Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: PR- 128 S											
1 L	326	2.1	1018		0.320		283	0.90	-22	100	1.153
2 T	918	0.0	2866		0.320		796	0.90	-22	100	1.153
3 R	94	0.0	414<	837<	0.149	0.038	357	0.90	242	100	0.263
East: PR-127 E											
4 L	78	0.0	2146		0.036		95	0.90	10	100	0.818
5 T	120	1.7	2264		0.053		151	0.90	13	100	0.795
6 R	90	0.0	365	218	0.025	0.371	113	0.90	13	100	0.795
North: PR-128 N											
7 L	193	0.0	593		0.325		165	0.90	-23	100	1.172
8 T	1082	0.0	3324		0.326		923	0.90	-23	100	1.172
9 R	424	1.9	874<	1149<	0.326	0.121	753	0.90	60	100	0.563
West: PR-127 W											
10 L	363	1.9	1801		0.202		360	0.90	-11	100	1.008
11 TR	704E	1.7	1917		0.367		596	0.90	-24	100	1.180*
12 R	439	2.5	879<	502<	0.453	0.083	439	0.90	-10	100	1.000

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced saturation flow due to a short lane effect

Table S.3 - Intersection Parameters
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Critical Movements: 9(1st), 2, 11

L= 12 Y= 1.013 U= 1.125 T= 113.3

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	150	****	90

(Program-determined Optimum Cycle Time)

**** Y and U values are too large ****

Intersection Level of Service	=	F
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	101.1
Largest average movement delay (s)	=	140.8
Largest back of queue, mean (m)	=	266
Performance Index	=	420.46
Degree of saturation (highest)	=	1.180
Practical Spare Capacity (lowest)	=	-24 %
Effective intersection capacity, (veh/h)	=	4094
Total vehicle flow (veh/h)	=	4831
Total person flow (pers/h)	=	7247
Total vehicle delay (veh-h/h)	=	135.68
Total person delay (pers-h/h)	=	203.52
Total effective vehicle stops (veh/h)	=	6560
Total effective person stops (pers/h)	=	9841
Total vehicle travel (veh-km/h)	=	2934.4
Total cost ($/h)	=	5674.94
Total fuel (L/h)	=	544.4
Total CO2 (kg/h)	=	1361.56

Table S.4 - Phase Information
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Phase Change Times: 0, 29, 58, 80
Phase Green Times: 25, 25, 18, 6

Current Phase Sequence: Split Phasing
Input phase sequence: C E F D
Output phase sequence: C E F D

Table S.5 - Movement Performance

Mov ID	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Aver. (vehs)	Queue Back (m)	Perf. Index	Aver. Speed (km/h)
South: PR- 128 S									
1 L	12.05	18.07	133.0	1.00	1.55	30.6	216	34.68	12.9
2 T	33.50	50.26	131.4	1.00	1.56	32.4	227	97.10	13.0
3 R	0.42	0.63	16.1	0.50	0.70	1.1	8	2.88	41.7
East: PR-127 E									
4 L	1.33	1.99	61.3	1.00	0.87	2.4	17	4.87	22.3
5 T	1.70	2.55	51.0	1.00	1.07	6.3	44	7.20	25.0
6 R	1.47	2.21	58.8	1.00	1.07	6.3	44	5.60	23.0
North: PR-128 N									
7 L	7.55	11.32	140.8	1.00	1.59	32.6	228	21.26	12.3
8 T	39.78	59.67	132.4	1.00	1.60	33.7	236	116.64	12.9
9 R	1.37	2.06	11.7	0.43	0.72	4.0	28	11.36	45.5
West: PR-127 W									
10 L	8.24	12.37	81.8	1.00	1.21	14.0	100	28.37	18.5
11 TR	26.43	39.64	135.2	1.00	1.65	37.3	266	77.30	12.7
12 R	1.84	2.75	15.0	0.56	0.74	5.1	36	13.22	42.5

Table S.6 - Intersection Performance
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

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- 128 S									
1338	1.153	45.97	68.95	123.7	0.96	1.50	227	134.65	13.6
East: PR-127 E									
288	0.818	4.50	6.75	56.2	1.00	1.01	44	17.67	23.6
North: PR-128 N									
1699	1.172	48.70	73.06	103.2	0.86	1.38	236	149.25	15.7
West: PR-127 W									
1506	1.180	36.51	54.76	87.3	0.87	1.28	266	118.89	17.7
ALL VEHICLES:									
4831	1.180	135.68	203.52	101.1	0.90	1.36	266	420.46	15.9
INTERSECTION (persons):									
7247	1.180		203.52	101.1	0.90	1.36		420.46	15.9

Queue values in this table are mean back of queue (metres).

Table S.7 - Lane Performance
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Aver. (vehs)	Queue Back (m)	Lane Length (m)
South: PR- 128 S												
1 LT	65	25	0	0	603	523	1.153	132.5	1.55	30.6	216.1	500.0
2 T	65	25	0	0	641	556	1.153	131.2	1.56	32.4	226.6	500.0
3 R	4	25	35	26	94	357	0.264	16.1	0.70	1.1	7.9	42.0T
East: PR-127 E												
1 L	86	4	0	0	78	95	0.818	61.3	0.87	2.4	16.6	500.0
2 TR	68	7	4	11	210	264	0.795	54.3	1.07	6.3	44.2	500.0
North: PR-128 N												
1 LT	65	25	0	0	626	534	1.172	135.1	1.59	32.6	228.4	500.0
2 T	65	25	0	0	649	554	1.172	132.2	1.60	33.7	236.2	500.0
3 R	4	25	21	40	424	754	0.563	11.7	0.72	4.0	28.1	78.0T
West: PR-127 W												
1 L	72	18	0	0	363	360	1.008	81.8	1.21	14.0	99.8	500.0
2 TR	62	28	0	0	704	596	1.180	135.2	1.27	37.3	265.6	500.0
3 R	29	29	4	28	439	439	1.000	15.0r	0.74	5.1	36.1<	36.0T

