```
Intersecci n Avenida  Los  ngeles    Calle W
Existente  (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov      Dem           Satn Flow   Flow Ratio  Total Prac. Prac. Lane   Deg.
 ID       Flow         -----------  ---------   Cap. Deg.  Spare Util   Satn
          (veh    HV    1st   2nd    1st   2nd  (veh  Satn  Cap.
           /h)    (%)   Grn   Grn    Grn   Grn   /h)   xp    (%)   (%)     x
-------------------------------------------------------------------------------
South: Acceso Sur
  3L L       8    0.0   320        0.025         122  0.90  1275   100  0.065
  8T T     132    0.0  5280        0.025        2016  0.90  1275   100  0.065
-------------------------------------------------------------------------------
East: Acceso Este
  1L L       8    0.0   111        0.072          52  0.90   490    21  0.152
  6T T     128    0.0  1783        0.072         843  0.90   493    21  0.152
  6R R     836    0.0  1044  1615  0.000 0.518  1162  0.90    25   100  0.719*
-------------------------------------------------------------------------------
North: Acceso Norte
  4T T       4    0.0  5700        0.001        2176  0.90  ****   100  0.002
  4R R      96    0.0  1615  1070  0.059 0.000  1084  0.90   916   100  0.089
-------------------------------------------------------------------------------
```

Table S.3 - Intersection Parameters

```
Intersecci n Avenida  Los  ngeles    Calle W
Existente  (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------------------------------
   Crit App.  Green   Phases   Adjusted    Adjusted   Required   Required
   Mov  and   Period  ------     Lost        Flow     Grn Time   Movement
   ID   Turn          Fr  To     Time        Ratio     Ratio       Time
-----------------------------------------------------------------------
    4R  N_R    1st    1   2       10           -          -        10.0Min
    6R  E_R    2nd    2   1        4        0.462      0.581       35.9
                                ----       ------     ------     -------
                          Total:  14        0.462      0.581       45.9
-----------------------------------------------------------------------
  -  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
        20        NA         34         55
     (Phase times user specified, cycle time = sum of phase times)

 NA  Cmax does not apply at actuated signals

   Intersection Level of Service              =         B
   Worst movement Level of Service            =         C
   Average intersection delay (s/pers)        =      11.9
   Largest average movement delay (s)         =      20.9
   Largest back of queue, 95% (ft)            =       325
   Performance Index                          =     30.36
   Degree of saturation (highest)             =     0.719
   Practical Spare Capacity (lowest)          =        25 %
   Effective intersection capacity, (veh/h)   =      1685
   Total vehicle flow (veh/h)                 =      1212
   Total person flow (pers/h)                 =      1454
```

Total vehicle delay (veh-h/h)	=	4.00
Total person delay (pers-h/h)	=	4.80
Total effective vehicle stops (veh/h)	=	887
Total effective person stops (pers/h)	=	1064
Total vehicle travel (veh-mi/h)	=	456.9
Total cost ($/h)	=	256.28
Total fuel (gal/h)	=	22.9
Total CO2 (kg/h)	=	217.03

Table S.4 - Phase Information

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
1	0	4	4	21	25	4	25	45%
2	25	4	29	26	55	4	30	55%

(Phase times specified by the user)
Current Phase Sequence: Two-phase
Input phase sequence: 1 2
Output phase sequence: 1 2

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 95% Queue (vehs)	Back (ft)	Perf. Index	Aver. Speed (mph)
South: Acceso Sur									
3L L	0.05	0.06	20.9	0.64	0.73	1.0	26	0.24	24.8
8T T	0.44	0.53	12.1	0.64	0.49	1.1	27	3.52	29.5
East: Acceso Este									
1L L	0.04	0.05	18.1	0.58	0.75	2.8	70	0.23	26.1
6T T	0.33	0.40	9.3	0.58	0.47	2.8	70	3.17	31.4
6R R	2.87	3.44	12.4	0.55	0.81	13.0	325	21.32	29.3
North: Acceso Norte									
4T T	0.01	0.02	11.4	0.62	0.38	0.0	1	0.10	30.0
4R R	0.25	0.31	9.5	0.20	0.71	0.5	13	1.78	31.1

Table S.6 - Intersection Performance

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 (ft)	Perf. Index	Aver. Speed (mph)
South: Acceso Sur									
140	0.065	0.49	0.59	12.6	0.64	0.50	27	3.76	29.2
East: Acceso Este									
972	0.719	3.24	3.89	12.0	0.56	0.77	325	24.71	29.5
North: Acceso Norte									
100	0.089	0.27	0.32	9.6	0.22	0.70	13	1.89	31.0
ALL VEHICLES:									
1212	0.719	4.00	4.80	11.9	0.54	0.73	325	30.36	29.6
INTERSECTION (persons):									
1454	0.719		4.80	11.9	0.54	0.73		30.36	29.6

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

Table S.7 - Lane Performance

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 95% Back (vehs)	(ft)	Lane Length (ft)
South: Acceso Sur												
1 LT	34	21	0	0	45	687	0.065	13.7	0.53	1.0	26.1	1600.0
2 T	34	21	0	0	48	725	0.065	12.1	0.49	1.1	27.5	1600.0
3 T	34	21	0	0	48	725	0.065	12.1	0.49	1.1	27.5	1600.0
East: Acceso Este												
1 LT	29	26	0	0	136	895	0.152	9.8	0.49	2.8	70.1	1600.0
2 R	4	21	4	26	836	1162	0.719	12.4	0.81	13.0	325.0	1600.0
North: Acceso Norte												
1 T	34	21	0	0	1	725	0.002	11.4	0.38	0.0	0.7	1600.0
2 T	34	21	0	0	1	725	0.002	11.4	0.38	0.0	0.7	1600.0
3 T	34	21	0	0	1	725	0.002	11.4	0.38	0.0	0.7	1600.0
4 R	4	21	6	24	96	1084	0.089	9.5	0.71	0.5	13.0	1600.0

Table S.8 - Lane Flow and Capacity Information

Intersecci n Avenida Los ngeles Calle W

```
Existente  (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------------------------------------
                                        Saturation Flow  End  Tot
 Lane     Dem Flow (veh/h)   Lane   Adj. Aver Aver  Cap  Cap  Deg.  Lane
 No.    -------------------  Width Basic 1st  2nd  (veh (veh  Satn  Util
         Lef Thru  Rig  Tot  (ft)  (tcu) (veh)(veh)  /h)  /h)   x     %
-----------------------------------------------------------------------------
 South: Acceso Sur
 1 LT      8   37    0   45  12.0  1900 1800     0   77  687 0.065  100
 2 T       0   48    0   48  12.0  1900 1900     0    0  725 0.065  100
 3 T       0   48    0   48  12.0  1900 1900     0    0  725 0.065  100
-----------------------------------------------------------------------------
 East: Acceso Este
 1 LT      8  128    0  136  12.0  1900 1894     0    0  895 0.152   21P
 2 R       0    0  836  836  12.0  1900 1044  1615   65 1162 0.719  100
-----------------------------------------------------------------------------
 North: Acceso Norte
 1 T       0    1    0    1  12.0  1900 1900     0    0  725 0.002  100
 2 T       0    1    0    1  12.0  1900 1900     0    0  725 0.002  100
 3 T       0    1    0    1  12.0  1900 1900     0    0  725 0.002  100
 4 R       0    0   96   96  12.0  1900 1615  1070   65 1084 0.089  100
-----------------------------------------------------------------------------
  P  Lane under-utilisation found by the "Program".  This includes cases where
     the value of lane under-utilisation due to downstream effects has been
     modified by the program during lane flow calculations (e.g. a de facto
     exclusive lane has been found).

  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.9 - Signal Timing Diagram

```
Intersecci n Avenida  Los  ngeles    Calle W
Existente  (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

           Phase 1                              Phase 2

0                              25                                      55
I------------------------------I--------------------------------------I
.....GGGGGGGGGGGGGGGGGGGGGGGGG.......GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.
    4                               29


Effective (Movement) Green Times


 South: Acceso Sur

Mov.    3L (L)
I                              I                                       I
........GGGGGGGGGGGGGGGGGGGGGGGGG....................................
       6                          27

Mov.    8T (T)
I                              I                                       I
........GGGGGGGGGGGGGGGGGGGGGGGGG....................................
       6                          27
```

```
 East: Acceso Este

Mov.    1L (L)
I                              I                                      I
GG.................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                   31

Mov.    6T (T)
I                              I                                      I
GG.................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                   31

Mov.    6R (R)
I                              I                                      I
GGG.....GGGGGGGGGGGGGGGGGGGGGGGGG.....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2    6                         27    31


 North: Acceso Norte

Mov.    4T (T)
I                              I                                      I
........GGGGGGGGGGGGGGGGGGGGGGGGG...................................
       6                          27

Mov.    4R (R)
I                              I                                      I
GGG.....GGGGGGGGGGGGGGGGGGGGGGGGG........GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2    6                         27       33


I-----I------I------I------I------I------I-------I------I------I------I---->
0      6     11     17     22     28     33     39     44     50     55

