Tabla 18 Resultados modelación Transyt Int. PR-66 y PR-185

	Demora Promedio por Vehículo [seg.] y Nivel de Servicio (LOS) / Cola Máxima [veh]				
	Acceso Sur PR-185	Acceso Este N/A	Acceso Norte PR-185	Acceso Oeste PR-66	Total Int.
Futuro 2015 nodo sur					
AM	2.1 A	N/A	0.2 A	49.5 D (Izq) 0.5 A(Der)	2.5 A
	9		1	1 (Izq) 0 (Der)	
PM	3.8 A	N/A	3.1 A	44.3 D (Izq) 60.1 E(Der)	29.7 C
	10		4	5 (Izq) 11 (Der)	
Futuro 2015 nodo norte					
AM	0.0 A (Rec) 4.5 A (Izq)	N/A	38.4 D Rec) 0.1 A (Der)	N/A	9.2 A
	0 (Rec) 9 (Izq)		8 (Rec) 0 (Der)		
PM	0.1 A (Rec) 11.7 B (Izq)	N/A	25.7 C(Rec) 0.1 A (Der)	N/A	12.8 B
	0 (Rec) 9 (Izq)		13 (Rec) 0 (Der)		

Como podemos notar, esta intersección operará sin ningún problema y contará con capacidad suficiente para manejar flujos mayores a los analizados. La siguiente figura muestra el diagrama de las fases analizadas para esta intersección. La parte superior muestra las fases del nodo norte y la inferior muestra las fases del nodo sur.

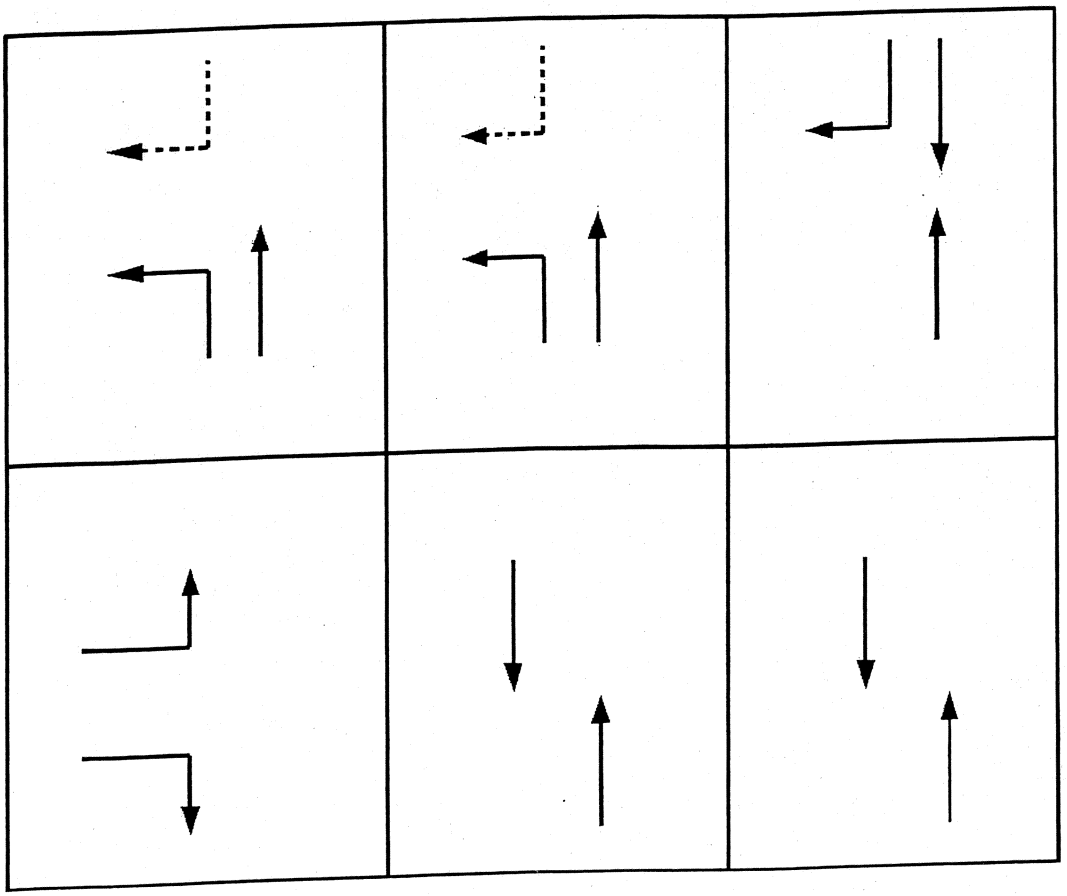

Figura 9 Diagrama de Fases Int. PR-66 y PR-185

En el Apéndice 3 presentamos las corridas de los programas SIDRA y Transyt para las intersecciones discutidas anteriormente.

