETERS

Crit Mov No.	App. & Turn	Green Period	Phases Fr To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
6	E_R		A B	5	0.251	0.279	32.9
10	W_L		B C	5	0.266	0.295	34.5
8	N_T		C A	45	-	-	45.0Min
Total:				55	0.517	0.574	112.4

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:  
Minimum = 100  
Maximum = 100  
Practical = 100  
Chosen = 100  
(Cycle time specified by the user)

Degree of saturation (highest) = 1.475  
Practical Spare Capacity (lowest) = -39 %  
Total vehicle flow (veh/h) = 4342  
Total pedestrian flow (ped/h) = 168  
Total vehicle capacity, all lanes (veh/h) = 6590  
Average intersection delay (s) = 86.6  
Largest average movement delay (s) = 279.8  
Total vehicle delay (veh-h/h) = 107.39  
Total pedestrian delay (ped-h/h) = 1.16  
Largest back of queue, 95% (m) = 331  
Performance Index = 394.20  
Total fuel (L/h) = 609.9  
Total cost (\$/h) = 4553.52  
Intersection Level of Service = F  
Worst movement Level of Service = F

Ren, -L, vesque/Lorimier - PM - Actuel \* ACTPM1 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	5	27	32	0.320
B	32	37	18	23	0.230
C	55	60	40	45	0.450

(Phase change times specified by the user)  
Current Phase Sequence No.: 1  
Input phase sequence: A B C  
Output phase sequence: A B C

Ren, -L, vesque/Lorimier - PM - Actuel \* ACTPM1 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 95% Back (vehs)	Perf. Index	Aver. Speed (km/h)
---------	-----------------------	-------------------	--------------	----------------	-------------------------------	-------------	--------------------

South: South Approach

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1 L	2.74	82.8	1.00	0.98	8.4	50	10.15	24.6
2 T	6.96	28.2	0.85	0.75	18.3	113	51.48	36.8
-----								
East: East Approach								
4 L	1.25	37.9	0.82	0.78	6.1	37	7.22	33.9
5 T	14.56	63.1	1.00	1.12	26.5	164	68.21	27.8
6 R	0.92	63.7	1.00	1.12	26.4	163	4.30	26.5
-----								
North: North Approach								
8 T	7.05	28.7	0.86	0.76	18.4	118	51.47	36.6
9 R	1.54	17.1	0.48	0.75	8.8	53	14.43	41.2
-----								
West: West Approach								
10 L	69.09	279.8	1.00	1.90	53.4	331	164.87	11.1
12 R	3.27	49.7	0.93	0.79	6.9	48	16.07	31.0
-----								
Pedestrians								
53	0.14	8.8	0.42	0.42	0.7	1	1.67	3.6
55	0.58	37.0	0.86	0.86	1.3	1	2.24	2.8
57	0.45	28.9	0.76	0.76	1.2	1	2.09	3.0
-----								

Ren, -L, vesque/Lorimier - PM - Actuel

\* ACTPM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 100

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
-----						
South: South Approach						
1008	9.70	34.6	0.875	0.78	61.63	34.8
-----						
East: East Approach						
1001	16.73	60.2	0.979	1.08	79.73	28.4
-----						
North: North Approach						
1207	8.59	25.6	0.764	0.76	65.91	37.8
-----						
West: West Approach						
1126	72.37	231.4	0.986	1.66	180.94	12.8
-----						
Pedestrians						
168	1.16	24.9	0.680	0.68	6.00	3.1
-----						
ALL VEHICLES:						
4342	107.39	89.0	0.897	1.07	388.21	23.6
-----						
INTERSECTION:						
4510	108.55	86.6	0.889	1.06	394.20	23.0
-----						

Ren, -L, vesque/Lorimier - PM - Actuel

\* ACTPM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 100

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec)				Arv Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue	
		R1	G1	R2	G2						95% Back (vehs)	Shrt Lane (m)
-----												
South: South Approach												
1 L	1	80	20	0	0	119	146	0.814	82.8	0.98	8.4	50
2 T	2	60	40	0	0	445	709	0.627	28.2	0.75	18.3	113
3 T	2	60	40	0	0	445	709	0.627	28.2	0.75	18.3	113
-----												
East: East Approach												
1 L	4	73	27	0	0	119	463	0.257	37.9	0.78	6.1	37
2 T	5	73	27	0	0	442	475	0.930	62.7	1.12	26.5	164
-----												

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

3 TR 5, 73 27 0 0 440 473 0.930 63.7 1.12 26.4 163  
6

North: North Approach

1 T 8 60 40 0 0 442 689 0.641 28.7 0.76 18.4 118  
2 T 8 60 40 0 0 442 689 0.641 28.7 0.76 18.4 118  
3 R 9 37 63 0 0 324 1080 0.300 17.1 0.75 8.8 53

West: West Approach

1 L 10 82 18 0 0 445 301 1.475 279.8 1.90 53.4 331  
2 L 10 82 18 0 0 445 301 1.475 279.8 1.90 53.4 331  
3 R 12 82 18 0 0 119 278 0.427 49.7 0.79 6.9 48  
4 R 12 82 18 0 0 119 278 0.427 49.7 0.79 6.9 48

Ren, -L, vesque/Lorimier - PM - Actuel

\* ACTPM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 100

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov No.	Arv Flow (veh/h)			Lane Width (m)	Saturation Flow			End Cap (/h)	Tot Cap (/h)	Deg. Satn x	Lane Util %
		Lef	Thru	Rig Tot		Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)				
South: South Approach												
1 L	1, 2	119	0	0 119	3.30	1800	731	0	79	146	0.814	100
2 T	2	0 445	0 445	0 445	3.30	1800	1772	0	0	709	0.627	77P
3 T	2	0 445	0 445	0 445	3.30	1800	1772	0	0	709	0.627	77P
East: East Approach												
1 L	4	119	0	0 119	3.30	1800	1714	0	0	463	0.257	100
2 T	5	0 442	0 442	0 442	3.30	1800	1759	0	0	475	0.930	100
3 TR	5, 6	0 388	52 440	52 440	3.30	1800	1753	0	0	473	0.930	100
North: North Approach												
1 T	8	0 442	0 442	0 442	3.30	1800	1723	0	0	689	0.641	100
2 T	8	0 442	0 442	0 442	3.30	1800	1723	0	0	689	0.641	100
3 R	9	0 0	324 324	324 324	3.30	1800	1714	0	0	1080	0.300	100
West: West Approach												
1 L	10	445	0	0 445	3.30	1800	1674	0	0	301	1.475	100
2 L	10	445	0	0 445	3.30	1800	1674	0	0	301	1.475	100
3 R	12	0	0 119	119 119	3.30	1800	1542	0	0	278	0.427	100
4 R	12	0	0 119	119 119	3.30	1800	1542	0	0	278	0.427	100

P Lane under-utilisation found by the "Program"

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Ren, -L, vesque/Lorimier - PM - Actuel

\* ACTPM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 100

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total \$/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
South: South Approach							
1 L	16.0	119.06	0.060	1.45	0.055	40.0	0.00128
2 T	96.9	590.62	0.334	10.22	0.378	241.7	0.00775
	112.9	709.68	0.394	11.66	0.432	281.8	0.00903
East: East Approach							
4 L	13.7	89.19	0.048	1.34	0.051	34.2	0.00110
5 T	107.4	723.11	0.396	11.67	0.413	267.6	0.00859

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

6 R	6.9	49.18	0.025	0.67	0.025	17.2	0.00055
	127.9	861.47	0.469	13.67	0.488	319.1	0.01024
North: North Approach							
8 T	98.8	592.71	0.340	10.92	0.399	245.6	0.00790
9 R	34.5	207.25	0.116	3.49	0.133	86.3	0.00276
	133.3	799.96	0.456	14.41	0.533	331.9	0.01066
West: West Approach							
10 L	204.9	1921.29	0.884	16.48	0.594	511.0	0.01640
12 R	30.8	196.78	0.108	3.46	0.128	76.1	0.00247
	235.8	2118.07	0.992	19.94	0.722	586.7	0.01886
Pedestrians							
53		18.45					
55		23.70					
57		22.19					
		64.34					
ALL VEHICLES:	609.9	4489.18	2.310	59.68	2.175	1516.4	0.04880
INTERSECTION:	609.9	4553.52	2.310	59.68	2.175	1516.4	0.04880

Ren, -L, vesque/Lorimier - PM - Actuel

\* ACTPM1 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 100

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	95% Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: South Approach												
1 L	119	0	0	119	0	1800	20	0.814	82.8	50		
2 T	0	445	0	445	2	1800	40	0.627	28.2	113		
3 T	0	445	0	445	2	1800	40	0.627	28.2	113		
	119	889	0	1008	2			0.814	34.6	113		
East: East Approach												
1 L	119	0	0	119	0	1800	27	0.257	37.9	37		
2 T	0	442	0	442	4	1800	27	0.930	62.7	164		
3 TR	0	388	52	440	3	1800	27	0.930	63.7	163		
	119	830	52	1001	3			0.930	60.2	164		
North: North Approach												
1 T	0	442	0	442	7	1800	40	0.641	28.7	118		
2 T	0	442	0	442	7	1800	40	0.641	28.7	118		
3 R	0	0	324	324	0	1800	63	0.300	17.1	53		
	0	883	324	1207	5			0.641	25.6	118		
West: West Approach												
1 L	445	0	0	445	3	1800	18	1.475	279.8	331		
2 L	445	0	0	445	3	1800	18	1.475	279.8	331		
3 R	0	0	119	119	16	1800	18	0.427	49.7	48		
4 R	0	0	119	119	16	1800	18	0.427	49.7	48		
	889	0	237	1126	6			1.475	231.4	331		
Pedestrians												
Across E approach				56			58	0.005	8.8	0.7		
Across N approach				56			14	0.020	37.0	1.3		
Across W approach				56			24	0.012	28.9	1.2		
=====												
ALL VEHICLES				Tot Arv.	% HV		Cycle Time	Max X	Aver. Delay	Max Queue		
				4342	4		100	1.475	86.6	331		
=====												
Total flow period = 60 minutes. Peak flow period = 15 minutes.												

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Values printed in this table are back of queue.

Ren,-L,vesque/Lorimier - PM - Actuel \* ACTPM1 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Time Ratio (g/C)		Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
		1st grn	2nd grn					
South: South Approach								
1	L	0.200		119	146	0.814	82.8	F
2	T	0.400		889	1417	0.627	28.2	C
				1008	1563	0.814	34.6	C
East: East Approach								
4	L	0.270		119	463	0.257	37.9	D
5	T	0.270		830	892	0.930	63.1	E
6	R	0.270*		52	56	0.930	63.7	E
				1001	1411	0.930	60.2	E
North: North Approach								
8	T	0.400*		883	1378	0.641	28.7	C
9	R	0.630		324	1080	0.300	17.1	B
				1207	2458	0.641	25.6	C
West: West Approach								
10	L	0.180*		889	603	1.475*	279.8	F
12	R	0.180		237	555	0.427	49.7	D
				1126	1158	1.475	231.4	F
Pedestrians								
53	(Ped)	0.580		56	11600	0.005	8.8	A
55	(Ped)	0.140		56	2800	0.020	37.0	D
57	(Ped)	0.240		56	4800	0.012	28.9	C
				168	19200	0.020	24.9	C
ALL VEHICLES:				4342	6590	1.475	89.0	F
INTERSECTION:				4510	6590	1.475	86.6	F

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help. Intersection capacity is calculated considering vehicle movements only.  
\* Maximum v/c ratio, or critical green periods

Ren,-L,vesque/Lorimier - PM - Actuel \* ACTPM1 \*

Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings	
						1st Grn Gmin	2nd Grn Gmax
South: South Approach							
1	FT	No	3	1.000	1.000	40	NA

Projet Porte Sainte-Marie  
 Étude d'impact sur la circulation

---

2	FT	No	3	1.000	1.000	40	NA
-----							
East:	East Approach						
4	FT	No	3	1.000	1.000	27	NA
5	FT	No	3	1.000	1.000	27	NA
6	FT	No	3	1.000	1.000	27	NA
-----							
North:	North Approach						
8	FT	No	3	1.000	1.000	40	NA
9	FT	No	3	1.000	1.000	63	NA
-----							
West:	West Approach						
10	FT	No	3	1.000	1.000	18	NA
12	FT	No	3	1.000	1.000	18	NA
-----							
Pedestrians							
53	FT	No	3	1.000	1.000		
55	FT	No	3	1.000	1.000		
57	FT	No	3	1.000	1.000		
-----							
--- End of SIDRA Output ---							

ARRB Transport Research Ltd - SIDRA 5.20a

-----  
 TRAFIX Consultants  
 TRAFIX Consultants Registered User No. M0213  
 Time and Date of Analysis 12:48 PM, Feb 11,2003

Ren,-L,vesque/Parthenais - PM - Actuel \* ACTPM2 \*

Intersection ID:

SIDRA US Highway Capacity Manual (1997) Version  
 Fixed-Time Signals, Cycle Time = 70

RUN INFORMATION

-----  
 \* Basic Parameters:  
 Intersection Type: Signalised - Fixed Time  
 Driving on the right-hand side of the road  
 SIDRA US Highway Capacity Manual (1997) Version  
 Input data specified in Metric units  
 Default Values File No. 30  
 Peak flow period (for performance): 15 minutes  
 Unit time (for volumes): 60 minutes (Total Flow Period)  
 Delay definition: Control delay  
                   Geometric delay included  
 Delay formula: Highway Capacity Manual  
 Level of Service based on: Delay (HCM)  
 Queue definition: Back of queue, 90th\_Percentile

\* No. of Main (Timing-Capacity) Iterations = 1  
 Comparison of last two iterations:  
 Difference in intersection degree of satn = 0.0 %  
 Difference in total vehicle capacity = 0.0 %  
 Largest difference in eff. green times = 0 secs  
 (max. value for stopping = 0 secs)

Ren,-L,vesque/Parthenais - PM - Actuel \* ACTPM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left		Through		Right		Flow Scale	Peak Flow Factor	
	LV	HV	LV	HV	LV	HV			
-----									
South:	South Approach								
1	53	7	0	0	0	0	1.00	0.90	
2	0	0	23	0	0	0	1.00	0.90	
-----									
East:	East Approach								
5	0	0	722	8	0	0	1.00	0.90	
6	0	0	0	0	23	0	1.00	0.90	
-----									
North:	North Approach								
9	0	0	0	0	180	0	1.00	0.90	
-----									
PEDESTRIANS	Flow (ped/hour)								
51							56	1.00	0.90
53							56	1.00	0.90
55							56	1.00	0.90
-----									

Based on unit time = 60 minutes.  
 Flow Scale and Peak Hour Factor effects included in flow values.

Ren,-L,vesque/Parthenais - PM - Actuel \* ACTPM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

**Projet Porte Sainte-Marie**  
**Étude d'impact sur la circulation**

Mov No.	Mov Typ	P H A S E				M A T R I X				Lost Tim		Req.Mov.Time		Eff. Grn	
		First Green		Second Green		1st Grn	2nd Grn	1st Grn	2nd Grn	1st Grn	2nd Grn				
		Fr	To Op Pr	Fr	To Op Pr										
South: South Approach															
1	L	B	A			5		25.0Min			26				
2	T	B	A			5		25.0Min			26				
East: East Approach															
5	T	*A	B			5		35.0Min			34				
6	R	A	B			5		35.0Min			34				
North: North Approach															
9	R	*B	A			5		25.0Min			26				
Pedestrians															
51	(Ped)	A	B			6		35.0Min			33				
53	(Ped)	B	A			10		25.0Min			21				
55	(Ped)	A	B			7		35.0Min			32				
Current Phase Sequence No.: 1															
Input phase sequence: A B															
Output phase sequence: A B															

Movement Types: Under heading 'Op':  
 Ped Pedestrian L "Left" turns are opposed  
 Dum Dummy R "Right" turns are opposed  
 Und Undetected in both green periods LR "Left and Right" opposed  
 Un1 Undetected in 1st green period C "Constant" saturation flow  
 Un2 Undetected in 2nd green period

Ren, -L, vesque/Parthenais - PM - Actuel \* ACTPM2 \*

Intersection ID:  
 Fixed-Time Signals, Cycle Time = 70

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh/h)	Satn Flow		Flow Ratio		Total Cap. (veh/h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
		1st Grn	2nd Grn	1st Grn	2nd Grn					
South: South Approach										
1	L	60	1184			440	0.90	560	100	0.136
2	T	23	454			169	0.90	560	100	0.136
East: East Approach										
5	T	730	5191			2521	0.90	211	100	0.290*
6	R	23	164			80	0.90	212	100	0.289
North: North Approach										
9	R	180	1714			637	0.90	218	100	0.283
Pedestrians										
51		56	20000			9429	0.90		100	0.006
53		56	20000			6000	0.90		100	0.009
55		56	20000			9143	0.90		100	0.006

Ren, -L, vesque/Parthenais - PM - Actuel \* ACTPM2 \*

Intersection ID:  
 Fixed-Time Signals, Cycle Time = 70

Table S.3 - INTERSECTION PARAMETERS

Mov No.	App. & Turn	Green Period	Phases		Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
			Fr	To				
5	E_T		A	B	35	-	-	35.0Min
9	N_R		B	A	25	-	-	25.0Min



Total: 60 0.000 0.000 60.0

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
60	120	60	70

Degree of saturation (highest)	=	0.290
Practical Spare Capacity (lowest)	=	211 %
Total vehicle flow (veh/h)	=	1016
Total pedestrian flow (ped/h)	=	168
Total vehicle capacity, all lanes (veh/h)	=	3846
Average intersection delay (s)	=	15.4
Largest average movement delay (s)	=	23.7
Total vehicle delay (veh-h/h)	=	4.47
Total pedestrian delay (ped-h/h)	=	0.58
Largest back of queue, 90% (m)	=	34
Performance Index	=	48.32
Total fuel (L/h)	=	97.4
Total cost (\$/h)	=	659.63
Intersection Level of Service	=	B
Worst movement Level of Service	=	C

Ren,-L,vesque/Parthenais - PM - Actuel

\* ACTPM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	5	34	39	0.557
B	39	44	26	31	0.443

Current Phase Sequence No.: 1

Input phase sequence: A B

Output phase sequence: A B

Ren,-L,vesque/Parthenais - PM - Actuel

\* ACTPM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 90% Back (vehs)	Perf. Index	Aver. Speed (km/h)
South: South Approach							
1 L	0.36	21.8	0.69	0.77	2.2	14	2.74
2 T	0.14	21.8	0.69	0.60	2.2	14	1.02
East: East Approach							
5 T	2.69	13.3	0.63	0.60	5.6	34	29.76
6 R	0.09	13.6	0.63	0.76	5.6	34	0.97
North: North Approach							
9 R	1.19	23.7	0.74	0.77	4.8	29	8.49
Pedestrians							
51	0.15	9.8	0.52	0.53	0.6	1	1.72
53	0.27	17.1	0.70	0.70	0.8	1	1.88
55	0.16	10.3	0.54	0.54	0.6	1	1.73

Ren,-L,vesque/Parthenais - PM - Actuel

\* ACTPM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
South: South Approach						
83	0.50	21.8	0.695	0.72	3.77	38.8
East: East Approach						
753	2.78	13.3	0.636	0.60	30.73	42.2
North: North Approach						
180	1.19	23.7	0.743	0.77	8.49	37.9
Pedestrians						
168	0.58	12.4	0.590	0.59	5.33	3.5
ALL VEHICLES:						
1016	4.47	15.8	0.660	0.64	42.99	41.1
INTERSECTION:						
1184	5.05	15.4	0.650	0.63	48.32	35.3

Ren,-L,vesque/Parthenais - PM - Actuel

\* ACTPM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec)				Arv Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue		Shrt Lane (m)
		R1	G1	R2	G2						90% Back (vehs)	(m)	
South: South Approach													
1 LT	1, 2	44	26	0	0	83	608	0.136	21.8	0.72	2.2	14	
East: East Approach													
1 T	5	36	34	0	0	251	868	0.290	13.1	0.60	5.6	34	
2 T	5	36	34	0	0	251	868	0.290	13.1	0.60	5.6	34	
3 TR	5, 6	36	34	0	0	250	865	0.290	13.6	0.61	5.6	34	
North: North Approach													
1 R	9	44	26	0	0	180	637	0.283	23.7	0.77	4.8	29	

