	(veh /h)	1st Grn	2nd Grn	1st Grn	2nd Grn	(veh /h)	Satn xp	Cap. (%)	(%) x
West: PR-1 PONCE									
12 L	208	1792		0.116		348	0.90	51	100 0.598
11 T	1214	5071		0.239		1674	0.90	24	100 0.725
13 R	108	409	29	0.264	0.000	149	0.90	24	100 0.724
South: AVE. LA CEIBA									
32 L	107	1158		0.092		315	0.90	165	100 0.340
31 T	50	1873		0.027		673	0.90	1111	22 0.074
33 R	236	958	1591	0.000	0.148	906	0.90	246	77 0.260
East: PR-1 MERCEDITA									
22 L	199	1791		0.111		348	0.90	57	100 0.572
21 T	1158	5550		0.209		1832	0.90	42	100 0.632
23 R	626	1604	1089	0.270	0.178	1058	0.90	52	100 0.592
North: AVE. LA CEIBA									
42 L	650	2427		0.268		848	0.90	17	100 0.766*
41 T	74	393		0.188		141	0.90	72	68 0.524
43 R	306	323	1275	0.000	0.240	583	0.90	72	68 0.524

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 103

Table S.3 - INTERSECTION PARAMETERS

Crit App.	Green	Phases	Adjusted	Adjusted	Required	Required

Mov No.	& Turn	Period	Fr	To	Lost Time	Flow Ratio	Grn Time Ratio	Movement Time
12	W_L		A	B	24	-	-	24.0Max
23	E_R	1st	B	C	4	0.270	0.328	37.8
42	N_L		C	A	5	0.268	0.349	40.9
				Total:	33	0.537	0.677	102.7

- 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
30	NA	103	103

Intersection Level of Service	=	C
Worst movement Level of Service	=	D
Average intersection delay (s)	=	31.7
Largest average movement delay (s)	=	52.0
Largest back of queue, 95% (m)	=	171
Performance Index	=	227.80
Degree of saturation (highest)	=	0.766
Practical Spare Capacity (lowest)	=	17 %
Total vehicle capacity, all lanes (veh/h)	=	8875
Total vehicle flow (veh/h)	=	4936
Total person flow (pers/h)	=	7404
Total vehicle delay (veh-h/h)	=	43.53
Total person delay (pers-h/h)	=	65.29
Total effective vehicle stops (veh/h)	=	3957
Total effective person stops (pers/h)	=	5935
Total vehicle travel (veh-km/h)	=	2988.8
Total cost ($/h)	=	2255.82
Total fuel (L/h)	=	390.7
Total CO2 (kg/h)	=	977.82

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 103

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	4	20	24	0.233
B	24	28	34	38	0.369
C	62	66	37	41	0.398

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

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 103

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan Deg. No.	Mov Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. (tcu)	Aver Basic (veh)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Satn x	Util %
West: PR-1 PONCE														
1 L	12	208	0	0	208	3.65	1911	1792		0	0	348	0.598	100
2 T	11	0	442	0	442	3.65	1911	1847		0	0	610	0.725	100
3 T	11	0	442	0	442	3.65	1911	1847		0	0	610	0.725	100
4 TR	11, 13	0	330	108	438	3.65	1911	1783		776	35	604	0.725	100
South: AVE. LA CEIBA														
1 L	32, 31	107	0	0	107	3.65	1911	1158		0	70	315	0.340	100
2 T	31	0	50	0	50	3.65	1911	1873		0	0	673	0.074	22P
3 R	31, 33	0	0	236	236	3.65	1911	958		1591	35	906	0.260	77P
East: PR-1 MERCEDITA														

```
  1 L     22   199    0    0  199  3.65  1911 1791     0    0  348
0.572  100
  2 T     21     0  386    0  386  3.65  1911 1850     0    0  611
0.632  100
  3 T     21     0  386    0  386  3.65  1911 1850     0    0  611
0.632  100
  4 T     21     0  386    0  386  3.65  1911 1850     0    0  611
0.632  100
  5 R     23     0    0  626  626  3.65  1911 1604  1089   35 1058
0.592  100
 ------------------------------------------------------------------------
-------
  North: AVE. LA CEIBA
  1 L     42   325    0    0  325  3.65  1911 1214     0   70  424
0.766  100
  2 L     42,  325    0    0  325  3.65  1911 1214     0   70  424
0.766  100
          41
  3 TR    41,    0   74  306  380  3.65  1911  898  1653   35  724
0.525   68P
          43
 ------------------------------------------------------------------------
-------
   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.
```

```
 Finca Barranca - Ponce, P.R.
 Int. PR-1 & Ave. La Ceiba, PM Actual
 Intersection ID:            *** UNREGISTERED VERSION ***
            Actuated Isolated Signals, Cycle Time = 103

 Table S.10 - MOVEMENT CAPACITY AND PERFORMANCE SUMMARY
 ------------------------------------------------------------------------
------
  Mov     Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%
Perf.
  No.     Typ  Flow   Cap.  Util  Satn  --------  Delay  Stop  Back of
Index
               (veh  (veh                1st  2nd         Rate   Queue
                /h)   /h)   (%)     x   Grn  Grn  (sec)          (veh)
 ------------------------------------------------------------------------
------
 West: PR-1 PONCE
   12 L         208   348   100  0.598   20*        52.0  0.82   11.5
12.03
   11 T        1214  1674   100  0.725   34         33.7  0.81   21.8
61.85
```

```
  13 R  (Un2)  108   149   100  0.724   34   50   41.2  0.88   20.8
5.67
 ---------------------------------------------------------------------
------
 South: AVE. LA CEIBA
  32 L         107   315   100  0.340   28        43.1  0.79    5.5
5.54
  31 T          50   673    22  0.074   37        23.9  0.51    2.1
1.98
  33 R  (Un1)  236   906    77  0.260   36   37   14.2  0.77    5.1
6.82
 ---------------------------------------------------------------------
------
 East: PR-1 MERCEDITA
  22 L         199   348   100  0.572   20        51.7  0.81   11.0
11.45
  21 T        1158  1832   100  0.632   34        33.4  0.77   18.6
56.86
  23 R  (Un2)  626  1058   100  0.592   34*  50   12.1  0.79   12.9
17.89
 ---------------------------------------------------------------------
------
 North: AVE. LA CEIBA
  42 L         650   848   100  0.766*  36*       42.4  0.86   16.9
35.53
  41 T          74   141    68  0.524   37        11.6  0.67    9.1
2.17
  43 R  (Un1)  306   583    68  0.524   40   37   20.7  0.84    9.1
10.00
 ---------------------------------------------------------------------
------
  * Maximum degree of saturation, or critical green periods
```

```
 Finca Barranca - Ponce, P.R.
 Int. PR-1 & Ave. La Ceiba, PM Actual
 Intersection ID:            *** UNREGISTERED VERSION ***
            Actuated Isolated Signals, Cycle Time = 103

 Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA
 ---------------------------------------------------------------------
----
  Lane   Demand Flow (veh/h)        Adj.  Eff Grn   Deg   Aver. Longest
Shrt
  No.   -------------------  %HV  Basic  (secs)   Sat   Delay  Queue
Lane
          L    T    R   Tot        Satf. 1st 2nd    x    (sec)   (m)
(m)
 ---------------------------------------------------------------------
----
  West: PR-1 PONCE
 1 L     208              208    1  1910   20      0.598   52.0    89
100
 2 T          442         442    3  1910   34      0.725   34.3   171
```