< Short lane capacity is reached and there is excess flow into an adjacent lane
r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.
T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR- 128 S												
1 LT	326	277	0	603	3.30	1950	1883	0	0	523	1.153	100
2 T	0	641	0	641	3.81	2001	2001	0	0	556	1.153	100
3 R	0	0	94	94	3.81	2001	414<	837<	40	357	0.264	100
East: PR-127 E												
1 L	78	0	0	78	3.35	1955	2146	0	88	95	0.818	100
2 TR	0	120	90	210	3.20	1940	621	1766	40	264	0.795	100
North: PR-128 N												
1 LT	193	433	0	626	3.33	1953	1923	0	0	534	1.172	100
2 T	0	649	0	649	3.73	1993	1993	0	0	554	1.172	100
3 R	0	0	424	424	3.73	1993	874<	1149<	40	754	0.563	100
West: PR-127 W												
1 L	363	0	0	363	2.97	1917	1801	0	0	360	1.008	100
2 TR	0	608	96E	704	3.35	1955	1917	0	0	596	1.180	100
3 R	0	0	439	439	3.35	1955	879<	502<	80	439	1.000	100

E "Excess" flow from back of an adjacent short lane
< Reduced saturation flow due to a short lane effect

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.

Table S.10 - Movement Capacity and Performance Summary
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Average Back Queue (veh)	Perf. Index
South: PR- 128 S											
1 L		326	283	100	1.153	25		133.0	1.55	30.6	34.68
2 T		918	796	100	1.153	25*		131.4	1.56	32.4	97.10
3 R	(Slp)	94	357<	100	0.263	25	26	16.1	0.70	1.1	2.88
East: PR-127 E											
4 L		78	95	100	0.818	4		61.3	0.87	2.4	4.87
5 T		120	151	100	0.795	6		51.0	1.07	6.3	7.20
6 R	(Slp)	90	113	100	0.795	7	35	58.8	1.07	6.3	5.60
North: PR-128 N											
7 L		193	165	100	1.172	25		140.8	1.59	32.6	21.26
8 T		1082	923	100	1.172	25		132.4	1.60	33.7	116.64
9 R	(Slp)	424	753<	100	0.563	25*	40	11.7	0.72	4.0	11.36
West: PR-127 W											
10 L		363	360	100	1.008	18		81.8	1.21	14.0	28.37
11 TR		704E	596	100	1.180*	28*		135.2	1.65	37.3	77.30
12 R	(Slp)	439	439<	100	1.000	29	28	15.0	0.74	5.1	13.22

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

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- 128 S												
1 LT	326	277		603	1	1950	25		1.153	132.5	216	500
2 T		641		641	0	1976	25		1.153	131.2	227	500
3 R			94	94	0	2001	25	26	0.264	16.1	8	42
	326	918	94	1338	1				1.153	123.7	227	
East: PR-127 E												
1 L	78			78	0	1955	4		0.818	61.3	17	500
2 TR		120	90	210	1	1939	7	11	0.795	54.3	44	500
	78	120	90	288	1				0.818	56.2	44	
North: PR-128 N												
1 LT	193	433		626	0	1953	25		1.172	135.1	228	500
2 T		649		649	0	1973	25		1.172	132.2	236	500
3 R			424	424	2	1993	25	40	0.563	11.7	28	78
	193	1082	424	1699	0				1.172	103.2	236	
West: PR-127 W												
1 L	363			363	2	1916	18		1.008	81.8	100	500
2 R		608	96	704	2	1955	28		1.180	15.0	36	500
3 R			439	439	2	1955	29	28	1.000	15.0r	36	36
	363	608	535	1506	2				1.180	87.3	266	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	4831	1	90	1.180	101.1	266

Peak flow period = 15 minutes.

Queue values in this table are mean back of queue (metres).

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

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Time Ratio (g/C) 1st grn	2nd grn	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Aver. (vehs)	Queue Back (m)
South: PR- 128 S										
1 L		0.278		326	283	1.153	133.0	F	30.6	216
2 T		0.278*		918	796	1.153	131.4	F	32.4	227
3 R	(Slp)	0.278	0.289	94	357<	0.263	16.1	B	1.1	8
East: PR-127 E										
4 L		0.044		78	95	0.818	61.3	E	2.4	17
5 T		0.067		120	151	0.795	51.0	D	6.3	44
6 R	(Slp)	0.078	0.389	90	113	0.795	58.8	E	6.3	44
North: PR-128 N										
7 L		0.278		193	165	1.172	140.8	F	32.6	228
8 T		0.278		1082	923	1.172	132.4	F	33.7	236
9 R	(Slp)	0.278*	0.444	424	753<	0.563	11.7	B	4.0	28
West: PR-127 W										
10 L		0.200		363	360	1.008	81.8	F	14.0	100
11 TR		0.311*		704E	596	1.180*	135.2	F	37.3	266

12 R	(Slp)	0.322	0.311	439	439<	1.000	15.0	B	5.1	36
ALL VEHICLES:				4831		1.180	101.1	F	37.3	266
INTERSECTION (persons):				7247			101.1		37.3	266

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.

< Reduced capacity due to a short lane effect
* Maximum v/c ratio, or critical green periods
" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)
E "Excess" flow from the short lane of an adjacent movement added to normal flow

Table S.21 - Optimum Cycle Time Results
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Performance Measure	Smallest Value	Cycle Time
Degree of Satn	1.180	90
Average Delay	101.1	90
Stop Rate	1.27	150
Max. Queue for Any Movement	32.2	80
Perf. Index	412.2	80
Cost	5674.9	90

Performance Measure	Largest Value	Cycle Time
Eff. Inters. Cap.	4094	90
Prac. Spare Cap.	-24	90

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.