Ren,-L,vesque/Parthenais - PM - Actuel

\* ACTPM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov No.	Arv Flow (veh/h)			Lane Width (m)	Saturation Flow		End Cap (veh/h)	Tot Cap (veh/h)	Deg. x	Lane Util %
		Lef	Thru	Rig		Basic (veh)	1st 2nd (veh)				
South: South Approach											
1 LT	1, 2	60	23	0	83	3.30	1800	1637	0	0	608 0.136 100
East: East Approach											
1 T	5	0	251	0	251	3.30	1800	1787	0	0	868 0.290 100
2 T	5	0	251	0	251	3.30	1800	1787	0	0	868 0.290 100
3 TR	5, 6	0	227	23	250	3.30	1800	1780	0	0	865 0.290 100
North: North Approach											

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

1 R 9 0 0 180 180 3.30 1800 1714 0 0 637 0.283 100

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Ren, -L, vesque/Parthenais - PM - Actuel

\* ACTPM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total \$/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
South: South Approach							
1 L	6.4	39.77	0.022	0.63	0.024	15.8	0.00051
2 T	2.2	13.54	0.007	0.19	0.008	5.5	0.00017
	8.6	53.30	0.029	0.82	0.032	21.3	0.00069
East: East Approach							
5 T	68.3	417.45	0.225	5.95	0.241	170.6	0.00547
6 R	2.3	14.38	0.008	0.20	0.008	5.7	0.00018
	70.6	431.83	0.233	6.15	0.250	176.4	0.00565
North: North Approach							
9 R	18.3	117.14	0.062	1.61	0.065	45.6	0.00146
	18.3	117.14	0.062	1.61	0.065	45.6	0.00146
Pedestrians							
51		18.63					
53		20.00					
55		18.73					
		57.35					
ALL VEHICLES:	97.4	602.28	0.324	8.59	0.346	243.0	0.00779
INTERSECTION:	97.4	659.63	0.324	8.59	0.346	243.0	0.00779

Ren, -L, vesque/Parthenais - PM - Actuel

\* ACTPM2 \*

Intersection ID:

Fixed-Time Signals, Cycle Time = 70

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	90% Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
South: South Approach											
1 LT	60	23	0	83	8	1800	26	0.136	21.8	14	
	60	23	0	83	8			0.136	21.8	14	
East: East Approach											
1 T	0	251	0	251	1	1800	34	0.290	13.1	34	
2 T	0	251	0	251	1	1800	34	0.290	13.1	34	
3 TR	0	227	23	250	1	1800	34	0.290	13.6	34	
	0	730	23	753	1			0.290	13.3	34	
North: North Approach											
1 R	0	0	180	180	0	1800	26	0.283	23.7	29	
	0	0	180	180	0			0.283	23.7	29	
Pedestrians											

Projet Porte Sainte-Marie  
 Étude d'impact sur la circulation

Across S approach	56		33	0.006	9.8	0.6
Across E approach	56		21	0.009	17.1	0.8
Across N approach	56		32	0.006	10.3	0.6
=====						
ALL VEHICLES	Tot	%	Cycle	Max	Aver.	Max
	Arv.	HV	Time	X	Delay	Queue
	1016	1	70	0.290	15.4	34
=====						

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Values printed in this table are back of queue.

Ren, -L, vesque/Parthenais - PM - Actuel \* ACTPM2 \*

Intersection ID:  
 Fixed-Time Signals, Cycle Time = 70

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Time Ratio (g/C)		Total Flow (veh/h)	Total Cap. (veh/h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
		1st grn	2nd grn					
-----								
South: South Approach								
1	L	0.371		60	440	0.136	21.8	C
2	T	0.371		23	169	0.136	21.8	C
				83	608	0.136	21.8	C
-----								
East: East Approach								
5	T	0.486*		730	2521	0.290*	13.3	B
6	R	0.486		23	80	0.289	13.6	B
				753	2601	0.290	13.3	B
-----								
North: North Approach								
9	R	0.371*		180	637	0.283	23.7	C
				180	637	0.283	23.7	C
-----								
Pedestrians								
51	(Ped)	0.471		56	9429	0.006	9.8	A
53	(Ped)	0.300		56	6000	0.009	17.1	B
55	(Ped)	0.457		56	9143	0.006	10.3	B
				168	24571	0.009	12.4	B
-----								
ALL VEHICLES:				1016	3846	0.290	15.8	B
-----								
INTERSECTION:				1184	3846	0.290	15.4	B
-----								

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help. Intersection capacity is calculated considering vehicle movements only.  
 \* Maximum v/c ratio, or critical green periods

Ren, -L, vesque/Parthenais - PM - Actuel \* ACTPM2 \*

Intersection ID:  
 Fixed-Time Signals, Cycle Time = 70

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings			
						1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
-----									
South: South Approach									

*Projet Porte Sainte-Marie*  
*Étude d'impact sur la circulation*

---

1	FT	No	3	1.000	1.000	20	NA
2	FT	No	3	1.000	1.000	20	NA
-----							
East:	East Approach						
5	FT	No	3	1.000	1.000	30	NA
6	FT	No	3	1.000	1.000	30	NA
-----							
North:	North Approach						
9	FT	No	3	1.000	1.000	20	NA
-----							
Pedestrians							
51	FT	No	3	1.000	1.000		
53	FT	No	3	1.000	1.000		
55	FT	No	3	1.000	1.000		
-----							

--- End of SIDRA Output ---

- 2) \* COMMENT:\*\*\*\*\*
- 3) \* COMMENT:\*\*\* Porte Ste-Marie (Ste-Catherine - Lorimier/Parthenais) \*\*\*
- 4) \* COMMENT:\*\*\* AM - Actuel \*\*\*
- 5) \* COMMENT:\*\*\* nouvelle variante de développement - septembre 03 \*\*\*
- 6) \* COMMENT:\*\*\*\*\*
- 7) \* COMMENT :--- Run Control ---

```
*****
*
* Release 8.20 (TRANST-7F) October 1999
*
* TRAFFIC SIGNAL SYSTEM OPTIMIZATION
*
* PROGRAM
*
* Sponsored by: Developed by:
*
* U.S. Department of Transportation University of Florida
* Federal Highway Administration Transportation Research Center
*
* Software Maintenance and User Support Furnished by:
* Center for Microcomputers in Transportation (McTrans)
* Transportation Research Center, University of Florida
* 512 Weil Hall, P.O. Box 116585, Gainesville, FL 32611-6585 USA
* (352) 392-0378
*
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* TRANST-7F Copyright 1990-1999, University of Florida.
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*****
```

Date of Run: 11/14/\*\* Start Time of Run: 12:51:33 Data File: PSM-AM-Actue

-----  
 I N P U T D A T A R E P O R T F O R R U N 1  
 -----

FIELDS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Actuel															
1	80	80	5	3	1	0	0	-1	0	0	60	0	0	0	0

- 2 --- NOTE -  
 + The cycle increment is ignored in a single cycle run.
- 4 --- NOTE -  
 + The sec/step factor in field 5 is ignored in a single cycle run.
- 7 --- NOTE -  
 + A stop penalty of '-1' will result in automatic calculation of the PI to minimize fuel consumption. Link specific delay or stop weights on record types 37 & 38 will still be applied, however.

1TRANST-7F: PAGE 2

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Actuel

FIELDS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--- Optimization Node List ---															
2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
--- Network Parameters ---															
7	105	106	111	0	0	101	109	0	0	0	0	0	0	0	0
7	205	211	0	0	0	203	204	0	0	0	0	0	0	0	0
10	0	4	0	1700	30	35	100	25	0	85	25	40	0	125	120
*** Intersection 1 ***															
--- Signal Timing Data ---															

Projet Porte Sainte-Marie  
 Étude d'impact sur la circulation

```

INTERSECTION      1
-----
13  1  7  1  22  5  35  5  8  5  0  0  0  0  0
21  1  1  1  2  0  9  106 105 111  0  0  0  0  0
22  1  3  3  4  0  9  103 -104 101 109  0  0  0  0
23  1  5  5  6  0  9  103 104  0  0  0  0  0  0
--- Link Data ---
28 106  0  0 100  0  0  0  0  0  0  0  0  0  0
28 105  0 4900 225  0  0  0  0  0  0  0  0  0  0
28 111  0  0  22  0  0  0  0  0  0  0  0  0  0
28 104  0 1600 340  0  0  0  0  0  0  0  0  0  0
29 104  0  0  0  0  0  0  0 101 100  0  0  0  0
28 103  0 3400 1970  0  0  0  0  0  0  0  0  0  0
28 101  0 5000 465  0  0  0  0  0  0  0  0  0  0
28 109  0  0 205  0  0  0  0  0  0  0  0  0  0
*** Intersection 2 ***
--- Signal Timing Data ---
1TRANSYT-7F:
  
```

PAGE 3

```

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Actuel
FIELDS:
  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16
-----
  
```

```

INTERSECTION      2
-----
12  2  0  1  46  5  24  5  0  0  0  0  0  0  0
21  2  1  1  2  0  9  205 211  0  0  0  0  0  0
22  2  3  3  4  0  9  203 -204 209  0  0  0  0  0
--- Link Data ---
28 205 580 5000 588  0 104 260 30 105 160 30 109 160 30 0
28 211 580  0 186  0 104 80 30 105 65 30 109 45 30 0
28 204  0  0 12  0  0  0  0  0  0  0  0  0  0  0
29 204  0  0  0  0  0  0  0 209 100  0  0  0  0  0
28 203  0 3300 258  0  0  0  0  0  0  0  0  0  0  0
28 209  0 1600 10  0  0  0  0  0  0  0  0  0  0  0
--- Run Instructions ---
  
```

```

PLOT AND OPTION CARDS
-----
52  0  0  0  0  0 100  0  0  0  0  0  0  0  0  0
--- 72 --- NOTE -
+ A record type 52 causes run to be optimized using the
  default normal optimization step sizes.
  If record type 4 was coded, it is ignored.
--- 74 --- NOTE -
+ There are a total of 2 nodes and 12 links,
  including bottlenecks, if any, in this run.
1TRANSYT-7F:
  
```

Page 4

```

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Actuel
<PERFORMANCE WITH OPTIMAL SETTINGS>
Movement/ Deg/ Total Travel Time Delay Total Max Back Fuel
Node Nos. Sat Travel Total Avg. Total Avg/LOS Stops of Queue Cons.
          % v-mi v-hr sec/v v-hr sec/v No. (%) Est.Cap. gal
-----
101 P: 31 0.00 1.93 15.0 1.93 15.0B 291( 63) 9 0 3.0
103 : 97* 0.00 18.72 34.2 18.72 34.2C 2144(109) 42 0 23.1
104 : 58 0.00 1.79 19.0 1.79 19.0B 266( 79) 6 0 2.6
105 P: 26 0.00 1.44 23.1 1.44 23.1C 174( 78) 6 0 2.0
106 S: 26 0.00 0.64 23.1 0.64 23.1C 81( 82) 105 105S 0.9
109 S: 31 0.00 0.85 15.0 0.85 15.0B 133( 66) 101 101S 1.3
111 S: 26 0.00 0.14 23.1 0.14 23.1C 23(107) 105 105S 0.2
NODE 1: 97* 0.00 25.53 25.53 27.6C 3113( 94) 33.1
203 P: 28 0.00 1.58 22.1 1.58 22.1C 194( 76) 4 0 2.2
204 S: 2 0.00 0.06 16.7 0.06 16.7B 8( 66) 203 203S 0.1
205 P: 27 64.67 3.25 19.9 1.09 6.6A 198( 34) 6 70 4.5
209 : 2 0.00 0.06 20.0 0.06 20.0C 7( 72) 0 0 0.1
211 S: 27 20.46 1.08 20.9 0.40 7.7A 79( 43) 205 205S 1.5
  
```

NODE 2: 28 85.13 6.03 3.18 10.9B 485( 46) 8.4

All MOEs are in units per hour.

1TRANSYT-7F:

Page 5

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Actuel

SYSTEM-WIDE PERFORMANCE: ALL NODES

Performance Measures	Units	System Totals
Total Travel	veh-mi/hr	85
Total Travel Time	veh-hr/hr	32
Total Uniform Delay	veh-hr/hr	18
Total Random Delay	veh-hr/hr	11
Total Delay	veh-hr/hr	29
Average Delay	sec/veh	23.6
Passenger Delay	pax-hr/hr	34
Uniform Stops:	veh/hr	3073
	%	70
Random Stops:	veh/hr	526
	%	12
Total Stops:	veh/hr	3599
	%	82
Degree of Sat > 1	# of links	0
Queue Spillback	# of links	10
Time Jammed	%	68
Period Length	sec	3600
System Speed	mph	19.6
Fuel Consumption	gal/hr	42
Operating Cost	\$/hr	286
Performance Index	DI	37.99

Performance Index (PI): Disutility Index (DI):  
 Disutility Index Excess Fuel Consumption

No. of Simulations = 38, Links = 950, Elapsed Time = 2.6 sec.  
 --- Termination Record ---

1TRANSYT-7F:

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Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Actuel

Termination Record

90 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

--- 92 --- NOTE -

+ End of job!  
 1



- 2) \* COMMENT:\*\*\*\*\*
- 3) \* COMMENT:\*\*\* Porte Ste-Marie (Ste-Catherine - Lorimier/Parthenais) \*\*\*
- 4) \* COMMENT:\*\*\* PM - Actuel \*\*\*
- 5) \* COMMENT:\*\*\* nouvelle variante de développement - septembre 03 \*\*\*
- 6) \* COMMENT:\*\*\*\*\*

7) \* COMMENT :--- Run Control ---

```
*****
*
* Release 8.20 (TRANSYT-7F) October 1999 *
*
* TRAFFIC SIGNAL SYSTEM OPTIMIZATION *
*
* PROGRAM *
*
* Sponsored by: Developed by: *
*
* U.S. Department of Transportation University of Florida *
* Federal Highway Administration Transportation Research Center *
*
* Software Maintenance and User Support Furnished by: *
* Center for Microcomputers in Transportation (McTrans) *
* Transportation Research Center, University of Florida *
* 512 Weil Hall, P.O. Box 116585, Gainesville, FL 32611-6585 USA *
* (352) 392-0378 *
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* All Rights Reserved. *
*****
```

Date of Run: 11/14/\*\* Start Time of Run: 12:52:28 Data File: PSM-PM-Actue

-----  
 I N P U T D A T A R E P O R T F O R R U N 1  
 -----

FIELDS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur															
1	80	80	5	3	1	0	0	-1	0	0	60	0	0	0	0

--- 2 --- NOTE -  
 + The cycle increment is ignored in a single cycle run.

--- 4 --- NOTE -  
 + The sec/step factor in field 5 is ignored in a single cycle run.

--- 7 --- NOTE -  
 + A stop penalty of '-1' will result in automatic calculation of the PI to minimize fuel consumption. Link specific delay or stop weights on record types 37 & 38 will still be applied, however.

1TRANSYT-7F:

PAGE 2

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

FIELDS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--- Optimization Node List ---															
2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
--- Network Parameters ---															
7	105	106	111	0	0	101	109	0	0	0	0	0	0	0	0
7	205	211	0	0	0	203	204	0	0	0	0	0	0	0	0
10	0	4	0	1700	30	35	100	25	0	85	25	40	0	125	120
*** Intersection 1 ***															
--- Signal Timing Data ---															

-----  
 INTERSECTION 1

Projet Porte Sainte-Marie  
 Étude d'impact sur la circulation

```

-----
13  1  7  1  27  5  31  5  7  5  0  0  0  0  0  0
21  1  1  1  2  0  9 106 105 111  0  0  0  0  0  0
22  1  3  3  4  0  9 103 -104 101 109  0  0  0  0  0
23  1  5  5  6  0  9 103 104  0  0  0  0  0  0  0
--- Link Data ---
28 106  0  0 140  0  0  0  0  0  0  0  0  0  0  0
28 105  0 4900 430  0  0  0  0  0  0  0  0  0  0  0
28 111  0  0  50  0  0  0  0  0  0  0  0  0  0  0
28 104  0 1600 220  0  0  0  0  0  0  0  0  0  0  0
29 104  0  0  0  0  0  0  0 101 100  0  0  0  0  0
28 103  0 3400 1040  0  0  0  0  0  0  0  0  0  0  0
28 101  0 5000 1330  0  0  0  0  0  0  0  0  0  0  0
28 109  0  0  300  0  0  0  0  0  0  0  0  0  0  0
*** Intersection 2 ***
--- Signal Timing Data ---
1TRANSYT-7F:

```

PAGE 3

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

FIELDS:

```

  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
-----

```

INTERSECTION 2

```

-----
12  2  0  1  47  5  23  5  0  0  0  0  0  0  0  0
21  2  1  1  2  0  9 205 211  0  0  0  0  0  0  0
22  2  3  3  4  0  9 203 -204 209  0  0  0  0  0  0

```

--- Link Data ---

```

28 205 580 5000 900  0 104 255 30 105 497 30 109 330 30 0
28 211 580  0  48  0 104 10 30 105 23 30 109 15 30 0
28 204  0  0  36  0  0  0  0  0  0  0  0  0  0  0  0
29 204  0  0  0  0  0  0  0 209 100  0  0  0  0  0  0
28 203  0 3300 108  0  0  0  0  0  0  0  0  0  0  0
28 209  0 1600 108  0  0  0  0  0  0  0  0  0  0  0
--- Run Instructions ---

```

PLOT AND OPTION CARDS

```

-----
52  0  0  0  0  0 100  0  0  0  0  0  0  0  0  0  0

```

--- 72 --- NOTE -

+ A record type 52 causes run to be optimized using the default normal optimization step sizes. If record type 4 was coded, it is ignored.

--- 74 --- NOTE -

+ There are a total of 2 nodes and 12 links, including bottlenecks, if any, in this run.

1TRANSYT-7F:

Page 4

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

<PERFORMANCE WITH OPTIMAL SETTINGS>

Movement/ Node Nos.	Deg/ Sat %	Total Travel v-mi	Travel Total v-hr	Time Avg. sec/v	Delay Total v-hr	Avg/LOS sec/v	Total Stops No. (%)	Max Back of Queue Est.Cap.	Fuel Cons. gal
101	P: 84	0.00	10.02	27.1	10.02	27.1C	1244 ( 94)	33 0	13.6
103	: 57	0.00	3.94	13.6	3.94	13.6B	667 ( 65)	15 0	6.4
104	: 84	0.00	3.91	64.1	3.91	64.1E	300 (137)	5 0	4.0
105	P: 37	0.00	2.48	20.8	2.48	20.8C	321 ( 75)	10 0	3.5
106	S: 37	0.00	0.81	20.8	0.81	20.8C	113 ( 81)	105 105S	1.1
109	S: 84	0.00	2.26	27.1	2.26	27.1C	362 (121)	101 101S	3.1
111	S: 37	0.00	0.29	20.8	0.29	20.8C	48 ( 97)	105 105S	0.4
NODE	1: 84	0.00	23.70		23.70	24.3C	3055 ( 87)		32.2
203	P: 21	0.00	0.79	26.2	0.79	26.2C	89 ( 83)	2 0	1.0
204	S: 12	0.00	0.25	25.2	0.25	25.2C	30 ( 84)	203 203S	0.3
205	P: 29	98.98	4.07	16.3	0.75	3.0A	189 ( 22)	5 70	5.6
209	: 30	0.00	0.84	27.9	0.84	27.9C	95 ( 88)	2 0	1.1
211	S: 29	5.28	0.22	16.5	0.04	3.2A	18 ( 38)	205 205S	0.3
NODE	2: 30	104.26	6.16		2.67	8.0A	420 ( 35)		8.4

-----  
 All MOEs are in units per hour.