3	T		442		442	3	1910	34		0.725	34.3	171
4	TR		330	108	438	3	1911	34	2	0.725	34.4	162
		208	1214	108	1530	3				0.725	36.7	171

South: AVE. LA CEIBA

1	L	107			107	0	1911	28		0.340	43.1	42
2	T		50		50	2	1911	37		0.074	23.9	16
3	R			236	236	3	1911	36	37	0.260	14.2	40
		107	50	236	393	2				0.340	23.3	42

East: PR-1 MERCEDITA

1	L	199			199	2	1910	20		0.572	51.7	85
100												
2	T		386		386	3	1910	34		0.632	33.4	146
3	T		386		386	3	1910	34		0.632	33.4	146
4	T		386		386	3	1910	34		0.632	33.4	146
5	R			626	626	2	1910	34	50	0.592	12.1	99
		199	1158	626	1983	3				0.632	28.5	146

North: AVE. LA CEIBA

1	L	325			325	1	1910	36		0.766	42.4	130
2	L	325			325	1	1911	36		0.766	42.4	130
3	TR		74	306	380	2	1911	15	37	0.525	18.9	70
		650	74	306	1030	1				0.766	33.8	130

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	4936	2	103	0.766	31.7	171

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

Queue values in this table are 95% back of queue (metres).

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

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, PM Actual

Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 103

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Green Ratio (g/C) 1st grn	Green Ratio (g/C) 2nd grn	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: PR-1 PONCE								
12 L		0.194*		208	348	0.598	52.0	D
11 T		0.330		1214	1674	0.725	33.7	C
13 R	(Un2)	0.330	0.485	108	149	0.724	41.2	D
				1530	2171	0.725	36.7	D
South: AVE. LA CEIBA								
32 L		0.272		107	315	0.340	43.1	D
31 T		0.359		50	673	0.074	23.9	C
33 R	(Un1)	0.350	0.359	236	906	0.260	14.2	B
				393	1894	0.340	23.3	C
East: PR-1 MERCEDITA								
22 L		0.194		199	348	0.572	51.7	D
21 T		0.330		1158	1832	0.632	33.4	C
23 R	(Un2)	0.330*	0.485	626	1058	0.592	12.1	B
				1983	3238	0.632	28.5	C
North: AVE. LA CEIBA								
42 L		0.350*		650	848	0.766*	42.4	D
41 T		0.359		74	141	0.524	11.6	B
43 R	(Un1)	0.388	0.359	306	583	0.524	20.7	C
				1030	1573	0.766	33.8	C
ALL VEHICLES:				4936	8875	0.766	31.7	C
INTERSECTION (persons):				7404	8875	0.766	31.7	

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria) and v/c ratio,
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.
* Maximum v/c ratio, or critical green periods

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, PM Actual

Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 103

Table D.0 - GEOMETRIC DELAY DATA

From Approach	To Approach	Negn Radius (m)	Negn Speed (km/h)	Negn Dist. (m)	Appr. Dist. (m)	Downstream Distance (m)
West: PR-1 PONCE						
	South	10.0	18.5	15.7	500	103
	East	S	60.0	25.5	500	109
	North	15.6	23.1	24.6	500	106
South: AVE. LA CEIBA						
	West	16.3	23.6	25.6	500	105
	East	10.0	18.4	15.7	500	105
	North	S	60.0	34.8	500	108
East: PR-1 MERCEDITA						
	West	S	60.0	25.5	500	109
	South	15.6	23.1	24.6	500	106
	North	10.0	18.4	15.7	500	104
North: AVE. LA CEIBA						
	West	10.0	18.5	15.7	500	104
	South	S	60.0	34.8	500	109
	East	19.8	26.0	31.1	500	110

Downstream distance is distance travelled from the stopline until exit
cruise speed is reached (includes negotiation distance). Acceleration
distance is weighted for light and heavy vehicles. The same distance
applies for both stopped and unstopped vehicles.

--- End of aaSIDRA Output ---

Akcelik & Associates Pty Ltd - aaSIDRA 2.0.1.206

Csa Group Inc
Csa Group Systems Registered User No.
*** UNREGISTERED VERSION ***

Time and Date of Analysis 10:33 AM, Jun 5,2003

Filename: F:\Francisco\PROYECTOS\Barranca\SIDRA\PR-14AMP.OUT

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, AM Actual
Intersection ID:

aaTraffic SIDRA US Highway Capacity Manual (2000) Metric Version

RUN INFORMATION
---

* Basic Parameters:
  Intersection Type: Signalised - Actuated Isolated
  For fully-actuated signal timings, the following specifications will be ignored:
    Any maximum cycle time specification
    Any user-given cycle time (unless phase times also given)
    User-given cycle and phase times (if variable flow scale run)
    Any variable cycle time specification
    Any green split priority specification
  Driving on the right-hand side of the road
  Input data specified in Metric units
  Default Values File No. 10
  Peak flow period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes (Total Flow Period)
  Delay definition: Control delay
                Geometric delay included
  aaSIDRA Standard Delay and Queue models used
  Level of Service based on: Delay and degree of saturation
  Queue definition: Back of queue, 95th Percentile

* No. of Main (Timing-Capacity) Iterations = 4
  Comparison of last two iterations:
    Difference in intersection degree of satn = 2.4 %
    Difference in total vehicle capacity = 0.2 %
    Largest difference in eff. green times = 1 secs
    (max. value for stopping = 2 secs)
  Information on Previous Iteration:
    Cycle Time = 84
    Phase Times: 0, 54, 65
    Critical Movements: 32, 23(1st), 13(2nd)

DEFAULT PARAMETERS

Default values for some of the important general parameters:
(Default Values File: DEF10.SDF)

1. Basic saturation flow: 1900 tcu/h

   This value applies mainly to signalised intersections. For roundabouts
   and sign-controlled intersections, it is used for determining capacity
   of priority and continuous movements.

2. Through car equivalents for signalised intersections

	LEFT		THROUGH		RIGHT	
	LV	HV	LV	HV	LV	HV
Normal	1.053	2.000	1.000	2.000	1.176	2.000
Restricted	1.303	2.500			1.426	2.500

3. Opposed turn parameters (Signalised intersection)

	Crit. Gap	Fol.up Hdway	Deps at End	% Exit Flow Opposing
Left turns :	4.5	2.5	2.0	0
Right turns:	4.0	2.4	2.5	0

4. Cruise speed= 65 km/h, Approach Distance= 500 m

5. Queue space per vehicle in metres
   Light vehicles: 7.6 Heavy vehicles: 14.0

A full list of input data defaults and ranges is given in the Input Guide part of aaSIDRA User Guide.