6 CONCLUSIONES Y RECOMENDACIONES

Luego de analizar los resultados de las modelaciones incluidas en este estudio podemos concluir que el proyecto bajo consideración es uno viable en el área donde se pretende su construcción. Como era de esperarse, la nueva autopista PR-66 proveerá una capacidad de movimiento vehicular que es necesaria para ser complementada a la carretera PR-3. Esta nueva vía permitirá el desarrollo de nuevos proyectos en el lado Este de la isla de Puerto Rico.

Sin embargo, hay que señalar que en la carretera PR-185 sería un ensanche a cuatro carriles (dos por dirección) en el tramo entre la carretera PR-66 y la carretera PR-957. Esto se debe a que el flujo direccional no podría ser manejado por un solo carril. También sería necesario la instalación de un sistema de control por semáforo en la intersección de las carreteras PR-185 y PR-957. Con estas mejoras se podría mantener un nivel de servicio adecuado en las vías aledañas al proyecto.

7 CERTIFICACIÓN

Certifico que la información presentada en este estudio es cierta, correcta y completa, y que fue obtenida utilizando los criterios de la practica usual y aceptada de la ingeniería de tránsito

Carlos M. Contreras, PE, PTOE
Lic. 13395

CARLOS M. CONTRERAS
INGENIERO
LICENCIADO
LIC. 13395
PUERTO RICO

8 REFERENCIAS

1. Trip Generation Manual, Institute of Transportation Engineers, 7th edition, 2003
2. Trip Generation Handbook: An ITE Recommended Practice, Institute of Transportation Engineers, March 2001
3. aaSIDRA 2.1 User Manual
4. Guías para la Preparación de Estudios Operacionales de Accesos y de Tránsito para Puerto Rico, Autoridad de Carretera y Transportación, 2004

9 APÉNDICES

9.1 Apéndice 1: Flujos Obtenidos Mediante Conteos

Conteo PR-185 y PR-957

Beginning of Period	S-T	S-R	E-L	E-R	N-L	N-T	Total
6:00	97	2	8	28	8	87	230
6:15	114	4	10	33	2	93	256
6:30	138	3	11	43	5	106	306
6:45	**157**	**7**	**18**	**30**	**11**	**128**	**351**
7:00	145	1	19	39	12	122	338
7:15	151	5	10	19	11	128	324
7:30	126	8	18	24	13	110	299
7:45	140	8	18	10	13	121	310
8:00	110	8	8	24	9	149	308
8:15	129	7	2	20	4	107	269
8:30	115	1	10	8	1	97	232
8:45	102	3	2	14	1	81	203
9:00	58	1	6	9	3	67	144
9:15	72	2	1	18	17	92	202
9:30	66	0	1	21	12	78	178
9:45	38	0	2	30	9	57	136
10:00	53	2	1	12	8	78	154
10:15	31	0	1	12	10	94	148
10:30	52	1	2	11	13	71	150
10:45	59	0	2	17	18	73	169
11:00	72	2	2	21	19	79	195
11:15	75	16	2	17	8	65	183
11:30	40	4	3	29	31	79	186
11:45	65	3	1	10	18	97	194
12:00	70	8	7	25	21	91	222
12:15	65	5	11	31	35	145	292
12:30	96	8	8	30	26	100	268
12:45	87	5	4	21	25	109	251
13:00	53	3	1	8	19	104	188
13:15	78	2	2	14	11	105	212
13:30	73	3	1	20	17	102	216
13:45	111	6	2	19	17	125	280
14:00	92	7	3	23	26	154	305
14:15	122	0	2	11	22	144	301
14:30	84	1	2	16	26	149	278
14:45	78	3	3	11	19	100	214
15:00	73	3	1	19	21	104	221
15:15	139	5	1	21	23	170	359
15:30	113	12	2	17	39	158	341
15:45	94	3	4	18	32	178	329
16:00	112	17	2	15	45	150	341
16:15	110	7	4	21	35	150	327
16:30	74	4	2	14	34	152	280
16:45	105	8	2	17	32	172	336
17:00	**145**	**10**	**2**	**20**	**53**	**233**	**463**
17:15	167	1	2	23	46	166	405
17:30	129	9	2	36	33	149	358
17:45	132	12	1	18	32	131	326