                                 T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
Intersecci n Avenida  Los  ngeles    Calle W
Existente  (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)
```

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	95% Back of Queue (veh)	Perf. Index
South: Acceso Sur											
3L	L	8	122	100	0.065	21		20.9	0.73	1.0	0.24
8T	T	132	2016	100	0.065	21		12.1	0.49	1.1	3.52
East: Acceso Este											
1L	L	8	52	21	0.152	26		18.1	0.75	2.8	0.23
6T	T	128	843	21	0.152	26		9.3	0.47	2.8	3.17
6R	R	836	1162	100	0.719*	21	26*	12.4	0.81	13.0	21.32
North: Acceso Norte											
4T	T	4	2176	100	0.002	21		11.4	0.38	0.0	0.10
4R	R	96	1084	100	0.089	21*	24	9.5	0.71	0.5	1.78

* Maximum degree of saturation, or critical green periods

Table S.12A - Fuel Consumption, Emissions and Cost (TOTAL)

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Fuel Total gal/h	Cost Total $/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h
South: Acceso Sur						
3L L	0.2	1.93	0.003	0.13	0.004	1.5
8T T	2.3	27.06	0.037	1.56	0.051	21.8
	2.5	28.99	0.039	1.69	0.055	23.3
East: Acceso Este						
1L L	0.2	1.86	0.003	0.13	0.004	1.5
6T T	2.1	24.88	0.034	1.40	0.047	20.2
6R R	16.3	179.95	0.274	13.57	0.391	154.1
	18.6	206.69	0.310	15.10	0.442	175.8
North: Acceso Norte						
4T T	0.1	0.81	0.001	0.05	0.002	0.7
4R R	1.8	19.79	0.030	1.52	0.044	17.3
	1.9	20.60	0.031	1.56	0.045	17.9
INTERSECTION:	22.9	256.28	0.381	18.36	0.542	217.0

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/US gal)	=	2.400
Fuel resource cost factor	=	0.70
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	19.00
Time value factor	=	0.40
Light vehicle mass (1000 lb)	=	3.1
Heavy vehicle mass (1000 lb)	=	24.0
Light vehicle idle fuel rate (US gal/h)	=	0.360
Heavy vehicle idle fuel rate (US gal/h)	=	0.530

Table S.12B - Fuel Consumption, Emissions and Cost (RATE)

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Fuel Eff. mpg	Cost Rate $/mi	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km
South: Acceso Sur						
3L L	18.6	0.40	0.567	26.74	0.776	316.4
8T T	21.8	0.34	0.455	19.39	0.634	270.0

	21.6	0.34	0.461	19.81	0.642	272.7
East: Acceso Este						
1L L	18.9	0.38	0.556	26.57	0.771	311.5
6T T	22.7	0.32	0.429	17.96	0.605	259.0
6R R	19.3	0.36	0.541	26.81	0.772	304.4
	19.7	0.35	0.526	25.63	0.750	298.4
North: Acceso Norte						
4T T	22.1	0.33	0.446	18.86	0.624	266.4
4R R	19.8	0.34	0.523	26.09	0.756	296.8
	19.9	0.34	0.520	25.79	0.750	295.5
INTERSECTION:	19.9	0.35	0.518	24.97	0.737	295.2

Table S.14 - Summary of Input and Output Data

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 (ft)	Shrt Lane (ft)
South: Acceso Sur												
1 LT	8	37		45	0	1900	21		0.065	13.7	26	1600
2 T		48		48	0	1900	21		0.065	12.1	27	1600
3 T		48		48	0	1900	21		0.065	12.1	27	1600
	8	132	0	140	0				0.065	12.6	27	
East: Acceso Este												
1 LT	8	128		136	0	1900	26		0.152	9.8	70	1600
2 R			836	836	0	1900	21	26	0.719	12.4	325	1600
	8	128	836	972	0				0.719	12.0	325	
North: Acceso Norte												
1 T		1		1	0	1899	21		0.002	11.4	1	1600
2 T		1		1	0	1899	21		0.002	11.4	1	1600
3 T		1		1	0	1899	21		0.002	11.4	1	1600
4 R			96	96	0	1899	21	24	0.089	9.5	13	1600
	0	4	96	100	0				0.089	9.6	13	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	1212	0	55	0.719	11.9	325

Peak flow period = 15 minutes.

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

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

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Mov Typ	Green 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 Queue 95% Back (vehs)	(ft)
South: Acceso Sur										
3L	L	0.382		8	122	0.065	20.9	C	1.0	26
8T	T	0.382		132	2016	0.065	12.1	B	1.1	27
East: Acceso Este										
1L	L	0.473		8	52	0.152	18.1	B	2.8	70
6T	T	0.473		128	843	0.152	9.3	A	2.8	70
6R	R	0.382	0.473*	836	1162	0.719*	12.4	B	13.0	325
North: Acceso Norte										
4T	T	0.382		4	2176	0.002	11.4	B	0.0	1
4R	R	0.382*	0.436	96	1084	0.089	9.5	A	0.5	13
ALL VEHICLES:				1212		0.719	11.9	B	13.0	325
INTERSECTION (persons):				1454			11.9		13.0	325

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.
* 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.16 - SCATS MF Parameter

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Stopline Flow (veh/h)	Capacity (veh/h)	SCATS Satn Flow	SCATS MF	Deg. Satn x	Lane Util. %
South: Acceso Sur						
1 LT	45	687	1882	1581	0.065	100
2 T	48	725	1900	1596	0.065	100
3 T	48	725	1900	1596	0.065	100
East: Acceso Este						
1 LT	136	895	1894	1642	0.152	21P
2 R	836	1162	1615	NA	0.719	100
North: Acceso Norte						
1 T	1	725	1900	1596	0.002	100

2 T	1	725	1900	1596	0.002	100
3 T	1	725	1900	1596	0.002	100
4 R	96	1084	1615	1357	0.089	100

NA Not Applicable - SCATS MF was not calculated for this lane due to one of the following reasons:
- the lane is not controlled by signals (slip or continuous lane)
- two movements share this lane and do not run in the same phases

P Lane under-utilisation found by the "Program". This includes cases where the value of lane under-utilisation due to downstream effects has been modified by the program during lane flow calculations (e.g. a de facto exclusive lane has been found).

STOPLINE FLOW: Departure flow rate in veh/h as measured at the stop line. This cannot exceed capacity.

SCATS SATURATION FLOW: This allows for lane width, approach grade and turning vehicles. Saturation flow scale applies if specified. The effects of heavy vehicles, parking manoeuvres, number of buses stopping and conflicting pedestrian volume are not included.

SCATS MF: This emulates the MF (Maximum Flow) parameter used in the SCATS control system. It is calculated from the SCATS SATURATION FLOW parameter.

DEG. SATN: The Demand (Arrival) Flow Rate may exceed the Stopline Flow Rate, therefore x > 1 is possible.

Table D.0 - Geometric Delay Data

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

From Approach	To Approach	Turn	Negn Radius (ft)	Negn Speed (mph)	Negn Dist. (ft)	Appr. Dist. (ft)	Downstream (ft)	Distance User Spec?
South: Acceso Sur								
	West	Left	39.8	13.5	62.5	1600	394	No
	North	Thru	S	40.0	36.0	1600	403	No
East: Acceso Este								
	West	Thru	S	40.0	103.0	1600	403	No
	South	Left	39.3	13.4	61.7	1600	394	No
	North	Right	32.8	12.5	51.5	1600	387	No
North: Acceso Norte								
	West	Right	32.8	12.5	51.5	1600	387	No
	South	Thru	S	40.0	36.0	1600	403	No

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.

Table D.1 - Lane Delays

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
South: Acceso Sur										
1 LT	0.065	12.1	0.0	12.1	5.2	6.9	0.0	6.9	1.6	13.7
2 T	0.065	12.1	0.0	12.1	5.7	6.4	0.0	6.4	0.0	12.1
3 T	0.065	12.1	0.0	12.1	5.7	6.4	0.0	6.4	0.0	12.1
East: Acceso Este										
1 LT	0.152	9.3	0.1	9.3	5.0	4.3	0.0	4.3	0.5	9.8
2 R	0.719	1.2	2.2	3.4	2.3	1.2	0.0	1.2	8.9	12.4
North: Acceso Norte										
1 T	0.002	11.4	0.0	11.4	5.5	5.9	0.0	5.9	0.0	11.4
2 T	0.002	11.4	0.0	11.4	5.5	5.9	0.0	5.9	0.0	11.4
3 T	0.002	11.4	0.0	11.4	5.5	5.9	0.0	5.9	0.0	11.4
4 R	0.089	0.6	0.0	0.6	0.8	0.0	0.0	0.0	8.9	9.5

dn is average stop-start delay for all vehicles queued and unqueued

Table D.2 - Lane Stops

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hig	Overall h	Prop. Queued pq	Queue Move-up Rate hqm
South: Acceso Sur							
1 LT	0.065	0.49	0.00	0.04	0.53	0.643	0.00
2 T	0.065	0.49	0.00	0.00	0.49	0.643	0.00
3 T	0.065	0.49	0.00	0.00	0.49	0.643	0.00
East: Acceso Este							
1 LT	0.152	0.47	0.00	0.02	0.49	0.582	0.00
2 R	0.719	0.51	0.00	0.31	0.81	0.553	0.00
North: Acceso Norte							
1 T	0.002	0.38	0.00	0.00	0.38	0.620	0.00
2 T	0.002	0.38	0.00	0.00	0.38	0.620	0.00
3 T	0.002	0.38	0.00	0.00	0.38	0.620	0.00
4 R	0.089	0.16	0.00	0.55	0.71	0.202	0.00

hig is the average value for all movements in a shared lane
hqm is average queue move-up rate for all vehicles queued and unqueued

Table D.3A - Lane Queues (veh)

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nb1	Nb2	Nb	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
South: Acceso Sur											
1 LT	0.065	0.0	0.5	0.0	0.5	0.6	0.8	0.9	1.0	1.3	0.02
2 T	0.065	0.0	0.5	0.0	0.5	0.6	0.8	0.9	1.1	1.4	0.02
3 T	0.065	0.0	0.5	0.0	0.5	0.6	0.8	0.9	1.1	1.4	0.02
East: Acceso Este											
1 LT	0.152	0.1	1.3	0.1	1.4	1.6	2.2	2.4	2.8	3.5	0.04
2 R	0.719	1.4	5.4	1.4	6.8	8.1	10.5	11.5	13.0	15.6	0.20
North: Acceso Norte											
1 T	0.002	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
2 T	0.002	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
3 T	0.002	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
4 R	0.089	0.1	0.2	0.1	0.2	0.3	0.4	0.4	0.5	0.7	0.01

Values printed in this table are back of queue (vehicles).

Table D.3B - Lane Queues (feet)

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (feet) Nb1	Nb2	Nb	Percentile (feet) 70%	85%	90%	95%	98%	Queue Stor. Ratio
South: Acceso Sur											
1 LT	0.065	0.7	11.8	0.7	12.5	15.0	20.0	22.5	26.1	33.4	0.02
2 T	0.065	0.7	12.5	0.7	13.2	15.8	21.1	23.6	27.5	35.1	0.02
3 T	0.065	0.7	12.5	0.7	13.2	15.8	21.1	23.6	27.5	35.1	0.02
East: Acceso Este											
1 LT	0.152	2.1	32.0	2.1	34.1	40.8	54.1	60.5	70.1	88.7	0.04
2 R	0.719	34.8	135.2	34.8	170.1	201.4	261.7	286.5	325.0	389.9	0.20
North: Acceso Norte											
1 T	0.002	0.0	0.3	0.0	0.4	0.4	0.6	0.6	0.7	1.0	0.00
2 T	0.002	0.0	0.3	0.0	0.4	0.4	0.6	0.6	0.7	1.0	0.00
3 T	0.002	0.0	0.3	0.0	0.4	0.4	0.6	0.6	0.7	1.0	0.00
4 R	0.089	1.3	4.9	1.3	6.2	7.5	9.9	11.2	13.0	16.7	0.01

Values printed in this table are back of queue (feet).

Table D.4 - Movement Speeds (mph) and Geometric Delay

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	App. Speeds Cruise	App. Speeds Negn	Exit Speeds Negn	Exit Speeds Cruise	Queue Move-up 1st Grn	Queue Move-up 2nd Grn	Av. Section Spd Running	Av. Section Spd Overall	Geom Delay (sec)
South: Acceso Sur									
3L L	40.0	13.5	13.5	40.0			29.8	24.8	8.8
8T T	40.0	40.0	40.0	40.0			34.3	29.5	0.0
East: Acceso Este									
1L L	40.0	13.4	13.4	40.0			30.0	26.1	8.8
6T T	40.0	40.0	40.0	40.0			34.7	31.4	0.0
6R R	40.0	12.5	12.5	40.0			30.1	29.3	8.9
North: Acceso Norte									
4T T	40.0	40.0	40.0	40.0			34.4	30.0	0.0
4R R	40.0	12.5	12.5	40.0			31.1	31.1	8.9

"Running Speed" is the average speed excluding stopped periods.

Table D.5 - Progression Factors and Actuated Signal Parameters

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Gap Settings es	Gap Settings eh	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
South: Acceso Sur											
3L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
8T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
East: Acceso Este											
1L L	VA	No	3	1.000	1.000	2.0	2.6	6	20		
6T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
6R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
North: Acceso Norte											
4T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
4R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50

Table D.6 - Gap Acceptance Parameters

Intersecci n Avenida Los ngeles Calle W
Existente (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Mov Type	Opng Flow (pcu/h)	Critical Gap Hdwy (s)	Critical Gap Dist (ft)	Foll-up Headway (s)	Entry HV Equiv
South: Acceso Sur						
3L L	Normal	100	4.50	187.7	2.50	2.00
East: Acceso Este						
1L L	Normal	0	4.50	254.3	2.50	2.00
6R R	Normal	132	6.00	352.0	3.00	2.00
North: Acceso Norte						
4R R	Normal	128	6.00	352.0	3.00	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.

SIDRA SOLUTIONS

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SIDRA INTERSECTION

Output Tables

Intersección Avenida Los Ángeles y PR-26

Existente (AM)

Run Information