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, AM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 83

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
West: Hospital de Distrito

12	117	0	0	0	0	0	1.00	0.96
11	0	0	2	0	0	0	1.00	0.96
13	0	0	0	0	178	2	1.00	0.96

South: PR-14 Ponce

32	326	1	0	0	0	0	1.00	0.96
31	0	0	598	8	0	0	1.00	0.96
33	0	0	0	0	45	0	1.00	0.96

East: Urb. Machuelo

22	47	0	0	0	0	0	1.00	0.96
21	0	0	21	0	0	0	1.00	0.96
23	0	0	0	0	38	1	1.00	0.96

North: PR-14 Juana D?az

42	16	0	0	0	0	0	1.00	0.96
41	0	0	1092	10	0	0	1.00	0.96
43	0	0	0	0	280	3	1.00	0.96

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

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, AM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 83

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov No.	Mov Typ	PHASE MATRIX First Green Fr To Op Pr	PHASE MATRIX Second Green Fr To Op Pr	Lost Tim 1st Grn	Lost Tim 2nd Grn	Req.Mov.Time 1st Grn	Req.Mov.Time 2nd Grn	Eff. Grn 1st Grn	Eff. Grn 2nd Grn
West: Hospital de Distrito									
12	L	C A		4		17.6		15	
11	T	C A		4		17.4		15	
13	R (Un1)	A C R	*C A	26	4	31.4	17.6	38	15

```
 South: PR-14  Ponce
   32 L        *A  B  L                        24        54.0Max
30
   31 T         A  B                            4        41.2
50
   33 R  (Un2) A  B           B  A  R          4    4   43.9      20.0Min
50   25
 ------------------------------------------------------------------------
-------
 East: Urb. Machuelo
   22 L         B  C                            4        10.0Min
6
   21 T         B  C                            4        10.0Min
6
   23 R  (Un2)*B  C           C  B  R          4   23   48.8      54.0Max
6   50
 ------------------------------------------------------------------------
-------
 North: PR-14  Juana D?az
   42 L         A  B  L                        19        50.2
35
   41 T         A  B                            4        43.3
50
   43 R  (Un2) A  B           B  A  R          4    4   46.0      20.0Min
50   25
 ------------------------------------------------------------------------
-------
   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
```

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, AM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 83

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Dem Flow (veh /h)	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
West: Hospital de Distrito										
12 L	117	1786		0.066		323	0.90	148	100	0.362
11 T	2	31		0.065		6	0.90	152	100	0.357
13 R	180	452	1611	0.040	0.100	498	0.90	149	100	0.361
South: PR-14 Ponce										
32 L	327	653		0.501		236	0.90	-35	100	1.385*
31 T	606	1748		0.347		1053	0.90	56	42	0.575
33 R	45	118	23	0.381	0.000	78	0.90	56	42	0.577
East: Urb. Machuelo										
22 L	47	1737		0.027		126	0.90	140	100	0.374
21 T	21	776		0.027		56	0.90	140	100	0.374
23 R	39	0	173	0.252	0.224	104	0.90	141	100	0.374
North: PR-14 Juana D?az										
42 L	16	59		0.271		25	0.90	40	100	0.643
41 T	1102	2850		0.387		1717	0.90	40	100	0.642
43 R	283	679	107	0.417	0.000	441	0.90	40	100	0.641

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, AM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 83

Table S.3 - INTERSECTION PARAMETERS

Crit Mov No.	App. & Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
32	S_L		A	B	54	-	-	54.0Max
23	E_R	1st	B	C	4	0.323	0.539	48.8
13	W_R	2nd	C	A	4	0.100	0.164	17.6
				Total:	62	0.423	0.703	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
30	NA	209	83

Intersection Level of Service	=	D
Worst movement Level of Service	=	F
Average intersection delay (s)	=	40.3
Largest average movement delay (s)	=	227.5
Largest back of queue, 95% (m)	=	275
Performance Index	=	131.42
Degree of saturation (highest)	=	1.385
Practical Spare Capacity (lowest)	=	-35 %
Total vehicle capacity, all lanes (veh/h)	=	4662
Total vehicle flow (veh/h)	=	2785
Total person flow (pers/h)	=	4178
Total vehicle delay (veh-h/h)	=	31.21
Total person delay (pers-h/h)	=	46.82
Total effective vehicle stops (veh/h)	=	2208
Total effective person stops (pers/h)	=	3312
Total vehicle travel (veh-km/h)	=	1685.1
Total cost ($/h)	=	1433.26
Total fuel (L/h)	=	216.4
Total CO2 (kg/h)	=	541.05

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, AM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 83

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	4	50	54	0.651
B	54	58	6	10	0.120
C	64	68	15	19	0.229

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

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, AM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 83

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan Deg. No.	Mov 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)	x Satn %	Util
West: Hospital de Distrito													
1 LT	12, 11	117	2	0	119	3.65	1911	1817	0	0	328	0.362	100
2 R	11, 13	0	0	180	180	3.65	1911	452	1611	43	498	0.361	100
South: PR-14 Ponce													
1 L	32, 31	327	0	0	327	3.65	1911	653	0	87	236	1.384	100
2 TR	31, 33	0	606	45	651	3.65	1911	1865	619	43	1131	0.576	42P
East: Urb. Machuelo													
1 LT	22,	47	2	0	49	3.65	1911	1819	0	0	131	0.374	100

```
          21
  2 TR    21,     0   19   39   58  3.65  1911  657   932   43  154
0.374  100
          23
 ------------------------------------------------------------------------
-------
  North: PR-14  Juana D?az
  1 LT    42,    16  679    0  695  3.65  1911 1835     0   44 1083
0.642  100
          41
  2 TR    41,     0  423  283  706  3.65  1911 1770   928   43 1100
0.642  100
          43
 ------------------------------------------------------------------------
-------
   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.
```

```
 Finca Barranca - Ponce, P.R.
 Int. PR-14 & Entrada Hopital de Distrito, AM Actual
 Intersection ID:            *** UNREGISTERED VERSION ***
             Actuated Isolated Signals, Cycle Time =  83
```