9.2 Apéndice 2: Listado de Archivos de Modelaciones

Archivo	Lugar	Periodo
01_PR-185 y PR-957_BA.OUT	01 Int PR-185 y PR-957	Pico AM Base
01_PR-185 y PR-957_BP.OUT	01 Int PR-185 y PR-957	Pico PM Base
01_PR-185 y PR-957_FA.OUT	01 Int PR-185 y PR-957	Pico AM Futuro
01_PR-185 y PR-957_FASem.OUT	01 Int PR-185 y PR-957	Pico AM Futuro + Semaforo
01_PR-185 y PR-957_FP.OUT	01 Int PR-185 y PR-957	Pico PM Futuro
01_PR-185 y PR-957_FPSem.OUT	01 Int PR-185 y PR-957	Pico PM Futuro + Semaforo
02_PR-957 y Acceso 1 SC_FA.OUT	02 PR-957 y Acceso 1 (Centro Comercial)	Pico AM Futuro
02_PR-957 y Acceso 1 SC_FP.OUT	02 PR-957 y Acceso 1 (Centro Comercial)	Pico PM Futuro
03_PR-957 y Acceso 2_FA.OUT	03 PR-957 y Acceso 2 (Clusters 5	7 y 8)
03_PR-957 y Acceso 2_FP.OUT	03 PR-957 y Acceso 2 (Clusters 5	7 y 8)
04_PR-957 y Acceso 3_FA.OUT	04 Int PR-957 y Acceso 3	Pico AM Futuro
04_PR-957 y Acceso 3_FP.OUT	04 Int PR-957 y Acceso 3	Pico PM Futuro
05_PR-957 y Accesos 4 y 5_FA.OUT	05 Int PR-957 y Accesos 4 y 5	Pico AM Futuro
05_PR-957 y Accesos 4 y 5_FP.OUT	05 Int PR-957 y Accesos 4 y 5	Pico PM Futuro
PR-185 y PR-66_FA.tof	Int. PR-185 y PR-66	Pico AM Futuro
PR-185 y PR-66_FP.tof	Int. PR-185 y PR-66	Pico PM Futuro

9.3 Apéndice 3: Resultados modelaciones

Akcelik & Associates Pty Ltd - aaSIDRA 2.1.3.356

Traffic Consulting Group
Carlos M. Contreras User ID: M0276
Licence Type: Multi Computer

Time and Date of Analysis 1:00 PM, 26 Jan 2006

Filename: C:\Documents and Settings\Carlos M Contreras\My Documents\aaTraffic\aaSIDRA Projects\CampoRicoNewCastle\01_PR-185 y PR-957_BA.OUT

01 Int PR-185 y PR-957
Pico AM Base
Intersection ID: 1

RUN INFORMATION

* Basic Parameters:
  Intersection Type: Unsignalised - Two-Way Stop Control
  Driving on the right-hand side of the road
  Input data specified in Metric units
  Default Values File No. 30
  Peak flow period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes (Hourly Rate)
  Delay definition: Control delay
  Geometric delay included
  aaSIDRA Standard Delay and Queue models used
  Level of Service based on: Delay (HCM method)
  Queue definition: Cycle average queue, Average

---

01 Int PR-185 y PR-957
Pico AM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.0 - TRAFFIC FLOW DATA

Mov No.	Left LV	Left HV	Through LV	Through HV	Right LV	Right HV	Flow Scale	Peak Flow Factor
VEHICLES	Demand flows in veh/hour as used by the program							
South: PR-185 S								
1	0	0	628	0	0	0	1.00	1.00
3	0	0	0	0	28	0	1.00	1.00
East: PR-957 E								
4	72	0	0	0	0	0	1.00	1.00
6	0	0	0	0	120	0	1.00	1.00
North: PR-185 N								
7	44	0	512	0	0	0	1.00	1.00

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

01 Int PR-185 y PR-957
Pico AM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: PR-185 S										
1 T	628	0.0	0			1863	0.80	137	100	0.337
3 R	28	0.0	0			83	0.80	137	100	0.337
East: PR-957 E										
4 L	72	0.0	1198+	0.0	1198	178	0.80	98	100	0.404*
6 R	120	0.0	642+	0.0	642	297	0.80	98	100	0.404*
North: PR-185 N										
7 LT	556	0.0	656	0.0	656	1684	0.80	142	100	0.330