Table D.5 - Progression Factors and Actuated Signal Parameters
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Control	Coord.	Arrival Type	Prog. Factor	Prog. Factor	1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
South: PR- 128 S									
1 L	FT	No	3	1.000	1.000	6	NA		
2 T	FT	No	3	1.000	1.000	6	NA		
3 R	FT	No	3	1.000	1.000	6	NA	6	NA
East: PR-127 E									
4 L	FT	No	3	1.000	1.000	6	NA		
5 T	FT	No	3	1.000	1.000	6	NA		
6 R	FT	No	3	1.000	1.000	6	NA	6	NA
North: PR-128 N									
7 L	FT	No	3	1.000	1.000	6	NA		
8 T	FT	No	3	1.000	1.000	6	NA		
9 R	FT	No	3	1.000	1.000	6	NA	6	NA
West: PR-127 W									
10 L	FT	No	3	1.000	1.000	6	NA		
11 T	FT	No	3	1.000	1.000	6	NA		
12 R	FT	No	3	1.000	1.000	6	NA	6	NA

Table V.21 - Intersection Summary for Optimum Cycle Time
03 PR-128 y PR-127
Pico AM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Cycle Time (sec)	Eff. Int. Cap.	Intersn Deg. of Satn	Prac. Spare Cap.	Aver. Delay (sec)	Stop Rate	Longest Queue (veh)	Perf. Index	Cost Total $/h	Unsett
40	2226	2.170	-59	306.5	2.15	53.0	754.9	13329.1	
50	3016	1.602	-44	172.4	1.83	41.6	530.1	8348.8	
60	3519	1.373	-34	127.8	1.60	35.9	449.2	6682.5	
70	3767	1.283	-30	107.5	1.46	32.6	415.2	5918.4	
80	4081	1.184	-24	101.5	1.40	32.2	412.2	5692.8	
90	4094	1.180	-24	101.1	1.36	37.3	420.5	5674.9	
100	4072	1.186	-24	105.6	1.34	40.5	439.9	5842.3	
110	4077	1.185	-24	108.9	1.32	45.7	457.4	5966.1	
120	4081	1.184	-24	113.0	1.30	47.9	475.7	6118.3	
130	4084	1.183	-24	116.7	1.29	53.0	494.1	6256.1	
140	4094	1.180	-24	121.7	1.28	56.6	515.0	6442.0	
150	4057	1.191	-24	126.1	1.27	59.2	534.3	6604.4	

Site: 03 PR-128 y PR-127 FA 2010
C:\Documents and Settings\Carlos M
Contreras\Desktop\Yauco-Vertedero-Dic2007\corridas
Yauco-Vertedero\Yauco-Vertedero futuro 2010.aap
Processed Feb 01, 2008 02:04:32PM

M0276, Traffic Consulting Group, Large Office
Produced by SIDRA Intersection 3.2.0.1455
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Run Information
Cycle Time = 100 (Optimum Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right TEC - Customised Model
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Specified performance measure for "best" cycle time in variable run - Delay
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Back of queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 3
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 1 secs
(max. value for stopping = 1 secs)
Information on Previous Iteration:
Cycle Time = 100
Phase Times: 0, 33, 66, 88
Critical Movements: 9(1st), 1, 11

* 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.

Degree of saturation of non-critical movement 10 is greater than the critical movement degrees of saturation because of rounding of a small green time.

* Opposed turn in movement 4 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.

Table S.1 - Movement Phase and Timing Parameters
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Mov ID	Mov Typ	PHASE MATRIX First Green Fr	To	Op Pr	Second Green Fr	To	Op Pr	Lost Tim 1st Grn	2nd Grn	Req.Mov.Time 1st Grn	2nd Grn	Eff. Grn 1st Grn	2nd Grn
South: PR- 128 S													
1 L	*B	C						4		41.8		29	
2 T	B	C						4		41.8		29	
3 R	(Slp) B	C		C	B	Y		4	33	19.1	36.4	29	34
East: PR-127 E													
4 L	D	A	Y					6		11.4		5	
5 T	D	A						4		10.8		7	
6 R	(Slp) B	D	Y	D	B			48	4	51.1	50.7	7	41
North: PR-128 N													
7 L	A	B						4		42.4		30	
8 T	A	B						4		42.4		30	
9 R	(Slp) *A	B		B	A	Y		4	24	42.4	42.1	30	42
West: PR-127 W													
10 L	C	D						4		27.8		18	
11 T	*C	A						4		41.2		29	
12 R	(Slp) A	C	Y	C	A	Y		4	4	42.0	26.7	63	29

Current Phase Sequence: Two-phase
Input phase sequence: A B C D
Output phase sequence: A B C D

* Critical Movement/Green Period

Movement Types:
Slp Slip Lane Movement
Ped Pedestrian
Dum Dummy

Under heading 'Op':
Y If opposed turn

Table S.2 - Movement Capacity Parameters
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	2nd Grn	Flow Ratio 1st Grn	2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: PR- 128 S											
1 L	347	2.0	1020		0.340		296	0.90	-23	100	1.173
2 T	974	0.0	2864		0.340		831	0.90	-23	100	1.173
3 R	100	0.0	527<	912<	0.136	0.031	463	0.90	317	100	0.216
East: PR-127 E											
4 L	83	0.0	1699		0.049		85	0.90	-8	100	0.977
5 T	128	2.3	2088		0.061		146	0.90	3	100	0.876
6 R	96	0.0	373	204	0.028	0.420	110	0.90	3	100	0.875
North: PR-128 N											
7 L	204	0.0	591		0.345		177	0.90	-22	100	1.151
8 T	1148	0.0	3326		0.345		998	0.90	-22	100	1.151
9 R	451	2.0	790<	1095<	0.345	0.163	697	0.90	39	100	0.647
West: PR-127 W											
10 L	386	2.1	1799		0.215		324	0.90	-24	100	1.192*
11 T	646	2.0	1930		0.335		560	0.90	-22	100	1.154
12 R	569	1.9	1015<	1086<	0.342	0.204	954	0.90	51	100	0.596

< Reduced saturation flow due to a short lane effect

Degree of saturation of non-critical movement 10 is greater than the critical movement degrees of saturation because of rounding of a small green time.