Table S.10 - MOVEMENT CAPACITY AND PERFORMANCE SUMMARY

```
 ------------------------------------------------------------------------
------
  Mov      Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%
Perf.
  No.      Typ  Flow   Cap.  Util  Satn  --------  Delay  Stop  Back of
Index
                (veh  (veh                1st  2nd          Rate   Queue
                 /h)   /h)   (%)     x    Grn  Grn  (sec)          (veh)
 ------------------------------------------------------------------------
------
 West: Hospital de Distrito
   12 L          117   323   100  0.362   15        43.2  0.78    5.4
5.72
   11 T            2     6   100  0.357   15        34.3  0.71    5.4
0.09
   13 R  (Un1)   180   498   100  0.361   38   15*  17.4  0.81    5.1
6.00
 ------------------------------------------------------------------------
------
 South: PR-14  Ponce
   32 L          327   236   100  1.385*  30*      227.5  1.72   36.1
48.53
   31 T          606  1053    42  0.575   50        10.7  0.58   17.7
18.77
```

```
   33 R  (Un2)   45    78    42  0.577   50   25   19.7  0.83   17.7
1.57
 ---------------------------------------------------------------------
------
 East: Urb. Machuelo
   22 L          47   126   100  0.374    6        52.6  0.74    2.6
2.55
   21 T          21    56   100  0.374    6        22.4  0.69    2.6
0.76
   23 R  (Un2)   39   104   100  0.374    6*  50   28.4  0.77    1.9
1.48
 ---------------------------------------------------------------------
------
 North: PR-14  Juana D?az
   42 L          16    25   100  0.643   35        21.5  0.84   20.6
0.59
   41 T        1102  1717   100  0.642   50        11.5  0.62   20.6
35.63
   43 R  (Un2)  283   441   100  0.641   50   25   18.8  0.85   18.7
9.73
 ---------------------------------------------------------------------
------
   *  Maximum degree of saturation, or critical green periods
```

```
 Finca Barranca - Ponce, P.R.
 Int. PR-14 & Entrada Hopital de Distrito, AM Actual
 Intersection ID:            *** UNREGISTERED VERSION ***
            Actuated Isolated Signals, Cycle Time =  83

 Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA
 ---------------------------------------------------------------------
----
  Lane   Demand Flow (veh/h)        Adj.  Eff Grn   Deg   Aver. Longest
Shrt
  No.   --------------------  %HV  Basic  (secs)   Sat   Delay  Queue
Lane
           L    T    R   Tot        Satf. 1st 2nd    x    (sec)   (m)
(m)
 ---------------------------------------------------------------------
----
  West: Hospital de Distrito
 1 LT    117    2        119    0  1911   15       0.362   43.0    41
 2 R               180   180    1  1911   38  15   0.361   17.4    39
         ------------------------------------------------------------
----
         117    2  180   299    1                  0.362   27.6    41
30d
 ---------------------------------------------------------------------
----
  South: PR-14  Ponce
 1 L     327             327    0  1911   30       1.384  227.5   275
 2 TR         606   45   651    1  1911   50   1   0.576   11.4   136
```

	327	606	45	978	1				1.384	83.6	275
East: Urb. Machuelo											
1 LT	47	2		49	0	1911	6		0.374	52.2	20
2 TR		19	39	58	2	1911	11	6	0.374	25.6	15
30											
	47	21	39	107	1				0.374	37.8	20
North: PR-14 Juana D?az											
1 LT	16	679		695	1	1911	49		0.642	12.7	158
2 TR		423	283	706	1	1911	50	3	0.642	13.3	143
	16	1102	283	1401	1				0.642	13.0	158

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	2785	1	83	1.385	40.3	275

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

Queue values in this table are 95% back of queue (metres).

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

d Short lane length on departure side.

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, AM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 83

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Green Ratio 1st grn	Time (g/C) 2nd grn	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Hospital de Distrito								

12 L		0.181		117	323	0.362	43.2	D
11 T		0.181		2	6	0.357	34.3	C
13 R	(Un1)	0.458	0.181*	180	498	0.361	17.4	B
				299	826	0.362	27.6	C
South: PR-14		Ponce						
32 L		0.361*		327	236	1.385*	227.5	F
31 T		0.602		606	1053	0.575	10.7	B
33 R	(Un2)	0.602	0.301	45	78	0.577	19.7	B
				978	1367	1.385	83.6	F
East: Urb. Machuelo								
22 L		0.072		47	126	0.374	52.6	D
21 T		0.072		21	56	0.374	22.4	C
23 R	(Un2)	0.072*	0.602	39	104	0.374	28.4	C
				107	286	0.374	37.8	D
North: PR-14		Juana D?az						
42 L		0.422		16	25	0.643	21.5	C
41 T		0.602		1102	1717	0.642	11.5	B
43 R	(Un2)	0.602	0.301	283	441	0.641	18.8	B
				1401	2183	0.643	13.0	B
ALL VEHICLES:				2785	4662	1.385	40.3	D
INTERSECTION (persons):				4178	4662	1.385	40.3	

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria) and v/c ratio,
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.
* Maximum v/c ratio, or critical green periods

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, AM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 83

Table D.0 - GEOMETRIC DELAY DATA

From Approach	To Approach	Negn Radius (m)	Negn Speed (km/h)	Negn Dist. (m)	Appr. Dist. (m)	Downstream Distance (m)
West: Hospital de Distrito						
	South	10.0	18.5	15.7	500	104
	East	S	60.0	18.2	500	106

North	12.0	20.2	18.8	500	103
South: PR-14 Ponce					
West	12.0	20.2	18.8	500	103
East	10.0	18.5	15.7	500	102
North	S	60.0	20.2	500	108
East: Urb. Machuelo					
West	S	60.0	18.2	500	106
South	11.0	19.3	17.2	500	103
North	10.0	18.4	15.7	500	105
North: PR-14 Juana D?az					
West	10.0	18.5	15.7	500	104
South	S	60.0	20.2	500	107
East	11.0	19.3	17.2	500	103

Downstream distance is distance travelled from the stopline until exit
cruise speed is reached (includes negotiation distance). Acceleration
distance is weighted for light and heavy vehicles. The same distance
applies for both stopped and unstopped vehicles.

--- End of aaSIDRA Output ---

Akcelik & Associates Pty Ltd - aaSIDRA 2.0.1.206

Csa Group Inc
Csa Group Systems Registered User No.
*** UNREGISTERED VERSION ***

Time and Date of Analysis 10:34 AM, Jun 5,2003

Filename: F:\Francisco\PROYECTOS\Barranca\SIDRA\PR-14PMP.OUT

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, PM Actual
Intersection ID:

aaTraffic SIDRA US Highway Capacity Manual (2000) Metric Version

RUN INFORMATION
---

* Basic Parameters:
  Intersection Type: Signalised - Actuated Isolated
  For fully-actuated signal timings, the following specifications will be ignored:
    Any maximum cycle time specification
    Any user-given cycle time (unless phase times also given)
    User-given cycle and phase times (if variable flow scale run)
    Any variable cycle time specification
    Any green split priority specification
  Driving on the right-hand side of the road
  Input data specified in Metric units
  Default Values File No. 10
  Peak flow period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes (Total Flow Period)
  Delay definition: Control delay
                Geometric delay included
  aaSIDRA Standard Delay and Queue models used
  Level of Service based on: Delay and degree of saturation
  Queue definition: Back of queue, 95th Percentile

* No. of Main (Timing-Capacity) Iterations = 4
  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)

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***

DEFAULT PARAMETERS

Default values for some of the important general parameters:
(Default Values File: DEF10.SDF)

1. Basic saturation flow: 1900 tcu/h

   This value applies mainly to signalised intersections. For roundabouts
   and sign-controlled intersections, it is used for determining capacity
   of priority and continuous movements.