```
Cycle Time =   50  (Sum of User-given Phase Times)

* 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 optimum cycle time specification
    Any green split priority specification
  For actuated signal timings, cycle increment is set to 1 second
  Driving on the right-hand side of the road
  Input data specified in US units
  Model Defaults: US HCM (US)
  Peak Flow Period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes.
  Delay definition: Control delay
                    Geometric delay included
  HCM Delay Model option selected
  HCM Queue Model option selected
  Level of Service based on: Delay (HCM method)
  Queue definition: Back of queue, 95th Percentile

* Iteration Data:
  No. of Main (Timing-Capacity) Iterations =  1
  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)
```

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)

```
Intersecci n Avenida Los  ngeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-----------------------------------------------------------------
 From       To           Mov            Flow Rate   Flow   Peak Flow
 Approach   Approach     ID    Turn      LV    HV   Scale    Factor
-----------------------------------------------------------------
 SouthEast: Acceso Sureste
            NorthWest    16T   Thru    1284     0    1.00     1.00
```

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```
-----------------------------------------------------------------
 NorthEast: Acceso Noreste
          SouthWest   14T   Thru     88     0    1.00     1.00
-----------------------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-----------------------------------------------
  Mov          Left       Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
SouthEast: Acceso Sureste
  16T T       0     0   1284     0      0     0
-----------------------------------------------
NorthEast: Acceso Noreste
  14T T       0     0     88     0      0     0
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2B - Flow Rates (Total Vehicles and Percent Heavy)

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

--------------------------------------------------
  Mov          Left        Through        Right
  ID        ----------    -----------    -----------
            Total  %HV    Total  %HV    Total  %HV
--------------------------------------------------
Demand flows in veh/hour as used by the program
SouthEast: Acceso Sureste
  16T T        0   0.0    1284   0.0       0   0.0
--------------------------------------------------
NorthEast: Acceso Noreste
  14T T        0   0.0      88   0.0       0   0.0
--------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table S.1 - Movement Phase and Timing Parameters

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-----------------------------------------------------------------------------------------
 Mov     Mov           P H A S E  M A T R I X          Lost Tim  Req.Mov.Time     Eff. Grn
 ID      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
-----------------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T       *1      2                                    4        26.7              21
-----------------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T       *2      1                                    4        10.0Min           21
-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
-----------------------------------------------------------------------------------------
  *  Critical Movement/Green Period

Movement Types:                              Under heading 'Op':
  Slp  Slip Lane Movement                      Y   If opposed turn
  Ped  Pedestrian
  Dum  Dummy
```

Table S.2 - Movement Capacity Parameters

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov      Dem          Satn Flow   Flow Ratio  Total Prac. Prac. Lane   Deg.
 ID       Flow        -----------  ---------   Cap. Deg.  Spare Util   Satn
          (veh    HV   1st   2nd    1st   2nd  (veh  Satn  Cap.
           /h)    (%)  Grn   Grn    Grn   Grn   /h)   xp    (%)   (%)     x
-------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T    1284    0.0  3800        0.338        1596  0.90    12   100  0.805*
-------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T      88    0.0  3800        0.023        1596  0.90  1532   100  0.055
-------------------------------------------------------------------------------
```

Table S.3 - Intersection Parameters

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------------------
   Crit App.  Green   Phases   Adjusted    Adjusted   Required   Required
   Mov  and   Period  ------     Lost        Flow     Grn Time   Movement
   ID   Turn          Fr  To     Time        Ratio     Ratio       Time
-------------------------------------------------------------------------
   16T  SE_T         1    2       4         0.338      0.455       26.7
   14T  NE_T         2    1      10           -          -        10.0Min
                                ----       ------     ------      ------
                           Total:  14        0.338      0.455       36.7
-------------------------------------------------------------------------
  - 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
        20        NA         26         50
     (Phase times user specified, cycle time = sum of phase times)

 NA  Cmax does not apply at actuated signals

   Intersection Level of Service              =        C
   Worst movement Level of Service            =        C
   Average intersection delay (s/pers)        =     20.0
   Largest average movement delay (s)         =     20.7
   Largest back of queue, 95% (ft)            =      472
   Performance Index                          =    48.04
   Degree of saturation (highest)             =    0.805
   Practical Spare Capacity (lowest)          =       12 %
   Effective intersection capacity, (veh/h)   =     1705
   Total vehicle flow (veh/h)                 =     1372
   Total person flow (pers/h)                 =     1646
   Total vehicle delay (veh-h/h)              =     7.63
   Total person delay (pers-h/h)              =     9.15
   Total effective vehicle stops (veh/h)      =     1087
   Total effective person stops (pers/h)      =     1304
   Total vehicle travel (veh-mi/h)            =    520.6
   Total cost ($/h)                           =   326.88
   Total fuel (gal/h)                         =     27.5
   Total CO2 (kg/h)                           =   260.31
```

Table S.4 - Phase Information

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------------------
Phase  Change  Starting  Green  Displayed  Green  Terminating  Phase  Phase
        Time    Intgrn   Start    Green     End     Intgrn      Time   Split
-------------------------------------------------------------------------
 1        0       4        4       21       25        4          25    50%
 2       25       4       29       21       50        4          25    50%
-------------------------------------------------------------------------
            (Phase times specified by the user)
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
```

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 95% Back (vehs)	Queue 95% Back (ft)	Perf. Index	Aver. Speed (mph)
SouthEast: Acceso Sureste									
16T T	7.39	8.87	20.7	0.92	0.82	18.9	472	45.91	24.9
NorthEast: Acceso Noreste									
14T T	0.24	0.28	9.7	0.60	0.45	0.9	22	2.13	31.2

Table S.6 - Intersection Performance

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

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 (ft)	Perf. Index	Aver. Speed (mph)
SouthEast: Acceso Sureste									
1284	0.805	7.39	8.87	20.7	0.92	0.82	472	45.91	24.9
NorthEast: Acceso Noreste									
88	0.055	0.24	0.28	9.7	0.60	0.45	22	2.13	31.2
ALL VEHICLES:									
1372	0.805	7.63	9.15	20.0	0.90	0.79	472	48.04	25.2
INTERSECTION (persons):									
1646	0.805		9.15	20.0	0.90	0.79		48.04	25.2

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

Table S.7 - Lane Performance

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane	Effective Red and Green Times (sec)	Dem Flow (veh	Cap (veh	Deg. Satn	Aver. Delay	Eff. Stop	Queue 95% Back	Lane Length

```
 No.     R1  G1   R2  G2     /h)  /h)   x   (sec)  Rate  (vehs) (ft)   (ft)
-----------------------------------------------------------------------------
 SouthEast: Acceso Sureste
 1 T     29  21    0   0    642  798 0.805   20.7  0.82  18.9  471.9  1600.0
 2 T     29  21    0   0    642  798 0.805   20.7  0.82  18.9  471.9  1600.0
-----------------------------------------------------------------------------
 NorthEast: Acceso Noreste
 1 T     29  21    0   0     44  798 0.055    9.7  0.45   0.9   21.8  1600.0
 2 T     29  21    0   0     44  798 0.055    9.7  0.45   0.9   21.8  1600.0
-----------------------------------------------------------------------------
```

Table S.8 - Lane Flow and Capacity Information

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-----------------------------------------------------------------------
                                        Saturation Flow  End  Tot
 Lane     Dem Flow (veh/h)   Lane   Adj. Aver Aver  Cap  Cap  Deg.  Lane
 No.    -------------------  Width Basic 1st  2nd  (veh (veh  Satn  Util
        Lef Thru  Rig  Tot   (ft)  (tcu) (veh)(veh)  /h)  /h)   x     %
-----------------------------------------------------------------------
 SouthEast: Acceso Sureste
 1 T      0  642    0  642  12.0  1900 1900     0    0  798 0.805  100
 2 T      0  642    0  642  12.0  1900 1900     0    0  798 0.805  100
-----------------------------------------------------------------------
 NorthEast: Acceso Noreste
 1 T      0   44    0   44  12.0  1900 1900     0    0  798 0.055  100
 2 T      0   44    0   44  12.0  1900 1900     0    0  798 0.055  100
-----------------------------------------------------------------------

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

Table S.9 - Signal Timing Diagram

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

             Phase 1                              Phase 2

0                                  25                                   50
I----------------------------------I-----------------------------------I
......GGGGGGGGGGGGGGGGGGGGGGGGGGGG.......GGGGGGGGGGGGGGGGGGGGGGGGGGGGG.
     4                                   29


Effective (Movement) Green Times


 SouthEast: Acceso Sureste
```

```
Mov.   16T (T)
I                                I                                I
........GGGGGGGGGGGGGGGGGGGGGGGGGGGG...............................
       6                            27


 NorthEast: Acceso Noreste

Mov.   14T (T)
I                                I                                I
GG.......................................GGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                     31


I-----I------I------I------I------I------I------I------I------I------I---->
0     5     10     15     20     25     30     35     40     45     50

                              T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-----------------------------------------------------------------------------
 Mov     Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%    Perf.
 ID      Typ  Flow   Cap.  Util  Satn  -------  Delay  Stop  Back of  Index
              (veh  (veh                1st  2nd         Rate   Queue
               /h)   /h)   (%)     x   Grn  Grn  (sec)         (veh)
-----------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T        1284  1596   100  0.805*  21*       20.7  0.82   18.9   45.91
-----------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T          88  1596   100  0.055   21*        9.7  0.45    0.9    2.13
-----------------------------------------------------------------------------
  *  Maximum degree of saturation, or critical green periods
```

Table S.12A - Fuel Consumption, Emissions and Cost (TOTAL)