1TRANSYT-7F:

Page 5

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

SYSTEM-WIDE PERFORMANCE: ALL NODES

Performance Measures	Units	System Totals
Total Travel	veh-mi/hr	104
Total Travel Time	veh-hr/hr	30
Total Uniform Delay	veh-hr/hr	22
Total Random Delay	veh-hr/hr	5
Total Delay	veh-hr/hr	26
Average Delay	sec/veh	20.2
Passenger Delay	pax-hr/hr	32
Uniform Stops:	veh/hr	3078
	%	65
Random Stops:	veh/hr	398
	%	8
Total Stops:	veh/hr	3476
	%	74
Degree of Sat > 1	# of links	0
Queue Spillback	# of links	10
Time Jammed	%	74
Period Length	sec	3600
System Speed	mph	24.3
Fuel Consumption	gal/hr	41
Operating Cost	\$/hr	285
Performance Index	DI	36.31

Performance Index (PI): Disutility Index (DI):  
 Disutility Index            Excess Fuel Consumption

No. of Simulations = 47, Links = 1175, Elapsed Time = 1.6 sec.  
 --- Termination Record ---

1TRANSYT-7F:

Page 6

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

Termination Record

90 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

--- 92 --- NOTE -

+                    End of job!  
 1

# *Débit totaux*

*(existants plus générés)*

ARRB Transport Research Ltd - SIDRA 5.20a

-----  
 TRAFIX  
 TRAFIX Registered User No. M0213  
 Time and Date of Analysis 12:07 PM, Nov 14,2003  
 -----

Ren,-L,vesque/Lorimier - AM - Futur \* FUTAM1-2  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:

SIDRA US Highway Capacity Manual (1997) Version  
 Fixed-Time Signals, Cycle Time = 120

RUN INFORMATION

-----  
 \* Basic Parameters:  
 Intersection Type: Signalised - Fixed Time  
 Driving on the right-hand side of the road  
 SIDRA US Highway Capacity Manual (1997) Version  
 Input data specified in Metric units  
 Default Values File No. 30  
 Peak flow period (for performance): 15 minutes  
 Unit time (for volumes): 60 minutes (Total Flow Period)  
 Delay definition: Control delay  
                   Geometric delay included  
 Delay formula: Highway Capacity Manual  
 Level of Service based on: Delay (HCM)  
 Queue definition: Back of queue, 95th\_Percentile  
  
 \* No. of Main (Timing-Capacity) Iterations = 1  
 Comparison of last two iterations:  
 Difference in intersection degree of satn = 0.0 %  
 Difference in total vehicle capacity = 0.0 %  
 Largest difference in eff. green times = 0 secs  
 (max. value for stopping = 0 secs)

Ren,-L,vesque/Lorimier - AM - Futur \* FUTAM1-2  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:  
 Fixed-Time Signals, Cycle Time = 120

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left		Through		Right		Flow Scale	Peak Flow Factor	
	LV	HV	LV	HV	LV	HV			
-----									
South:	South Approach								
1	7	0	0	0	0	0	1.00	0.90	
2	0	0	549	33	0	0	1.00	0.90	
-----									
East:	East Approach								
4	333	0	0	0	0	0	1.00	0.90	
5	0	0	750	41	0	0	1.00	0.90	
6	0	0	0	0	53	0	1.00	0.90	
-----									
North:	North Approach								
8	0	0	1347	53	0	0	1.00	0.90	
9	0	0	0	0	793	20	1.00	0.90	
-----									
West:	West Approach								
10	221	13	0	0	0	0	1.00	0.90	
12	0	0	0	0	207	20	1.00	0.90	
-----									
PEDESTRIANS	Flow (ped/hour)								
53	56							1.00	0.90
55	56							1.00	0.90
57	56							1.00	0.90
-----									

Based on unit time = 60 minutes.  
 Flow Scale and Peak Hour Factor effects included in flow values.

Ren,-L,vesque/Lorimier - AM - Futur \* FUTAM1-2  
 nouvelle variante de developpement - septembre 2003

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov No.	Mov Typ	P H A S E				M A T R I X				Lost Tim		Req. Mov. Time		Eff. Grn	
		First Green				Second Green				1st	2nd	1st	2nd	1st	2nd
		Fr	To	Op	Pr	Fr	To	Op	Pr	Grn	Grn	Grn	Grn	Grn	Grn
South: South Approach															
1	L	C	A	L						46		63.0Min		17	
2	T	C	A							5		63.0Min		58	
East: East Approach															
4	L	A	B							5		35.0Min		30	
5	T	A	B							5		37.3		30	
6	R	*A	B							5		37.4		30	
North: North Approach															
8	T	*C	A							5		63.0Min		58	
9	R	B	A							5		85.0Min		80	
West: West Approach															
10	L	*B	C							5		22.0Min		17	
12	R	B	C							5		22.0Min		17	
Pedestrians															
53	(Ped)	B	A							10		85.0Min		75	
55	(Ped)	A	B							10		35.0Min		25	
57	(Ped)	C	A							21		63.0Min		42	
Current Phase Sequence No.: 1															
Input phase sequence: A B C															
Output phase sequence: A B C															

Movement Types: Under heading 'Op':  
 Ped Pedestrian L "Left" turns are opposed  
 Dum Dummy R "Right" turns are opposed  
 Und Undetected in both green periods LR "Left and Right" opposed  
 Un1 Undetected in 1st green period C "Constant" saturation flow  
 Un2 Undetected in 2nd green period

Ren, -L, vesque/Lorimier - AM - Futur \* FUTAM1-2  
 nouvelle variante de developpement - septembre 2003

Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh/h)	Satn Flow		Flow Ratio		Total Cap. (veh/h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
		1st Grn	2nd Grn	1st Grn	2nd Grn					
South: South Approach										
1	L	7	189		0.037	27	0.90	244	100	0.261
2	T	582	4616		0.126	2231	0.90	245	100	0.261
East: East Approach										
4	L	333	1714		0.194	428	0.90	16	100	0.777
5	T	791	3261		0.243	815	0.90	-7	100	0.970
6	R	53	218		0.243	54	0.90	-7	100	0.972*
North: North Approach										
8	T	1400	3514		0.398	1698	0.90	9	100	0.824
9	R	813	1685		0.482	1123	0.90	24	100	0.724
West: West Approach										
10	L	234	3298		0.071	467	0.90	80	100	0.501
12	R	227	3226		0.070	457	0.90	81	100	0.497
Pedestrians										
53		56	20000		0.003	12500	0.90		100	0.004
55		56	20000		0.003	4167	0.90		100	0.013
57		56	20000		0.003	7000	0.90		100	0.008

Ren,-L,vesque/Lorimier - AM - Futur \* FUTAM1-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.3 - INTERSECTION PARAMETERS

Mov No.	App. Turn	Green Period	Phases		Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
			Fr	To				
6	E_R		A	B	5	0.243	0.270	37.4
10	W_L		B	C	22	-	-	22.0Min
8	N_T		C	A	63	-	-	63.0Min
Total:					90	0.243	0.270	122.4

- Flow ratio not used for cycle time calculations and  
the adjusted lost time equals the required movement time  
(=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
120	= 120	120	120

(Cycle time specified by the user)

Degree of saturation (highest)	=	0.972
Practical Spare Capacity (lowest)	=	-7 %
Total vehicle flow (veh/h)	=	4440
Total pedestrian flow (ped/h)	=	168
Total vehicle capacity, all lanes (veh/h)	=	7302
Average intersection delay (s)	=	44.6
Largest average movement delay (s)	=	81.9
Total vehicle delay (veh-h/h)	=	55.98
Total pedestrian delay (ped-h/h)	=	1.11
Largest back of queue, 95% (m)	=	225
Performance Index	=	323.67
Total fuel (L/h)	=	532.7
Total cost (\$/h)	=	3524.98
Intersection Level of Service	=	D
Worst movement Level of Service	=	F

Ren,-L,vesque/Lorimier - AM - Futur \* FUTAM1-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs Prop.
A	0	5	30	35 0.292
B	35	40	17	22 0.183
C	57	62	58	63 0.525

Current Phase Sequence No.: 1  
Input phase sequence: A B C  
Output phase sequence: A B C

Ren,-L,vesque/Lorimier - AM - Futur \* FUTAM1-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 95% Back (vehs)	Queue (m)	Perf. Index	Aver. Speed (km/h)
------------	-----------------------------	-------------------------	-----------------	----------------------	--	--------------	----------------	--------------------------

South: South Approach

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Étude d'impact sur la circulation

1 L	0.06	28.7	0.74	0.77	7.9	50	0.42	34.6
2 T	3.47	21.5	0.65	0.56	9.2	58	30.81	39.3
-----								
East: East Approach								
4 L	5.81	62.8	0.99	0.92	19.9	119	26.63	28.0
5 T	17.88	81.4	1.00	1.16	31.3	197	76.41	24.7
6 R	1.21	81.9	1.00	1.16	31.2	196	5.14	23.7
-----								
North: North Approach								
8 T	13.83	35.6	0.92	0.88	36.2	225	96.28	34.5
9 R	5.64	25.0	0.70	0.84	30.1	185	45.98	38.1
-----								
West: West Approach								
10 L	4.09	62.9	0.97	0.79	8.2	52	18.32	28.0
12 R	4.00	63.4	0.97	0.79	8.0	52	17.79	27.9
-----								
Pedestrians								
53	0.13	8.4	0.37	0.38	0.7	1	1.65	3.7
55	0.58	37.6	0.79	0.79	1.5	1	2.23	2.8
57	0.39	25.4	0.65	0.65	1.2	1	2.00	3.1
-----								

Ren,-L,vesque/Lorimier - AM - Futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

\* FUTAM1-2

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
-----						
South: South Approach						
589	3.53	21.5	0.660	0.56	31.23	39.3
-----						
East: East Approach						
1177	24.89	76.1	0.998	1.09	108.19	25.5
-----						
North: North Approach						
2213	19.48	31.7	0.845	0.87	142.26	35.7
-----						
West: West Approach						
461	8.09	63.1	0.970	0.79	36.11	28.0
-----						
Pedestrians						
168	1.11	23.8	0.606	0.61	5.88	3.2
-----						
ALL VEHICLES:						
4440	55.98	45.4	0.874	0.88	317.79	31.8
-----						
INTERSECTION:						
4608	57.09	44.6	0.864	0.87	323.67	30.8
-----						

Ren,-L,vesque/Lorimier - AM - Futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

\* FUTAM1-2

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec)				Arv Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Q u e u e		Shrt Lane (m)
		R1	G1	R2	G2						95% Back (vehs)	(m)	
-----													
South: South Approach													
1 LT	1, 2	77	43	0	0	151	580	0.261	28.7	0.63	7.9	50	
2 T	2	62	58	0	0	219	839	0.261	19.1	0.53	9.2	58	
3 T	2	62	58	0	0	219	839	0.261	19.1	0.53	9.2	58	
-----													
East: East Approach													
1 L	4	90	30	0	0	333	429	0.777	62.8	0.92	19.9	119	
2 T	5	90	30	0	0	422	435	0.970	80.9	1.16	31.3	197	



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3 TR 5, 90 30 0 0 422 434 0.970 81.9 1.16 31.2 196  
6

North: North Approach

1 T 8 62 58 0 0 700 849 0.824 35.6 0.88 36.2 225  
2 T 8 62 58 0 0 700 849 0.824 35.6 0.88 36.2 225  
3 R 9 40 80 0 0 813 1123 0.724 25.0 0.84 30.1 185

West: West Approach

1 L 10 103 17 0 0 117 234 0.501 62.9 0.79 8.2 52  
2 L 10 103 17 0 0 117 234 0.501 62.9 0.79 8.2 52  
3 R 12 103 17 0 0 114 228 0.497 63.4 0.79 8.0 52  
4 R 12 103 17 0 0 114 228 0.497 63.4 0.79 8.0 52

Ren, -L, vesque/Lorimier - AM - Futur  
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\* FUTAM1-2

Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov No.	Arv Flow (veh/h)			Lane Width (m)	Saturation Flow			End Cap (veh/h)	Tot Cap (veh/h)	Deg. Satn x	Lane Util %
		Lef	Thru	Rig Tot		Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)				
South: South Approach												
1	LT	1, 2	7 144	0 151	3.30	1800	1617	0	32	580	0.261	100
2	T	2	0 219	0 219	3.30	1800	1736	0	0	839	0.261	100
3	T	2	0 219	0 219	3.30	1800	1736	0	0	839	0.261	100
East: East Approach												
1	L	4	333 0	0 333	3.30	1800	1714	0	0	429	0.777	100
2	T	5	0 422	0 422	3.30	1800	1741	0	0	435	0.970	100
3	TR	5, 6	0 369	53 422	3.30	1800	1738	0	0	434	0.970	100
North: North Approach												
1	T	8	0 700	0 700	3.30	1800	1757	0	0	849	0.824	100
2	T	8	0 700	0 700	3.30	1800	1757	0	0	849	0.824	100
3	R	9	0 0	813 813	3.30	1800	1685	0	0	1123	0.724	100
West: West Approach												
1	L	10	117 0	0 117	3.30	1800	1649	0	0	234	0.501	100
2	L	10	117 0	0 117	3.30	1800	1649	0	0	234	0.501	100
3	R	12	0 0	114 114	3.30	1800	1613	0	0	228	0.497	100
4	R	12	0 0	114 114	3.30	1800	1613	0	0	228	0.497	100

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Ren, -L, vesque/Lorimier - AM - Futur  
nouvelle variante de developpement - septembre 2003

\* FUTAM1-2

Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total \$/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
South: South Approach							
1	L	0.8	5.16	0.003	0.08	0.003	2.0 0.00006
2	T	61.6	369.58	0.208	6.22	0.238	153.3 0.00493
		62.4	374.74	0.211	6.30	0.241	155.3 0.00499
East: East Approach							
4	L	42.1	296.27	0.153	3.97	0.149	105.1 0.00336
5	T	110.0	774.88	0.415	11.79	0.415	273.8 0.00880
6	R	7.5	55.75	0.028	0.70	0.026	18.7 0.00060

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

	159.5	1126.91	0.596	16.46	0.591	397.7	0.01276
North: North Approach							
8 T	160.3	992.21	0.562	17.52	0.635	399.5	0.01282
9 R	90.5	554.56	0.307	9.33	0.353	225.8	0.00724
	250.8	1546.77	0.870	26.84	0.987	625.3	0.02006
West: West Approach							
10 L	30.2	208.73	0.109	2.98	0.112	75.1	0.00242
12 R	29.8	204.10	0.108	3.06	0.114	74.1	0.00239
	60.0	412.83	0.217	6.04	0.227	149.2	0.00480
Pedestrians							
53		18.38					
55		23.82					
57		21.53					
		63.73					
ALL VEHICLES:	532.7	3461.25	1.893	55.65	2.045	1324.9	0.04262
INTERSECTION:	532.7	3524.97	1.893	55.65	2.045	1324.9	0.04262

Ren, -L, vesque/Lorimier - AM - Futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

\* FUTAM1-2

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	95% Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: South Approach												
1 LT	7	144	0	151	5	1800	43		0.261	28.7	50	
2 T	0	219	0	219	6	1800	58		0.261	19.1	58	
3 T	0	219	0	219	6	1800	58		0.261	19.1	58	
	7	582	0	589	6				0.261	21.5	58	
East: East Approach												
1 L	333	0	0	333	0	1800	30		0.777	62.8	119	
2 T	0	422	0	422	5	1800	30		0.970	80.9	197	
3 TR	0	369	53	422	5	1800	30		0.970	81.9	196	
	333	791	53	1177	3				0.970	76.1	197	
North: North Approach												
1 T	0	700	0	700	4	1800	58		0.824	35.6	225	
2 T	0	700	0	700	4	1800	58		0.824	35.6	225	
3 R	0	0	813	813	2	1800	80		0.724	25.0	185	
	0	1400	813	2213	3				0.824	31.7	225	
West: West Approach												
1 L	117	0	0	117	6	1800	17		0.501	62.9	52	
2 L	117	0	0	117	6	1800	17		0.501	62.9	52	
3 R	0	0	114	114	9	1800	17		0.497	63.4	52	
4 R	0	0	114	114	9	1800	17		0.497	63.4	52	
	234	0	227	461	7				0.501	63.1	52	
Pedestrians												
Across E approach				56			75		0.004	8.4	0.7	
Across N approach				56			25		0.013	37.6	1.5	
Across W approach				56			42		0.008	25.4	1.2	
ALL VEHICLES				Tot	% HV		Cycle Time		Max X	Aver. Delay	Max Queue	
				4440	4		120		0.972	44.6	225	

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Values printed in this table are back of queue.

Ren,-L,vesque/Lorimier - AM - Futur \* FUTAM1-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Time Ratio (g/C)		Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
		1st grn	2nd grn					
South: South Approach								
1	L	0.142		7	27	0.261	28.7	C
2	T	0.483		582	2231	0.261	21.5	C
				589	2258	0.261	21.5	C
East: East Approach								
4	L	0.250		333	428	0.777	62.8	E
5	T	0.250		791	815	0.970	81.4	F
6	R	0.250*		53	54	0.972*	81.9	F
				1177	1298	0.972	76.1	E
North: North Approach								
8	T	0.483*		1400	1698	0.824	35.6	D
9	R	0.667		813	1123	0.724	25.0	C
				2213	2822	0.824	31.7	C
West: West Approach								
10	L	0.142*		234	467	0.501	62.9	E
12	R	0.142		227	457	0.497	63.4	E
				461	924	0.501	63.1	E
Pedestrians								
53	(Ped)	0.625		56	12500	0.004	8.4	A
55	(Ped)	0.208		56	4167	0.013	37.6	D
57	(Ped)	0.350		56	7000	0.008	25.4	C
				168	23667	0.013	23.8	C
ALL VEHICLES:				4440	7302	0.972	45.4	D
INTERSECTION:				4608	7302	0.972	44.6	D

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help. Intersection capacity is calculated considering vehicle movements only.

\* Maximum v/c ratio, or critical green periods

Ren,-L,vesque/Lorimier - AM - Futur \* FUTAM1-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings			
						1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
South: South Approach									
1	FT	No	3	1.000	1.000	58	NA		
2	FT	No	3	1.000	1.000	58	NA		

-----							
East:	East Approach						
4	FT	No	3	1.000	1.000	30	NA
5	FT	No	3	1.000	1.000	30	NA
6	FT	No	3	1.000	1.000	30	NA
-----							
North:	North Approach						
8	FT	No	3	1.000	1.000	58	NA
9	FT	No	3	1.000	1.000	80	NA
-----							
West:	West Approach						
10	FT	No	3	1.000	1.000	17	NA
12	FT	No	3	1.000	1.000	17	NA
-----							
Pedestrians							
53	FT	No	3	1.000	1.000		
55	FT	No	3	1.000	1.000		
57	FT	No	3	1.000	1.000		
-----							

--- End of SIDRA Output ---

ARRB Transport Research Ltd - SIDRA 5.20a

-----  
 TRAFIX  
 TRAFIX Registered User No. M0213  
 Time and Date of Analysis 12:07 PM, Nov 14,2003  
 -----

Ren,-L,vesque/Parthenais - AM - futur \* FUTAM2-2  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:  
  
 SIDRA US Highway Capacity Manual (1997) Version  
 Fixed-Time Signals, Cycle Time = 70

RUN INFORMATION

-----  
 \* Basic Parameters:  
 Intersection Type: Signalised - Fixed Time  
 Driving on the right-hand side of the road  
 SIDRA US Highway Capacity Manual (1997) Version  
 Input data specified in Metric units  
 Default Values File No. 30  
 Peak flow period (for performance): 15 minutes  
 Unit time (for volumes): 60 minutes (Total Flow Period)  
 Delay definition: Control delay  
                   Geometric delay included  
 Delay formula: Highway Capacity Manual  
 Level of Service based on: Delay (HCM)  
 Queue definition: Back of queue, 95th\_Percentile  
  
 \* No. of Main (Timing-Capacity) Iterations = 1  
 Comparison of last two iterations:  
 Difference in intersection degree of satn = 0.0 %  
 Difference in total vehicle capacity = 0.0 %  
 Largest difference in eff. green times = 0 secs  
 (max. value for stopping = 0 secs)

Ren,-L,vesque/Parthenais - AM - futur \* FUTAM2-2  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:  
                   Fixed-Time Signals, Cycle Time = 70

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left		Through		Right		Flow Scale	Peak Flow Factor
	LV	HV	LV	HV	LV	HV		
South: South Approach								
1	4	0	0	0	0	0	1.00	0.90
2	0	0	1	0	0	0	1.00	0.90
East: East Approach								
5	0	0	471	44	0	0	1.00	0.90
6	0	0	0	0	13	0	1.00	0.90
North: North Approach								
9	0	0	0	0	442	18	1.00	0.90
PEDESTRIANS	Flow (ped/hour)							
51		56					1.00	0.90
53		56					1.00	0.90
55		56					1.00	0.90

-----  
 Based on unit time = 60 minutes.  
 Flow Scale and Peak Hour Factor effects included in flow values.