2. Through car equivalents for signalised intersections

	LEFT		THROUGH		RIGHT	
	LV	HV	LV	HV	LV	HV
Normal	1.053	2.000	1.000	2.000	1.176	2.000
Restricted	1.303	2.500			1.426	2.500

3. Opposed turn parameters (Signalised intersection)

	Crit. Gap	Fol.up Hdway	Deps at End	% Exit Flow Opposing
Left turns :	4.5	2.5	2.0	0
Right turns:	4.0	2.4	2.5	0

4. Cruise speed= 65 km/h, Approach Distance= 500 m

5. Queue space per vehicle in metres
   Light vehicles: 7.6 Heavy vehicles: 14.0

A full list of input data defaults and ranges is given in the Input Guide part of aaSIDRA User Guide.

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 66

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							
West: Hospital de Distrito								
12	230	0	0	0	0	0	1.00	0.96
11	0	0	1	0	0	0	1.00	0.96
13	0	0	0	0	269	1	1.00	0.96

```
-----------------------------------------------------------------------
--
South: PR-14  Ponce
        32            50     1      0      0      0      0   1.00   0.96
        31             0     0    900      6      0      0   1.00   0.96
        33             0     0      0      0     56      0   1.00   0.96
-----------------------------------------------------------------------
--
East: Urb. Machuelo
        22            38     0      0      0      0      0   1.00   0.96
        21             0     0      1      0      0      0   1.00   0.96
        23             0     0      0      0     34      0   1.00   0.96
-----------------------------------------------------------------------
--
North: PR-14  Juana D?az
        42            30     1      0      0      0      0   1.00   0.96
        41             0     0    653      5      0      0   1.00   0.96
        43             0     0      0      0     57      0   1.00   0.96
-----------------------------------------------------------------------
--
Based on unit time =  60 minutes.
Flow Scale and Peak Hour Factor effects included in flow values.
```

```
Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, PM Actual
Intersection ID:            *** UNREGISTERED VERSION ***
            Actuated Isolated Signals, Cycle Time =  66
```

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
 No.     Typ  First Green   Second Green  --------  -----------
-------
              ------------  ------------  1st  2nd  1st      2nd
1st  2nd
              Fr To Op Pr   Fr To Op Pr   Grn  Grn  Grn      Grn
Grn  Grn
-----------------------------------------------------------------------
-------
West: Hospital de Distrito
  12 L        C  A                          4        20.5
17
  11 T       *C  A                          4        20.6
17
  13 R  (Un1) A  C  R       C  A           15    4   20.0Min  20.0
30   17
-----------------------------------------------------------------------
-------
South: PR-14  Ponce
  32 L       *A  B  L                      14        35.3
21
```

```
   31 T         A  B                          4        31.1
31
   33 R  (Un2) A  B          B  A  R          4    4   30.8      20.0Min
31   27
 ------------------------------------------------------------------------
-------
 East: Urb. Machuelo
   22 L        *B  C                          4        10.0Min
6
   21 T         B  C                          4        10.0Min
6
   23 R  (Un2) B  C          C  B  R          4   24   10.0Min  20.0Min
6   32
 ------------------------------------------------------------------------
-------
 North: PR-14  Juana D?az
   42 L         A  B  L                       17        33.9
18
   41 T         A  B                          4        27.4
31
   43 R  (Un2) A  B          B  A  R          4    4   26.8      20.0Min
31   27
 ------------------------------------------------------------------------
-------
   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
```

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 66

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Dem Flow	Satn Flow	Flow Ratio	Total Cap.	Prac. Deg.	Prac. Spare	Lane Util	Deg. Satn

	(veh /h)	1st Grn	2nd Grn	1st Grn	2nd Grn	(veh /h)	Satn xp	Cap. (%)	(%) x
West: Hospital de Distrito									
12 L	230	1808		0.127		466	0.90	82	100 0.494
11 T	1	8		0.125		2	0.90	85	74 0.485
13 R	270	708	1620	0.000	0.167	739	0.90	146	74 0.365
South: PR-14 Ponce									
32 L	51	257		0.198		82	0.90	44	100 0.624
31 T	906	3091		0.293		1452	0.90	44	100 0.624
33 R	56	169	25	0.331	0.000	90	0.90	44	100 0.625*
East: Urb. Machuelo									
22 L	38	1815		0.021		165	0.90	291	100 0.230
21 T	1	93<		0.011		8	0.90	661	51 0.118
23 R	34	2549<	117<	0.013	0.000	288	0.90	664	51 0.118
North: PR-14 Juana D?az									
42 L	31	243		0.128		66	0.90	92	100 0.468
41 T	658	2994		0.220		1406	0.90	92	100 0.468
43 R	57	232	31	0.246	0.000	122	0.90	92	100 0.469

< Reduced saturation flow due to a short lane effect

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 66

Table S.3 - INTERSECTION PARAMETERS

Crit App.	Green	Phases	Adjusted	Adjusted	Required	Required

Mov No.	& Turn	Period Fr	------ To	Lost Time	Flow Ratio	Grn Time Ratio	Movement Time
32	S_L	A	B	14	0.198	0.322	35.3
22	E_L	B	C	10	-	-	10.0Min
11	W_T	C	A	4	0.125	0.252	20.6
			Total:	28	0.323	0.574	65.9

- 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
30	NA	66	66

Intersection Level of Service	=	B
Worst movement Level of Service	=	D
Average intersection delay (s)	=	17.2
Largest average movement delay (s)	=	41.9
Largest back of queue, 95% (m)	=	115
Performance Index	=	76.26
Degree of saturation (highest)	=	0.625
Practical Spare Capacity (lowest)	=	44 %
Total vehicle capacity, all lanes (veh/h)	=	4886
Total vehicle flow (veh/h)	=	2333
Total person flow (pers/h)	=	3500
Total vehicle delay (veh-h/h)	=	11.17
Total person delay (pers-h/h)	=	16.76
Total effective vehicle stops (veh/h)	=	1665
Total effective person stops (pers/h)	=	2497
Total vehicle travel (veh-km/h)	=	1412.0
Total cost ($/h)	=	844.69
Total fuel (L/h)	=	158.3
Total CO2 (kg/h)	=	395.89

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 66

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	4	31	35	0.530
B	35	39	6	10	0.152
C	45	49	17	21	0.318

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

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 66

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan No.	Mov 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	Util %
West: Hospital de Distrito													
1 LT	12, 11	230	1	0	231	3.65	1911	1815	0	0	468	0.494	100
2 R	11, 13	0	0	270	270	3.65	1911	708	1620	55	739	0.365	74P
South: PR-14 Ponce													
1 LT	32, 31	51	408	0	459	3.65	1911	1673	0	61	735	0.624	100
2 TR	31, 33	0	498	56	554	3.65	1911	1866	757	55	888	0.624	100
East: Urb. Machuelo													
1 L	22, 21	38	0	0	38	3.65	1911	1815	0	0	165	0.230	100
2 TR	21, 23	0	1	34	35	3.65	1911	543<	644<	55	297	0.118	51P