Opposed turn in movement 4 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.

Table S.3 - Intersection Parameters
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Critical Movements: 9(1st), 1, 11

L= 12 Y= 1.020 U= 1.133 T= 125.3

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	150	****	100

(Program-determined Optimum Cycle Time)

**** Y and U values are too large ****

Intersection Level of Service	=	F
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	105.6
Largest average movement delay (s)	=	157.2
Largest back of queue, mean (m)	=	264
Performance Index	=	461.53
Degree of saturation (highest)	=	1.192
Practical Spare Capacity (lowest)	=	-24 %
Effective intersection capacity, (veh/h)	=	4305
Total vehicle flow (veh/h)	=	5132
Total person flow (pers/h)	=	7698
Total vehicle delay (veh-h/h)	=	150.58
Total person delay (pers-h/h)	=	225.87
Total effective vehicle stops (veh/h)	=	6816
Total effective person stops (pers/h)	=	10224
Total vehicle travel (veh-km/h)	=	3118.2
Total cost ($/h)	=	6207.69
Total fuel (L/h)	=	586.8
Total CO2 (kg/h)	=	1467.61

Table S.4 - Phase Information
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Phase Change Times: 0, 34, 67, 89
Phase Green Times: 30, 29, 18, 7

Current Phase Sequence: Two-phase
Input phase sequence: A B C D
Output phase sequence: A B C D

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Aver. (vehs)	Back (m)	Perf. Index	Aver. Speed (km/h)
South: PR- 128 S										
1	L	14.02	21.02	145.4	1.00	1.57	35.6	252	39.83	12.0
2	T	38.90	58.35	143.8	1.00	1.58	37.7	264	111.21	12.1
3	R	0.38	0.58	13.8	0.41	0.68	1.0	7	2.82	43.5
East: PR-127 E										
4	L	1.90	2.84	82.3	1.00	0.99	3.2	22	6.39	18.4
5	T	2.27	3.40	63.7	1.00	1.13	7.9	56	8.90	21.8
6	R	1.91	2.86	71.6	1.00	1.13	7.9	56	6.89	20.3
North: PR-128 N										
7	L	7.69	11.54	135.7	1.00	1.54	35.8	250	22.47	12.6
8	T	40.60	60.90	127.3	1.00	1.54	37.0	259	123.76	13.3
9	R	1.57	2.36	12.6	0.45	0.72	5.0	36	13.04	44.7
West: PR-127 W										
10	L	16.85	25.28	157.2	1.00	1.47	21.7	155	45.61	11.3
11	T	23.22	34.82	129.4	1.00	1.54	34.9	249	70.19	13.2
12	R	1.28	1.92	8.1	0.23	0.64	1.3	9	10.40	48.5

Table S.6 - Intersection Performance
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

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- 128 S									
1421	1.173	53.30	79.95	135.0	0.96	1.51	264	153.87	12.7
East: PR-127 E									
307	0.977	6.07	9.11	71.2	1.00	1.10	56	22.18	20.3
North: PR-128 N									
1803	1.151	49.87	74.80	99.6	0.86	1.34	259	159.28	16.1
West: PR-127 W									
1601	1.192	41.35	62.02	93.0	0.73	1.20	249	126.20	16.9
ALL VEHICLES:									
5132	1.192	150.58	225.87	105.6	0.85	1.33	264	461.53	15.4
INTERSECTION (persons):									
7698	1.192		225.87	105.6	0.85	1.33		461.53	15.4

Queue values in this table are mean back of queue (metres).

Table S.7 - Lane Performance
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Aver. (vehs)	Back (m)	Lane Length (m)

South: PR- 128 S												
1 LT	71	29	0	0	640	546	1.173	144.9	1.57	35.6	251.5	500.0
2 T	71	29	0	0	681	580	1.173	143.6	1.58	37.7	263.8	500.0
3 R	4	29	33	34	100	463	0.216	13.8	0.68	1.0	7.2	42.0T
East: PR-127 E												
1 L	95	5	0	0	83	85	0.977	82.3	0.99	3.2	22.4	500.0
2 TR	77	7	4	12	224	256	0.876	67.1	1.13	7.9	56.2	500.0
North: PR-128 N												
1 LT	70	30	0	0	664	577	1.151	130.1	1.54	35.8	250.3	500.0
2 T	70	30	0	0	688	598	1.151	127.2	1.54	37.0	258.8	500.0
3 R	4	30	24	42	451	697	0.647	12.6	0.72	5.0	35.8	78.0T
West: PR-127 W												
1 L	82	18	0	0	386	324	1.192	157.2	1.47	21.7	154.7	500.0
2 T	71	29	0	0	646	560	1.154	129.4	1.54	34.9	248.7	500.0
3 R	4	63	4	29	569	954	0.596	8.1	0.64	1.3	9.0	36.0T

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h)				Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
	Lef	Thru	Rig	Tot								
South: PR- 128 S												
1 LT	347	293	0	640	3.30	1950	1884	0	0	546	1.173	100
2 T	0	681	0	681	3.81	2001	2001	0	0	580	1.173	100
3 R	0	0	100	100	3.81	2001	527<	912<	36	463	0.216	100
East: PR-127 E												
1 L	83	0	0	83	3.35	1955	1699	0	79	85	0.977	100
2 TR	0	128	96	224	3.20	1940	613	1774	36	256	0.876	100
North: PR-128 N												
1 LT	204	460	0	664	3.33	1953	1923	0	0	577	1.151	100
2 T	0	688	0	688	3.73	1993	1993	0	0	598	1.151	100
3 R	0	0	451	451	3.73	1993	790<	1095<	36	697	0.647	100
West: PR-127 W												
1 L	386	0	0	386	2.97	1917	1799	0	0	324	1.192	100
2 T	0	646	0	646	3.35	1955	1930	0	0	560	1.154	100
3 R	0	0	569	569	3.35	1955	1015<	1086<	72	954	0.596	100

< Reduced saturation flow due to a short lane effect

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.