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------
  Mov            Fuel    Cost     HC      CO     NOX     CO2
  ID             Total   Total   Total   Total   Total   Total
                 gal/h   $/h     kg/h    kg/h    kg/h    kg/h
-------------------------------------------------------------
SouthEast: Acceso Sureste
  16T T          26.0   309.62   0.438   20.22   0.597   246.2
               ---------------------------------------------
                 26.0   309.62   0.438   20.22   0.597   246.2
-------------------------------------------------------------
NorthEast: Acceso Noreste
  14T T           1.5    17.25   0.023    0.99   0.033    14.1
```

	1.5	17.25	0.023	0.99	0.033	14.1
INTERSECTION:	27.5	326.88	0.461	21.21	0.630	260.3

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/US gal)	=	2.400
Fuel resource cost factor	=	0.70
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	19.00
Time value factor	=	0.40
Light vehicle mass (1000 lb)	=	3.1
Heavy vehicle mass (1000 lb)	=	24.0
Light vehicle idle fuel rate (US gal/h)	=	0.360
Heavy vehicle idle fuel rate (US gal/h)	=	0.530

Table S.12B - Fuel Consumption, Emissions and Cost (RATE)

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Mov ID	Fuel Eff. mpg	Cost Rate $/mi	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km
SouthEast: Acceso Sureste						
16T T	18.7	0.39	0.559	25.79	0.761	314.1
	18.7	0.39	0.559	25.79	0.761	314.1
NorthEast: Acceso Noreste						
14T T	22.5	0.32	0.435	18.42	0.614	261.7
	22.5	0.32	0.435	18.42	0.614	261.7
INTERSECTION:	18.9	0.39	0.551	25.32	0.752	310.7

Table S.14 - Summary of Input and Output Data

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

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 (ft)	Shrt Lane (ft)
SouthEast: Acceso Sureste												
1 T		642		642	0	1899	21		0.805	20.7	472	1600

```
2 T          642        642    0  1899   21      0.805   20.7   472  1600
        ---------------------------------------------------------------
          0 1284    0  1284    0                 0.805   20.7   472
-----------------------------------------------------------------------
 NorthEast: Acceso Noreste
1 T           44         44    0  1899   21      0.055    9.7    22  1600
2 T           44         44    0  1899   21      0.055    9.7    22  1600
        ---------------------------------------------------------------
          0   88    0    88    0                 0.055    9.7    22
=======================================================================
 ALL VEHICLES          Total   %       Cycle      Max   Aver.   Max
                       Flow   HV       Time        X    Delay  Queue
                       1372    0         50      0.805   20.0   472
=======================================================================
Peak flow period = 15 minutes.

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

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

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov     Mov    Green Time  Total  Total    Deg.   Aver.   LOS  Longest Queue
 ID      Typ    Ratio (g/C) Flow   Cap.     of    Delay          95% Back
               ------------ (veh   (veh     Satn                (vehs)  (ft)
                1st   2nd    /h)    /h)     (v/c)  (sec)
                grn   grn
-------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T        0.420*         1284   1596   0.805*   20.7    C     18.9    472
-------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T        0.420*           88   1596   0.055     9.7    A      0.9     22
-------------------------------------------------------------------------------
  ALL VEHICLES:               1372          0.805    20.0    C     18.9    472
-------------------------------------------------------------------------------
  INTERSECTION (persons):     1646                   20.0          18.9    472
-------------------------------------------------------------------------------
     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.
  *  Maximum v/c ratio, or critical green periods
```

Table S.16 - SCATS MF Parameter

```
Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)
```

Lane No.	Stopline Flow (veh/h)	Capacity (veh/h)	SCATS Satn Flow	SCATS MF	Deg. Satn x	Lane Util. %
SouthEast: Acceso Sureste						
1 T	642	798	1900	1596	0.805	100
2 T	642	798	1900	1596	0.805	100
NorthEast: Acceso Noreste						
1 T	44	798	1900	1596	0.055	100
2 T	44	798	1900	1596	0.055	100

STOPLINE FLOW: Departure flow rate in veh/h as measured at the stop line. This cannot exceed capacity.

SCATS SATURATION FLOW: This allows for lane width, approach grade and turning vehicles. Saturation flow scale applies if specified. The effects of heavy vehicles, parking manoeuvres, number of buses stopping and conflicting pedestrian volume are not included.

SCATS MF: This emulates the MF (Maximum Flow) parameter used in the SCATS control system. It is calculated from the SCATS SATURATION FLOW parameter.

DEG. SATN: The Demand (Arrival) Flow Rate may exceed the Stopline Flow Rate, therefore x > 1 is possible.

Table D.0 - Geometric Delay Data

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

From Approach	To Approach	Turn	Negn Radius (ft)	Negn Speed (mph)	Negn Dist. (ft)	Appr. Dist. (ft)	Downstream (ft)	Distance User Spec?
SouthEast: Acceso Sureste								
	NorthWest	Thru	S	40.0	36.0	1600	403	No
NorthEast: Acceso Noreste								
	SouthWest	Thru	S	40.0	36.0	1600	403	No

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.

Table D.1 - Lane Delays

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
		---------- Delay (seconds/veh) ----------								
SouthEast: Acceso Sureste										
1 T	0.805	14.7	6.1	20.7	8.2	12.5	0.0	12.5	0.0	20.7
2 T	0.805	14.7	6.1	20.7	8.2	12.5	0.0	12.5	0.0	20.7
NorthEast: Acceso Noreste										
1 T	0.055	9.6	0.0	9.7	5.3	4.3	0.0	4.3	0.0	9.7
2 T	0.055	9.6	0.0	9.7	5.3	4.3	0.0	4.3	0.0	9.7

dn is average stop-start delay for all vehicles queued and unqueued

Table D.2 - Lane Stops

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hig	Overall h	Prop. Queued pq	Queue Move-up Rate hqm
SouthEast: Acceso Sureste							
1 T	0.805	0.82	0.00	0.00	0.82	0.921	0.00
2 T	0.805	0.82	0.00	0.00	0.82	0.921	0.00
NorthEast: Acceso Noreste							
1 T	0.055	0.45	0.00	0.00	0.45	0.602	0.00
2 T	0.055	0.45	0.00	0.00	0.45	0.602	0.00

hig is the average value for all movements in a shared lane
hqm is average queue move-up rate for all vehicles queued and unqueued

Table D.3A - Lane Queues (veh)

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nb1	Nb2	Nb	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
SouthEast: Acceso Sureste											
1 T	0.805	1.6	8.7	1.6	10.3	12.1	15.5	16.8	18.9	22.1	0.29
2 T	0.805	1.6	8.7	1.6	10.3	12.1	15.5	16.8	18.9	22.1	0.29
NorthEast: Acceso Noreste											
1 T	0.055	0.0	0.4	0.0	0.4	0.5	0.7	0.7	0.9	1.1	0.01

2 T	0.055	0.0	0.4	0.0	0.4	0.5	0.7	0.7	0.9	1.1	0.01

Values printed in this table are back of queue (vehicles).

Table D.3B - Lane Queues (feet)

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (feet) Nb1	Nb2	Nb	Percentile (feet) 70%	85%	90%	95%	98%	Queue Stor. Ratio
SouthEast: Acceso Sureste											
1 T	0.805	40.2	216.3	40.2	256.6	302.1	388.2	420.6	471.9	552.7	0.29
2 T	0.805	40.2	216.3	40.2	256.6	302.1	388.2	420.6	471.9	552.7	0.29
NorthEast: Acceso Noreste											
1 T	0.055	0.6	9.8	0.6	10.4	12.5	16.7	18.7	21.8	27.8	0.01
2 T	0.055	0.6	9.8	0.6	10.4	12.5	16.7	18.7	21.8	27.8	0.01

Values printed in this table are back of queue (feet).

Table D.4 - Movement Speeds (mph) and Geometric Delay

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Mov ID	App. Speeds Cruise	Negn	Exit Speeds Negn	Cruise	Queue Move-up 1st Grn	2nd Grn	Av. Section Spd Running	Overall	Geom Delay (sec)
SouthEast: Acceso Sureste									
16T T	40.0	40.0	40.0	40.0			32.3	24.9	0.0
NorthEast: Acceso Noreste									
14T T	40.0	40.0	40.0	40.0			34.6	31.2	0.0

"Running Speed" is the average speed excluding stopped periods.

Table D.5 - Progression Factors and Actuated Signal Parameters

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Mov ID	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Gap Settings es	Gap Settings eh	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
SouthEast: Acceso Sureste											
16T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
NorthEast: Acceso Noreste											
14T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		

Table D.6 - Gap Acceptance Parameters

Intersecci n Avenida Los Angeles y PR-26
Existente (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

No opposed movements at this intersection

SIDRA SOLUTIONS

Site: New Site - 1
C:\Documents and Settings\Alidys Alicea\My Documents\Tilysay's Documents\Estudios (Tilysay Hernandez)\Laguna Plaza\Laguna Plaza\Corridas SIDRA\Int. Existentes\Int. Avenida Los Angeles y PR-26\Int. Avenida Los Angeles y PR-26 E (AM).aap
Processed Jan 22, 2008 10:30:30AM

A1460, PLC, Large Office
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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Tilysay Hernández Acevedo
Agency/Co.:	PLC Traffic Consulting
Date performed:	12/13/2007
Analysis time period:	24 horas
Freeway/Dir of Travel:	Rampa Este
Junction:	
Jurisdiction:	Caguas
Analysis Year:	2007
Description:	Plaza Laguna E (AM)

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2016	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	136	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2016	136		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	560	38		v
Trucks and buses	0	0		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade	%	%		%
Length	mi	mi		mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

FIGURA 30

Heavy vehicle adjustment, fHV	1.000	1.000	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	2240	151	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1325 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2391	6750	No
v_{R12}	1476	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.303	
Space mean speed in ramp influence area,	S_R = 51.1	mph
Space mean speed in outer lanes,	S_O = 53.5	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Tilysay Hernandez Acevedo
Agency/Co.:	PLC Traffic Consulting
Date performed:	12/13/2007
Analysis time period:	24 horas
Freeway/Dir of Travel:	Rampa Oeste
Junction:	
Jurisdiction:	Caguas
Analysis Year:	2007
Description:	Laguna Plaza E (AM)

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2016	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	336	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2016	336		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	560	93		v
Trucks and buses	0	0		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade	%	%		%
Length	mi	mi		mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

FIGURA 31

Heavy vehicle adjustment, fHV	1.000	1.000	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	2240	373	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1325 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2613	6750	No
v_{R12}	1857	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.311	
Space mean speed in ramp influence area,	S_R = 51.0	mph
Space mean speed in outer lanes,	S_O = 54.1	mph
Space mean speed for all vehicles,	S = 51.8	mph

SIDRA INTERSECTION

Output Tables

Intersección Avenida Las Flores & Calle Hortensia

Existente (PM)

Run Information

```
Cycle Time =   35  (Sum of User-given Phase Times)

* 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 optimum cycle time specification
    Any green split priority specification
  For actuated signal timings, cycle increment is set to 1 second
  Driving on the right-hand side of the road
  Input data specified in US units
  Model Defaults: US HCM (US)
  Peak Flow Period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes.
  Delay definition: Control delay
                    Geometric delay included
  HCM Delay Model option selected
  HCM Queue Model option selected
  Level of Service based on: Delay (HCM method)
  Queue definition: Back of queue, 95th Percentile

* Iteration Data:
  No. of Main (Timing-Capacity) Iterations =  1
  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)
```

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)

```
Intersecci n Avenida Las Flores   Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

-----------------------------------------------------------------
 From       To          Mov            Flow Rate   Flow   Peak Flow
 Approach   Approach    ID    Turn      LV    HV   Scale    Factor
-----------------------------------------------------------------
 West: Acceso Oeste
           South        2R   Right   448     0    1.00     1.00
```

FIGURA 32