```
-----------------------------------------------------------------------
-------
 North: PR-14  Juana D?az
 1 LT    42,   31  301    0  332  3.65  1911 1673     0   60  710
0.468  100
         41
 2 TR    41,    0  357   57  414  3.65  1911 1853   927   55  885
0.468  100
         43
-----------------------------------------------------------------------
-------
   <  Reduced saturation flow due to a short lane effect
   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.
```

```
 Finca Barranca - Ponce, P.R.
 Int. PR-14 & Entrada Hopital de Distrito, PM Actual
 Intersection ID:            *** UNREGISTERED VERSION ***
            Actuated Isolated Signals, Cycle Time =  66
```

Table S.10 - MOVEMENT CAPACITY AND PERFORMANCE SUMMARY

```
-----------------------------------------------------------------------
------
 Mov     Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%
Perf.
 No.     Typ  Flow   Cap.  Util  Satn  --------  Delay  Stop  Back of
Index
              (veh  (veh                1st  2nd         Rate   Queue
               /h)   /h)   (%)     x    Grn  Grn  (sec)         (veh)
-----------------------------------------------------------------------
------
 West: Hospital de Distrito
   12 L         230   466   100  0.494   17        32.9  0.81    7.9
9.44
   11 T           1     2    74  0.485   17*       24.0  0.73    7.9
0.04
   13 R  (Un1)  270   739    74  0.365   30   17   12.5  0.78    4.3
6.91
-----------------------------------------------------------------------
------
 South: PR-14  Ponce
   32 L          51    82   100  0.624   21*       25.3  0.84   13.6
1.90
   31 T         906  1452   100  0.624   31        15.0  0.70   15.1
30.02
   33 R  (Un2)   56    90   100  0.625*  31   27   23.0  0.85   15.1
1.99
```

```
-----------------------------------------------------------------------
------
 East: Urb. Machuelo
   22 L          38   165   100  0.230    6*        41.9  0.73    1.6
1.73
   21 T           1     8<   51  0.118    6         6.4  0.39    0.6
0.02
   23 R  (Un2)   34   288<   51  0.118    6   32   14.8  0.74    0.6
0.89
-----------------------------------------------------------------------
------
 North: PR-14  Juana D?az
   42 L          31    66   100  0.468   18        24.6  0.82    9.4
1.11
   41 T         658  1406   100  0.468   31        13.6  0.63   10.3
20.32
   43 R  (Un2)   57   122   100  0.469   31   27   21.0  0.82   10.3
1.89
-----------------------------------------------------------------------
------
   <  Reduced capacity due to a short lane effect
   *  Maximum degree of saturation, or critical green periods
```

```
 Finca Barranca - Ponce, P.R.
 Int. PR-14 & Entrada Hopital de Distrito, PM Actual
 Intersection ID:              *** UNREGISTERED VERSION ***
            Actuated Isolated Signals, Cycle Time =  66

 Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA
 -----------------------------------------------------------------------
----
  Lane   Demand Flow (veh/h)        Adj.  Eff Grn   Deg   Aver. Longest
Shrt
  No.   -------------------  %HV  Basic  (secs)   Sat   Delay  Queue
Lane
          L    T    R   Tot        Satf. 1st 2nd    x    (sec)   (m)
(m)
-----------------------------------------------------------------------
----
  West: Hospital de Distrito
 1 LT    230    1        231    0  1911   17      0.494   32.9    60
 2 R              270   270    0  1911   30  17  0.365   12.5    32
        ---------------------------------------------------------------
----
        230    1  270   501    0                 0.494   21.9    60
30d
-----------------------------------------------------------------------
----
  South: PR-14  Ponce
 1 LT     51  408        459    1  1911   29      0.624   17.3   104
 2 TR         498   56   554    1  1911   31   1  0.624   14.9   115
        ---------------------------------------------------------------
----
```

	51	906	56	1013	1				0.624	16.0	115

East: Urb. Machuelo

1 L	38			38	0	1911	6		0.230	41.9	12
2 TR		1	34	35	0	1911	29	6	0.118	14.6	4
30											
	38	1	34	73	0				0.230	28.8	12

North: PR-14 Juana D?az

1 LT	31	301		332	1	1911	28		0.468	16.4	72
2 TR		357	57	414	1	1911	31	1	0.468	13.3	78
	31	658	57	746	1				0.468	14.7	78

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	2333	1	66	0.625	17.2	115

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

Queue values in this table are 95% back of queue (metres).

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

d Short lane length on departure side.

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 66

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	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
West: Hospital de Distrito								
12 L		0.258		230	466	0.494	32.9	C
11 T		0.258*		1	2	0.485	24.0	C

13 R	(Un1)	0.455	0.258	270	739	0.365	12.5	B
				501	1207	0.494	21.9	C
South: PR-14		Ponce						
32 L		0.318*		51	82	0.624	25.3	C
31 T		0.470		906	1452	0.624	15.0	B
33 R	(Un2)	0.470	0.409	56	90	0.625*	23.0	C
				1013	1623	0.625	16.0	B
East: Urb. Machuelo								
22 L		0.091*		38	165	0.230	41.9	D
21 T		0.091		1	8<	0.118	6.4	A
23 R	(Un2)	0.091	0.485	34	288<	0.118	14.8	B
				73	462	0.230	28.8	C
North: PR-14		Juana D?az						
42 L		0.273		31	66	0.468	24.6	C
41 T		0.470		658	1406	0.468	13.6	B
43 R	(Un2)	0.470	0.409	57	122	0.469	21.0	C
				746	1594	0.469	14.7	B
ALL VEHICLES:				2333	4886	0.625	17.2	B
INTERSECTION (persons):				3500	4886	0.625	17.2	

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria) and v/c ratio,
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.

< Reduced capacity due to a short lane effect
* Maximum v/c ratio, or critical green periods

Finca Barranca - Ponce, P.R.
Int. PR-14 & Entrada Hopital de Distrito, PM Actual
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 66

Table D.0 - GEOMETRIC DELAY DATA

From Approach	To Approach	Negn Radius (m)	Negn Speed (km/h)	Negn Dist. (m)	Appr. Dist. (m)	Downstream Distance (m)
West: Hospital de Distrito						
	South	10.0	18.5	15.7	500	103
	East	S	60.0	18.2	500	106
	North	12.0	20.2	18.8	500	103

South: PR-14	Ponce					
	West	12.0	20.2	18.8	500	105
	East	10.0	18.5	15.7	500	102
	North	S	60.0	20.2	500	107
East: Urb. Machuelo						
	West	S	60.0	18.2	500	106
	South	11.0	19.3	17.2	500	103
	North	10.0	18.5	15.7	500	102
North: PR-14	Juana D?az					
	West	10.0	18.5	15.7	500	102
	South	S	60.0	20.2	500	107
	East	11.0	19.3	17.2	500	106

Downstream distance is distance travelled from the stopline until exit
cruise speed is reached (includes negotiation distance). Acceleration
distance is weighted for light and heavy vehicles. The same distance
applies for both stopped and unstopped vehicles.

--- End of aaSIDRA Output ---

ANEJO 4

ANALISIS DE TRANSITO (aaSIDRA)

INTERSECCIONES CON PROYECTO

Akcelik & Associates Pty Ltd - aaSIDRA 2.0.1.206

Csa Group Inc
Csa Group Systems Registered User No.
*** UNREGISTERED VERSION ***

Time and Date of Analysis 10:06 AM, Jun 5,2003

Filename: F:\Francisco\PROYECTOS\Barranca\SIDRA\PR-1AMF.OUT

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, AM Proyectado
Intersection ID:

aaTraffic SIDRA US Highway Capacity Manual (2000) Metric Version

RUN INFORMATION
---

* Basic Parameters:
  Intersection Type: Signalised - Actuated Isolated
  For fully-actuated signal timings, the following specifications will be ignored:
    Any maximum cycle time specification
    Any user-given cycle time (unless phase times also given)
    User-given cycle and phase times (if variable flow scale run)
    Any variable cycle time specification
    Any green split priority specification
  Driving on the right-hand side of the road
  Input data specified in Metric units
  Default Values File No. 10
  Peak flow period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes (Total Flow Period)
  Delay definition: Control delay
                Geometric delay included
  aaSIDRA Standard Delay and Queue models used
  Level of Service based on: Delay and degree of saturation
  Queue definition: Back of queue, 95th Percentile

* No. of Main (Timing-Capacity) Iterations = 4
  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)

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, AM Proyectado
Intersection ID: *** UNREGISTERED VERSION ***

DEFAULT PARAMETERS

Default values for some of the important general parameters:
(Default Values File: DEF10.SDF)

1. Basic saturation flow: 1900 tcu/h

This value applies mainly to signalised intersections. For roundabouts and sign-controlled intersections, it is used for determining capacity of priority and continuous movements.

2. Through car equivalents for signalised intersections

	LEFT		THROUGH		RIGHT	
	LV	HV	LV	HV	LV	HV
Normal	1.053	2.000	1.000	2.000	1.176	2.000
Restricted	1.303	2.500			1.426	2.500

3. Opposed turn parameters (Signalised intersection)

	Crit. Gap	Fol.up Hdway	Deps at End	% Exit Flow Opposing
Left turns :	4.5	2.5	2.0	0
Right turns:	4.0	2.4	2.5	0

4. Cruise speed= 65 km/h, Approach Distance= 500 m

5. Queue space per vehicle in metres
   Light vehicles: 7.6 Heavy vehicles: 14.0

A full list of input data defaults and ranges is given in the Input Guide part of aaSIDRA User Guide.

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, AM Proyectado
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 92

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							
West: PR-1 PONCE								
12	209	1	0	0	0	0	1.00	0.95
11	0	0	826	38	0	0	1.00	0.95
13	0	0	0	0	102	8	1.00	0.95