Table S.10 - Movement Capacity and Performance Summary
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Average Back Queue (veh)	Perf. Index
South: PR- 128 S											
1 L		347	296	100	1.173	29*		145.4	1.57	35.6	39.83
2 T		974	831	100	1.173	29		143.8	1.58	37.7	111.21
3 R	(Slp)	100	463<	100	0.216	29	34	13.8	0.68	1.0	2.82
East: PR-127 E											
4 L		83	85	100	0.977	5		82.3	0.99	3.2	6.39
5 T		128	146	100	0.876	7		63.7	1.13	7.9	8.90
6 R	(Slp)	96	110	100	0.875	7	41	71.6	1.13	7.9	6.89
North: PR-128 N											
7 L		204	177	100	1.151	30		135.7	1.54	35.8	22.47
8 T		1148	998	100	1.151	30		127.3	1.54	37.0	123.76
9 R	(Slp)	451	697<	100	0.647	30*	42	12.6	0.72	5.0	13.04
West: PR-127 W											
10 L		386	324	100	1.192*	18		157.2	1.47	21.7	45.61
11 T		646	560	100	1.154	29*		129.4	1.54	34.9	70.19
12 R	(Slp)	569	954<	100	0.596	63	29	8.1	0.64	1.3	10.40

< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	Eff Grn (secs) 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot								
South: PR- 128 S												
1 LT	347	293		640	1	1950	29		1.173	144.9	252	500
2 T		681		681	0	1976	29		1.173	143.6	264	500
3 R			100	100	0	2001	29	34	0.216	13.8	7	42
	347	974	100	1421	0				1.173	135.0	264	
East: PR-127 E												
1 L	83			83	0	1955	5		0.977	82.3	22	500
2 TR		128	96	224	1	1939	7	12	0.876	67.1	56	500

	83	128	96	307	1				0.977	71.2	56	
North: PR-128 N												
1 LT	204	460		664	0	1953	30		1.151	130.1	250	500
2 T		688		688	0	1973	30		1.151	127.2	259	500
3 R			451	451	2	1993	30	42	0.647	12.6	36	78
	204	1148	451	1803	0				1.151	99.6	259	
West: PR-127 W												
1 L	386			386	2	1916	18		1.192	157.2	155	500
2 T		646		646	2	1955	29		1.154	129.4	249	500
3 R			569	569	2	1955	63	29	0.596	8.1	9	36
	386	646	569	1601	2				1.192	93.0	249	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	5132	1	100	1.192	105.6	264

Peak flow period = 15 minutes.

Queue values in this table are mean back of queue (metres).

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

Table S.15 - Capacity and Level of Service
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Ratio 1st grn	Green Ratio 2nd grn	Time (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Aver. (vehs)	Queue Back (m)
South: PR- 128 S											
1 L		0.290*			347	296	1.173	145.4	F	35.6	252
2 T		0.290			974	831	1.173	143.8	F	37.7	264
3 R	(Slp)	0.290	0.340		100	463<	0.216	13.8	B	1.0	7
East: PR-127 E											
4 L		0.050			83	85	0.977	82.3	F	3.2	22
5 T		0.070			128	146	0.876	63.7	E	7.9	56
6 R	(Slp)	0.070	0.410		96	110	0.875	71.6	E	7.9	56
North: PR-128 N											
7 L		0.300			204	177	1.151	135.7	F	35.8	250
8 T		0.300			1148	998	1.151	127.3	F	37.0	259
9 R	(Slp)	0.300*	0.420		451	697<	0.647	12.6	B	5.0	36
West: PR-127 W											
10 L		0.180			386	324	1.192*	157.2	F	21.7	155
11 T		0.290*			646	560	1.154	129.4	F	34.9	249
12 R	(Slp)	0.630	0.290		569	954<	0.596	8.1	A	1.3	9
ALL VEHICLES:					5132		1.192	105.6	F	37.7	264
INTERSECTION (persons):					7698			105.6		37.7	264

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.

< Reduced capacity due to a short lane effect
* Maximum v/c ratio, or critical green periods
" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

Table S.21 - Optimum Cycle Time Results
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Performance Measure	Smallest Value	Cycle Time
Degree of Satn	1.181	130
Average Delay	105.6	100
Stop Rate	1.22	150
Max. Queue for Any Movement	37.1	90
Perf. Index	457.8	90
Cost	6207.7	100

Performance Measure	Largest Value	Cycle Time
Eff. Inters. Cap.	4346	130
Prac. Spare Cap.	-24	130

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.

Table D.5 - Progression Factors and Actuated Signal Parameters
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Mov	Arrival	Delay Prog.	Queue Prog.	Disp. Grn. 1st Grn	Settings 2nd Grn

ID	Control	Coord.	Type	Factor	Factor	Gmin	Gmax	Gmin	Gmax
South: PR- 128 S									
1 L	FT	No	3	1.000	1.000	6	NA		
2 T	FT	No	3	1.000	1.000	6	NA		
3 R	FT	No	3	1.000	1.000	6	NA	6	NA
East: PR-127 E									
4 L	FT	No	3	1.000	1.000	6	NA		
5 T	FT	No	3	1.000	1.000	6	NA		
6 R	FT	No	3	1.000	1.000	6	NA	6	NA
North: PR-128 N									
7 L	FT	No	3	1.000	1.000	6	NA		
8 T	FT	No	3	1.000	1.000	6	NA		
9 R	FT	No	3	1.000	1.000	6	NA	6	NA
West: PR-127 W									
10 L	FT	No	3	1.000	1.000	6	NA		
11 T	FT	No	3	1.000	1.000	6	NA		
12 R	FT	No	3	1.000	1.000	6	NA	6	NA