```
          East         2T   Thru    112     0    1.00     1.00
          North        5L   Left      4     0    1.00     1.00
-----------------------------------------------------------------
 South: Acceso Sur
          West         3L   Left     52     0    1.00     1.00
          East         8R   Right    48     0    1.00     1.00
          North        8T   Thru     68     0    1.00     1.00
-----------------------------------------------------------------
 East: Acceso Este
          West         6T   Thru     68     0    1.00     1.00
          South        1L   Left     24     0    1.00     1.00
          North        6R   Right    40     0    1.00     1.00
-----------------------------------------------------------------
 North: Acceso Norte
          West         4R   Right    24     0    1.00     1.00
          South        4T   Thru    292     0    1.00     1.00
          East         7L   Left      8     0    1.00     1.00
-----------------------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)

```
Intersecci n Avenida Las Flores   Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

-----------------------------------------------
  Mov          Left       Through       Right
  ID        ---------    ---------    ---------
            LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
West: Acceso Oeste
   5L L       4     0      0     0      0     0
   2T T       0     0    112     0      0     0
   2R R       0     0      0     0    448     0
-----------------------------------------------
South: Acceso Sur
   3L L      52     0      0     0      0     0
   8T T       0     0     68     0      0     0
   8R R       0     0      0     0     48     0
-----------------------------------------------
East: Acceso Este
   1L L      24     0      0     0      0     0
   6T T       0     0     68     0      0     0
   6R R       0     0      0     0     40     0
-----------------------------------------------
North: Acceso Norte
   7L L       8     0      0     0      0     0
   4T T       0     0    292     0      0     0
   4R R       0     0      0     0     24     0
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2B - Flow Rates (Total Vehicles and Percent Heavy)

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Left Total	Left %HV	Through Total	Through %HV	Right Total	Right %HV
Demand flows in veh/hour as used by the program						
West: Acceso Oeste						
5L L	4	0.0	0	0.0	0	0.0
2T T	0	0.0	112	0.0	0	0.0
2R R	0	0.0	0	0.0	448	0.0
South: Acceso Sur						
3L L	52	0.0	0	0.0	0	0.0
8T T	0	0.0	68	0.0	0	0.0
8R R	0	0.0	0	0.0	48	0.0
East: Acceso Este						
1L L	24	0.0	0	0.0	0	0.0
6T T	0	0.0	68	0.0	0	0.0
6R R	0	0.0	0	0.0	40	0.0
North: Acceso Norte						
7L L	8	0.0	0	0.0	0	0.0
4T T	0	0.0	292	0.0	0	0.0
4R R	0	0.0	0	0.0	24	0.0

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Mov Typ	PHASE MATRIX First Green Fr	First Green To	First Green Op Pr	Second Green Fr	Second Green To	Second Green 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: Acceso Oeste													
5L L	*2	1	Y					5		19.6		15	
2T T	2	1						4		19.0		16	
2R R	1	2	Y	2	1			6	4	10.0Min	19.4	9	16
South: Acceso Sur													
3L L	1	2	Y					4		10.0Min		11	
8T T	1	2						4		10.0Min		11	
8R R	1	2	Y	2	1		Y	6	4	10.0Min	10.6	9	16
East: Acceso Este													
1L L	2	1	Y					14		16.0		6	
6T T	2	1						4		10.0Min		16	
6R R	1	2	Y	2	1			4	4	10.0Min	10.0Min	11	16

```
North: Acceso Norte
  7L L        1      2      Y                              4        11.6              11
  4T T       *1      2                                     4        11.6              11
  4R R        1      2      Y      2      1      Y       4    4   10.0Min  15.8     11   16
-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
-----------------------------------------------------------------------------------------
  *  Critical Movement/Green Period

Movement Types:                              Under heading 'Op':
  Slp  Slip Lane Movement                      Y   If opposed turn
  Ped  Pedestrian
  Dum  Dummy
```

Table S.2 - Movement Capacity Parameters

```
Intersecci n Avenida Las Flores   Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov      Dem          Satn Flow   Flow Ratio  Total Prac. Prac. Lane   Deg.
 ID       Flow        -----------  ---------   Cap. Deg.  Spare Util   Satn
          (veh    HV   1st   2nd    1st   2nd  (veh Satn  Cap.
           /h)    (%)  Grn   Grn    Grn   Grn  /h)  xp    (%)   (%)     x
-------------------------------------------------------------------------------
West: Acceso Oeste
  5L L       4    0.0    16        0.250          7  0.90    54   100  0.583*
  2T T     112    0.0   432        0.259        197  0.90    59   100  0.567
  2R R     448    0.0   703  1333  0.000 0.336  790  0.90    59   100  0.567
-------------------------------------------------------------------------------
South: Acceso Sur
  3L L      52    0.0   960        0.054        302  0.90   422   100  0.172
  8T T      68    0.0  1256        0.054        395  0.90   422   100  0.172
  8R R      48    0.0   631   255  0.046 0.075  279  0.90   423   100  0.172
-------------------------------------------------------------------------------
East: Acceso Este
  1L L      24    0.0  1070        0.022        183  0.90   588   100  0.131
  6T T      68    0.0  1137        0.060        520  0.90   588   100  0.131
  6R R      40    0.0   190   539  0.000 0.074  306  0.90   589   100  0.131
-------------------------------------------------------------------------------
North: Acceso Norte
  7L L       8    0.0    92        0.087         29  0.90   225   100  0.277
  4T T     292    0.0  3354        0.087       1054  0.90   225   100  0.277
  4R R      24    0.0   210    45  0.080 0.158   87  0.90   225   100  0.277
-------------------------------------------------------------------------------
```

Table S.3 - Intersection Parameters

```
Intersecci n Avenida Las Flores   Calle Hortensia
Existente (PM)
Intersection ID: 1
```

Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
4T	N_T		1	2	4	0.087	0.218	11.6
5L	W_L		2	1	5	0.250	0.418	19.6
				Total:	9	0.337	0.636	31.3

Cycle Time:

Minimum	Maximum	Practical	Chosen
20	NA	25	35

(Phase times user specified, cycle time = sum of phase times)

NA Cmax does not apply at actuated signals

Intersection Level of Service	=	B
Worst movement Level of Service	=	C
Average intersection delay (s/pers)	=	15.3
Largest average movement delay (s)	=	28.2
Largest back of queue, 95% (ft)	=	341
Performance Index	=	31.85
Degree of saturation (highest)	=	0.583
Practical Spare Capacity (lowest)	=	54 %
Effective intersection capacity, (veh/h)	=	2037
Total vehicle flow (veh/h)	=	1188
Total person flow (pers/h)	=	1426
Total vehicle delay (veh-h/h)	=	5.04
Total person delay (pers-h/h)	=	6.04
Total effective vehicle stops (veh/h)	=	878
Total effective person stops (pers/h)	=	1054
Total vehicle travel (veh-mi/h)	=	448.7
Total cost ($/h)	=	265.17
Total fuel (gal/h)	=	23.1
Total CO2 (kg/h)	=	218.90

Table S.4 - Phase Information

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
1	0	4	4	11	15	4	15	43%
2	15	4	19	16	35	4	20	57%

(Phase times specified by the user)
Current Phase Sequence: Two-phase
Input phase sequence: 1 2
Output phase sequence: 1 2

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 95% Back (vehs)	(ft)	Perf. Index	Aver. Speed (mph)
West: Acceso Oeste									
5L L	0.03	0.04	28.2	1.00	0.92	13.6	341	0.14	21.8
2T T	0.60	0.72	19.3	1.00	0.92	13.6	341	3.66	25.6
2R R	2.35	2.82	18.9	0.86	0.83	10.3	258	12.85	25.7
South: Acceso Sur									
3L L	0.28	0.34	19.4	0.74	0.76	1.5	37	1.44	25.4
8T T	0.15	0.18	7.8	0.69	0.51	1.5	37	1.49	32.2
8R R	0.20	0.24	14.7	0.66	0.75	1.2	29	1.16	27.8
East: Acceso Este									
1L L	0.13	0.16	19.5	0.77	0.79	2.4	60	0.67	25.4
6T T	0.20	0.24	10.5	0.77	0.63	2.4	60	1.68	30.6
6R R	0.21	0.25	18.5	0.73	0.76	2.2	55	1.07	25.9
North: Acceso Norte									
7L L	0.04	0.05	19.8	0.77	0.78	3.0	75	0.23	25.2
4T T	0.75	0.89	9.2	0.76	0.59	3.0	75	6.85	31.3
4R R	0.11	0.13	16.3	0.75	0.77	2.4	60	0.61	27.0

Table S.6 - Intersection Performance

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

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 (ft)	Perf. Index	Aver. Speed (mph)
West: Acceso Oeste									
564	0.583	2.98	3.58	19.0	0.89	0.85	341	16.65	25.6
South: Acceso Sur									
168	0.172	0.62	0.75	13.3	0.70	0.65	37	4.09	28.6
East: Acceso Este									
132	0.131	0.53	0.64	14.6	0.76	0.70	60	3.43	28.0
North: Acceso Norte									
324	0.277	0.90	1.08	10.0	0.76	0.60	75	7.68	30.7
ALL VEHICLES:									
1188	0.583	5.04	6.04	15.3	0.81	0.74	341	31.85	27.5
INTERSECTION (persons):									
1426	0.583		6.04	15.3	0.81	0.74		31.85	27.5

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

Table S.7 - Lane Performance

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

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 95% Back (vehs)	(ft)	Lane Length (ft)
West: Acceso Oeste												
1 LTR	19	16	0	0	564	995	0.567	26.4	0.85	13.6	341.0	1600.0
South: Acceso Sur												
1 LT	24	11	0	0	82	474	0.172	16.1	0.69	1.5	36.7	1600.0
2 TR	17	10	4	4	86	502	0.172	10.7	0.62	1.2	29.2	1600.0
East: Acceso Este												
1 LTR	23	12	0	0	132	1009	0.131	14.9	0.70	2.4	60.1	1600.0
North: Acceso Norte												
1 LT	24	11	0	0	163	590	0.277	11.2	0.63	3.0	74.9	1600.0
2 TR	19	11	4	1	161	580	0.277	8.7	0.58	2.4	60.2	1600.0

Table S.8 - Lane Flow and Capacity Information

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (ft)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
West: Acceso Oeste												
1 LTR	4	112	448	564	12.0	1900	510	0	206	995	0.567	100
South: Acceso Sur												
1 LT	52	30	0	82	12.0	1900	1507	0	168	474	0.172	100
2 TR	0	38	48	86	12.0	1900	1294	1154	206	502	0.172	100
East: Acceso Este												
1 LTR	24	68	40	132	12.0	1900	1041	0	224	1009	0.131	100
North: Acceso Norte												
1 LT	8	155	0	163	12.0	1900	1877	0	108	590	0.277	100
2 TR	0	137	24	161	12.0	1900	1753	1003	206	580	0.277	100

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

Table S.9 - Signal Timing Diagram

```
Intersecci n Avenida Las Flores   Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

           Phase 1                            Phase 2

0                            15                                       35
I----------------------------I----------------------------------------I
........GGGGGGGGGGGGGGGGGGGG.........GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.
       4                            19