```
-----------------------------------------------------------------
--
South: AVE. LA CEIBA
        32          113     2      0     0     0     0   1.00   0.95
        31            0     0     84     1     0     0   1.00   0.95
        33            0     0      0     0   207     6   1.00   0.95
-----------------------------------------------------------------
--
East: PR-1 MERCEDITA
        22          186     7      0     0     0     0   1.00   0.95
        21            0     0   1547    33     0     0   1.00   0.95
        23            0     0      0     0   774     8   1.00   0.95
-----------------------------------------------------------------
--
North: AVE. LA CEIBA
        42          360     9      0     0     0     0   1.00   0.95
        41            0     0     75     0     0     0   1.00   0.95
        43            0     0      0     0   161     1   1.00   0.95
-----------------------------------------------------------------
--
Based on unit time =  60 minutes.
Flow Scale and Peak Hour Factor effects included in flow values.
```

```
Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, AM Proyectado
Intersection ID:            *** UNREGISTERED VERSION ***
            Actuated Isolated Signals, Cycle Time =  92

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
 No.     Typ  First Green   Second Green  --------  ------------
-------
              ------------ ------------  1st  2nd  1st      2nd
1st  2nd
              Fr To Op Pr  Fr To Op Pr   Grn  Grn  Grn      Grn
Grn  Grn
-----------------------------------------------------------------
-------
West: PR-1 PONCE
  12 L       *A  B                        4        24.0Max
20
  11 T        B  C                        4        30.9
34
  13 R  (Un2) B  C          C  B  R       4   13   28.6     20.0Min
34   41
-----------------------------------------------------------------
-------
South: AVE. LA CEIBA
  32 L        C  A  L                     9        26.9
21
```

```
   31 T        C  A                          4        14.4
26
   33 R  (Un1) A  C  R       C  A           17    4   20.0Min  26.0
45   26
 ---------------------------------------------------------------------
-------
 East: PR-1 MERCEDITA
   22 L        A  B                          4        23.9
20
   21 T        B  C                          4        37.7
34
   23 R  (Un2)*B  C          C  B  R        4   16   37.7     38.6
34   38
 ---------------------------------------------------------------------
-------
 North: AVE. LA CEIBA
   42 L       *C  A  L                       7        30.3
23
   41 T        C  A                          4        25.4
26
   43 R  (Un1) A  C  R       C  A           27    4   20.0Min  24.2
35   26
 ---------------------------------------------------------------------
-------
   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

_____________________________________________________________________________
_______

 Finca Barranca - Ponce, P.R.
 Int. PR-1 & Ave. La Ceiba, AM Proyectado
 Intersection ID:            *** UNREGISTERED VERSION ***
             Actuated Isolated Signals, Cycle Time =  92