Table V.21 - Intersection Summary for Optimum Cycle Time
03 PR-128 y PR-127
Pico AM Futuro 2015
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Cycle Time (sec)	Eff. Int. Cap.	Intersn Deg. of Satn	Prac. Spare Cap.	Aver. Delay (sec)	Stop Rate	Longest Queue (veh)	Perf. Index	Cost Total $/h	Unsett
40	2230	2.301	-61	340.1	2.23	58.4	862.3	15497.3	
50	3017	1.701	-47	197.9	1.91	47.2	614.2	9891.6	
60	3520	1.458	-38	151.2	1.70	41.5	527.8	8039.7	
70	3759	1.365	-34	127.8	1.55	38.2	485.9	7105.5	
80	4089	1.255	-28	115.6	1.45	37.8	466.9	6615.5	
90	4252	1.207	-25	107.9	1.38	37.1	457.8	6300.6	
100	4305	1.192	-24	105.6	1.33	37.7	461.5	6207.7	
110	4325	1.187	-24	108.8	1.30	41.1	478.0	6329.3	
120	4336	1.183	-24	110.3	1.27	43.1	490.9	6387.9	
130	4346	1.181	-24	112.2	1.25	45.1	504.5	6461.3	
140	4333	1.185	-24	114.6	1.23	47.2	519.4	6550.7	
150	4226	1.214	-26	119.0	1.22	49.2	538.8	6726.3	

Site: 03 PR-128 y PR-127 FA 2015
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Contreras\Desktop\Yauco-Vertedero-Dic2007\corridas
Yauco-Vertedero\Yauco-Vertedero futuro 2015.aap
Processed Feb 01, 2008 02:22:21PM

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Output Tables
Output Tables
03 PR-128 y PR-127
Pico PM Futuro 2010

Run Information
Cycle Time = 90 (Optimum Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right TEC - Customised Model
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Specified performance measure for "best" cycle time in variable run - Delay
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Back of queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 2
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 0 secs
(max. value for stopping = 0 secs)

* 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.

* Movement 12 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table S.1 - Movement Phase and Timing Parameters
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Mov Typ	PHASE MATRIX First Green	PHASE MATRIX Second Green	Lost Tim 1st	Lost Tim 2nd	Req.Mov.Time 1st	Req.Mov.Time 2nd	Eff. Grn 1st	Eff. Grn 2nd
South: PR- 128 S									
1	L	*B	C			4	27.9	19	
2	T	B	C			4	27.9	19	
3	R (Slp)	B	C	C	B Y	4	42 27.7	19	25 49.1
East: PR-127 E									
4	L	*D	A Y			4	17.6	11	
5	T	D	A			4	15.3	11	
6	R (Slp)	B	D Y	D	B	34	4 38.2	7	45 57.5
North: PR-128 N									
7	L	A	B			4	41.1	30	
8	T	*A	B			4	41.1	30	
9	R (Slp)	A	B	B	A Y	4	25 10.0Min	30	31 30.0Min
West: PR-127 W									
10	L	*C	D			4	21.2	14	
11	TR	C	A			4	30.2	29	
12	R (Slp)	A	C Y	C	A Y	34	6 59.6	23	27 36.0

Current Phase Sequence: Two-phase
Input phase sequence: A B C D
Output phase sequence: A B C D

* Critical Movement/Green Period

Movement Types:
Slp Slip Lane Movement
Ped Pedestrian
Dum Dummy

Under heading 'Op':
Y If opposed turn

Table S.2 - Movement Capacity Parameters

03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: PR- 128 S											
1 L	293	2.0	1227		0.239		259	0.90	-20	100	1.131*
2 T	631	0.0	2644		0.239		558	0.90	-20	100	1.130
3 R	156	0.0	405<	853	0.237	0.071	322	0.90	86	100	0.484
East: PR-127 E											
4 L	185	0.0	1365		0.136		167	0.90	-19	100	1.109
5 T	214	1.9	1895		0.113		232	0.90	-3	100	0.924
6 R	70	0.0	265	110	0.042	0.535	76	0.90	-3	100	0.926
North: PR-128 N											
7 L	500	0.0	1348		0.371		449	0.90	-19	100	1.113
8 T	939	0.0	2531		0.371		844	0.90	-19	100	1.113
9 R	100	2.0	812<	1294<	0.043	0.050	716	0.90	545	100	0.140
West: PR-127 W											
10 L	310	1.9	1801		0.172		280	0.90	-19	100	1.107
11 TR	502E	1.6	1915		0.262		617	0.90	11	100	0.813
12 R	386	2.3	957<	472<	0.256	0.300	386	0.90	-10	100	1.000

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced saturation flow due to a short lane effect

Movement 12 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table S.3 - Intersection Parameters
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Critical Movements: 8, 1, 10, 4

L= 16 Y= 0.917 U= 1.019 T= 107.7

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	150	****	90

(Program-determined Optimum Cycle Time)

**** Y and U values are too large ****

Intersection Level of Service	=	F
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	88.2
Largest average movement delay (s)	=	125.5
Largest back of queue, mean (m)	=	247
Performance Index	=	346.35
Degree of saturation (highest)	=	1.131
Practical Spare Capacity (lowest)	=	-20 %
Effective intersection capacity, (veh/h)	=	3789
Total vehicle flow (veh/h)	=	4286
Total person flow (pers/h)	=	6429
Total vehicle delay (veh-h/h)	=	105.06
Total person delay (pers-h/h)	=	157.60
Total effective vehicle stops (veh/h)	=	5442
Total effective person stops (pers/h)	=	8163
Total vehicle travel (veh-km/h)	=	2601.4
Total cost ($/h)	=	4588.10
Total fuel (L/h)	=	454.3
Total CO2 (kg/h)	=	1135.97

Table S.4 - Phase Information
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Phase Change Times: 0, 34, 57, 75
Phase Green Times: 30, 19, 14, 11