\+ Percentage of exiting flow included in total opposing flow

01 Int PR-185 y PR-957
Pico AM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.3 - INTERSECTION PARAMETERS

Intersection Level of Service	=	NA
Worst movement Level of Service	=	C
Average intersection delay (s)	=	5.8
Largest average movement delay (s)	=	19.8
Largest cycle-average queue, mean (m)	=	7
Performance Index	=	19.46
Degree of saturation (highest)	=	0.404
Practical Spare Capacity (lowest)	=	98 %
Effective intersection capacity, (veh/h)	=	3471
Total vehicle flow (veh/h)	=	1404
Total person flow (pers/h)	=	2106
Total vehicle delay (veh-h/h)	=	2.25
Total person delay (pers-h/h)	=	3.38
Total effective vehicle stops (veh/h)	=	271
Total effective person stops (pers/h)	=	406
Total vehicle travel (veh-km/h)	=	850.5
Total cost ($/h)	=	506.04

Total fuel (L/h)	=	79.5
Total CO2 (kg/h)	=	198.87

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections. See Table S.15 or Movement Displays for individual movement LOS values.

---

01 Int PR-185 y PR-957
Pico AM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Cycle (vehs)	Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: PR-185 S									
1 T	0.00	0.00	0.0	0.00	0.00	0.0	0	6.35	60.0
3 R	0.06	0.10	8.2	0.00	0.67	0.0	0	0.45	49.0
East: PR-957 E									
4 L	0.39	0.59	19.6	0.74	1.07	0.5	3	1.72	39.9
6 R	0.66	0.99	19.8	0.74	1.09	0.5	3	2.90	39.9
North: PR-185 N									
7 LT	1.14	1.71	7.4	0.82	0.08	1.0	7	8.04	49.5

---

01 Int PR-185 y PR-957
Pico AM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: PR-185 S									
656	0.337	0.06	0.10	0.3	0.00	0.03	0	6.80	59.4
East: PR-957 E									
192	0.404	1.05	1.58	19.7	0.74	1.08	3	4.62	39.9
North: PR-185 N									
556	0.330	1.14	1.71	7.4	0.82	0.08	7	8.04	49.5
ALL VEHICLES:									
1404	0.404	2.25	3.38	5.8	0.43	0.19	7	19.46	51.9

INTERSECTION (persons):

2106	0.404	3.38	5.8	0.43	0.19	19.46	51.9

Queue values in this table are mean cycle-average queue (metres).

01 Int PR-185 y PR-957
Pico AM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle Aver. (vehs)	Queue Cycle Aver. (m)	Short Lane (m)
South: PR-185 S									
1 TR	1, 3	656	1946	0.337	0.3	0.03	0.0	0	
East: PR-957 E									
1 LR	4, 6	192	476	0.403	19.7	1.08	0.5	3	
North: PR-185 N									
1 LT	7	556	1684	0.330	7.4	0.08	1.0	7	

01 Int PR-185 y PR-957
Pico AM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.8A - LANE FLOW AND CAPACITY INFORMATION

Lane No.	Mov No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR-185 S									
1 TR	1, 3	0	628	28	656	656	1946	0.337	100
East: PR-957 E									
1 LR	4, 6	72	0	120	192	120	476	0.403	100
North: PR-185 N									
1 LT	7	44	512	0	556	556	1684	0.330	100

The capacity value for priority and continuous movements is obtained by adjusting the basic saturation flow for heavy vehicle and turning vehicle effects. Saturation flow scale applies if specified.

---

01 Int PR-185 y PR-957
Pico AM Base
Intersection ID: 1
Stop Sign Controlled Intersection

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
South: PR-185 S						
1 T	27.1	190.81	0.093	1.96	0.123	67.7
3 R	1.9	10.91	0.008	0.38	0.011	4.7
	28.9	201.72	0.101	2.34	0.134	72.4
East: PR-957 E						
4 L	5.3	33.53	0.024	1.10	0.031	13.2
6 R	8.8	56.12	0.039	1.81	0.052	22.0
	14.1	89.65	0.063	2.91	0.084	35.2
North: PR-185 N						
7 LT	36.5	214.68	0.156	7.25	0.218	91.3
	36.5	214.68	0.156	7.25	0.218	91.3
INTERSECTION:	79.5	506.04	0.320	12.50	0.436	198.9

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/L)	=	0.900
Fuel resource cost factor	=	0.50
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	27.00
Time value factor	=	0.60
Average occupancy (persons/veh)	=	1.5
Light vehicle mass (1000 kg)	=	1.4
Heavy vehicle mass (1000 kg)	=	11.0
Light vehicle idle fuel rate (L/h)	=	1.350
Heavy vehicle idle fuel rate (L/h)	=	2.000

The idle fuel and vehicle mass parameters given above are the default values (data given in RIDES may override some of these parameters).