Ren,-L,vesque/Parthenais - AM - futur \* FUTAM2-2  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:  
                   Fixed-Time Signals, Cycle Time = 70

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov	Mov	P H A S E	M A T R I X	Lost Tim	Req.Mov.Time	Eff. Grn
-----	-----	-----------	-------------	----------	--------------	----------

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No.	Typ	First Green				Second Green				-----		-----		-----	
		Fr	To	Op	Pr	Fr	To	Op	Pr	1st Grn	2nd Grn	1st Grn	2nd Grn	1st Grn	2nd Grn
South: South Approach															
1	L	B	A							5		25.0Min		30	
2	T	B	A							5		25.0Min		30	
East: East Approach															
5	T	*A	B							5		35.0Min		30	
6	R	A	B							5		35.0Min		30	
North: North Approach															
9	R	*B	A							5		26.4		30	
Pedestrians															
51	(Ped)	A	B							6		35.0Min		29	
53	(Ped)	B	A							10		25.0Min		25	
55	(Ped)	A	B							7		35.0Min		28	
Current Phase Sequence No.: 1															
Input phase sequence: A B															
Output phase sequence: A B															

Movement Types:	Under heading 'Op':
Ped Pedestrian	L "Left" turns are opposed
Dum Dummy	R "Right" turns are opposed
Und Undetected in both green periods	LR "Left and Right" opposed
Un1 Undetected in 1st green period	C "Constant" saturation flow
Un2 Undetected in 2nd green period	

Ren,-L,vesque/Parthenais - AM - futur \* FUTAM2-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh/h)	Satn Flow		Flow Ratio		Total Cap. (veh/h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
		1st Grn	2nd Grn	1st Grn	2nd Grn					
South: South Approach										
1	L	4	1385	0.003		594	0.90	****	100	0.007
2	T	1	346	0.003		148	0.90	****	100	0.007
East: East Approach										
5	T	515	4991	0.103		2139	0.90	274	100	0.241
6	R	13	126	0.103		54	0.90	274	100	0.241
North: North Approach										
9	R	460	1668	0.276		715	0.90	40	100	0.643*
Pedestrians										
51		56	20000	0.003		8286	0.90		100	0.007
53		56	20000	0.003		7143	0.90		100	0.008
55		56	20000	0.003		8000	0.90		100	0.007

Ren,-L,vesque/Parthenais - AM - futur \* FUTAM2-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.3 - INTERSECTION PARAMETERS

Crit Mov No.	App. & Turn	Green Period	Phases		Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
			Fr	To				
5	E_T		A	B	35	-	-	35.0Min
9	N_R		B	A	5	0.276	0.306	26.4
Total:					40	0.276	0.306	61.4

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
60	70	60	70

(Cycle time specified by the user)

Degree of saturation (highest)	=	0.643
Practical Spare Capacity (lowest)	=	40 %
Total vehicle flow (veh/h)	=	993
Total pedestrian flow (ped/h)	=	168
Total vehicle capacity, all lanes (veh/h)	=	3649
Average intersection delay (s)	=	19.8
Largest average movement delay (s)	=	27.5
Total vehicle delay (veh-h/h)	=	5.78
Total pedestrian delay (ped-h/h)	=	0.61
Largest back of queue, 95% (m)	=	87
Performance Index	=	51.15
Total fuel (L/h)	=	99.5
Total cost (\$/h)	=	679.53
Intersection Level of Service	=	B
Worst movement Level of Service	=	C

Ren,-L,vesque/Parthenais - AM - futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

\* FUTAM2-2

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	5	30	35	0.500
B	35	40	30	35	0.500

Current Phase Sequence No.: 1  
Input phase sequence: A B  
Output phase sequence: A B

Ren,-L,vesque/Parthenais - AM - futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

\* FUTAM2-2

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 95% Back (vehs)	Perf. Index	Aver. Speed (km/h)
South: South Approach							
1 L	0.02	18.4	0.58	0.68	0.2	1	39.4
2 T	0.01	18.4	0.58	0.46	0.2	1	42.4
East: East Approach							
5 T	2.18	15.3	0.67	0.61	5.3	34	41.4
6 R	0.06	15.5	0.67	0.76	5.3	34	39.1
North: North Approach							
9 R	3.52	27.5	0.84	0.84	14.0	87	36.6
Pedestrians							
51	0.19	12.0	0.58	0.59	0.6	1	3.5
53	0.22	14.5	0.64	0.64	0.7	1	3.4
55	0.20	12.6	0.60	0.60	0.7	1	3.5

Ren,-L,vesque/Parthenais - AM - futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

\* FUTAM2-2

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
South: South Approach						
5	0.03	18.4	0.589	0.64	0.21	40.0
East: East Approach						
528	2.24	15.3	0.674	0.61	22.33	41.4
North: North Approach						
460	3.52	27.5	0.845	0.84	23.23	36.6
Pedestrians						
168	0.61	13.0	0.610	0.61	5.38	3.5
ALL VEHICLES:						
993	5.78	21.0	0.753	0.72	45.77	39.0
INTERSECTION:						
1161	6.39	19.8	0.732	0.70	51.15	33.6

Ren,-L,vesque/Parthenais - AM - futur \* FUTAM2-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec)				Arv Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Q u e u e		Shrt Lane (m)
		R1	G1	R2	G2						95% Back (vehs)	(m)	
South: South Approach													
1 LT	1, 2	40	30	0	0	5	742	0.007	18.4	0.64	0.2	1	
East: East Approach													
1 T	5	40	30	0	0	176	731	0.241	15.1	0.61	5.3	34	
2 T	5	40	30	0	0	176	731	0.241	15.1	0.61	5.3	34	
3 TR	5, 6	40	30	0	0	176	731	0.241	15.5	0.62	5.3	34	
North: North Approach													
1 R	9	40	30	0	0	460	715	0.644	27.5	0.84	14.0	87	

Ren,-L,vesque/Parthenais - AM - futur \* FUTAM2-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov No.	Arv Flow (veh/h)			Lane Width (m)	Saturation Flow		End Cap (veh/h)	Tot Cap (veh/h)	Deg. Satn x	Lane Util %		
		Lef	Thru	Rig		Basic (veh)	1st 2nd (veh)						
South: South Approach													
1 LT	1, 2	4	1	0	5	3.30	1800	1731	0	0	742	0.007	100
East: East Approach													
1 T	5	0	176	0	176	3.30	1800	1705	0	0	731	0.241	100
2 T	5	0	176	0	176	3.30	1800	1705	0	0	731	0.241	100
3 TR	5, 6	0	163	13	176	3.30	1800	1706	0	0	731	0.241	100
North: North Approach													



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1 R 9 0 0 460 460 3.30 1800 1668 0 0 715 0.644 100

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Ren, -L, vesque/Parthenais - AM - futur \* FUTAM2-2  
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Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total \$/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
South: South Approach							
1 L	0.4	2.54	0.001	0.04	0.001	1.0	0.00003
2 T	0.1	0.57	0.000	0.01	0.000	0.2	0.00001
	0.5	3.11	0.002	0.04	0.002	1.2	0.00004
East: East Approach							
5 T	49.7	301.22	0.165	4.64	0.183	123.4	0.00398
6 R	1.3	8.26	0.004	0.12	0.005	3.3	0.00010
	51.0	309.47	0.170	4.75	0.187	126.6	0.00408
North: North Approach							
9 R	48.0	309.25	0.164	4.39	0.174	119.7	0.00384
	48.0	309.25	0.164	4.39	0.174	119.7	0.00384
Pedestrians							
51		19.04					
53		19.50					
55		19.15					
		57.69					
ALL VEHICLES:	99.5	621.84	0.335	9.18	0.363	246.7	0.00796
INTERSECTION:	99.5	679.53	0.335	9.18	0.363	246.7	0.00796

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nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	95% Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: South Approach												
1 LT	4	1	0	5	0	1800	30		0.007	18.4	1	
	4	1	0	5	0				0.007	18.4	1	
East: East Approach												
1 T	0	176	0	176	9	1800	30		0.241	15.1	34	
2 T	0	176	0	176	9	1800	30		0.241	15.1	34	
3 TR	0	163	13	176	8	1800	30		0.241	15.5	34	
	0	515	13	528	8				0.241	15.3	34	
North: North Approach												
1 R	0	0	460	460	4	1800	30		0.644	27.5	87	
	0	0	460	460	4				0.644	27.5	87	
Pedestrians												

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Across S approach	56		29	0.007	12.0	0.6
Across E approach	56		25	0.008	14.5	0.7
Across N approach	56		28	0.007	12.6	0.7
=====						
ALL VEHICLES	Tot	%	Cycle	Max	Aver.	Max
	Arv.	HV	Time	X	Delay	Queue
	993	6	70	0.643	19.8	87
=====						

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Values printed in this table are back of queue.

Ren,-L,vesque/Parthenais - AM - futur \* FUTAM2-2  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:  
 Fixed-Time Signals, Cycle Time = 70

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Time Ratio (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
		1st grn	2nd grn				
-----							
South:	South Approach						
1	L	0.429	4	594	0.007	18.4	B
2	T	0.429	1	148	0.007	18.4	B
				5	742	0.007	18.4
-----							
East:	East Approach						
5	T	0.429*	515	2139	0.241	15.3	B
6	R	0.429	13	54	0.241	15.5	B
				528	2193	0.241	15.3
-----							
North:	North Approach						
9	R	0.429*	460	715	0.643*	27.5	C
				460	715	0.643	27.5
-----							
Pedestrians							
51	(Ped)	0.414	56	8286	0.007	12.0	B
53	(Ped)	0.357	56	7143	0.008	14.5	B
55	(Ped)	0.400	56	8000	0.007	12.6	B
				168	23429	0.008	13.0
-----							
ALL VEHICLES:			993	3649	0.643	21.0	C
-----							
INTERSECTION:			1161	3649	0.643	19.8	B
-----							

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help. Intersection capacity is calculated considering vehicle movements only.  
 \* Maximum v/c ratio, or critical green periods

Ren,-L,vesque/Parthenais - AM - futur \* FUTAM2-2  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:  
 Fixed-Time Signals, Cycle Time = 70

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. 1st Grn Gmin	Grn. 2nd Grn Gmax	Settings Gmin Gmax
-----								
South:	South Approach							

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---

1	FT	No	3	1.000	1.000	20	NA
2	FT	No	3	1.000	1.000	20	NA
-----							
East:	East Approach						
5	FT	No	3	1.000	1.000	30	NA
6	FT	No	3	1.000	1.000	30	NA
-----							
North:	North Approach						
9	FT	No	3	1.000	1.000	20	NA
-----							
Pedestrians							
51	FT	No	3	1.000	1.000		
53	FT	No	3	1.000	1.000		
55	FT	No	3	1.000	1.000		
-----							

--- End of SIDRA Output ---

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-----  
TRAFIX  
TRAFIX Registered User No. M0213  
Time and Date of Analysis 12:08 PM, Nov 14,2003  
-----

Ren,-L,vesque/Lorimier - PM - Futur \* FUTPM1-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:

SIDRA US Highway Capacity Manual (1997) Version  
Fixed-Time Signals, Cycle Time = 100

RUN INFORMATION

-----  
\* Basic Parameters:  
Intersection Type: Signalised - Fixed Time  
Driving on the right-hand side of the road  
SIDRA US Highway Capacity Manual (1997) Version  
Input data specified in Metric units  
Default Values File No. 30  
Peak flow period (for performance): 15 minutes  
Unit time (for volumes): 60 minutes (Total Flow Period)  
Delay definition: Control delay  
Geometric delay included  
Delay formula: Highway Capacity Manual  
Level of Service based on: Delay (HCM)  
Queue definition: Back of queue, 95th\_Percentile

\* No. of Main (Timing-Capacity) Iterations = 1  
Comparison of last two iterations:  
Difference in intersection degree of satn = 0.0 %  
Difference in total vehicle capacity = 0.0 %  
Largest difference in eff. green times = 0 secs  
(max. value for stopping = 0 secs)

Ren,-L,vesque/Lorimier - PM - Futur \* FUTPM1-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left		Through		Right		Flow Scale	Peak Flow Factor	
	LV	HV	LV	HV	LV	HV			
South: South Approach									
1	119	0	0	0	0	0	1.00	0.90	
2	0	0	993	22	0	0	1.00	0.90	
East: East Approach									
4	267	0	0	0	0	0	1.00	0.90	
5	0	0	948	30	0	0	1.00	0.90	
6	0	0	0	0	248	0	1.00	0.90	
North: North Approach									
8	0	0	822	61	0	0	1.00	0.90	
9	0	0	0	0	324	0	1.00	0.90	
West: West Approach									
10	1000	30	0	0	0	0	1.00	0.90	
12	0	0	0	0	200	37	1.00	0.90	
PEDESTRIANS	Flow (ped/hour)								
53	56							1.00	0.90
55	56							1.00	0.90
57	56							1.00	0.90

-----  
Based on unit time = 60 minutes.  
Flow Scale and Peak Hour Factor effects included in flow values.

Ren,-L,vesque/Lorimier - PM - Futur \* FUTPM1-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:

Projet Porte Sainte-Marie  
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Fixed-Time Signals, Cycle Time = 100

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov No.	Mov Typ	P H A S E				M A T R I X				Lost Tim		Req. Mov. Time		Eff. Grn	
		First Green		Second Green		1st		2nd		1st	2nd	1st	2nd		
		Fr	To	Op	Pr	Fr	To	Op	Pr	Grn	Grn	Grn	Grn	Grn	Grn
South: South Approach															
1	L	C	A	L						25		45.0Min		20	
2	T	*C	A							5		45.0Min		40	
East: East Approach															
4	L		A	B						5		32.0Min		27	
5	T	*A	B							5		43.8		27	
6	R		A	B						5		43.8		27	
North: North Approach															
8	T		C	A						5		45.0Min		40	
9	R		B	A						5		68.0Min		63	
West: West Approach															
10	L		*B	C						5		39.1		18	
12	R		B	C						5		23.0Min		18	
Pedestrians															
53	(Ped)	B	A							10		68.0Min		58	
55	(Ped)	A	B							18		32.0Min		14	
57	(Ped)	C	A							21		45.0Min		24	
Current Phase Sequence No.: 1															
Input phase sequence: A B C															
Output phase sequence: A B C															

Movement Types:	Under heading 'Op':
Ped Pedestrian	L "Left" turns are opposed
Dum Dummy	R "Right" turns are opposed
Und Undetected in both green periods	LR "Left and Right" opposed
Un1 Undetected in 1st green period	C "Constant" saturation flow
Un2 Undetected in 2nd green period	

Ren, -L, vesque/Lorimier - PM - Futur \* FUTPM1-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh/h)	Satn Flow		Flow Ratio		Total Cap. (veh/h)	Prac. Deg. xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
		1st Grn	2nd Grn	1st Grn	2nd Grn					
South: South Approach										
1	L	119	731	0.163		146	0.90	11	100	0.814
2	T	1015	3550	0.286		1420	0.90	26	88	0.715
East: East Approach										
4	L	267	1714	0.156		463	0.90	56	100	0.577
5	T	978	2799	0.349		756	0.90	-30	100	1.294
6	R	248	710	0.349		192	0.90	-30	100	1.294
North: North Approach										
8	T	883	3445	0.256		1378	0.90	40	100	0.641
9	R	324	1714	0.189		1080	0.90	200	100	0.300
West: West Approach										
10	L	1030	3359	0.307		605	0.90	-47	100	1.704*
12	R	237	3085	0.077		555	0.90	111	100	0.427
Pedestrians										
53		56	20000	0.003		11600	0.90		100	0.005
55		56	20000	0.003		2800	0.90		100	0.020
57		56	20000	0.003		4800	0.90		100	0.012

Ren,-L,vesque/Lorimier - PM - Futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

\* FUTPM1-2

Table S.3 - INTERSECTION PARAMETERS

Crit Mov No.	App. & Turn	Green Period	Phases ----- Fr To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
5	E_T		A B	5	0.349	0.388	43.8
10	W_L		B C	5	0.307	0.341	39.1
2	S_T		C A	45	-	-	45.0Min
Total:				55	0.656	0.729	127.9

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
100	= 100	100	100

(Cycle time specified by the user)

Degree of saturation (highest)	=	1.704
Practical Spare Capacity (lowest)	=	-47 %
Total vehicle flow (veh/h)	=	5101
Total pedestrian flow (ped/h)	=	168
Total vehicle capacity, all lanes (veh/h)	=	6594
Average intersection delay (s)	=	136.3
Largest average movement delay (s)	=	379.2
Total vehicle delay (veh-h/h)	=	198.40
Total pedestrian delay (ped-h/h)	=	1.16
Largest back of queue, 95% (m)	=	437
Performance Index	=	590.35
Total fuel (L/h)	=	840.8
Total cost (\$/h)	=	6869.28
Intersection Level of Service	=	F
Worst movement Level of Service	=	F

Ren,-L,vesque/Lorimier - PM - Futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

\* FUTPM1-2

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	5	27	32	0.320
B	32	37	18	23	0.230
C	55	60	40	45	0.450

(Phase change times specified by the user)

Current Phase Sequence No.: 1  
Input phase sequence: A B C  
Output phase sequence: A B C

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nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

\* FUTPM1-2

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 95% (vehs)	Perf. Index	Aver. Speed (km/h)
------------	-----------------------------	-------------------------	-----------------	----------------------	-----------------------------------	----------------	--------------------------

South: South Approach

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1 L	2.74	82.8	1.00	0.98	8.4	50	10.15	24.6
2 T	8.82	31.3	0.90	0.80	21.4	131	61.11	35.8
-----								
East: East Approach								
4 L	3.31	44.7	0.91	0.83	12.9	78	17.47	32.1
5 T	50.27	185.0	1.00	1.83	63.7	394	144.70	15.0
6 R	12.90	187.2	1.00	1.82	62.9	384	36.91	14.7
-----								
North: North Approach								
8 T	7.05	28.7	0.86	0.76	18.4	118	51.47	36.6
9 R	1.54	17.1	0.48	0.75	8.8	53	14.43	41.2
-----								
West: West Approach								
10 L	108.50	379.2	1.00	2.13	70.8	437	232.04	8.7
12 R	3.27	49.7	0.93	0.79	6.9	48	16.07	31.0
-----								
Pedestrians								
53	0.14	8.8	0.42	0.42	0.7	1	1.67	3.6
55	0.58	37.0	0.86	0.86	1.3	1	2.24	2.8
57	0.45	28.9	0.76	0.76	1.2	1	2.09	3.0
-----								

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

\* FUTPM1-2

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
-----						
South: South Approach						
1134	11.55	36.7	0.912	0.82	71.26	34.1
-----						
East: East Approach						
1493	66.48	160.3	0.985	1.65	199.08	16.5
-----						
North: North Approach						
1207	8.59	25.6	0.764	0.76	65.91	37.8
-----						
West: West Approach						
1267	111.78	317.6	0.988	1.88	248.11	10.1
-----						
Pedestrians						
168	1.16	24.9	0.680	0.68	6.00	3.1
-----						
ALL VEHICLES:						
5101	198.40	140.0	0.917	1.31	584.35	18.1
-----						
INTERSECTION:						
5269	199.56	136.3	0.910	1.29	590.35	17.8
-----						

Ren,-L,vesque/Lorimier - PM - Futur  
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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

\* FUTPM1-2

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec)				Arv Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Q u e u e		Shrt Lane (m)
		R1	G1	R2	G2						95% Back (vehs)	(m)	
-----													
South: South Approach													
1 L	1	80	20	0	0	119	146	0.814	82.8	0.98	8.4	50	
2 T	2	60	40	0	0	508	710	0.715	31.3	0.80	21.4	131	
3 T	2	60	40	0	0	508	710	0.715	31.3	0.80	21.4	131	
-----													
East: East Approach													
1 L	4	73	27	0	0	267	463	0.577	44.7	0.83	12.9	78	
2 T	5	73	27	0	0	617	476	1.294	183.8	1.83	63.7	394	