Effective (Movement) Green Times


 West: Acceso Oeste

Mov.    5L (L)
I                            I                                        I
GGG.......................................GGGGGGGGGGGGGGGGGGGGGGGGGGG
   2                                       22

Mov.    2T (T)
I                            I                                        I
GGG....................................GGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2                                     21

Mov.    2R (R)
I                            I                                        I
GGGG...........GGGGGGGGGGGGGGGGG........GGGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2          8                 17       21


 South: Acceso Sur

Mov.    3L (L)
I                            I                                        I
...........GGGGGGGGGGGGGGGGGGGG....................................
          6                     17

Mov.    8T (T)
I                            I                                        I
...........GGGGGGGGGGGGGGGGGGGG....................................
          6                     17

Mov.    8R (R)
I                            I                                        I
GGGG...........GGGGGGGGGGGGGGGGG........GGGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2          8                 17       21


 East: Acceso Este

Mov.    1L (L)
I                            I                                        I
GGG.........................................................GGGGGGGG
   2                                                          31

Mov.    6T (T)
I                            I                                        I
GGG....................................GGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2                                     21

Mov.    6R (R)
I                            I                                        I
GGGG........GGGGGGGGGGGGGGGGGGGG........GGGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2       6                     17       21
```

```
 North: Acceso Norte

Mov.    7L (L)
I                            I                                    I
............GGGGGGGGGGGGGGGGGGGG.................................
          6                     17

Mov.    4T (T)
I                            I                                    I
............GGGGGGGGGGGGGGGGGGGG.................................
          6                     17

Mov.    4R (R)
I                            I                                    I
GGGG........GGGGGGGGGGGGGGGGGGGG........GGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2       6                     17       21


I-----I------I------I------I------I------I------I------I------I------I----->
0      4      7     11     14     18     21     25     28     32     35

                                T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
Intersecci n Avenida Las Flores   Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov     Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%    Perf.
 ID      Typ  Flow   Cap.  Util  Satn  -------- Delay  Stop  Back of  Index
              (veh  (veh                1st  2nd         Rate   Queue
               /h)   /h)   (%)     x   Grn  Grn  (sec)         (veh)
-------------------------------------------------------------------------------
West: Acceso Oeste
  5L L           4     7   100  0.583*  15*       28.2  0.92   13.6    0.14
  2T T         112   197   100  0.567   16        19.3  0.92   13.6    3.66
  2R R         448   790   100  0.567    9   16   18.9  0.83   10.3   12.85
-------------------------------------------------------------------------------
South: Acceso Sur
  3L L          52   302   100  0.172   11        19.4  0.76    1.5    1.44
  8T T          68   395   100  0.172   11         7.8  0.51    1.5    1.49
  8R R          48   279   100  0.172    9   16   14.7  0.75    1.2    1.16
-------------------------------------------------------------------------------
East: Acceso Este
  1L L          24   183   100  0.131    6        19.5  0.79    2.4    0.67
  6T T          68   520   100  0.131   16        10.5  0.63    2.4    1.68
  6R R          40   306   100  0.131   11   16   18.5  0.76    2.2    1.07
-------------------------------------------------------------------------------
North: Acceso Norte
  7L L           8    29   100  0.277   11        19.8  0.78    3.0    0.23
  4T T         292  1054   100  0.277   11*        9.2  0.59    3.0    6.85
  4R R          24    87   100  0.277   11   16   16.3  0.77    2.4    0.61
-------------------------------------------------------------------------------
  *  Maximum degree of saturation, or critical green periods
```

Table S.12A - Fuel Consumption, Emissions and Cost (TOTAL)

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Fuel Total gal/h	Cost Total $/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h
West: Acceso Oeste						
5L L	0.1	1.06	0.001	0.07	0.002	0.8
2T T	2.3	26.83	0.039	1.88	0.054	21.9
2R R	9.1	105.75	0.155	7.47	0.214	86.2
	11.5	133.64	0.196	9.42	0.271	108.9
South: Acceso Sur						
3L L	1.1	12.33	0.018	0.86	0.025	10.0
8T T	1.2	13.26	0.019	0.85	0.027	11.2
8R R	0.9	10.71	0.016	0.79	0.023	9.0
	3.2	36.30	0.053	2.50	0.074	30.2
East: Acceso Este						
1L L	0.5	5.70	0.008	0.40	0.011	4.6
6T T	1.2	13.93	0.020	0.92	0.029	11.7
6R R	0.8	9.38	0.014	0.66	0.019	7.6
	2.5	29.01	0.042	1.98	0.059	24.0
North: Acceso Norte						
7L L	0.2	1.91	0.003	0.13	0.004	1.5
4T T	5.3	58.83	0.085	3.92	0.122	49.8
4R R	0.5	5.47	0.008	0.40	0.011	4.5
	5.9	66.21	0.096	4.45	0.137	55.9
INTERSECTION:	23.1	265.17	0.387	18.35	0.541	218.9

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/US gal)	=	2.400
Fuel resource cost factor	=	0.70
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	19.00
Time value factor	=	0.40
Light vehicle mass (1000 lb)	=	3.1
Heavy vehicle mass (1000 lb)	=	24.0
Light vehicle idle fuel rate (US gal/h)	=	0.360
Heavy vehicle idle fuel rate (US gal/h)	=	0.530

Table S.12B - Fuel Consumption, Emissions and Cost (RATE)

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Fuel Eff. mpg	Cost Rate $/mi	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km

```
West: Acceso Oeste
   5L L          17.6     0.44   0.611   28.13   0.806   334.2
   2T T          18.3     0.39   0.574   27.52   0.794   320.5
   2R R          18.5     0.39   0.572   27.54   0.790   317.6
                ---------------------------------------------
                 18.5     0.39   0.572   27.54   0.791   318.3
-------------------------------------------------------------
South: Acceso Sur
   3L L          18.5     0.39   0.573   27.46   0.788   317.8
   8T T          21.8     0.32   0.454   20.41   0.652   269.5
   8R R          19.0     0.37   0.552   27.06   0.779   309.3
                ---------------------------------------------
                 19.9     0.36   0.518   24.48   0.730   295.7
-------------------------------------------------------------
East: Acceso Este
   1L L          18.5     0.39   0.574   27.53   0.790   318.4
   6T T          20.9     0.34   0.483   22.27   0.689   282.0
   6R R          18.6     0.39   0.567   27.28   0.785   315.7
                ---------------------------------------------
                 19.7     0.36   0.525   24.73   0.736   298.7
-------------------------------------------------------------
North: Acceso Norte
   7L L          18.4     0.39   0.575   27.53   0.790   318.8
   4T T          21.1     0.33   0.476   21.97   0.683   279.1
   4R R          18.8     0.38   0.560   27.28   0.784   312.6
                ---------------------------------------------
                 20.8     0.33   0.485   22.50   0.693   282.6
-------------------------------------------------------------
 INTERSECTION:   19.4     0.37   0.536   25.42   0.749   303.2
-------------------------------------------------------------
```

Table S.14 - Summary of Input and Output Data

```
Intersecci n Avenida Las Flores   Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