Pico AM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: PR-185 S												
1 TR		628	28	656	0				0.337	0.3	0	
	0	628	28	656	0				0.337	0.3		
East: PR-957 E												
1 LR	72		120	192	0				0.403	19.7	3	
	72	0	120	192	0				0.403	19.7	3	
North: PR-185 N												
1 LT	44	512		556	0				0.330	7.4	7	
	44	512	0	556	0				0.330	7.4	7	
ALL VEHICLES				Total Flow 1404	% HV 0				Max X 0.404	Aver. Delay 5.8	Max Queue 7	

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

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

---

01 Int PR-185 y PR-957
Pico AM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Aver. (m)
South: PR-185 S								
1	T	628	1863	0.337	0.0	A	0.0	0
3	R	28	83	0.337	8.2	A	0.0	0
		656		0.337	0.3	A	0.0	0

East: PR-957 E							
4 L	72	178	0.404*	19.6	C	0.5	3
6 R	120	297	0.404*	19.8	C	0.5	3
	192		0.404	19.7	C	0.5	3
North: PR-185 N							
7 LT	556	1684	0.330	7.4	A	1.0	7
	556		0.330	7.4	A	1.0	7
ALL VEHICLES:	1404		0.404	5.8	NA	1.0	7

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
aaSIDRA Output Guide or the Output section of the on-line help.

NA Not Applicable - Intersection Level of Service is not calculated at
two-way stop control or give-way/yield controlled intersections.

* Maximum v/c ratio, or critical green periods

--- End of aaSIDRA Output ---

C:\Documents and Settings\Carlos M Contreras\My Documents\aaTraffic\aaSIDRA
Projects\CampoRicoNewCastle\01_PR-185 y PR-957_BA.OUT
Produced by aaSIDRA 2.1.3.356
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Traffic Consulting Group
Carlos M. Contreras
Licence Type: Multi Computer

User ID: M0276

Time and Date of Analysis 1:02 PM, 26 Jan 2006

Filename: C:\Documents and Settings\Carlos M Contreras\My Documents\aaTraffic\aaSIDRA Projects\CampoRicoNewCastle\01_PR-185 y PR-957_BP.OUT

01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1

RUN INFORMATION

* Basic Parameters:
  Intersection Type: Unsignalised - Two-Way Stop Control
  Driving on the right-hand side of the road
  Input data specified in Metric units
  Default Values File No. 30
  Peak flow period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes (Hourly Rate)
  Delay definition: Control delay
  Geometric delay included
  aaSIDRA Standard Delay and Queue models used
  Level of Service based on: Delay (HCM method)
  Queue definition: Cycle average queue, Average

---

01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.0 - TRAFFIC FLOW DATA

Mov No.	Left LV	Left HV	Through LV	Through HV	Right LV	Right HV	Flow Scale	Peak Flow Factor
VEHICLES Demand flows in veh/hour as used by the program								
South: PR-185 S								
1	0	0	580	0	0	0	1.00	1.00
3	0	0	0	0	40	0	1.00	1.00
East: PR-957 E								
4	8	0	0	0	0	0	1.00	1.00
6	0	0	0	0	80	0	1.00	1.00
North: PR-185 N								

7	212	0	932	0	0	0	1.00	1.00

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

01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: PR-185 S										
1 T	580	0.0	0			1818	0.80	151	100	0.319
3 R	40	0.0	0			125	0.80	150	100	0.320
East: PR-957 E										
4 L	8	0.0	1744+	0.0	1744	43	0.80	330	100	0.186
6 R	80	0.0	600+	0.0	600	428	0.80	328	100	0.187
North: PR-185 N										
7 LT	1144	0.0	620	0.0	620	1456	0.80	2	100	0.786*

+ Percentage of exiting flow included in total opposing flow

01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.3 - INTERSECTION PARAMETERS

Intersection Level of Service	=	NA
Worst movement Level of Service	=	C
Average intersection delay (s)	=	15.6
Largest average movement delay (s)	=	23.6
Largest cycle-average queue, mean (m)	=	49
Performance Index	=	36.22
Degree of saturation (highest)	=	0.786
Practical Spare Capacity (lowest)	=	2 %
Effective intersection capacity, (veh/h)	=	2357
Total vehicle flow (veh/h)	=	1852
Total person flow (pers/h)	=	2778
Total vehicle delay (veh-h/h)	=	8.01
Total person delay (pers-h/h)	=	12.01
Total effective vehicle stops (veh/h)	=	426
Total effective person stops (pers/h)	=	639
Total vehicle travel (veh-km/h)	=	1121.6

Total cost ($/h)	=	811.79
Total fuel (L/h)	=	120.7
Total CO2 (kg/h)	=	301.72

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections. See Table S.15 or Movement Displays for individual movement LOS values.