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3 TR 5, 73 27 0 0 609 471 1.294 187.2 1.82 62.9 384  
6

North: North Approach

1 T 8 60 40 0 0 442 689 0.641 28.7 0.76 18.4 118  
2 T 8 60 40 0 0 442 689 0.641 28.7 0.76 18.4 118  
3 R 9 37 63 0 0 324 1080 0.300 17.1 0.75 8.8 53

West: West Approach

1 L 10 82 18 0 0 515 302 1.704 379.2 2.13 70.8 437  
2 L 10 82 18 0 0 515 302 1.704 379.2 2.13 70.8 437  
3 R 12 82 18 0 0 119 278 0.427 49.7 0.79 6.9 48  
4 R 12 82 18 0 0 119 278 0.427 49.7 0.79 6.9 48

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\* FUTPM1-2

Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov No.	Arv Flow (veh/h)			Lane Width (m)	Saturation Flow			End Cap (veh/h)	Tot Cap (veh/h)	Deg. Satn x	Lane Util %
		Lef	Thru	Rig Tot		Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)				
South: South Approach												
1 L	1	119	0	0 119	3.30	1800	731	0	79	146	0.814	100
2 T	2	0 508	0 508	0 508	3.30	1800	1775	0	0	710	0.715	88P
3 T	2	0 508	0 508	0 508	3.30	1800	1775	0	0	710	0.715	88P
East: East Approach												
1 L	4	267	0	0 267	3.30	1800	1714	0	0	463	0.577	100
2 T	5	0 617	0 617	0 617	3.30	1800	1765	0	0	476	1.294	100
3 TR	5, 6	0 361 248	609	609	3.30	1800	1744	0	0	471	1.294	100
North: North Approach												
1 T	8	0 442	0 442	0 442	3.30	1800	1723	0	0	689	0.641	100
2 T	8	0 442	0 442	0 442	3.30	1800	1723	0	0	689	0.641	100
3 R	9	0 0 324	324	324	3.30	1800	1714	0	0	1080	0.300	100
West: West Approach												
1 L	10	515	0	0 515	3.30	1800	1679	0	0	302	1.704	100
2 L	10	515	0	0 515	3.30	1800	1679	0	0	302	1.704	100
3 R	12	0 0 119	119	119	3.30	1800	1542	0	0	278	0.427	100
4 R	12	0 0 119	119	119	3.30	1800	1542	0	0	278	0.427	100

P Lane under-utilisation found by the "Program"

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Ren,-L,vesque/Lorimier - PM - Futur  
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\* FUTPM1-2

Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total \$/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
South: South Approach							
1 L	16.0	119.06	0.060	1.45	0.055	40.0	0.00128
2 T	112.1	690.08	0.390	11.90	0.437	279.8	0.00897
	128.1	809.14	0.450	13.35	0.492	319.8	0.01025
East: East Approach							
4 L	31.5	209.72	0.111	3.04	0.115	78.6	0.00252
5 T	186.3	1561.99	0.771	18.03	0.619	464.7	0.01491



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6 R	48.1	414.27	0.199	4.28	0.152	120.2	0.00385
	265.9	2185.97	1.082	25.35	0.886	663.6	0.02127
-----							
North: North Approach							
8 T	98.8	592.71	0.340	10.92	0.399	245.6	0.00790
9 R	34.5	207.25	0.116	3.49	0.133	86.3	0.00276
	133.3	799.96	0.456	14.41	0.533	331.9	0.01066
-----							
West: West Approach							
10 L	282.7	2813.08	1.262	21.15	0.761	705.0	0.02261
12 R	30.8	196.78	0.108	3.46	0.128	76.1	0.00247
	313.5	3009.86	1.370	24.60	0.889	780.4	0.02508
-----							
Pedestrians							
53		18.45					
55		23.70					
57		22.19					
		64.34					
-----							
ALL VEHICLES:	840.8	6804.94	3.357	77.72	2.799	2092.0	0.06726
INTERSECTION:	840.8	6869.28	3.357	77.72	2.799	2092.0	0.06726
-----							

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

\* FUTPM1-2

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	95% Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
-----											
South: South Approach											
1 L	119	0	0	119	0	1800	20	0.814	82.8	50	
2 T	0	508	0	508	2	1800	40	0.715	31.3	131	
3 T	0	508	0	508	2	1800	40	0.715	31.3	131	
	119	1015	0	1134	2			0.814	36.7	131	
-----											
East: East Approach											
1 L	267	0	0	267	0	1800	27	0.577	44.7	78	
2 T	0	617	0	617	3	1800	27	1.294	183.8	394	
3 TR	0	361	248	609	2	1800	27	1.294	187.2	384	
	267	978	248	1493	2			1.294	160.3	394	
-----											
North: North Approach											
1 T	0	442	0	442	7	1800	40	0.641	28.7	118	
2 T	0	442	0	442	7	1800	40	0.641	28.7	118	
3 R	0	0	324	324	0	1800	63	0.300	17.1	53	
	0	883	324	1207	5			0.641	25.6	118	
-----											
West: West Approach											
1 L	515	0	0	515	3	1800	18	1.704	379.2	437	
2 L	515	0	0	515	3	1800	18	1.704	379.2	437	
3 R	0	0	119	119	16	1800	18	0.427	49.7	48	
4 R	0	0	119	119	16	1800	18	0.427	49.7	48	
	1030	0	237	1267	5			1.704	317.6	437	
-----											
Pedestrians											
Across E approach				56			58	0.005	8.8	0.7	
Across N approach				56			14	0.020	37.0	1.3	
Across W approach				56			24	0.012	28.9	1.2	
=====											
ALL VEHICLES				Tot Arv.	% HV		Cycle Time	Max X	Aver. Delay	Max Queue	
				5101	4		100	1.704	136.3	437	
=====											
Total flow period = 60 minutes. Peak flow period = 15 minutes.											

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Values printed in this table are back of queue.

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Time Ratio (g/C)		Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
		1st grn	2nd grn					
South: South Approach								
1	L	0.200		119	146	0.814	82.8	F
2	T	0.400*		1015	1420	0.715	31.3	C
				1134	1566	0.814	36.7	D
East: East Approach								
4	L	0.270		267	463	0.577	44.7	D
5	T	0.270*		978	756	1.294	185.0	F
6	R	0.270		248	192	1.294	187.2	F
				1493	1410	1.294	160.3	F
North: North Approach								
8	T	0.400		883	1378	0.641	28.7	C
9	R	0.630		324	1080	0.300	17.1	B
				1207	2458	0.641	25.6	C
West: West Approach								
10	L	0.180*		1030	605	1.704*	379.2	F
12	R	0.180		237	555	0.427	49.7	D
				1267	1160	1.704	317.6	F
Pedestrians								
53	(Ped)	0.580		56	11600	0.005	8.8	A
55	(Ped)	0.140		56	2800	0.020	37.0	D
57	(Ped)	0.240		56	4800	0.012	28.9	C
				168	19200	0.020	24.9	C
ALL VEHICLES:				5101	6594	1.704	140.0	F
INTERSECTION:				5269	6594	1.704	136.3	F

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help. Intersection capacity is calculated considering vehicle movements only.  
\* Maximum v/c ratio, or critical green periods

Ren,-L,vesque/Lorimier - PM - Futur \* FUTPM1-2  
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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings	
						1st Grn Gmin	2nd Grn Gmax
South: South Approach							
1	FT	No	3	1.000	1.000	40	NA

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*Étude d'impact sur la circulation*

---

2	FT	No	3	1.000	1.000	40	NA
-----							
East:	East Approach						
4	FT	No	3	1.000	1.000	27	NA
5	FT	No	3	1.000	1.000	27	NA
6	FT	No	3	1.000	1.000	27	NA
-----							
North:	North Approach						
8	FT	No	3	1.000	1.000	40	NA
9	FT	No	3	1.000	1.000	63	NA
-----							
West:	West Approach						
10	FT	No	3	1.000	1.000	18	NA
12	FT	No	3	1.000	1.000	18	NA
-----							
Pedestrians							
53	FT	No	3	1.000	1.000		
55	FT	No	3	1.000	1.000		
57	FT	No	3	1.000	1.000		
-----							
--- End of SIDRA Output ---							

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-----  
 TRAFIX  
 TRAFIX Registered User No. M0213  
 Time and Date of Analysis 12:08 PM, Nov 14,2003

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Ren,-L,vesque/Parthenais - PM - Futur \* FUTPM2-2  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:

SIDRA US Highway Capacity Manual (1997) Version  
 Fixed-Time Signals, Cycle Time = 70

RUN INFORMATION

-----  
 \* Basic Parameters:  
 Intersection Type: Signalised - Fixed Time  
 Driving on the right-hand side of the road  
 SIDRA US Highway Capacity Manual (1997) Version  
 Input data specified in Metric units  
 Default Values File No. 30  
 Peak flow period (for performance): 15 minutes  
 Unit time (for volumes): 60 minutes (Total Flow Period)  
 Delay definition: Control delay  
                   Geometric delay included  
 Delay formula: Highway Capacity Manual  
 Level of Service based on: Delay (HCM)  
 Queue definition: Back of queue, 95th\_Percentile

\* No. of Main (Timing-Capacity) Iterations = 1  
 Comparison of last two iterations:  
 Difference in intersection degree of satn = 0.0 %  
 Difference in total vehicle capacity = 0.0 %  
 Largest difference in eff. green times = 0 secs  
 (max. value for stopping = 0 secs)

---

Ren,-L,vesque/Parthenais - PM - Futur \* FUTPM2-2  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:  
     Fixed-Time Signals, Cycle Time = 70

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left		Through		Right		Flow Scale	Peak Flow Factor
	LV	HV	LV	HV	LV	HV		
-----								
South: South Approach								
1	53	7	0	0	0	0	1.00	0.90
2	0	0	23	0	0	0	1.00	0.90
-----								
East: East Approach								
5	0	0	800	8	0	0	1.00	0.90
6	0	0	0	0	41	0	1.00	0.90
-----								
North: North Approach								
9	0	0	0	0	204	0	1.00	0.90
-----								
PEDESTRIANS	Flow (ped/hour)							
51	56					1.00	0.90	
53	56					1.00	0.90	
55	56					1.00	0.90	

Based on unit time = 60 minutes.  
 Flow Scale and Peak Hour Factor effects included in flow values.

---

Ren,-L,vesque/Parthenais - PM - Futur \* FUTPM2-2  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:  
     Fixed-Time Signals, Cycle Time = 70

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov	Mov	P H A S E	M A T R I X	Lost Tim	Req.Mov.Time	Eff. Grn
-----	-----	-----------	-------------	----------	--------------	----------

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No.	Typ	First Green				Second Green				-----		-----		-----	
		Fr	To	Op	Pr	Fr	To	Op	Pr	1st Grn	2nd Grn	1st Grn	2nd Grn	1st Grn	2nd Grn
South: South Approach															
1	L	B	A							5		25.0Min		26	
2	T	B	A							5		25.0Min		26	
East: East Approach															
5	T	*A	B							5		35.0Min		34	
6	R	A	B							5		35.0Min		34	
North: North Approach															
9	R	*B	A							5		25.0Min		26	
Pedestrians															
51	(Ped)	A	B							6		35.0Min		33	
53	(Ped)	B	A							10		25.0Min		21	
55	(Ped)	A	B							7		35.0Min		32	
Current Phase Sequence No.: 1															
Input phase sequence: A B															
Output phase sequence: A B															

Movement Types:	Under heading 'Op':
Ped Pedestrian	L "Left" turns are opposed
Dum Dummy	R "Right" turns are opposed
Und Undetected in both green periods	LR "Left and Right" opposed
Un1 Undetected in 1st green period	C "Constant" saturation flow
Un2 Undetected in 2nd green period	

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nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh/h)	Satn Flow		Flow Ratio		Total Cap. (veh/h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
		1st Grn	2nd Grn	1st Grn	2nd Grn					
South: South Approach										
1	L	60	1184	0.051		440	0.90	560	100	0.136
2	T	23	454	0.051		169	0.90	560	100	0.136
East: East Approach										
5	T	808	5096	0.159		2475	0.90	176	100	0.326*
6	R	41	259	0.158		126	0.90	176	100	0.326*
North: North Approach										
9	R	204	1714	0.119		637	0.90	181	100	0.320
Pedestrians										
51		56	20000	0.003		9429	0.90		100	0.006
53		56	20000	0.003		6000	0.90		100	0.009
55		56	20000	0.003		9143	0.90		100	0.006

Ren,-L,vesque/Parthenais - PM - Futur \* FUTPM2-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.3 - INTERSECTION PARAMETERS

Crit Mov No.	App. & Turn	Green Period	Phases		Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
			Fr	To				
5	E_T		A	B	35	-	-	35.0Min
9	N_R		B	A	25	-	-	25.0Min
Total:					60	0.000	0.000	60.0

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

	Minimum 60	Maximum 120	Practical 60	Chosen 70	
Degree of saturation (highest)					= 0.326
Practical Spare Capacity (lowest)					= 176 %
Total vehicle flow (veh/h)					= 1136
Total pedestrian flow (ped/h)					= 168
Total vehicle capacity, all lanes (veh/h)					= 3846
Average intersection delay (s)					= 15.7
Largest average movement delay (s)					= 24.2
Total vehicle delay (veh-h/h)					= 5.12
Total pedestrian delay (ped-h/h)					= 0.58
Largest back of queue, 95% (m)					= 46
Performance Index					= 53.89
Total fuel (L/h)					= 109.2
Total cost (\$/h)					= 733.00
Intersection Level of Service					= B
Worst movement Level of Service					= C

Ren,-L,vesque/Parthenais - PM - Futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

\* FUTPM2-2

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	5	34	39	0.557
B	39	44	26	31	0.443

Current Phase Sequence No.: 1  
Input phase sequence: A B  
Output phase sequence: A B

Ren,-L,vesque/Parthenais - PM - Futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

\* FUTPM2-2

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (vehs)	95% Back (m)	Perf. Index	Aver. Speed (km/h)
South: South Approach								
1 L	0.36	21.8	0.69	0.77	2.8	18	2.74	38.0
2 T	0.14	21.8	0.69	0.60	2.8	18	1.02	40.8
East: East Approach								
5 T	3.09	13.8	0.65	0.61	7.6	46	33.34	42.1
6 R	0.16	14.3	0.65	0.77	7.5	46	1.74	39.7
North: North Approach								
9 R	1.37	24.2	0.75	0.78	6.6	40	9.71	37.7
Pedestrians								
51	0.15	9.8	0.52	0.53	0.6	1	1.72	3.6
53	0.27	17.1	0.70	0.70	0.8	1	1.88	3.4
55	0.16	10.3	0.54	0.54	0.6	1	1.73	3.6

Ren,-L,vesque/Parthenais - PM - Futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

\* FUTPM2-2

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
South: South Approach						
83	0.50	21.8	0.695	0.72	3.77	38.8
East: East Approach						
849	3.25	13.8	0.650	0.62	35.08	42.0
North: North Approach						
204	1.37	24.2	0.755	0.78	9.71	37.7
Pedestrians						
168	0.58	12.4	0.590	0.59	5.33	3.5
ALL VEHICLES:						
1136	5.12	16.2	0.673	0.65	48.56	40.9
INTERSECTION:						
1304	5.70	15.7	0.662	0.65	53.89	35.7

Ren,-L,vesque/Parthenais - PM - Futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

\* FUTPM2-2

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec)				Arv Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Q u e u e		Shrt Lane (m)
		R1	G1	R2	G2						95% Back (vehs)	(m)	
South: South Approach													
1	LT	1, 2	44 26	0 0	83	608	0.136	21.8	0.72	2.8	18		
East: East Approach													
1	T	5	36 34	0 0	284	869	0.326	13.5	0.61	7.6	46		
2	T	5	36 34	0 0	284	869	0.326	13.5	0.61	7.6	46		
3	TR	5, 6	36 34	0 0	282	863	0.326	14.3	0.63	7.5	46		
North: North Approach													
1	R	9	44 26	0 0	204	637	0.320	24.2	0.78	6.6	40		

Ren,-L,vesque/Parthenais - PM - Futur  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

\* FUTPM2-2

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov No.	Arv Flow (veh/h)			Lane Width (m)	Saturation Flow		End Cap (veh/h)	Tot Cap (veh/h)	Deg. Satn x	Lane Util %	
		Lef	Thru	Rig		Adj. Basic (tcu)	Aver 2nd (veh)					
South: South Approach												
1	LT	1, 2	60 23	0 83	3.30	1800	1637	0	0	608	0.136	100
East: East Approach												
1	T	5	0 284	0 284	3.30	1800	1788	0	0	869	0.326	100
2	T	5	0 284	0 284	3.30	1800	1788	0	0	869	0.326	100
3	TR	5, 6	0 241	41 282	3.30	1800	1777	0	0	863	0.326	100
North: North Approach												
1	R	9	0 0	204 204	3.30	1800	1714	0	0	637	0.320	100

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Ren, -L, vesque/Parthenais - PM - Futur \* FUTPM2-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total \$/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
South: South Approach							
1 L	6.4	39.77	0.022	0.63	0.024	15.8	0.00051
2 T	2.2	13.54	0.007	0.19	0.008	5.5	0.00017
	8.6	53.30	0.029	0.82	0.032	21.3	0.00069
East: East Approach							
5 T	75.8	463.40	0.250	6.62	0.268	189.3	0.00606
6 R	4.1	25.71	0.014	0.36	0.015	10.2	0.00033
	79.9	489.11	0.264	6.99	0.283	199.5	0.00639
North: North Approach							
9 R	20.7	133.23	0.070	1.83	0.073	51.8	0.00166
	20.7	133.23	0.070	1.83	0.073	51.8	0.00166
Pedestrians							
51		18.63					
53		20.00					
55		18.73					
		57.35					
ALL VEHICLES:	109.2	675.65	0.363	9.64	0.388	272.3	0.00873
INTERSECTION:	109.2	733.00	0.363	9.64	0.388	272.3	0.00873

Ren, -L, vesque/Parthenais - PM - Futur \* FUTPM2-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	95% Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: South Approach												
1 LT	60	23	0	83	8	1800	26		0.136	21.8	18	
	60	23	0	83	8				0.136	21.8	18	
East: East Approach												
1 T	0	284	0	284	1	1800	34		0.326	13.5	46	
2 T	0	284	0	284	1	1800	34		0.326	13.5	46	
3 TR	0	241	41	282	1	1800	34		0.326	14.3	46	
	0	808	41	849	1				0.326	13.8	46	
North: North Approach												
1 R	0	0	204	204	0	1800	26		0.320	24.2	40	
	0	0	204	204	0				0.320	24.2	40	
Pedestrians												
Across S approach				56			33		0.006	9.8	0.6	



Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

Across E approach	56	21	0.009	17.1	0.8
Across N approach	56	32	0.006	10.3	0.6
=====					
ALL VEHICLES	Tot	%	Cycle	Max	Aver. Max
	Arv.	HV	Time	X	Delay Queue
	1136	1	70	0.326	15.7 46
=====					

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Values printed in this table are back of queue.