 Table S.2 - MOVEMENT CAPACITY PARAMETERS
 ---------------------------------------------------------------------
--------
  Mov      Dem     Satn Flow     Flow Ratio   Total  Prac.  Prac.  Lane
Deg.
  No.      Flow    -----------   ----------   Cap.   Deg.   Spare  Util
Satn
```

	(veh /h)	1st Grn	2nd Grn	1st Grn	2nd Grn	(veh /h)	Satn xp	Cap. (%)	(%)	x
West: PR-1 PONCE										
12 L	210	1807		0.116		393	0.90	68	100	0.535
11 T	864	4836		0.179		1787	0.90	86	100	0.483
13 R	110	550	54	0.200	0.000	227	0.90	86	100	0.484
South: AVE. LA CEIBA										
32 L	115	1349		0.085		308	0.90	141	100	0.373
31 T	85	1888		0.045		534	0.90	465	43	0.159
33 R	213	876	1593	0.000	0.134	879	0.90	271	65	0.242
East: PR-1 MERCEDITA										
22 L	193	1758		0.110		382	0.90	78	100	0.505
21 T	1580	5614		0.281		2075	0.90	18	100	0.762*
23 R	782	1612	1069	0.336	0.225	1037	0.90	19	100	0.754
North: AVE. LA CEIBA										
42 L	369	2587		0.143		647	0.90	58	100	0.571
41 T	75	634		0.118		179	0.90	115	73	0.419
43 R	162	211	1086	0.000	0.149	387	0.90	115	73	0.418

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, AM Proyectado
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 92

Table S.3 - INTERSECTION PARAMETERS

Crit App.	Green	Phases	Adjusted	Adjusted	Required	Required

Mov No.	& Turn	Period	Fr	To	Lost Time	Flow Ratio	Grn Time Ratio	Movement Time
12	W_L		A	B	24	-	-	24.0Max
23	E_R	1st	B	C	4	0.336	0.366	37.7
42	N_L		C	A	7	0.143	0.253	30.3
				Total:	35	0.479	0.619	92.0

- 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
30	NA	92	92

Intersection Level of Service	=	C
Worst movement Level of Service	=	D
Average intersection delay (s)	=	27.5
Largest average movement delay (s)	=	45.1
Largest back of queue, 95% (m)	=	180
Performance Index	=	203.52
Degree of saturation (highest)	=	0.762
Practical Spare Capacity (lowest)	=	18 %
Total vehicle capacity, all lanes (veh/h)	=	8835
Total vehicle flow (veh/h)	=	4758
Total person flow (pers/h)	=	7137
Total vehicle delay (veh-h/h)	=	36.37
Total person delay (pers-h/h)	=	54.56
Total effective vehicle stops (veh/h)	=	3781
Total effective person stops (pers/h)	=	5671
Total vehicle travel (veh-km/h)	=	2880.3
Total cost ($/h)	=	2036.07
Total fuel (L/h)	=	366.4
Total CO2 (kg/h)	=	916.92

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, AM Proyectado
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 92

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	4	20	24	0.261
B	24	28	34	38	0.413
C	62	66	26	30	0.326

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

Finca Barranca - Ponce, P.R.
Int. PR-1 & Ave. La Ceiba, AM Proyectado
Intersection ID: *** UNREGISTERED VERSION ***
Actuated Isolated Signals, Cycle Time = 92

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

Lan Deg. No.	Mov 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)	x Satn %	Util
West: PR-1 PONCE													
1 L	12	210	0	0	210	3.65	1911	1807	0	0	393	0.535	100
2 T	11	0	327	0	327	3.65	1911	1830	0	0	676	0.483	100
3 T	11	0	327	0	327	3.65	1911	1830	0	0	676	0.483	100
4 TR	11, 13	0	210	110	320	3.65	1911	1721	1197	39	662	0.483	100
South: AVE. LA CEIBA													
1 L	32, 31	115	0	0	115	3.65	1911	1349	0	78	308	0.373	100
2 T	31	0	85	0	85	3.65	1911	1888	0	0	534	0.159	43P
3 R	31, 33	0	0	213	213	3.65	1911	876	1593	39	879	0.242	65P
East: PR-1 MERCEDITA													

```
  1 L      22   193    0    0  193  3.65  1911 1758     0    0  382
0.505  100
  2 T      21     0  527    0  527  3.65  1911 1871     0    0  692
0.761  100
  3 T      21     0  527    0  527  3.65  1911 1871     0    0  692
0.761  100
  4 T      21     0  527    0  527  3.65  1911 1871     0    0  692
0.761  100
  5 R      23     0    0  782  782  3.65  1911 1612  1069   39 1037
0.754  100
 ------------------------------------------------------------------------
-------
 North: AVE. LA CEIBA
  1 L      42   185    0    0  185  3.65  1911 1294     0   78  323
0.571  100
  2 L      42,  185    0    0  185  3.65  1911 1294     0   78  323
0.571  100
          41
  3 TR     41,    0   75  162  237  3.65  1911  988  1700   39  566
0.419   73P
          43
 ------------------------------------------------------------------------
-------
   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.
```

```
 Finca Barranca - Ponce, P.R.
 Int. PR-1 & Ave. La Ceiba, AM Proyectado
 Intersection ID:            *** UNREGISTERED VERSION ***
             Actuated Isolated Signals, Cycle Time =  92
```

Table S.10 - MOVEMENT CAPACITY AND PERFORMANCE SUMMARY

```
 ------------------------------------------------------------------------
------
  Mov      Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%
Perf.
  No.      Typ  Flow   Cap.  Util  Satn  --------  Delay  Stop  Back of
Index
                (veh  (veh                1st  2nd          Rate   Queue
                 /h)   /h)   (%)     x    Grn  Grn  (sec)          (veh)
 ------------------------------------------------------------------------
------
 West: PR-1 PONCE
   12 L          210   393   100  0.535   20*        45.1  0.81   10.2
10.93
   11 T          864  1787   100  0.483   34         23.9  0.69   13.2
35.56
```

```
  13 R  (Un2)  110   227   100  0.484   34   41   29.7  0.84   11.5
4.58
 ---------------------------------------------------------------------
------
 South: AVE. LA CEIBA
  32 L         115   308   100  0.373   21        43.2  0.79    5.6
5.80
  31 T          85   534    43  0.159   26        27.7  0.60    3.6
3.56
  33 R  (Un1)  213   879    65  0.242   45   26   11.6  0.75    3.0
5.18
 ---------------------------------------------------------------------
------
 East: PR-1 MERCEDITA
  22 L         193   382   100  0.505   20        45.0  0.81    9.4
10.01
  21 T        1580  2075   100  0.762*  34        29.2  0.82   23.0
73.15
  23 R  (Un2)  782  1037   100  0.754   34*  38   15.4  0.88   23.4
28.12
 ---------------------------------------------------------------------
------
 North: AVE. LA CEIBA
  42 L         369   647   100  0.571   23*       43.3  0.81    9.0
19.04
  41 T          75   179    73  0.419   26        14.2  0.68    5.7
2.24
  43 R  (Un1)  162   387    73  0.418   35   26   23.2  0.82    5.7
5.35
 ---------------------------------------------------------------------
------
   *  Maximum degree of saturation, or critical green periods
```

```
 Finca Barranca - Ponce, P.R.
 Int. PR-1 & Ave. La Ceiba, AM Proyectado
 Intersection ID:            *** UNREGISTERED VERSION ***
            Actuated Isolated Signals, Cycle Time =  92
```

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

```
 ---------------------------------------------------------------------
----
  Lane   Demand Flow (veh/h)        Adj.  Eff Grn   Deg   Aver. Longest
Shrt
  No.   -------------------- %HV  Basic  (secs)   Sat   Delay  Queue
Lane
          L    T    R   Tot        Satf. 1st 2nd    x    (sec)   (m)
(m)
 ---------------------------------------------------------------------
----
  West: PR-1 PONCE
 1 L     210              210    0  1910   20      0.535   45.1    78
100
 2 T          327         327    4  1910   34      0.483   25.0   104
```