---

01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: PR-185 S									
1 T	0.00	0.00	0.0	0.00	0.00	0.0	0	5.86	60.0
3 R	0.09	0.14	8.2	0.00	0.67	0.0	0	0.64	49.0
East: PR-957 E									
4 L	0.04	0.06	17.0	0.64	1.00	0.2	1	0.18	41.7
6 R	0.38	0.57	17.2	0.64	1.00	0.2	1	1.78	41.7
North: PR-185 N									
7 LT	7.50	11.24	23.6	1.00	0.27	7.0	49	27.77	36.4

---

01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: PR-185 S									
620	0.320	0.09	0.14	0.5	0.00	0.04	0	6.50	59.1
East: PR-957 E									
88	0.187	0.42	0.63	17.2	0.64	1.00	1	1.95	41.7
North: PR-185 N									
1144	0.786	7.50	11.24	23.6	1.00	0.27	49	27.77	36.4
ALL VEHICLES:									
1852	0.786	8.01	12.01	15.6	0.65	0.23	49	36.22	42.1

INTERSECTION (persons):								
2778	0.786		12.01	15.6	0.65	0.23	36.22	42.1

Queue values in this table are mean cycle-average queue (metres).

01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Short Lane (m)
South: PR-185 S									
1 TR	1, 3	620	1944	0.319	0.5	0.04	0.0	0	
East: PR-957 E									
1 LR	4, 6	88	471	0.187	17.2	1.00	0.2	1	
North: PR-185 N									
1 LT	7	1144	1456	0.786	23.6	0.27	7.0	49	

01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.8A - LANE FLOW AND CAPACITY INFORMATION

Lane No.	Mov No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR-185 S									
1 TR	1, 3	0	580	40	620	620	1944	0.319	100
East: PR-957 E									
1 LR	4, 6	8	0	80	88	88	471	0.187	100
North: PR-185 N									
1 LT	7	212	932	0	1144	510	1456	0.786	100

The capacity value for priority and continuous movements is obtained by adjusting the basic saturation flow for heavy vehicle and turning vehicle effects. Saturation flow scale applies if specified.

---

01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1
Stop Sign Controlled Intersection

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
South: PR-185 S						
1 T	25.0	176.22	0.086	1.81	0.114	62.5
3 R	2.7	15.59	0.011	0.55	0.016	6.6
	27.7	191.81	0.098	2.35	0.130	69.2
East: PR-957 E						
4 L	0.6	3.58	0.003	0.12	0.003	1.4
6 R	5.8	35.94	0.025	1.19	0.034	14.4
	6.4	39.53	0.028	1.31	0.038	15.9
North: PR-185 N						
7 LT	86.7	580.45	0.390	17.56	0.505	216.7
	86.7	580.45	0.390	17.56	0.505	216.7
INTERSECTION:	120.7	811.79	0.516	21.22	0.672	301.7

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/L)	=	0.900
Fuel resource cost factor	=	0.50
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	27.00
Time value factor	=	0.60
Average occupancy (persons/veh)	=	1.5
Light vehicle mass (1000 kg)	=	1.4
Heavy vehicle mass (1000 kg)	=	11.0
Light vehicle idle fuel rate (L/h)	=	1.350
Heavy vehicle idle fuel rate (L/h)	=	2.000

The idle fuel and vehicle mass parameters given above are the default values (data given in RIDES may override some of these parameters).

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01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: PR-185 S												
1 TR		580	40	620	0				0.319	0.5	0	
	0	580	40	620	0				0.319	0.5		
East: PR-957 E												
1 LR	8		80	88	0				0.187	17.2	1	
	8	0	80	88	0				0.187	17.2	1	
North: PR-185 N												
1 LT	212	932		1144	0				0.786	23.6	49	
	212	932	0	1144	0				0.786	23.6	49	
ALL VEHICLES				Total Flow 1852	% HV 0				Max X 0.786	Aver. Delay 15.6	Max Queue 49	

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

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

---

01 Int PR-185 y PR-957
Pico PM Base
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Aver. (m)
South: PR-185 S								
1	T	580	1818	0.319	0.0	A	0.0	0
3	R	40	125	0.320	8.2	A	0.0	0
		620		0.320	0.5	A	0.0	0

East: PR-957 E							
4 L	8	43	0.186	17.0	C	0.2	1
6 R	80	428	0.187	17.2	C	0.2	1
	88		0.187	17.2	C	0.2	1
North: PR-185 N							
7 LT	1144	1456	0.786*	23.6	C	7.0	49
	1144		0.786	23.6	C	7.0	49
ALL VEHICLES:	1852		0.786	15.6	NA	7.0	49

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
aaSIDRA Output Guide or the Output section of the on-line help.