Current Phase Sequence: Two-phase
Input phase sequence: A B C D
Output phase sequence: A B C D

Table S.5 - Movement Performance

Mov ID	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Aver. (vehs)	Longest Queue Back (m)	Perf. Index	Aver. Speed (km/h)
South: PR- 128 S									
1 L	10.21	15.32	125.5	1.00	1.44	21.6	153	29.68	13.5
2 T	21.70	32.54	123.8	1.00	1.45	23.0	161	63.52	13.6
3 R	0.92	1.39	21.3	0.66	0.76	2.5	18	5.72	37.9
East: PR-127 E									
4 L	6.22	9.33	121.1	1.00	1.25	8.6	60	18.00	13.8
5 T	3.79	5.69	63.8	1.00	1.19	9.5	67	14.51	21.8
6 R	1.39	2.09	71.7	1.00	1.19	9.5	67	4.90	20.3
North: PR-128 N									
7 L	15.99	23.99	115.2	1.00	1.51	33.5	234	49.16	14.4
8 T	27.77	41.65	106.5	1.00	1.52	35.3	247	89.98	15.3
9 R	0.33	0.49	11.8	0.36	0.67	0.8	6	2.54	45.4
West: PR-127 W									

10	L	10.10	15.15	117.3	1.00	1.33	14.2	101	29.77	14.2
11	TR	4.82	7.23	34.6	0.98	0.94	13.6	97	26.10	30.8
12	R	1.81	2.71	16.9	0.60	0.75	5.1	36	12.46	41.1

Table S.6 - Intersection Performance
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

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- 128 S									
1080	1.131	32.83	49.25	109.4	0.95	1.35	161	98.91	15.0
East: PR-127 E									
469	1.109	11.41	17.11	87.6	1.00	1.21	67	37.41	17.6
North: PR-128 N									
1539	1.113	44.09	66.14	103.1	0.96	1.46	247	141.69	15.6
West: PR-127 W									
1198	1.107	16.73	25.10	50.3	0.87	0.98	101	68.33	25.2
ALL VEHICLES:									
4286	1.131	105.06	157.60	88.2	0.94	1.27	247	346.35	17.5
INTERSECTION (persons):									
6429	1.131		157.60	88.2	0.94	1.27		346.35	17.5

Queue values in this table are mean back of queue (metres).

Table S.7 - Lane Performance
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Aver. (vehs)	Queue Back (m)	Lane Length (m)
South: PR- 128 S												
1 LT	71	19	0	0	446	395	1.131	125.1	1.44	21.6	152.8	500.0
2 T	71	19	0	0	478	422	1.131	123.6	1.45	23.0	161.0	500.0
3 R	4	19	42	25	156	322	0.484	21.3	0.76	2.5	17.8	42.0T
East: PR-127 E												
1 L	79	11	0	0	185	167	1.109	121.1	1.25	8.6	60.4	500.0
2 TR	66	5	6	13	284	307	0.924	65.8	1.19	9.5	67.2	500.0
North: PR-128 N												
1 LT	60	30	0	0	700	629	1.113	112.8	1.51	33.5	234.5	500.0
2 T	60	30	0	0	739	664	1.113	106.3	1.52	35.3	246.8	500.0
3 R	4	30	25	31	100	717	0.140	11.8	0.67	0.8	5.8	78.0T
West: PR-127 W												
1 L	76	14	0	0	310	280	1.107	117.3	1.33	14.2	101.4	500.0
2 TR	61	29	0	0	502	617	0.813	34.6	0.85	13.6	96.6	500.0
3 R	34	23	6	27	386	386	1.000	16.9r	0.75	5.1	36.1<	36.0T

< Short lane capacity is reached and there is excess flow into an adjacent lane
r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.
T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR- 128 S												
1 LT	293	153	0	446	3.30	1950	1870	0	0	395	1.131	100
2 T	0	478	0	478	3.81	2001	2001	0	0	422	1.131	100
3 R	0	0	156	156	3.81	2001	405<	853	40	322	0.484	100
East: PR-127 E												
1 L	185	0	0	185	3.35	1955	1365	0	88	167	1.109	100
2 TR	0	214	70	284	3.20	1940	648	1879	40	307	0.924	100
North: PR-128 N												
1 LT	500	200	0	700	3.33	1953	1886	0	0	629	1.113	100
2 T	0	739	0	739	3.73	1993	1993	0	0	664	1.113	100
3 R	0	0	100	100	3.73	1993	812<	1294<	40	717	0.140	100
West: PR-127 W												
1 L	310	0	0	310	2.97	1917	1801	0	0	280	1.107	100
2 TR	0	419	83E	502	3.35	1955	1915	0	0	617	0.813	100
3 R	0	0	386	386	3.35	1955	957<	472<	80	386	1.000	100

E "Excess" flow from back of an adjacent short lane
< Reduced saturation flow due to a short lane effect

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.

Table S.10 - Movement Capacity and Performance Summary
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Average Back Queue (veh)	Perf. Index
South: PR- 128 S											
1 L		293	259	100	1.131*	19*		125.5	1.44	21.6	29.68
2 T		631	558	100	1.130	19		123.8	1.45	23.0	63.52
3 R	(Slp)	156	322<	100	0.484	19	25	21.3	0.76	2.5	5.72
East: PR-127 E											
4 L		185	167	100	1.109	11*		121.1	1.25	8.6	18.00
5 T		214	232	100	0.924	11		63.8	1.19	9.5	14.51
6 R	(Slp)	70	76	100	0.926	7	45	71.7	1.19	9.5	4.90
North: PR-128 N											
7 L		500	449	100	1.113	30		115.2	1.51	33.5	49.16
8 T		939	844	100	1.113	30*		106.5	1.52	35.3	89.98
9 R	(Slp)	100	716<	100	0.140	30	31	11.8	0.67	0.8	2.54
West: PR-127 W											
10 L		310	280	100	1.107	14*		117.3	1.33	14.2	29.77
11 TR		502E	617	100	0.813	29		34.6	0.94	13.6	26.10
12 R	(Slp)	386	386<	100	1.000	23	27	16.9	0.75	5.1	12.46