-----------------------------------------------------------------------------
 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)   (ft)  (ft)
-----------------------------------------------------------------------------
 West: Acceso Oeste
1 LTR     4  112  448   564    0  1900   16      0.567   17.1   258  1600
         ---------------------------------------------------------------
          4  112  448   564    0                 0.567   26.4   341
-----------------------------------------------------------------------------
 South: Acceso Sur
1 LT     52   30         82    0  1900   11      0.172   16.1    37  1600
2 TR          38   48    86    0  1900   10   4  0.172   10.7    29  1600
         ---------------------------------------------------------------
         52   68   48   168    0                 0.172   13.3    37
-----------------------------------------------------------------------------
 East: Acceso Este
1 LTR    24   68   40   132    0  1900   12      0.131   13.9    55  1600
         ---------------------------------------------------------------
         24   68   40   132    0                 0.131   14.9    60
-----------------------------------------------------------------------------
 North: Acceso Norte
1 LT      8  155        163    0  1900   11      0.277   11.2    75  1600
2 TR         137   24   161    0  1900   11   1  0.277    8.7    60  1600
         ---------------------------------------------------------------
          8  292   24   324    0                 0.277   10.0    75
=============================================================================
 ALL VEHICLES           Total   %       Cycle      Max   Aver.   Max
                        Flow   HV       Time       X    Delay  Queue
```

	1188	0	35	0.583	15.3	341

Peak flow period = 15 minutes.

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

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

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

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 Queue 95% Back (vehs)	(ft)
West: Acceso Oeste										
5L	L	0.429*		4	7	0.583*	28.2	C	13.6	341
2T	T	0.457		112	197	0.567	19.3	B	13.6	341
2R	R	0.257	0.457	448	790	0.567	18.9	B	10.3	258
South: Acceso Sur										
3L	L	0.314		52	302	0.172	19.4	B	1.5	37
8T	T	0.314		68	395	0.172	7.8	A	1.5	37
8R	R	0.257	0.457	48	279	0.172	14.7	B	1.2	29
East: Acceso Este										
1L	L	0.171		24	183	0.131	19.5	B	2.4	60
6T	T	0.457		68	520	0.131	10.5	B	2.4	60
6R	R	0.314	0.457	40	306	0.131	18.5	B	2.2	55
North: Acceso Norte										
7L	L	0.314		8	29	0.277	19.8	B	3.0	75
4T	T	0.314*		292	1054	0.277	9.2	A	3.0	75
4R	R	0.314	0.457	24	87	0.277	16.3	B	2.4	60
ALL VEHICLES:				1188		0.583	15.3	B	13.6	341
INTERSECTION (persons):				1426			15.3		13.6	341

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.
* 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.16 - SCATS MF Parameter

Intersecci n Avenida Las Flores Calle Hortensia

Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Lane No.	Stopline Flow (veh/h)	Capacity (veh/h)	SCATS Satn Flow	SCATS MF	Deg. Satn x	Lane Util. %
West: Acceso Oeste						
1 LTR	564	995	1666	NA	0.567	100
South: Acceso Sur						
1 LT	82	474	1838	1348	0.172	100
2 TR	86	502	1730	NA	0.172	100
East: Acceso Este						
1 LTR	132	1009	1787	NA	0.131	100
North: Acceso Norte						
1 LT	163	590	1895	1390	0.277	100
2 TR	161	580	1851	NA	0.277	100

NA Not Applicable - SCATS MF was not calculated for this lane due to one of the following reasons:
- the lane is not controlled by signals (slip or continuous lane)
- two movements share this lane and do not run in the same phases

STOPLINE FLOW: Departure flow rate in veh/h as measured at the stop line. This cannot exceed capacity.

SCATS SATURATION FLOW: This allows for lane width, approach grade and turning vehicles. Saturation flow scale applies if specified. The effects of heavy vehicles, parking manoeuvres, number of buses stopping and conflicting pedestrian volume are not included.

SCATS MF: This emulates the MF (Maximum Flow) parameter used in the SCATS control system. It is calculated from the SCATS SATURATION FLOW parameter.

DEG. SATN: The Demand (Arrival) Flow Rate may exceed the Stopline Flow Rate, therefore x > 1 is possible.

Table D.0 - Geometric Delay Data

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

From Approach	To Approach	Turn	Negn Radius (ft)	Negn Speed (mph)	Negn Dist. (ft)	Appr. Dist. (ft)	Downstream (ft)	Distance User Spec?
West: Acceso Oeste								
	South	Right	32.8	12.5	51.5	1600	387	No
	East	Thru	S	40.0	60.0	1600	403	No
	North	Left	30.6	12.2	48.1	1600	384	No
South: Acceso Sur								
	West	Left	30.6	12.2	48.1	1600	384	No
	East	Right	32.8	12.5	51.5	1600	387	No
	North	Thru	S	40.0	36.0	1600	403	No
East: Acceso Este								
	West	Thru	S	40.0	60.0	1600	403	No
	South	Left	30.6	12.2	48.1	1600	384	No

	North	Right	32.8	12.5	51.5	1600	387	No
North: Acceso Norte								
	West	Right	32.8	12.5	51.5	1600	387	No
	South	Thru	S	40.0	36.0	1600	403	No
	East	Left	30.6	12.2	48.1	1600	384	No

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.

Table D.1 - Lane Delays

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
West: Acceso Oeste										
1 LTR	0.567	18.5	0.8	19.3	5.0	7.3	0.0	7.3	7.1	26.4
South: Acceso Sur										
1 LT	0.172	10.2	0.2	10.4	4.3	6.1	0.0	6.1	5.7	16.1
2 TR	0.172	5.6	0.2	5.8	4.1	2.1	0.0	2.1	5.0	10.7
East: Acceso Este										
1 LTR	0.131	10.5	0.1	10.5	5.1	5.2	0.0	5.2	4.3	14.9
North: Acceso Norte										
1 LT	0.277	10.5	0.3	10.8	6.7	4.2	0.0	4.2	0.4	11.2
2 TR	0.277	7.1	0.3	7.4	6.1	1.9	0.0	1.9	1.3	8.7

dn is average stop-start delay for all vehicles queued and unqueued

Table D.2 - Lane Stops

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hig	Overall h	Prop. Queued pq	Queue Move-up Rate hqm
West: Acceso Oeste							
1 LTR	0.567	0.78	0.00	0.08	0.85	1.000	0.00
South: Acceso Sur							

1 LT	0.172	0.58	0.00	0.12	0.69	0.739	0.00
2 TR	0.172	0.49	0.00	0.13	0.62	0.657	0.00
East: Acceso Este							
1 LTR	0.131	0.61	0.00	0.09	0.70	0.774	0.00
North: Acceso Norte							
1 LT	0.277	0.62	0.00	0.01	0.63	0.770	0.00
2 TR	0.277	0.55	0.00	0.03	0.58	0.752	0.00

hig is the average value for all movements in a shared lane
hqm is average queue move-up rate for all vehicles queued and unqueued

Table D.3A - Lane Queues (veh)

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nb1	Nb2	Nb	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
West: Acceso Oeste											
1 LTR	0.567	0.2	7.0	0.2	7.2	8.5	11.0	12.0	13.6	16.3	0.21
South: Acceso Sur											
1 LT	0.172	0.1	0.7	0.1	0.7	0.8	1.1	1.3	1.5	1.9	0.02
2 TR	0.172	0.1	0.5	0.1	0.6	0.7	0.9	1.0	1.2	1.5	0.02
East: Acceso Este											
1 LTR	0.131	0.0	1.1	0.0	1.2	1.4	1.9	2.1	2.4	3.0	0.04
North: Acceso Norte											
1 LT	0.277	0.1	1.3	0.1	1.5	1.7	2.3	2.6	3.0	3.8	0.05
2 TR	0.277	0.1	1.1	0.1	1.2	1.4	1.9	2.1	2.4	3.1	0.04

Values printed in this table are back of queue (vehicles).

Table D.3B - Lane Queues (feet)

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (feet) Nb1	Nb2	Nb	Percentile (feet) 70%	85%	90%	95%	98%	Queue Stor. Ratio
West: Acceso Oeste											
1 LTR	0.567	5.3	173.9	5.3	179.2	212.1	275.3	301.0	341.0	407.9	0.21
South: Acceso Sur											

1 LT	0.172	1.3	16.4	1.3	17.7	21.2	28.2	31.6	36.7	46.8	0.02
2 TR	0.172	1.3	12.7	1.3	14.0	16.8	22.4	25.1	29.2	37.3	0.02
East: Acceso Este											
1 LTR	0.131	0.8	28.4	0.8	29.2	34.9	46.3	51.8	60.1	76.2	0.04
North: Acceso Norte											
1 LT	0.277	2.7	33.7	2.7	36.5	43.6	57.8	64.6	74.9	94.6	0.05
2 TR	0.277	2.7	26.5	2.7	29.2	34.9	46.4	51.9	60.2	76.3	0.04

Values printed in this table are back of queue (feet).

Table D.4 - Movement Speeds (mph) and Geometric Delay

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	App. Speeds Cruise	App. Speeds Negn	Exit Speeds Negn	Exit Speeds Cruise	Queue Move-up 1st Grn	Queue Move-up 2nd Grn	Av. Section Spd Running	Av. Section Spd Overall	Geom Delay (sec)
West: Acceso Oeste									
5L L	40.0	12.2	12.2	40.0			28.9	21.8	9.0
2T T	40.0	40.0	40.0	40.0			31.7	25.6	0.0
2R R	40.0	12.5	12.5	40.0			29.3	25.7	8.9
South: Acceso Sur									
3L L	40.0	12.2	12.2	40.0			29.6	25.4	9.0
8T T	40.0	40.0	40.0	40.0			33.9	32.2	0.0
8R R	40.0	12.5	12.5	40.0			29.8	27.8	8.9
East: Acceso Este									
1L L	40.0	12.2	12.2	40.0			29.5	25.4	9.0
6T T	40.0	40.0	40.0	40.0			33.3	30.6	0.0
6R R	40.0	12.5	12.5	40.0			29.6	25.9	8.9
North: Acceso Norte									
7L L	40.0	12.2	12.2	40.0			29.5	25.2	9.0
4T T	40.0	40.0	40.0	40.0			33.4	31.3	0.0
4R R	40.0	12.5	12.5	40.0			29.5	27.0	8.9

"Running Speed" is the average speed excluding stopped periods.

Table D.5 - Progression Factors and Actuated Signal Parameters

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

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

ID	Control	Coord.	Type	Factor	Factor	es	eh	Gmin	Gmax	Gmin	Gmax
West: Acceso Oeste											
5L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
2T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
2R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
South: Acceso Sur											
3L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
8T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
8R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
East: Acceso Este											
1L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
6T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
6R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
North: Acceso Norte											
7L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
4T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
4R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50

Table D.6 - Gap Acceptance Parameters

Intersecci n Avenida Las Flores Calle Hortensia
Existente (PM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Mov Type	Opng Flow (pcu/h)	Critical Gap Hdwy (s)	Critical Gap Dist (ft)	Foll-up Headway (s)	Entry HV Equiv
West: Acceso Oeste						
5L L	Normal	68	4.50	237.8	2.50	2.00
2R R	Normal	292	6.00	352.0	3.00	2.00
South: Acceso Sur						
3L L	Normal	316	4.50	253.8	2.50	2.00
8R R	Normal	112	6.00	347.3	3.00	2.00
East: Acceso Este						
1L L	Normal	560	4.50	119.0	2.50	2.00
6R R	Normal	68	6.00	352.0	3.00	2.00
North: Acceso Norte						
7L L	Normal	116	4.50	223.3	2.50	2.00
4R R	Normal	108	6.00	212.1	3.00	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.

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SIDRA INTERSECTION

Output Tables

Intersección Avenida Los Ángeles y Calle Norte

Existente (PM)

Run Information

```
Cycle Time =   55  (Sum of User-given Phase Times)

* 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 optimum cycle time specification
    Any green split priority specification
  For actuated signal timings, cycle increment is set to 1 second
  Driving on the right-hand side of the road
  Input data specified in US units
  Model Defaults: US HCM (US)
  Peak Flow Period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes.
  Delay definition: Control delay
                    Geometric delay included
  HCM Delay Model option selected
  HCM Queue Model option selected
  Level of Service based on: Delay (HCM method)
  Queue definition: Back of queue, 95th Percentile

* Iteration Data:
  No. of Main (Timing-Capacity) Iterations =  1
  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)
```

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)

```
Intersecci n Avenida Los  ngeles y Calle Norte
Existente  (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------------------------
 From      To          Mov           Flow Rate   Flow   Peak Flow
 Approach  Approach    ID    Turn     LV    HV   Scale    Factor
-------------------------------------------------------------------
 West: Acceso Oeste
          South        2R   Right     8     0    1.00     1.00
```

FIGURA 33

```
          East         2T   Thru     32     0    1.00     1.00
          North        5L   Left    628     0    1.00     1.00
-----------------------------------------------------------------
 South: Acceso Sur
          East         8R   Right     1     0    1.00     1.00
          North        8T   Thru     84     0    1.00     1.00
-----------------------------------------------------------------
 North: Acceso Norte
          South        4T   Thru     48     0    1.00     1.00
          East         7L   Left     36     0    1.00     1.00
-----------------------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)

```
Intersecci n Avenida Los  ngeles y Calle Norte
Existente  (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------
  Mov          Left       Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
West: Acceso Oeste
   5L L     628     0      0     0      0     0
   2T T       0     0     32     0      0     0
   2R R       0     0      0     0      8     0
-----------------------------------------------
South: Acceso Sur
   8T T       0     0     84     0      0     0
   8R R       0     0      0     0      1     0
-----------------------------------------------
North: Acceso Norte
   7L L      36     0      0     0      0     0
   4T T       0     0     48     0      0     0
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2B - Flow Rates (Total Vehicles and Percent Heavy)

```
Intersecci n Avenida Los  ngeles y Calle Norte
Existente  (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------
  Mov          Left         Through        Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
-------------------------------------------------
```

```
Demand flows in veh/hour as used by the program
West: Acceso Oeste
   5L L      628   0.0       0   0.0       0   0.0
   2T T        0   0.0      32   0.0       0   0.0
   2R R        0   0.0       0   0.0       8   0.0
-------------------------------------------------
South: Acceso Sur
   8T T        0   0.0      84   0.0       0   0.0
   8R R        0   0.0       0   0.0       1   0.0
-------------------------------------------------
North: Acceso Norte
   7L L       36   0.0       0   0.0       0   0.0
   4T T        0   0.0      48   0.0       0   0.0
-------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table S.1 - Movement Phase and Timing Parameters

```
Intersecci n Avenida Los  ngeles y Calle Norte
Existente  (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------------------
 Mov     Mov          P H A S E  M A T R I X          Lost Tim  Req.Mov.Time     Eff. Grn
 ID      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: Acceso Oeste
  5L L        2      1                                   4        22.1             26
  2T T        2      1                                   4        22.5             26
  2R R        1      2      Y     *2      1              4    4   10.0Min  25.3     21   26
-------------------------------------------------------------------------------------------
South: Acceso Sur
  8T T        1      2                                   4        10.0Min          21
  8R R        1      2             2      1      Y       4    4   10.0Min  10.0Min  21   26
-------------------------------------------------------------------------------------------
North: Acceso Norte
  7L L       *1      2      Y                            4        10.0Min          21
  4T T        1      2                                   4        10.0Min          21
-------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
-------------------------------------------------------------------------------------------
  *  Critical Movement/Green Period

Movement Types:                            Under heading 'Op':
  Slp  Slip Lane Movement                    Y   If opposed turn
  Ped  Pedestrian
  Dum  Dummy
```