NA Not Applicable - Intersection Level of Service is not calculated at
two-way stop control or give-way/yield controlled intersections.

* Maximum v/c ratio, or critical green periods

--- End of aaSIDRA Output ---

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01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1

RUN INFORMATION
---

* Basic Parameters:
  Intersection Type: Unsignalised - Two-Way Stop Control
  Driving on the right-hand side of the road
  Input data specified in Metric units
  Default Values File No. 30
  Peak flow period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes (Hourly Rate)
  Delay definition: Control delay
  Geometric delay included
  aaSIDRA Standard Delay and Queue models used
  Level of Service based on: Delay (HCM method)
  Queue definition: Cycle average queue, Average

---

01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.0 - TRAFFIC FLOW DATA

Mov No.	Left LV	Left HV	Through LV	Through HV	Right LV	Right HV	Flow Scale	Peak Flow Factor
VEHICLES Demand flows in veh/hour as used by the program								
South: PR-185 S								
1	0	0	729	0	0	0	1.00	1.00
3	0	0	0	0	32	0	1.00	1.00
East: PR-957								
4	84	0	0	0	0	0	1.00	1.00
6	0	0	0	0	1000	0	1.00	1.00
North: PR-185								

7	325	0	594	0	0	0	1.00	1.00

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

01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Demand Flow (veh/h)	HV (%)	Opposing Flow (veh/h)	HV (%)	Movement Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: PR-185 S										
1 T	729	0.0	0			1864	0.80	105	100	0.391
3 R	32	0.0	0			82	0.80	105	100	0.390
East: PR-957										
4 L	84	0.0	1664+	0.0	1664	34	0.80	-68	100	2.471*
6 R	1000	0.0	745+	0.0	745	410	0.80	-67	100	2.439
North: PR-185										
7 LT	919	0.0	761	0.0	761	1016	0.80	-12	100	0.905

\+ Percentage of exiting flow included in total opposing flow

01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.3 - INTERSECTION PARAMETERS

Intersection Level of Service	=	NA
Worst movement Level of Service	=	F
Average intersection delay (s)	=	277.9
Largest average movement delay (s)	=	673.6
Largest cycle-average queue, mean (m)	=	1397
Performance Index	=	495.53
Degree of saturation (highest)	=	2.471
Practical Spare Capacity (lowest)	=	-68 %
Effective intersection capacity, (veh/h)	=	1119
Total vehicle flow (veh/h)	=	2764
Total person flow (pers/h)	=	4146
Total vehicle delay (veh-h/h)	=	213.37
Total person delay (pers-h/h)	=	320.06
Total effective vehicle stops (veh/h)	=	8093
Total effective person stops (pers/h)	=	12139
Total vehicle travel (veh-km/h)	=	1671.6

Total cost ($/h)	=	6544.39
Total fuel (L/h)	=	480.5
Total CO2 (kg/h)	=	1201.36

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections. See Table S.15 or Movement Displays for individual movement LOS values.

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01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Cycle (vehs)	Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: PR-185 S									
1 T	0.00	0.00	0.0	0.00	0.00	0.0	0	7.37	60.0
3 R	0.07	0.11	8.2	0.00	0.67	0.0	0	0.51	49.0
East: PR-957									
4 L	15.71	23.57	673.4	1.00	5.75	199.6	1397	34.71	3.1
6 R	187.12	280.67	673.6	1.00	7.03	199.6	1397	420.39	3.1
North: PR-185									
7 LT	10.47	15.71	41.0	1.00	0.61	9.7	68	32.54	28.2

---

01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: PR-185 S									
761	0.391	0.07	0.11	0.3	0.00	0.03	0	7.88	59.4
East: PR-957									
1084	2.471	202.83	304.24	673.6	1.00	6.93	1397	455.10	3.1
North: PR-185									
919	0.905	10.47	15.71	41.0	1.00	0.61	68	32.54	28.2
ALL VEHICLES:									
2764	2.471	213.37	320.06	277.9	0.72	2.93	1397	495.53	6.9

INTERSECTION (persons):							
4146	2.471	320.06	277.9	0.72	2.93	495.53	6.9

Queue values in this table are mean cycle-average queue (metres).