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

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- 128 S												
1 LT	293	153		446	1	1950	19		1.131	125.1	153	500
2 T		478		478	0	1976	19		1.131	123.6	161	500
3 R			156	156	0	2001	19	25	0.484	21.3	18	42
	293	631	156	1080	1				1.131	109.4	161	
East: PR-127 E												
1 L	185			185	0	1955	11		1.109	121.1	60	500
2 TR		214	70	284	1	1939	5	13	0.924	65.8	67	500
	185	214	70	469	1				1.109	87.6	67	
North: PR-128 N												
1 LT	500	200		700	0	1953	30		1.113	112.8	234	500
2 T		739		739	0	1973	30		1.113	106.3	247	500
3 R			100	100	2	1993	30	31	0.140	11.8	6	78
	500	939	100	1539	0				1.113	103.1	247	
West: PR-127 W												
1 L	310			310	2	1916	14		1.107	117.3	101	500
2 R		419	83	502	2	1955	29		0.813	16.9	36	500
3 R			386	386	2	1955	23	27	1.000	16.9r	36	36
	310	419	469	1198	2				1.107	50.3	101	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	4286	1	90	1.131	88.2	247

Peak flow period = 15 minutes.

Queue values in this table are mean back of queue (metres).

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

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Time Ratio (g/C) 1st grn	2nd grn	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Aver. (vehs)	Queue Back (m)
South: PR- 128 S										
1 L		0.211*		293	259	1.131*	125.5	F	21.6	153
2 T		0.211		631	558	1.130	123.8	F	23.0	161
3 R	(Slp)	0.211	0.278	156	322<	0.484	21.3	C	2.5	18
East: PR-127 E										
4 L		0.122*		185	167	1.109	121.1	F	8.6	60
5 T		0.122		214	232	0.924	63.8	E	9.5	67
6 R	(Slp)	0.078	0.500	70	76	0.926	71.7	E	9.5	67
North: PR-128 N										
7 L		0.333		500	449	1.113	115.2	F	33.5	234

8	T		0.333*		939	844	1.113	106.5	F	35.3	247
9	R	(Slp)	0.333	0.344	100	716<	0.140	11.8	B	0.8	6
West: PR-127 W											
10	L		0.156*		310	280	1.107	117.3	F	14.2	101
11	TR		0.322		502E	617	0.813	34.6	C	13.6	97
12	R	(Slp)	0.256	0.300	386	386<	1.000	16.9	B	5.1	36
ALL VEHICLES:					4286		1.131	88.2	F	35.3	247
INTERSECTION (persons):					6429			88.2		35.3	247

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.

< Reduced capacity due to a short lane effect
* Maximum v/c ratio, or critical green periods
" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)
E "Excess" flow from the short lane of an adjacent movement added to normal flow

Table S.21 - Optimum Cycle Time Results
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Performance Measure	Smallest Value	Cycle Time
Degree of Satn	1.091	150
Average Delay	88.2	90
Stop Rate	1.17	150
Max. Queue for Any Movement	34.3	70
Perf. Index	338.7	80
Cost	4588.1	90

Performance Measure	Largest Value	Cycle Time
Eff. Inters. Cap.	3928	150
Prac. Spare Cap.	-18	150

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.

Table D.5 - Progression Factors and Actuated Signal Parameters
03 PR-128 y PR-127

Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	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: PR- 128 S									
1 L	FT	No	3	1.000	1.000	6	NA		
2 T	FT	No	3	1.000	1.000	6	NA		
3 R	FT	No	3	1.000	1.000	6	NA	6	NA
East: PR-127 E									
4 L	FT	No	3	1.000	1.000	6	NA		
5 T	FT	No	3	1.000	1.000	6	NA		
6 R	FT	No	3	1.000	1.000	6	NA	6	NA
North: PR-128 N									
7 L	FT	No	3	1.000	1.000	6	NA		
8 T	FT	No	3	1.000	1.000	6	NA		
9 R	FT	No	3	1.000	1.000	6	NA	6	NA
West: PR-127 W									
10 L	FT	No	3	1.000	1.000	6	NA		
11 T	FT	No	3	1.000	1.000	6	NA		
12 R	FT	No	3	1.000	1.000	6	NA	6	NA

Table V.21 - Intersection Summary for Optimum Cycle Time
03 PR-128 y PR-127
Pico PM Futuro 2010
Intersection ID: 03
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Cycle Time (sec)	Eff. Int. Cap.	Intersn Deg. of Satn	Prac. Spare Cap.	Aver. Delay (sec)	Stop Rate	Longest Queue (veh)	Perf. Index	Cost Total $/h	Unsett
40	1733	2.473	-64	310.5	2.12	65.6	670.1	11948.1	
50	2988	1.434	-37	141.8	1.72	41.4	416.5	6384.4	
60	3320	1.291	-30	103.6	1.49	34.8	352.4	5109.3	
70	3590	1.194	-25	95.3	1.39	34.3	343.3	4829.7	
80	3735	1.148	-22	88.8	1.31	34.5	338.7	4610.1	
90	3789	1.131	-20	88.2	1.27	35.3	346.3	4588.1	
100	3812	1.124	-20	88.9	1.24	38.3	356.3	4609.2	
110	3848	1.114	-19	91.9	1.22	39.4	371.5	4704.2	
120	3843	1.115	-19	93.9	1.20	42.3	384.6	4771.4	
130	3831	1.119	-20	99.2	1.19	43.6	404.5	4944.8	
140	3878	1.105	-19	101.5	1.18	46.5	418.3	5018.9	
150	3928	1.091	-18	104.2	1.17	47.9	433.5	5108.6	