Ren,-L,vesque/Parthenais - PM - Futur \* FUTPM2-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Time Ratio (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
		1st grn	2nd grn				
-----							
South:	South Approach						
1	L	0.371	60	440	0.136	21.8	C
2	T	0.371	23	169	0.136	21.8	C
			83	608	0.136	21.8	C
-----							
East:	East Approach						
5	T	0.486*	808	2475	0.326*	13.8	B
6	R	0.486	41	126	0.326*	14.3	B
			849	2601	0.326	13.8	B
-----							
North:	North Approach						
9	R	0.371*	204	637	0.320	24.2	C
			204	637	0.320	24.2	C
-----							
Pedestrians							
51	(Ped)	0.471	56	9429	0.006	9.8	A
53	(Ped)	0.300	56	6000	0.009	17.1	B
55	(Ped)	0.457	56	9143	0.006	10.3	B
			168	24571	0.009	12.4	B
-----							
ALL VEHICLES:			1136	3846	0.326	16.2	B
-----							
INTERSECTION:			1304	3846	0.326	15.7	B
-----							

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help. Intersection capacity is calculated considering vehicle movements only.  
\* Maximum v/c ratio, or critical green periods

Ren,-L,vesque/Parthenais - PM - Futur \* FUTPM2-2  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 70

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. 1st Gmin	Grn. 2nd Gmax	Settings Gmin Gmax
-----								
South:	South Approach							
1	FT	No	3	1.000	1.000	20	NA	
-----								

2	FT	No	3	1.000	1.000	20	NA
-----							
East:	East Approach						
5	FT	No	3	1.000	1.000	30	NA
6	FT	No	3	1.000	1.000	30	NA
-----							
North:	North Approach						
9	FT	No	3	1.000	1.000	20	NA
-----							
Pedestrians							
51	FT	No	3	1.000	1.000		
53	FT	No	3	1.000	1.000		
55	FT	No	3	1.000	1.000		
-----							

--- End of SIDRA Output ---

```

2) * COMMENT:*****
3) * COMMENT:***   Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais)   ***
4) * COMMENT:***   AM - Futur                                             ***
5) * COMMENT:***   nouvelle variante de développement - septembre 03     ***
6) * COMMENT:***   sans mesures d'atténuation                             ***
7) * COMMENT:*****
8) * COMMENT:--- Run Control ---
*****
*
* Release 8.20                      (TRANSTY-7F)                      October 1999 *
*
*                      TRAFFIC SIGNAL SYSTEM OPTIMIZATION            *
*
*                      PROGRAM                                         *
*
* Sponsored by:                      Developed by: *
*
* U.S. Department of Transportation          University of Florida *
* Federal Highway Administration           Transportation Research Center *
*
*      Software Maintenance and User Support Furnished by: *
*      Center for Microcomputers in Transportation (McTrans) *
*      Transportation Research Center, University of Florida *
*      512 Weil Hall, P.O. Box 116585, Gainesville, FL 32611-6585 USA *
*      (352) 392-0378 *
*
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*      TRANSTY-7F Copyright 1990-1999, University of Florida. *
*      All Rights Reserved. *
*****
  
```

Date of Run: 11/14/\*\* Start Time of Run: 12:25:37 Data File: PSM-AM-Futur

-----  
 INPUT DATA REPORT FOR RUN 1  
 -----

FIELDS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
-----															
Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Futur															
1	80	80	5	3	1	0	0	-1	0	0	60	0	0	0	0

--- 2 --- NOTE -  
 + The cycle increment is ignored in a single cycle run.

--- 4 --- NOTE -  
 + The sec/step factor in field 5 is ignored in a single cycle run.

--- 7 --- NOTE -  
 + A stop penalty of '-1' will result in automatic calculation of the PI to minimize fuel consumption. Link specific delay or stop weights on record types 37 & 38 will still be applied, however.

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Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Futur

FIELDS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
-----															
--- Optimization Node List ---															
2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
--- Network Parameters ---															
7	105	106	111	0	0	101	109	0	0	0	0	0	0	0	0
7	205	211	0	0	0	203	204	0	0	0	0	0	0	0	0
10	0	4	0	1700	30	35	100	25	0	85	25	40	0	125	120
*** Intersection 1 ***															
--- Signal Timing Data ---															

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

```

-----
INTERSECTION      1
-----
13  1  7  1  22  5  35  5  8  5  0  0  0  0  0  0
21  1  1  1  2  0  9 106 105 111  0  0  0  0  0  0
22  1  3  3  4  0  9 103 -104 101 109  0  0  0  0  0
23  1  5  5  6  0  9 103 104  0  0  0  0  0  0  0
--- Link Data ---
28 106  0  0 100  0  0  0  0  0  0  0  0  0  0  0
28 105  0 4900 247  0  0  0  0  0  0  0  0  0  0  0
28 111  0  0  22  0  0  0  0  0  0  0  0  0  0  0
28 104  0 1600 499  0  0  0  0  0  0  0  0  0  0  0
29 104  0  0  0  0  0  0  0  0  101 100  0  0  0  0  0
28 103  0 3400 1960  0  0  0  0  0  0  0  0  0  0  0
28 101  0 5000 493  0  0  0  0  0  0  0  0  0  0  0
28 109  0  0  278  0  0  0  0  0  0  0  0  0  0  0
*** Intersection 2 ***
--- Signal Timing Data ---
1TRANSYT-7F:

```

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Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Futur

FIELDS:  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

```

-----
INTERSECTION      2
-----
12  2  0  1  46  5  24  5  0  0  0  0  0  0  0  0
21  2  1  1  2  0  9 205 211  0  0  0  0  0  0  0
22  2  3  3  4  0  9 203 -204 209  0  0  0  0  0  0
--- Link Data ---
28 205 580 5000 588  0 104 260 30 105 160 30 109 160 30 0
28 211 580  0 186  0 104 80 30 105 65 30 109 45 30 0
28 204  0  0 12  0  0  0  0  0  0  0  0  0  0  0
29 204  0  0  0  0  0  0  0  209 100  0  0  0  0  0
28 203  0 3300 275  0  0  0  0  0  0  0  0  0  0  0
28 209  0 1600 16  0  0  0  0  0  0  0  0  0  0  0
--- Run Instructions ---

```

PLOT AND OPTION CARDS

52 0 0 0 0 100 0 0 0 0 0 0 0 0 0 0

--- 72 --- NOTE -  
+ A record type 52 causes run to be optimized using the default normal optimization step sizes. If record type 4 was coded, it is ignored.

--- 74 --- NOTE -  
+ There are a total of 2 nodes and 12 links, including bottlenecks, if any, in this run.

1TRANSYT-7F: Page 4

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Futur

<PERFORMANCE WITH OPTIMAL SETTINGS>

Movement/ Node Nos.	Deg/ Sat %	Total Travel v-mi	Travel Time Total v-hr	Avg. sec/v	Delay Total v-hr	Avg/LOS sec/v	Total Stops No. (%)	Max Back of Queue Est.Cap.	Fuel Cons. gal
101	P: 35	0.00	2.11	15.4	2.11	15.4B	318 ( 65)	11 0	3.2
103	: 96*	0.00	17.68	32.5	17.68	32.5C	2086 (107)	41 0	22.3
104	: 89	0.00	6.15	44.4	6.15	44.4D	595 (120)	10 0	7.0
105	P: 27	0.00	1.60	23.3	1.60	23.3C	192 ( 78)	6 0	2.2
106	S: 27	0.00	0.65	23.3	0.65	23.3C	82 ( 83)	105 105S	0.9
109	S: 35	0.00	1.19	15.4	1.19	15.4B	184 ( 67)	101 101S	1.8
111	S: 27	0.00	0.14	23.3	0.14	23.3C	24 (110)	105 105S	0.2
NODE	1: 96*	0.00	29.51		29.51	29.5C	3480 ( 97)		37.6
203	P: 29	0.00	1.70	22.3	1.70	22.3C	209 ( 77)	5 0	2.4
204	S: 2	0.00	0.06	16.9	0.06	16.9B	8 ( 67)	203 203S	0.1
205	P: 27	64.67	3.05	18.7	0.88	5.4A	214 ( 37)	7 70	4.4
209	: 3	0.00	0.09	20.1	0.09	20.1C	11 ( 72)	0 0	0.1
211	S: 27	20.46	0.98	18.9	0.29	5.7A	71 ( 39)	205 205S	1.4

NODE 2: 29 85.13 5.87 3.02 10.1B 513 ( 48) 8.4  
 -----

All MOEs are in units per hour.

1TRANST-7F:

Page 5

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Futur

SYSTEM-WIDE PERFORMANCE: ALL NODES  
 -----

Performance Measures	Units	System Totals
Total Travel	veh-mi/hr	85
Total Travel Time	veh-hr/hr	35
Total Uniform Delay	veh-hr/hr	20
Total Random Delay	veh-hr/hr	13
Total Delay	veh-hr/hr	33
Average Delay	sec/veh	25.0
Passenger Delay	pax-hr/hr	39
Uniform Stops:	veh/hr	3378
	%	72
Random Stops:	veh/hr	616
	%	13
Total Stops:	veh/hr	3995
	%	85
Degree of Sat > 1	# of links	0
Queue Spillback	# of links	10
Time Jammed	%	70
Period Length	sec	3600
System Speed	mph	21.1
Fuel Consumption	gal/hr	46
Operating Cost	\$/hr	315
Performance Index	DI	42.48

Performance Index (PI): Disutility Index (DI):  
 Disutility Index Excess Fuel Consumption

No. of Simulations = 38, Links = 950, Elapsed Time = 2.3 sec.  
 --- Termination Record ---

1TRANST-7F:

Page 6

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - AM - Futur

Termination Record

90 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

--- 92 --- NOTE -

+ End of job!  
 1

```

2) * COMMENT:*****
3) * COMMENT:***   Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais)   ***
4) * COMMENT:***   PM - Futur                                           ***
5) * COMMENT:***   nouvelle variante de développement - septembre 03     ***
6) * COMMENT:***   sans mesures d'atténuation                             ***
7) * COMMENT:*****
8) * COMMENT:--- Run Control ---
*****
*
* Release 8.20                      (TRANSTY-7F)                      October 1999 *
*
*                      TRAFFIC SIGNAL SYSTEM OPTIMIZATION
*
*                      PROGRAM
*
* Sponsored by:                      Developed by: *
*
* U.S. Department of Transportation          University of Florida *
* Federal Highway Administration           Transportation Research Center *
*
*      Software Maintenance and User Support Furnished by:
*      Center for Microcomputers in Transportation (McTrans)
*      Transportation Research Center, University of Florida
*      512 Weil Hall, P.O. Box 116585, Gainesville, FL 32611-6585 USA
*      (352) 392-0378
*
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*      TRANSTY-7F Copyright 1990-1999, University of Florida.
*      All Rights Reserved.
*
*****
  
```

Date of Run: 11/14/\*\* Start Time of Run: 12:26:47 Data File: PSM-PM-Futur

-----  
 INPUT DATA REPORT FOR RUN 1  
 -----

FIELDS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
-----															
Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur															
1	80	80	5	3	1	0	0	-1	0	0	60	0	0	0	0

--- 2 --- NOTE -  
 + The cycle increment is ignored in a single cycle run.

--- 4 --- NOTE -  
 + The sec/step factor in field 5 is ignored in a single cycle run.

--- 7 --- NOTE -  
 + A stop penalty of '-1' will result in automatic calculation of the PI to minimize fuel consumption. Link specific delay or stop weights on record types 37 & 38 will still be applied, however.

1TRANSTY-7F:

PAGE 2

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

FIELDS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
-----															
--- Optimization Node List ---															
2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
--- Network Parameters ---															
7	105	106	111	0	0	101	109	0	0	0	0	0	0	0	0
7	205	211	0	0	0	203	204	0	0	0	0	0	0	0	0
10	0	4	0	1700	30	35	100	25	0	85	25	40	0	125	120
*** Intersection 1 ***															
--- Signal Timing Data ---															

Projet Porte Sainte-Marie  
 Étude d'impact sur la circulation

```

-----
INTERSECTION      1
-----
13  1  7  1  27  5  31  5  7  5  0  0  0  0  0  0
21  1  1  1  2  0  9 106 105 111  0  0  0  0  0  0
22  1  3  3  4  0  9 103 -104 101 109  0  0  0  0  0
23  1  5  5  6  0  9 103 104  0  0  0  0  0  0  0
--- Link Data ---
28 106  0  0 140  0  0  0  0  0  0  0  0  0  0  0
28 105  0 4900 508  0  0  0  0  0  0  0  0  0  0  0
28 111  0  0  50  0  0  0  0  0  0  0  0  0  0  0
28 104  0 1600 363  0  0  0  0  0  0  0  0  0  0  0
29 104  0  0  0  0  0  0  0  0  101 100  0  0  0  0  0
28 103  0 3400 1016  0  0  0  0  0  0  0  0  0  0  0
28 101  0 5000 1290  0  0  0  0  0  0  0  0  0  0  0
28 109  0  0  581  0  0  0  0  0  0  0  0  0  0  0
*** Intersection 2 ***
--- Signal Timing Data ---
1TRANSYT-7F:
  
```

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

FIELDS:  
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

```

-----
INTERSECTION      2
-----
12  2  0  1  47  5  23  5  0  0  0  0  0  0  0  0
21  2  1  1  2  0  9 205 211  0  0  0  0  0  0  0
22  2  3  3  4  0  9 203 -204 209  0  0  0  0  0  0
--- Link Data ---
28 205 580 5000 1010  0 104 255 30 105 497 30 109 330 30 0
28 211 580  0  48  0 104 10 30 105 23 30 109 15 30 0
28 204  0  0  36  0  0  0  0  0  0  0  0  0  0  0
29 204  0  0  0  0  0  0  0  0 209 100  0  0  0  0  0
28 203  0 3300 126  0  0  0  0  0  0  0  0  0  0  0
28 209  0 1600 123  0  0  0  0  0  0  0  0  0  0  0
--- Run Instructions ---
  
```

PLOT AND OPTION CARDS

```

52  0  0  0  0  0 100  0  0  0  0  0  0  0  0  0  0
  
```

```

--- 72 --- NOTE -
+      A record type 52 causes run to be optimized using the
      default normal optimization step sizes.
      If record type 4 was coded, it is ignored.
  
```

```

--- 74 --- NOTE -
+      There are a total of 2 nodes and 12 links,
      including bottlenecks, if any, in this run.
  
```

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

<PERFORMANCE WITH OPTIMAL SETTINGS>

Movement/ Node Nos.	Deg/ Sat %	Total Travel v-mi	Travel Time Total v-hr	Time Avg. sec/v	Delay Total v-hr	Avg/LOS sec/v	Total Stops No. (%)	Max Back of Queue Est.Cap.	Fuel Cons. gal	
101	P: 97*	0.00	15.69	43.8	15.69	43.8D	1621(126)	41	0	18.1
103	: 56	0.00	3.79	13.4	3.79	13.4B	644( 64)	15	0	6.2
104	:154*	0.00	106.10	1052.3	106.10	1052.3F	3001(827)	14	0	79.7
105	P: 42	0.00	3.00	21.3	3.00	21.3C	386( 77)	12	0	4.3
106	S: 42	0.00	0.83	21.3	0.83	21.3C	117( 84)	105	105S	1.2
109	S: 97*	0.00	7.07	43.8	7.07	43.8D	967(167)	101	101S	8.1
111	S: 42	0.00	0.30	21.3	0.30	21.3C	51(103)	105	105S	0.4
NODE	1:154*	0.00	136.77		136.77	124.7F	6789(172)			118.0
203	P: 24	0.00	0.93	26.4	0.93	26.4C	105( 84)	2	0	1.2
204	S: 12	0.00	0.26	25.7	0.26	25.7C	30( 84)	203	203S	0.3
205	P: 33	111.08	4.57	16.3	0.85	3.0A	209( 21)	5	70	6.3
209	: 34	0.00	0.98	28.6	0.98	28.6C	109( 89)	2	0	1.3
211	S: 33	5.28	0.22	16.4	0.04	3.1A	19( 40)	205	205S	0.3

NODE 2: 34 116.36 6.95 3.05 8.2A 471( 35) 9.4  
 -----

All MOEs are in units per hour.

1TRANST-7F:

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Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

SYSTEM-WIDE PERFORMANCE: ALL NODES  
 -----

Performance Measures	Units	System Totals
Total Travel	veh-mi/hr	116
Total Travel Time	veh-hr/hr	144
Total Uniform Delay	veh-hr/hr	28
Total Random Delay	veh-hr/hr	111
Total Delay	veh-hr/hr	140
Average Delay	sec/veh	95.1
Passenger Delay	pax-hr/hr	168
Uniform Stops:	veh/hr	3653
	%	69
Random Stops:	veh/hr	3608
	%	68
Total Stops:	veh/hr	7261
	%	137
Degree of Sat > 1	# of links	1
Queue Spillback	# of links	10
Time Jammed	%	76
Period Length	sec	3600
System Speed	mph	24.3
Fuel Consumption	gal/hr	127
Operating Cost	\$/hr	643
Performance Index	DI	122.6

-----

Performance Index (PI): Disutility Index (DI):  
 Disutility Index Excess Fuel Consumption

No. of Simulations = 47, Links = 1175, Elapsed Time = 1.5 sec.  
 --- Termination Record ---

1TRANST-7F:

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Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

Termination Record

90 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

--- 92 --- NOTE -

+ End of job!  
 1



*Débits totaux*  
*(existants plus générés)*  
Mesures d'atténuation

ARRB Transport Research Ltd - SIDRA 5.20a

-----  
 TRAFIX  
 TRAFIX Registered User No. M0213  
 Time and Date of Analysis 12:07 PM, Nov 14,2003  
 -----

Ren,-L,vesque/Lorimier - AM - Futur - avec mesures attenuation \* FUTAM1-3  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:

SIDRA US Highway Capacity Manual (1997) Version  
 Fixed-Time Signals, Cycle Time = 120

RUN INFORMATION

-----  
 \* Basic Parameters:  
 Intersection Type: Signalised - Fixed Time  
 Driving on the right-hand side of the road  
 SIDRA US Highway Capacity Manual (1997) Version  
 Input data specified in Metric units  
 Default Values File No. 30  
 Peak flow period (for performance): 15 minutes  
 Unit time (for volumes): 60 minutes (Total Flow Period)  
 Delay definition: Control delay  
                   Geometric delay included  
 Delay formula: Highway Capacity Manual  
 Level of Service based on: Delay (HCM)  
 Queue definition: Back of queue, 95th\_Percentile  
  
 \* No. of Main (Timing-Capacity) Iterations = 1  
 Comparison of last two iterations:  
 Difference in intersection degree of satn = 0.0 %  
 Difference in total vehicle capacity = 0.0 %  
 Largest difference in eff. green times = 0 secs  
 (max. value for stopping = 0 secs)

Ren,-L,vesque/Lorimier - AM - Futur - avec mesures attenuation \* FUTAM1-3  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:  
 Fixed-Time Signals, Cycle Time = 120

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left		Through		Right		Flow Scale	Peak Flow Factor	
	LV	HV	LV	HV	LV	HV			
-----									
South:	South Approach								
1	7	0	0	0	0	0	1.00	0.90	
2	0	0	549	33	0	0	1.00	0.90	
-----									
East:	East Approach								
4	333	0	0	0	0	0	1.00	0.90	
5	0	0	750	41	0	0	1.00	0.90	
6	0	0	0	0	53	0	1.00	0.90	
-----									
North:	North Approach								
8	0	0	1347	53	0	0	1.00	0.90	
9	0	0	0	0	793	20	1.00	0.90	
-----									
West:	West Approach								
10	221	13	0	0	0	0	1.00	0.90	
12	0	0	0	0	207	20	1.00	0.90	
-----									
PEDESTRIANS	Flow (ped/hour)								
53	56							1.00	0.90
55	56							1.00	0.90
57	56							1.00	0.90
-----									

Based on unit time = 60 minutes.  
 Flow Scale and Peak Hour Factor effects included in flow values.