01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Short Lane (m)
South: PR-185 S									
1 TR	1, 3	761	1946	0.391	0.3	0.03	0.0	0	
East: PR-957									
1 LR	4, 6	1084	444	2.441	673.6	6.93	199.6	1397	
North: PR-185									
1 LT	7	919	1016	0.904	41.0	0.61	9.7	68	

01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.8A - LANE FLOW AND CAPACITY INFORMATION

Lane No.	Mov No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR-185 S									
1 TR	1, 3	0	729	32	761	761	1946	0.391	100
East: PR-957									
1 LR	4, 6	84	0	1000	1084	120	444	2.441	100
North: PR-185									
1 LT	7	325	594	0	919	305	1016	0.904	100

The capacity value for priority and continuous movements is obtained by adjusting the basic saturation flow for heavy vehicle and turning vehicle effects. Saturation flow scale applies if specified.

---

01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1
Stop Sign Controlled Intersection

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
South: PR-185 S						
1 T	31.4	221.49	0.108	2.27	0.143	78.6
3 R	2.1	12.47	0.009	0.44	0.013	5.3
	33.6	233.97	0.118	2.71	0.156	83.9
East: PR-957						
4 L	27.9	440.84	0.156	2.61	0.078	69.7
6 R	343.0	5285.69	1.917	36.21	1.023	857.4
	370.9	5726.53	2.073	38.82	1.101	927.2
North: PR-185						
7 LT	76.1	583.89	0.352	14.63	0.420	190.3
	76.1	583.89	0.352	14.63	0.420	190.3
INTERSECTION:	480.5	6544.39	2.543	56.16	1.676	1201.4

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/L)	=	0.900
Fuel resource cost factor	=	0.50
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	27.00
Time value factor	=	0.60
Average occupancy (persons/veh)	=	1.5
Light vehicle mass (1000 kg)	=	1.4
Heavy vehicle mass (1000 kg)	=	11.0
Light vehicle idle fuel rate (L/h)	=	1.350
Heavy vehicle idle fuel rate (L/h)	=	2.000

The idle fuel and vehicle mass parameters given above are the default values (data given in RIDES may override some of these parameters).

---

01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: PR-185 S												
1 TR		729	32	761	0				0.391	0.3	0	
	0	729	32	761	0				0.391	0.3		
East: PR-957												
1 LR	84		1000	1084	0				2.441	673.6	1397	
	84	0	1000	1084	0				2.441	673.6	1397	
North: PR-185												
1 LT	325	594		919	0				0.904	41.0	68	
	325	594	0	919	0				0.904	41.0	68	
ALL VEHICLES				Total Flow 2764	% HV 0				Max X 2.471	Aver. Delay 277.9	Max Queue 1397	

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

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

---

01 Int PR-185 y PR-957
Pico AM Futuro
Intersection ID: 1
Stop Sign Controlled Intersection

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Aver. (m)
South: PR-185 S								
1	T	729	1864	0.391	0.0	A	0.0	0
3	R	32	82	0.390	8.2	A	0.0	0
		761		0.391	0.3	A	0.0	0

East: PR-957							
4 L	84	34	2.471*	673.4	F	199.6	1397
6 R	1000	410	2.439	673.6	F	199.6	1397
	1084		2.471	673.6	F	199.6	1397
North: PR-185							
7 LT	919	1016	0.905	41.0	E	9.7	68
	919		0.905	41.0	E	9.7	68
ALL VEHICLES:	2764		2.471	277.9	NA	199.6	1397

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
aaSIDRA Output Guide or the Output section of the on-line help.

NA Not Applicable - Intersection Level of Service is not calculated at
two-way stop control or give-way/yield controlled intersections.

* Maximum v/c ratio, or critical green periods

--- End of aaSIDRA Output ---

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01 Int PR-185 y PR-957
Pico AM Futuro + Semaforo
Intersection ID: 1

RUN INFORMATION

Variable cycle time run: "Optimum" cycle time = 60 s

* Basic Parameters:
  Intersection Type: Signalised - Fixed Time
  Driving on the right-hand side of the road
  Input data specified in Metric units
  Default Values File No. 30
  Peak flow period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes (Hourly Rate)
  Specified performance measure for "best" cycle time in variable run - Delay
  Delay definition: Control delay
  Geometric delay included
  aaSIDRA Standard Delay and Queue models used
  Level of Service based on: Delay (HCM method)
  Queue definition: Cycle average queue, Average

* No. of Main (Timing-Capacity) Iterations = 3
  Comparison of last two iterations:
    Difference in intersection degree of satn = 4.5 %
    Largest difference in eff. green times = 1 secs
    (max. value for stopping = 1 secs)
  Information on Previous Iteration:
    Cycle Time = 60
    Phase Times: 0, 11, 36
    Critical Movements: 7(1st), 1, 6(2nd)

* If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

* Opposed turn in movement 3 has high x.
  Its capacity is mainly due to end departures. Consider increasing the number of end departures, and/or specifying this as an undetected movement, since it may be affecting the timing results adversely.