Ren,-L,vesque/Lorimier - AM - Futur - avec mesures attenuation \* FUTAM1-3  
 nouvelle variante de developpement - septembre 2003

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov No.	Mov Typ	P H A S E				M A T R I X				Lost Tim		Req. Mov. Time		Eff. Grn	
		First Green				Second Green				1st	2nd	1st	2nd	1st	2nd
		Fr	To	Op	Pr	Fr	To	Op	Pr	Grn	Grn	Grn	Grn	Grn	Grn
South: South Approach															
1	L	C	A	L						46		63.0Min		17	
2	T	C	A							5		63.0Min		58	
East: East Approach															
4	L	A	B							5		35.0Min		30	
5	T	*A	B							5		35.3		30	
6	R	A	B							5		35.0Min		30	
North: North Approach															
8	T	*C	A							5		63.0Min		58	
9	R	B	A							5		85.0Min		80	
West: West Approach															
10	L	*B	C							5		22.0Min		17	
12	R	B	C							5		22.0Min		17	
Pedestrians															
53	(Ped)	B	A							12		85.0Min		73	
55	(Ped)	A	B							10		35.0Min		25	
57	(Ped)	C	A							21		63.0Min		42	
Current Phase Sequence No.: 1															
Input phase sequence: A B C															
Output phase sequence: A B C															

Movement Types: Under heading 'Op':  
 Ped Pedestrian L "Left" turns are opposed  
 Dum Dummy R "Right" turns are opposed  
 Und Undetected in both green periods LR "Left and Right" opposed  
 Un1 Undetected in 1st green period C "Constant" saturation flow  
 Un2 Undetected in 2nd green period

Ren,-L,vesque/Lorimier - AM - Futur - avec mesures attenuation \* FUTAM1-3  
 nouvelle variante de developpement - septembre 2003

Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh /h)	Satn Flow		Flow Ratio		Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
		1st Grn	2nd Grn	1st Grn	2nd Grn					
South: South Approach										
1	L	7	189		0.037	27	0.90	244	100	0.261
2	T	582	4616		0.126	2231	0.90	245	100	0.261
East: East Approach										
4	L	333	1714		0.194	428	0.90	16	100	0.777
5	T	791	3483		0.227	871	0.90	-1	100	0.908*
6	R	53	1714		0.031	428	0.90	628	100	0.124
North: North Approach										
8	T	1400	3514		0.398	1698	0.90	9	100	0.824
9	R	813	1685		0.482	1123	0.90	24	100	0.724
West: West Approach										
10	L	234	3298		0.071	467	0.90	80	100	0.501
12	R	227	3226		0.070	457	0.90	81	100	0.497
Pedestrians										
53		56	20000		0.003	12167	0.90		100	0.005
55		56	20000		0.003	4167	0.90		100	0.013
57		56	20000		0.003	7000	0.90		100	0.008

Ren,-L,vesque/Lorimier - AM - Futur - avec mesures attenuation \* FUTAM1-3  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.3 - INTERSECTION PARAMETERS

Mov No.	App. & Turn	Green Period	Phases		Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
			Fr	To				
5	E_T		A	B	5	0.227	0.252	35.3
10	W_L		B	C	22	-	-	22.0Min
8	N_T		C	A	63	-	-	63.0Min
Total:					90	0.227	0.252	120.3

- Flow ratio not used for cycle time calculations and  
the adjusted lost time equals the required movement time  
(=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
120	= 120	120	120

(Cycle time specified by the user)

Degree of saturation (highest)	=	0.908
Practical Spare Capacity (lowest)	=	-1 %
Total vehicle flow (veh/h)	=	4440
Total pedestrian flow (ped/h)	=	168
Total vehicle capacity, all lanes (veh/h)	=	7731
Average intersection delay (s)	=	42.1
Largest average movement delay (s)	=	69.1
Total vehicle delay (veh-h/h)	=	52.71
Total pedestrian delay (ped-h/h)	=	1.12
Largest back of queue, 95% (m)	=	225
Performance Index	=	315.36
Total fuel (L/h)	=	526.3
Total cost (\$/h)	=	3452.78
Intersection Level of Service	=	D
Worst movement Level of Service	=	E

Ren,-L,vesque/Lorimier - AM - Futur - avec mesures attenuation \* FUTAM1-3  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs Prop.
A	0	5	30	35 0.292
B	35	40	17	22 0.183
C	57	62	58	63 0.525

Current Phase Sequence No.: 1  
Input phase sequence: A B C  
Output phase sequence: A B C

Ren,-L,vesque/Lorimier - AM - Futur - avec mesures attenuation \* FUTAM1-3  
nouvelle variante de developpement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 95% Back (vehs)	Queue (m)	Perf. Index	Aver. Speed (km/h)
------------	-----------------------------	-------------------------	-----------------	----------------------	--	--------------	----------------	--------------------------

South: South Approach

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

1	L	0.06	28.7	0.74	0.77	7.9	50	0.42	34.6
2	T	3.47	21.5	0.65	0.56	9.2	58	30.81	39.3
-----									
East: East Approach									
4	L	5.81	62.8	0.99	0.92	19.9	119	26.63	28.0
5	T	15.17	69.1	1.00	1.06	26.7	168	69.73	26.6
6	R	0.64	43.4	0.80	0.75	3.4	21	3.50	32.4
-----									
North: North Approach									
8	T	13.83	35.6	0.92	0.88	36.2	225	96.28	34.5
9	R	5.64	25.0	0.70	0.84	30.1	185	45.98	38.1
-----									
West: West Approach									
10	L	4.09	62.9	0.97	0.79	8.2	52	18.32	28.0
12	R	4.00	63.4	0.97	0.79	8.0	52	17.79	27.9
-----									
Pedestrians									
53		0.14	9.2	0.39	0.39	0.7	1	1.67	3.6
55		0.58	37.6	0.79	0.79	1.5	1	2.23	2.8
57		0.39	25.4	0.65	0.65	1.2	1	2.00	3.1
-----									

Ren, -L, vesque/Lorimier - AM - Futur - avec mesures atténuation \* FUTAM1-3  
nouvelle variante de développement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
-----						
South: South Approach						
589	3.53	21.5	0.660	0.56	31.23	39.3
-----						
East: East Approach						
1177	21.62	66.1	0.989	1.01	99.86	27.2
-----						
North: North Approach						
2213	19.48	31.7	0.845	0.87	142.26	35.7
-----						
West: West Approach						
461	8.09	63.1	0.970	0.79	36.11	28.0
-----						
Pedestrians						
168	1.12	24.1	0.611	0.61	5.89	3.2
-----						
ALL VEHICLES:						
4440	52.71	42.7	0.872	0.86	309.46	32.5
-----						
INTERSECTION:						
4608	53.83	42.1	0.862	0.85	315.36	31.5
-----						

Ren, -L, vesque/Lorimier - AM - Futur - avec mesures atténuation \* FUTAM1-3  
nouvelle variante de développement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec)				Arv Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue		Shrt Lane (m)
		R1	G1	R2	G2						95% Back (vehs)	(m)	
-----													
South: South Approach													
1	LT	1, 2	77	43	0	0	151	580	0.261	28.7	0.63	7.9	50
2	T	2	62	58	0	0	219	839	0.261	19.1	0.53	9.2	58
3	T	2	62	58	0	0	219	839	0.261	19.1	0.53	9.2	58
-----													
East: East Approach													
1	L	4	90	30	0	0	333	429	0.777	62.8	0.92	19.9	119
2	T	5	90	30	0	0	396	435	0.908	69.1	1.06	26.7	168

Projet Porte Sainte-Marie  
Étude d'impact sur la circulation

3 T	5	90	30	0	0	396	435	0.908	69.1	1.06	26.7	168
4 R	6	90	30	0	0	53	429	0.124	43.4	0.75	3.4	21

North: North Approach

1 T	8	62	58	0	0	700	849	0.824	35.6	0.88	36.2	225
2 T	8	62	58	0	0	700	849	0.824	35.6	0.88	36.2	225
3 R	9	40	80	0	0	813	1123	0.724	25.0	0.84	30.1	185

West: West Approach

1 L	10	103	17	0	0	117	234	0.501	62.9	0.79	8.2	52
2 L	10	103	17	0	0	117	234	0.501	62.9	0.79	8.2	52
3 R	12	103	17	0	0	114	228	0.497	63.4	0.79	8.0	52
4 R	12	103	17	0	0	114	228	0.497	63.4	0.79	8.0	52

Ren,-L,vesque/Lorimier - AM - Futur - avec mesures attenuation \* FUTAM1-3  
nouvelle variante de developpement - septembre 2003

Intersection ID:

Fixed-Time Signals, Cycle Time = 120

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov No.	Arv Flow (veh/h)			Lane Width (m)	Saturation Flow			End Cap (veh/h)	Tot Cap (veh/h)	Deg. Satn x	Lane Util %
		Lef	Thru	Rig Tot		Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)				
South: South Approach												
1 LT	1, 2	7	144	0	151	3.30	1800	1617	0	32	580	0.261 100
2 T	2	0	219	0	219	3.30	1800	1736	0	0	839	0.261 100
3 T	2	0	219	0	219	3.30	1800	1736	0	0	839	0.261 100
East: East Approach												
1 L	4	333	0	0	333	3.30	1800	1714	0	0	429	0.777 100
2 T	5	0	396	0	396	3.30	1800	1741	0	0	435	0.908 100
3 T	5	0	396	0	396	3.30	1800	1741	0	0	435	0.908 100
4 R	6	0	0	53	53	3.30	1800	1714	0	0	429	0.124 100
North: North Approach												
1 T	8	0	700	0	700	3.30	1800	1757	0	0	849	0.824 100
2 T	8	0	700	0	700	3.30	1800	1757	0	0	849	0.824 100
3 R	9	0	0	813	813	3.30	1800	1685	0	0	1123	0.724 100
West: West Approach												
1 L	10	117	0	0	117	3.30	1800	1649	0	0	234	0.501 100
2 L	10	117	0	0	117	3.30	1800	1649	0	0	234	0.501 100
3 R	12	0	0	114	114	3.30	1800	1613	0	0	228	0.497 100
4 R	12	0	0	114	114	3.30	1800	1613	0	0	228	0.497 100

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Ren,-L,vesque/Lorimier - AM - Futur - avec mesures attenuation \* FUTAM1-3  
nouvelle variante de developpement - septembre 2003

Intersection ID:

Fixed-Time Signals, Cycle Time = 120

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total \$/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
1 L	0.8	5.16	0.003	0.08	0.003	2.0	0.00006
2 T	61.6	369.58	0.208	6.22	0.238	153.3	0.00493
	62.4	374.74	0.211	6.30	0.241	155.3	0.00499
East: East Approach							
4 L	42.1	296.27	0.153	3.97	0.149	105.1	0.00336
5 T	104.8	716.94	0.389	11.34	0.402	260.9	0.00838
6 R	6.2	41.37	0.022	0.60	0.023	15.5	0.00050

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	153.1	1054.57	0.564	15.91	0.574	381.6	0.01225
North: North Approach							
8 T	160.3	992.21	0.562	17.52	0.635	399.5	0.01282
9 R	90.5	554.56	0.307	9.33	0.353	225.8	0.00724
	250.8	1546.77	0.870	26.84	0.987	625.3	0.02006
West: West Approach							
10 L	30.2	208.73	0.109	2.98	0.112	75.1	0.00242
12 R	29.8	204.10	0.108	3.06	0.114	74.1	0.00239
	60.0	412.83	0.217	6.04	0.227	149.2	0.00480
Pedestrians							
53		18.52					
55		23.82					
57		21.53					
		63.87					
ALL VEHICLES:	526.3	3388.92	1.861	55.09	2.029	1308.9	0.04210
INTERSECTION:	526.3	3452.78	1.861	55.09	2.029	1308.9	0.04210

Ren, -L, vesque/Lorimier - AM - Futur - avec mesures atténuation \* FUTAM1-3  
nouvelle variante de développement - septembre 2003  
Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	95% Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: South Approach												
1 LT	7	144	0	151	5	1800	43		0.261	28.7	50	
2 T	0	219	0	219	6	1800	58		0.261	19.1	58	
3 T	0	219	0	219	6	1800	58		0.261	19.1	58	
	7	582	0	589	6				0.261	21.5	58	
East: East Approach												
1 L	333	0	0	333	0	1800	30		0.777	62.8	119	
2 T	0	396	0	396	5	1800	30		0.908	69.1	168	
3 T	0	396	0	396	5	1800	30		0.908	69.1	168	
4 R	0	0	53	53	0	1800	30		0.124	43.4	21	
	333	791	53	1177	3				0.908	66.1	168	
North: North Approach												
1 T	0	700	0	700	4	1800	58		0.824	35.6	225	
2 T	0	700	0	700	4	1800	58		0.824	35.6	225	
3 R	0	0	813	813	2	1800	80		0.724	25.0	185	
	0	1400	813	2213	3				0.824	31.7	225	
West: West Approach												
1 L	117	0	0	117	6	1800	17		0.501	62.9	52	
2 L	117	0	0	117	6	1800	17		0.501	62.9	52	
3 R	0	0	114	114	9	1800	17		0.497	63.4	52	
4 R	0	0	114	114	9	1800	17		0.497	63.4	52	
	234	0	227	461	7				0.501	63.1	52	
Pedestrians												
Across E approach				56			73		0.005	9.2	0.7	
Across N approach				56			25		0.013	37.6	1.5	
Across W approach				56			42		0.008	25.4	1.2	
ALL VEHICLES				Tot Arv.	% HV		Cycle Time		Max X	Aver. Delay	Max Queue	
				4440	4		120		0.908	42.1	225	

Total flow period = 60 minutes. Peak flow period = 15 minutes.

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Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Values printed in this table are back of queue.

Ren,-L,vesque/Lorimier - AM - Futur - avec mesures attenuation \* FUTAM1-3  
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Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Time Ratio (g/C)		Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
		1st grn	2nd grn					
South: South Approach								
1	L	0.142		7	27	0.261	28.7	C
2	T	0.483		582	2231	0.261	21.5	C
				589	2258	0.261	21.5	C
East: East Approach								
4	L	0.250		333	428	0.777	62.8	E
5	T	0.250*		791	871	0.908*	69.1	E
6	R	0.250		53	428	0.124	43.4	D
				1177	1728	0.908	66.1	E
North: North Approach								
8	T	0.483*		1400	1698	0.824	35.6	D
9	R	0.667		813	1123	0.724	25.0	C
				2213	2822	0.824	31.7	C
West: West Approach								
10	L	0.142*		234	467	0.501	62.9	E
12	R	0.142		227	457	0.497	63.4	E
				461	924	0.501	63.1	E
Pedestrians								
53	(Ped)	0.608		56	12167	0.005	9.2	A
55	(Ped)	0.208		56	4167	0.013	37.6	D
57	(Ped)	0.350		56	7000	0.008	25.4	C
				168	23333	0.013	24.1	C
ALL VEHICLES:				4440	7731	0.908	42.7	D
INTERSECTION:				4608	7731	0.908	42.1	D

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help. Intersection capacity is calculated considering vehicle movements only.  
\* Maximum v/c ratio, or critical green periods

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 120

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings	
						1st Grn Gmin	2nd Grn Gmax
South: South Approach							
1	FT	No	3	1.000	1.000	58	NA



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---

2	FT	No	3	1.000	1.000	58	NA
-----							
East:	East Approach						
4	FT	No	3	1.000	1.000	30	NA
5	FT	No	3	1.000	1.000	30	NA
6	FT	No	3	1.000	1.000	30	NA
-----							
North:	North Approach						
8	FT	No	3	1.000	1.000	58	NA
9	FT	No	3	1.000	1.000	80	NA
-----							
West:	West Approach						
10	FT	No	3	1.000	1.000	17	NA
12	FT	No	3	1.000	1.000	17	NA
-----							
Pedestrians							
53	FT	No	3	1.000	1.000		
55	FT	No	3	1.000	1.000		
57	FT	No	3	1.000	1.000		
-----							
--- End of SIDRA Output ---							

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-----  
 TRAFIX  
 TRAFIX Registered User No. M0213  
 Time and Date of Analysis 12:08 PM, Nov 14,2003

Ren,-L,vesque/Lorimier - PM - Futur - avec mesures d'attenuation \* FUTPM1-3  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:

SIDRA US Highway Capacity Manual (1997) Version  
 Fixed-Time Signals, Cycle Time = 100

RUN INFORMATION

-----  
 \* Basic Parameters:  
 Intersection Type: Signalised - Fixed Time  
 Driving on the right-hand side of the road  
 SIDRA US Highway Capacity Manual (1997) Version  
 Input data specified in Metric units  
 Default Values File No. 30  
 Peak flow period (for performance): 15 minutes  
 Unit time (for volumes): 60 minutes (Total Flow Period)  
 Delay definition: Control delay  
                   Geometric delay included  
 Delay formula: Highway Capacity Manual  
 Level of Service based on: Delay (HCM)  
 Queue definition: Back of queue, 95th\_Percentile

\* No. of Main (Timing-Capacity) Iterations = 1  
 Comparison of last two iterations:  
 Difference in intersection degree of satn = 0.0 %  
 Difference in total vehicle capacity = 0.0 %  
 Largest difference in eff. green times = 0 secs  
 (max. value for stopping = 0 secs)

Ren,-L,vesque/Lorimier - PM - Futur - avec mesures d'attenuation \* FUTPM1-3  
 nouvelle variante de developpement - septembre 2003  
 Intersection ID:  
 Fixed-Time Signals, Cycle Time = 100

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left		Through		Right		Flow Scale	Peak Flow Factor	
	LV	HV	LV	HV	LV	HV			
-----									
South:	South Approach								
1	119	0	0	0	0	0	1.00	0.90	
2	0	0	993	22	0	0	1.00	0.90	
-----									
East:	East Approach								
4	267	0	0	0	0	0	1.00	0.90	
5	0	0	948	30	0	0	1.00	0.90	
6	0	0	0	0	248	0	1.00	0.90	
-----									
North:	North Approach								
8	0	0	822	61	0	0	1.00	0.90	
9	0	0	0	0	324	0	1.00	0.90	
-----									
West:	West Approach								
10	1000	30	0	0	0	0	1.00	0.90	
12	0	0	0	0	200	37	1.00	0.90	
-----									
PEDESTRIANS	Flow (ped/hour)								
53	56							1.00	0.90
55	56							1.00	0.90
57	56							1.00	0.90

-----  
 Based on unit time = 60 minutes.  
 Flow Scale and Peak Hour Factor effects included in flow values.

Ren,-L,vesque/Lorimier - PM - Futur - avec mesures d'attenuation \* FUTPM1-3  
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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov No.	Mov Typ	P H A S E				M A T R I X				Lost Tim		Req.Mov.Time		Eff. Grn	
		First Green				Second Green				1st	2nd	1st	2nd	1st	2nd
		Fr	To	Op	Pr	Fr	To	Op	Pr	Grn	Grn	Grn	Grn	Grn	Grn
South: South Approach															
1	L	*C	A	L						27		41.9		14	
2	T	C	A							5		41.0Min		36	
East: East Approach															
4	L	A	B							5		33.0Min		28	
5	T	*A	B							5		35.8		28	
6	R	A	B							5		33.0Min		28	
North: North Approach															
8	T	C	A							5		41.0Min		36	
9	R	B	A							5		67.0Min		62	
West: West Approach															
10	L	*B	C							5		39.1		21	
12	R	B	C							5		26.0Min		21	
Pedestrians															
53	(Ped)	B	A							12		67.0Min		55	
55	(Ped)	A	B							18		33.0Min		15	
57	(Ped)	C	A							21		41.0Min		20	
Current Phase Sequence No.: 1															
Input phase sequence: A B C															
Output phase sequence: A B C															

Movement Types: Under heading 'Op':  
 Ped Pedestrian L "Left" turns are opposed  
 Dum Dummy R "Right" turns are opposed  
 Und Undetected in both green periods LR "Left and Right" opposed  
 Un1 Undetected in 1st green period C "Constant" saturation flow  
 Un2 Undetected in 2nd green period

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 nouvelle variante de developpement - septembre 2003

Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh /h)	Satn Flow		Flow Ratio		Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
		1st Grn	2nd Grn	1st Grn	2nd Grn					
South: South Approach										
1	L	119	887		0.134	124	0.90	-6	100	0.958
2	T	1015	3550		0.286	1278	0.90	13	83	0.794
East: East Approach										
4	L	267	1714		0.156	480	0.90	62	100	0.556
5	T	978	3530		0.277	988	0.90	-9	100	0.989
6	R	248	1714		0.145	480	0.90	74	100	0.517
North: North Approach										
8	T	883	3445		0.256	1240	0.90	26	100	0.712
9	R	324	1714		0.189	1063	0.90	195	100	0.305
West: West Approach										
10	L	1030	3359		0.307	705	0.90	-38	100	1.460*
12	R	237	3085		0.077	648	0.90	146	100	0.366
Pedestrians										
53		56	20000		0.003	11000	0.90		100	0.005
55		56	20000		0.003	3000	0.90		100	0.019
57		56	20000		0.003	4000	0.90		100	0.014

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.3 - INTERSECTION PARAMETERS

Crit Mov No.	App. & Turn	Green Period	Phases		Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
			Fr	To				
5	E_T		A	B	5	0.277	0.308	35.8
10	W_L		B	C	5	0.307	0.341	39.1
1	S_L		C	A	27	0.134	0.149	41.9
Total:					37	0.718	0.798	116.8

Cycle Time:

Minimum Maximum Practical Chosen  
100 = 100 100 100  
(Cycle time specified by the user)

Degree of saturation (highest) = 1.460  
Practical Spare Capacity (lowest) = -38 %  
Total vehicle flow (veh/h) = 5101  
Total pedestrian flow (ped/h) = 168  
Total vehicle capacity, all lanes (veh/h) = 7007  
Average intersection delay (s) = 90.4  
Largest average movement delay (s) = 269.5  
Total vehicle delay (veh-h/h) = 131.12  
Total pedestrian delay (ped-h/h) = 1.22  
Largest back of queue, 95% (m) = 379  
Performance Index = 479.45  
Total fuel (L/h) = 728.6  
Total cost (\$/h) = 5454.24  
Intersection Level of Service = F  
Worst movement Level of Service = F

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs Prop.
A	0	5	28	33 0.330
B	33	38	21	26 0.260
C	59	64	36	41 0.410

(Phase change times specified by the user)

Current Phase Sequence No.: 1  
Input phase sequence: A B C  
Output phase sequence: A B C

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 95% (vehs)	Perf. Index	Aver. Speed (km/h)
South: South Approach							
1 L	3.98	120.4	1.00	1.09	9.6	57	12.18
2 T	10.86	38.5	0.96	0.91	24.0	147	67.20

-----									
East:	East Approach								
4 L	3.21	43.2	0.90	0.83	12.8	77	17.25	32.4	
5 T	20.06	73.9	1.00	1.23	32.5	201	88.33	25.8	
6 R	2.91	42.2	0.89	0.82	11.9	71	15.86	32.7	
-----									
North:	North Approach								
8 T	8.43	34.4	0.92	0.81	19.5	125	54.69	34.8	
9 R	1.58	17.6	0.50	0.76	9.0	54	14.60	41.0	
-----									
West:	West Approach								
10 L	77.11	269.5	1.00	1.95	61.3	379	187.75	11.4	
12 R	3.00	45.6	0.90	0.79	6.6	46	15.51	32.0	
-----									
Pedestrians									
53	0.16	10.1	0.45	0.45	0.7	1	1.70	3.6	
55	0.56	36.1	0.85	0.85	1.3	1	2.23	2.9	
57	0.50	32.0	0.80	0.80	1.2	1	2.15	3.0	
-----									

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
-----						
South:	South Approach					
1134	14.84	47.1	0.965	0.93	79.38	31.3
-----						
East:	East Approach					
1493	26.18	63.1	0.966	1.09	121.44	27.8
-----						
North:	North Approach					
1207	10.01	29.8	0.809	0.80	69.29	36.3
-----						
West:	West Approach					
1267	80.10	227.6	0.981	1.73	203.26	13.0
-----						
Pedestrians						
168	1.22	26.1	0.700	0.70	6.07	3.1
-----						
ALL VEHICLES:						
5101	131.12	92.5	0.932	1.14	473.37	23.1
-----						
INTERSECTION:						
5269	132.34	90.4	0.925	1.13	479.45	22.6
-----						

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec)				Arv Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Q u e u e		Shrt Lane (m)
		R1	G1	R2	G2						95% Back (vehs)	(m)	
-----													
South: South Approach													
1 L	1,	86	14	0	0	119	124	0.959	120.4	1.09	9.6	57	
	2												
2 T	2	64	36	0	0	508	639	0.794	38.5	0.91	24.0	147	
3 T	2	64	36	0	0	508	639	0.794	38.5	0.91	24.0	147	
-----													
East: East Approach													
1 L	4	72	28	0	0	267	480	0.556	43.2	0.83	12.8	77	
2 T	5	72	28	0	0	489	494	0.990	73.9	1.23	32.5	201	
3 T	5	72	28	0	0	489	494	0.990	73.9	1.23	32.5	201	
4 R	6	72	28	0	0	248	480	0.517	42.2	0.82	11.9	71	
-----													

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North: North Approach												
1 T	8	64	36	0	0	442	620	0.712	34.4	0.81	19.5	125
2 T	8	64	36	0	0	442	620	0.712	34.4	0.81	19.5	125
3 R	9	38	62	0	0	324	1063	0.305	17.6	0.76	9.0	54
West: West Approach												
1 L	10	79	21	0	0	515	353	1.460	269.5	1.95	61.3	379
2 L	10	79	21	0	0	515	353	1.460	269.5	1.95	61.3	379
3 R	12	79	21	0	0	119	324	0.366	45.6	0.79	6.6	46
4 R	12	79	21	0	0	119	324	0.366	45.6	0.79	6.6	46

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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov No.	Arv Flow (veh/h)			Lane Width (m)	Saturation Flow		End Cap (veh/h)	Tot Cap (veh/h)	Deg. x	Lane Util %		
		Lef	Thru	Rig		Adj. Basic (tcu)	Aver 1st (veh)					Aver 2nd (veh)	
South: South Approach													
1 L	1	119	0	0	119	3.30	1800	887	0	79	124	0.959	100
2 T	2	0	508	0	508	3.30	1800	1775	0	0	639	0.794	83P
3 T	2	0	508	0	508	3.30	1800	1775	0	0	639	0.794	83P
East: East Approach													
1 L	4	267	0	0	267	3.30	1800	1714	0	0	480	0.556	100
2 T	5	0	489	0	489	3.30	1800	1765	0	0	494	0.990	100
3 T	5	0	489	0	489	3.30	1800	1765	0	0	494	0.990	100
4 R	6	0	0	248	248	3.30	1800	1714	0	0	480	0.517	100
North: North Approach													
1 T	8	0	442	0	442	3.30	1800	1723	0	0	620	0.712	100
2 T	8	0	442	0	442	3.30	1800	1723	0	0	620	0.712	100
3 R	9	0	0	324	324	3.30	1800	1714	0	0	1063	0.305	100
West: West Approach													
1 L	10	515	0	0	515	3.30	1800	1679	0	0	353	1.460	100
2 L	10	515	0	0	515	3.30	1800	1679	0	0	353	1.460	100
3 R	12	0	0	119	119	3.30	1800	1542	0	0	324	0.366	100
4 R	12	0	0	119	119	3.30	1800	1542	0	0	324	0.366	100

P Lane under-utilisation found by the "Program"

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Ren,-L,vesque/Lorimier - PM - Futur - avec mesures d'attenuation \* FUTPM1-3  
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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	South: South Approach							
	Fuel Total L/h	Cost Total \$/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h	
1 L	18.0	144.57	0.070	1.53	0.058	44.9	0.00144	
2 T	116.8	734.01	0.413	12.65	0.457	291.6	0.00935	
	134.8	878.58	0.483	14.18	0.515	336.5	0.01078	
East: East Approach								
4 L	31.3	207.65	0.110	3.03	0.115	78.2	0.00250	
5 T	132.5	919.93	0.496	14.23	0.500	330.3	0.01060	
6 R	29.0	191.47	0.102	2.81	0.107	72.4	0.00232	

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	192.7	1319.04	0.709	20.07	0.722	481.0	0.01542
-----							
North: North Approach							
8 T	101.5	619.36	0.354	11.35	0.411	252.3	0.00812
9 R	34.6	208.05	0.116	3.49	0.133	86.5	0.00277
	136.1	827.41	0.470	14.84	0.544	338.8	0.01089
-----							
West: West Approach							
10 L	234.5	2172.84	1.007	19.32	0.692	585.0	0.01876
12 R	30.4	191.36	0.106	3.44	0.127	75.1	0.00243
	265.0	2364.20	1.113	22.76	0.819	659.6	0.02120
-----							
Pedestrians							
53		18.69					
55		23.54					
57		22.77					
		65.01					
-----							
ALL VEHICLES:	728.6	5389.23	2.775	71.86	2.599	1812.8	0.05829
-----							
INTERSECTION:	728.6	5454.24	2.775	71.86	2.599	1812.8	0.05829
-----							

Ren, -L,vesque/Lorimier - PM - Futur - avec mesures d'attenuation \* FUTPM1-3  
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Intersection ID:  
Fixed-Time Signals, Cycle Time = 100

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn 1st 2nd	Deg Sat x	Aver. Delay (sec)	95% Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
-----											
South: South Approach											
1 L	119	0	0	119	0	1800	14	0.959	120.4	57	
2 T	0	508	0	508	2	1800	36	0.794	38.5	147	
3 T	0	508	0	508	2	1800	36	0.794	38.5	147	
	119	1015	0	1134	2			0.959	47.1	147	
-----											
East: East Approach											
1 L	267	0	0	267	0	1800	28	0.556	43.2	77	
2 T	0	489	0	489	3	1800	28	0.990	73.9	201	
3 T	0	489	0	489	3	1800	28	0.990	73.9	201	
4 R	0	0	248	248	0	1800	28	0.517	42.2	71	
	267	978	248	1493	2			0.990	63.1	201	
-----											
North: North Approach											
1 T	0	442	0	442	7	1800	36	0.712	34.4	125	
2 T	0	442	0	442	7	1800	36	0.712	34.4	125	
3 R	0	0	324	324	0	1800	62	0.305	17.6	54	
	0	883	324	1207	5			0.712	29.8	125	
-----											
West: West Approach											
1 L	515	0	0	515	3	1800	21	1.460	269.5	379	
2 L	515	0	0	515	3	1800	21	1.460	269.5	379	
3 R	0	0	119	119	16	1800	21	0.366	45.6	46	
4 R	0	0	119	119	16	1800	21	0.366	45.6	46	
	1030	0	237	1267	5			1.460	227.6	379	
-----											
Pedestrians											
Across E approach				56			55	0.005	10.1	0.7	
Across N approach				56			15	0.019	36.1	1.3	
Across W approach				56			20	0.014	32.0	1.2	
=====											
ALL VEHICLES				Tot	%		Cycle	Max	Aver.	Max	
				Arv.	HV		Time	X	Delay	Queue	
				5101	4		100	1.460	90.4	379	
=====											

Total flow period = 60 minutes. Peak flow period = 15 minutes.

**Projet Porte Sainte-Marie**  
**Étude d'impact sur la circulation**

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Values printed in this table are back of queue.

Ren,-L,vesque/Lorimier - PM - Futur - avec mesures d'attenuation \* FUTPM1-3  
nouvelle variante de developpement - septembre 2003  
Intersection ID:

Fixed-Time Signals, Cycle Time = 100

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Time Ratio (g/C)		Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
		1st grn	2nd grn					
South: South Approach								
1	L	0.140*		119	124	0.958	120.4	F
2	T	0.360		1015	1278	0.794	38.5	D
				1134	1402	0.958	47.1	D
East: East Approach								
4	L	0.280		267	480	0.556	43.2	D
5	T	0.280*		978	988	0.989	73.9	E
6	R	0.280		248	480	0.517	42.2	D
				1493	1948	0.989	63.1	E
North: North Approach								
8	T	0.360		883	1240	0.712	34.4	C
9	R	0.620		324	1063	0.305	17.6	B
				1207	2303	0.712	29.8	C
West: West Approach								
10	L	0.210*		1030	705	1.460*	269.5	F
12	R	0.210		237	648	0.366	45.6	D
				1267	1353	1.460	227.6	F
Pedestrians								
53	(Ped)	0.550		56	11000	0.005	10.1	B
55	(Ped)	0.150		56	3000	0.019	36.1	D
57	(Ped)	0.200		56	4000	0.014	32.0	C
				168	18000	0.019	26.1	C
ALL VEHICLES:				5101	7007	1.460	92.5	F
INTERSECTION:				5269	7007	1.460	90.4	F

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help. Intersection capacity is calculated considering vehicle movements only.

\* Maximum v/c ratio, or critical green periods

Ren,-L,vesque/Lorimier - PM - Futur - avec mesures d'attenuation \* FUTPM1-3  
nouvelle variante de developpement - septembre 2003  
Intersection ID:

Fixed-Time Signals, Cycle Time = 100

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings				
						1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax	
South: South Approach										
1	FT	No	3	1.000	1.000	36	NA			
2	FT	No	3	1.000	1.000	36	NA			



-----							
East:	East Approach						
4	FT	No	3	1.000	1.000	28	NA
5	FT	No	3	1.000	1.000	28	NA
6	FT	No	3	1.000	1.000	28	NA
-----							
North:	North Approach						
8	FT	No	3	1.000	1.000	36	NA
9	FT	No	3	1.000	1.000	61	NA
-----							
West:	West Approach						
10	FT	No	3	1.000	1.000	21	NA
12	FT	No	3	1.000	1.000	21	NA
-----							
Pedestrians							
53	FT	No	3	1.000	1.000		
55	FT	No	3	1.000	1.000		
57	FT	No	3	1.000	1.000		
-----							

--- End of SIDRA Output ---

```

2) * COMMENT:*****
3) * COMMENT:***   Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais)   ***
4) * COMMENT:***   PM - Futur                                             ***
5) * COMMENT:***   nouvelle variante de développement - septembre 03     ***
6) * COMMENT:***   avec mesures d'atténuation                             ***
7) * COMMENT:*****
8) * COMMENT:--- Run Control ---
*****
*
* Release 8.20                      (TRANST-7F)                      October 1999 *
*
*                      TRAFFIC SIGNAL SYSTEM OPTIMIZATION          *
*
*                      PROGRAM                                       *
*
* Sponsored by:                      Developed by: *
*
* U.S. Department of Transportation          University of Florida *
* Federal Highway Administration          Transportation Research Center *
*
*      Software Maintenance and User Support Furnished by: *
*      Center for Microcomputers in Transportation (McTrans) *
*      Transportation Research Center, University of Florida *
*      512 Weil Hall, P.O. Box 116585, Gainesville, FL 32611-6585 USA *
*      (352) 392-0378 *
*
*      TRANST/7 (C) British Crown Copyright. *
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*****
  
```

Date of Run: 11/14/\*\* Start Time of Run: 12:26:25 Data File: PSM-PM-Futur

-----  
 INPUT DATA REPORT FOR RUN 1  
 -----

FIELDS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur															
1	80	80	5	3	1	0	0	-1	0	0	60	0	0	0	0

--- 2 --- NOTE -  
 + The cycle increment is ignored in a single cycle run.

--- 4 --- NOTE -  
 + The sec/step factor in field 5 is ignored in a single cycle run.

--- 7 --- NOTE -  
 + A stop penalty of '-1' will result in automatic calculation of the PI to minimize fuel consumption. Link specific delay or stop weights on record types 37 & 38 will still be applied, however.

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Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

FIELDS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--- Optimization Node List ---															
2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
--- Network Parameters ---															
7	105	106	111	0	0	101	109	0	0	0	0	0	0	0	0
7	205	211	0	0	0	203	204	0	0	0	0	0	0	0	0
10	0	4	0	1700	30	35	100	25	0	85	25	40	0	125	120
*** Intersection 1 ***															
--- Signal Timing Data ---															

Projet Porte Sainte-Marie  
 Étude d'impact sur la circulation

```

-----
INTERSECTION      1
-----
13  1  7  1  20  5  31  5  14  5  0  0  0  0  0  0
21  1  1  1  2  0  9 106 105 111  0  0  0  0  0  0
22  1  3  3  4  0  9 103 -104 101 109  0  0  0  0  0
23  1  5  5  6  0  9 103 104  0  0  0  0  0  0  0
--- Link Data ---
28 106  0  0 140  0  0  0  0  0  0  0  0  0  0  0
28 105  0 4900 508  0  0  0  0  0  0  0  0  0  0  0
28 111  0  0  50  0  0  0  0  0  0  0  0  0  0  0
28 104  0 1600 363  0  0  0  0  0  0  0  0  0  0  0
29 104  0  0  0  0  0  0  0  0  101 100  0  0  0  0  0
28 103  0 3400 1016  0  0  0  0  0  0  0  0  0  0  0
28 101  0 5000 1290  0  0  0  0  0  0  0  0  0  0  0
28 109  0  0  581  0  0  0  0  0  0  0  0  0  0  0
*** Intersection 2 ***
--- Signal Timing Data ---
1TRANSYT-7F:

```

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

FIELDS:  
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

```

-----
INTERSECTION      2
-----
12  2  0  1  47  5  23  5  0  0  0  0  0  0  0  0
21  2  1  1  2  0  9 205 211  0  0  0  0  0  0  0
22  2  3  3  4  0  9 203 -204 209  0  0  0  0  0  0
--- Link Data ---
28 205 580 5000 1010  0 104 255 30 105 497 30 109 330 30 0
28 211 580  0 48  0 104 10 30 105 23 30 109 15 30 0
28 204  0  0 36  0  0  0  0  0  0  0  0  0  0  0
29 204  0  0  0  0  0  0  0  0 209 100  0  0  0  0  0
28 203  0 3300 126  0  0  0  0  0  0  0  0  0  0  0
28 209  0 1600 123  0  0  0  0  0  0  0  0  0  0  0
--- Run Instructions ---

```

PLOT AND OPTION CARDS

```

52  0  0  0  0  0 100  0  0  0  0  0  0  0  0  0

```

--- 72 --- NOTE -  
+ A record type 52 causes run to be optimized using the default normal optimization step sizes. If record type 4 was coded, it is ignored.

--- 74 --- NOTE -  
+ There are a total of 2 nodes and 12 links, including bottlenecks, if any, in this run.

Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

<PERFORMANCE WITH OPTIMAL SETTINGS>

Movement/ Node Nos.	Deg/ Sat %	Total Travel v-mi	Travel Time Total v-hr	Avg. sec/v	Delay Total v-hr	Avg/LOS sec/v	Total Stops No. (%)	Max Back of Queue Est.Cap.	Fuel Cons. gal
101	P: 97*	0.00	15.69	43.8	15.69	43.8D	1621(126)	41 0	18.1
103	: 48	0.00	2.48	8.8	2.48	8.8A	511( 51)	12 0	4.5
104	: 97*	0.00	9.71	96.3	9.71	96.3F	622(172)	8 0	9.0
105	P: 57	0.00	3.98	28.2	3.98	28.2C	449( 89)	13 0	5.2
106	S: 57	0.00	1.10	28.2	1.10	28.2C	143(103)	105 105S	1.4
109	S: 97*	0.00	7.07	43.8	7.07	43.8D	967(167)	101 101S	8.1
111	S: 57	0.00	0.39	28.2	0.39	28.2C	68(137)	105 105S	0.5
NODE	1: 97*	0.00	40.41		40.41	36.8D	4382(111)		47.0
203	P: 22	0.00	0.89	25.5	0.89	25.5C	103( 82)	2 0	1.2
204	S: 12	0.00	0.25	24.8	0.25	24.8C	30( 83)	203 203S	0.3
205	P: 33	111.08	4.79	17.1	1.07	3.8A	261( 26)	7 70	6.7
209	: 32	0.00	0.94	27.5	0.94	27.5C	106( 87)	2 0	1.2
211	S: 33	5.28	0.23	17.2	0.05	3.9A	20( 43)	205 205S	0.3

NODE 2: 33 116.36 7.10 3.20 8.6A 519( 39) 9.8

All MOEs are in units per hour.

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Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

SYSTEM-WIDE PERFORMANCE: ALL NODES

Performance Measures	Units	System Totals
Total Travel	veh-mi/hr	116
Total Travel Time	veh-hr/hr	48
Total Uniform Delay	veh-hr/hr	26
Total Random Delay	veh-hr/hr	18
Total Delay	veh-hr/hr	44
Average Delay	sec/veh	29.7
Passenger Delay	pax-hr/hr	52
Uniform Stops:	veh/hr	3627
	%	69
Random Stops:	veh/hr	1275
	%	24
Total Stops:	veh/hr	4903
	%	93
Degree of Sat > 1	# of links	0
Queue Spillback	# of links	10
Time Jammed	%	77
Period Length	sec	3600
System Speed	mph	23.2
Fuel Consumption	gal/hr	57
Operating Cost	\$/hr	370
Performance Index	DI	51.97

Performance Index (PI): Disutility Index (DI):  
 Disutility Index Excess Fuel Consumption

No. of Simulations = 46, Links = 1150, Elapsed Time = 1.8 sec.  
 --- Termination Record ---

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Porte Ste-Marie(Ste-Catherine - Lorimier/Parthenais) - PM - Futur

Termination Record

90 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

--- 92 --- NOTE -

+ End of job!  
 1