Table S.2 - Movement Capacity Parameters

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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
West: Acceso Oeste											
5L L	628	0.0	3414		0.184		1614	0.90	131	100	0.389*
2T T	32	0.0	174		0.184		82	0.90	131	100	0.389*
2R R	8	0.0	16	31	0.000	0.258	21	0.90	134	100	0.385
South: Acceso Sur											
8T T	84	0.0	5645		0.015		2155	0.90	2209	100	0.039
8R R	1	0.0	49	14	0.020	0.000	25	0.90	2179	100	0.039
North: Acceso Norte											
7L L	36	0.0	1515		0.024		578	0.90	1346	100	0.062
4T T	48	0.0	3800		0.013		1451	0.90	2620	53	0.033

Table S.3 - Intersection Parameters

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
7L	N_L		1	2	10	-	-	10.0Min
2R	W_R	2nd	2	1	4	0.225	0.387	25.3
				Total:	14	0.225	0.387	35.3

- 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
20	NA	23	55

(Phase times user specified, cycle time = sum of phase times)

NA Cmax does not apply at actuated signals

Intersection Level of Service	=	D
Worst movement Level of Service	=	E
Average intersection delay (s/pers)	=	36.3
Largest average movement delay (s)	=	57.5
Largest back of queue, 95% (ft)	=	578
Performance Index	=	38.52
Degree of saturation (highest)	=	0.389
Practical Spare Capacity (lowest)	=	131 %
Effective intersection capacity, (veh/h)	=	2151
Total vehicle flow (veh/h)	=	837
Total person flow (pers/h)	=	1004

Total vehicle delay (veh-h/h)	=	8.44
Total person delay (pers-h/h)	=	10.13
Total effective vehicle stops (veh/h)	=	685
Total effective person stops (pers/h)	=	822
Total vehicle travel (veh-mi/h)	=	316.4
Total cost ($/h)	=	240.56
Total fuel (gal/h)	=	18.1
Total CO2 (kg/h)	=	171.58

Table S.4 - Phase Information

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
1	0	4	4	21	25	4	25	45%
2	25	4	29	26	55	4	30	55%

(Phase times specified by the user)
Current Phase Sequence: Two-phase
Input phase sequence: 1 2
Output phase sequence: 1 2

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 95% (vehs)	Back (ft)	Perf. Index	Aver. Speed (mph)
West: Acceso Oeste									
5L L	7.26	8.71	41.6	0.83	0.89	23.1	578	31.53	18.0
2T T	0.51	0.61	57.5	1.00	1.00	23.1	578	2.22	14.9
2R R	0.04	0.05	19.9	0.67	0.75	7.3	182	0.24	25.2
South: Acceso Sur									
8T T	0.25	0.31	10.9	0.63	0.45	0.6	16	2.14	30.2
8R R	0.00	0.01	17.8	0.62	0.72	0.6	14	0.03	26.2
North: Acceso Norte									
7L L	0.21	0.25	21.0	0.64	0.72	0.8	21	1.10	24.7
4T T	0.16	0.19	11.8	0.63	0.46	0.5	14	1.26	29.7

Table S.6 - Intersection Performance

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 (ft)	Perf. Index	Aver. Speed (mph)
West: Acceso Oeste									
668	0.389	7.82	9.38	42.1	0.83	0.90	578	33.99	17.9
South: Acceso Sur									
85	0.039	0.26	0.31	11.0	0.63	0.46	16	2.17	30.2
North: Acceso Norte									
84	0.062	0.37	0.44	15.8	0.64	0.57	21	2.36	27.4
ALL VEHICLES:									
837	0.389	8.44	10.13	36.3	0.79	0.82	578	38.52	19.3
INTERSECTION (persons):									
1004	0.389		10.13	36.3	0.79	0.82		38.52	19.3

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

Table S.7 - Lane Performance

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Effective Red and Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	(ft)	Lane Length (ft)
West: Acceso Oeste												
1 L	29	26	0	0	332	853	0.389	19.7	0.80	7.7	192.4	1600.0
2 LTR	29	26	0	0	336	863	0.389	65.4	0.99	23.1	577.5	1600.0
South: Acceso Sur												
1 T	34	21	0	0	28	725	0.039	11.9	0.47	0.6	16.2	1600.0
2 T	34	21	0	0	28	725	0.039	11.9	0.47	0.6	16.2	1600.0
3 TR	29	21	4	1	28	730	0.039	9.2	0.44	0.6	14.0	1600.0
North: Acceso Norte												
1 L	34	21	0	0	36	578	0.062	21.0	0.72	0.8	21.1	1600.0
2 T	34	21	0	0	24	725	0.033	11.8	0.46	0.5	13.7	1600.0
3 T	34	21	0	0	24	725	0.033	11.8	0.46	0.5	13.7	1600.0

Table S.8 - Lane Flow and Capacity Information

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)

```
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------------------------------
                                        Saturation Flow  End  Tot
 Lane     Dem Flow (veh/h)   Lane   Adj. Aver Aver  Cap  Cap  Deg.  Lane
 No.    -------------------  Width Basic 1st  2nd  (veh (veh  Satn  Util
         Lef Thru  Rig  Tot  (ft)  (tcu) (veh)(veh)  /h)  /h)   x     %
-----------------------------------------------------------------------
 West: Acceso Oeste
 1 L     332    0    0  332  12.0  1900 1805     0    0  853 0.389  100
 2 LTR   296   32    8  336  12.0  1900   18     0   65  863 0.389  100
-----------------------------------------------------------------------
 South: Acceso Sur
 1 T       0   28    0   28  12.0  1900 1900     0    0  725 0.039  100
 2 T       0   28    0   28  12.0  1900 1900     0    0  725 0.039  100
 3 TR      0   27    1   28  12.0  1900 1888   501   65  730 0.039  100
-----------------------------------------------------------------------
 North: Acceso Norte
 1 L      36    0    0   36  12.0  1900 1515     0  131  578 0.062  100
 2 T       0   24    0   24  12.0  1900 1900     0    0  725 0.033   53P
 3 T       0   24    0   24  12.0  1900 1900     0    0  725 0.033   53P
-----------------------------------------------------------------------
  P  Lane under-utilisation found by the "Program".  This includes cases where
     the value of lane under-utilisation due to downstream effects has been
     modified by the program during lane flow calculations (e.g. a de facto
     exclusive lane has been found).

  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.9 - Signal Timing Diagram

```
Intersecci n Avenida Los  ngeles y Calle Norte
Existente  (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

           Phase 1                             Phase 2

0                             25                                      55
I-----------------------------I--------------------------------------I
.....GGGGGGGGGGGGGGGGGGGGGGGGG.......GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.
    4                                29


Effective (Movement) Green Times


 West: Acceso Oeste

Mov.    5L (L)
I                             I                                       I
GG....................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                   31

Mov.    2T (T)
I                             I                                       I
GG....................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                   31

Mov.    2R (R)
I                             I                                       I
GGG.....GGGGGGGGGGGGGGGGGGGGGGGGGG.....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
```

```
  2    6                        27    31

 South: Acceso Sur

Mov.    8T (T)
I                              I                                    I
........GGGGGGGGGGGGGGGGGGGGGGGGG.................................
       6                        27

Mov.    8R (R)
I                              I                                    I
GGG.....GGGGGGGGGGGGGGGGGGGGGGGGG.....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2    6                        27    31


 North: Acceso Norte

Mov.    7L (L)
I                              I                                    I
........GGGGGGGGGGGGGGGGGGGGGGGGG.................................
       6                        27

Mov.    4T (T)
I                              I                                    I
........GGGGGGGGGGGGGGGGGGGGGGGGG.................................
       6                        27


I-----I------I------I------I------I------I------I------I------I------I----->
0      6     11     17     22     28     33     39     44     50     55

                                T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
Intersecci n Avenida Los  ngeles y Calle Norte
Existente  (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)
```

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	95% Back of Queue (veh)	Perf. Index
West: Acceso Oeste											
5L	L	628	1614	100	0.389*	26		41.6	0.89	23.1	31.53
2T	T	32	82	100	0.389*	26		57.5	1.00	23.1	2.22
2R	R	8	21	100	0.385	21	26*	19.9	0.75	7.3	0.24
South: Acceso Sur											
8T	T	84	2155	100	0.039	21		10.9	0.45	0.6	2.14
8R	R	1	25	100	0.039	21	26	17.8	0.72	0.6	0.03
North: Acceso Norte											
7L	L	36	578	100	0.062	21*		21.0	0.72	0.8	1.10
4T	T	48	1451	53	0.033	21		11.8	0.46	0.5	1.26

* Maximum degree of saturation, or critical green periods

Table S.12A - Fuel Consumption, Emissions and Cost (TOTAL)

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Fuel Total gal/h	Cost Total $/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h
West: Acceso Oeste						
5L L	14.2	191.63	0.247	10.55	0.307	133.9
2T T	0.8	11.38	0.014	0.55	0.016	7.4
2R R	0.2	1.91	0.003	0.13	0.004	1.5
	15.1	204.93	0.264	11.24	0.327	142.9
South: Acceso Sur						
8T T	1.4	16.91	0.023	0.98	0.032	13.7
8R R	0.0	0.23	0.000	0.02	0.000	0.2
	1.5	17.15	0.023	0.99	0.033	13.9
North: Acceso Norte						
7L L	0.7	8.70	0.012	0.59	0.017	6.9
4T T	0.8	9.78	0.013	0.56	0.018	7.9
	1.6	18.49	0.026	1.15	0.035	14.8
INTERSECTION:	18.1	240.56	0.313	13.38	0.395	171.6

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/US gal)	=	2.400
Fuel resource cost factor	=	0.70
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	19.00
Time value factor	=	0.40
Light vehicle mass (1000 lb)	=	3.1
Heavy vehicle mass (1000 lb)	=	24.0
Light vehicle idle fuel rate (US gal/h)	=	0.360
Heavy vehicle idle fuel rate (US gal/h)	=	0.530

Table S.12B - Fuel Consumption, Emissions and Cost (RATE)

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Fuel Eff. mpg	Cost Rate $/mi	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km
West: Acceso Oeste						
5L L	16.8	0.50	0.648	27.64	0.804	351.0
2T T	15.5	0.58	0.713	28.39	0.829	379.8
2R R	18.5	0.39	0.571	27.21	0.784	317.3
	16.7	0.50	0.651	27.67	0.805	351.9

South: Acceso Sur						
8T T	22.0	0.33	0.447	19.06	0.627	266.9
8R R	18.7	0.38	0.562	27.06	0.780	313.7
	22.0	0.33	0.449	19.16	0.629	267.5
North: Acceso Norte						
7L L	18.6	0.40	0.567	26.73	0.776	316.5
4T T	21.9	0.33	0.451	19.15	0.629	268.4
	20.3	0.36	0.501	22.39	0.692	289.0
INTERSECTION:	17.4	0.47	0.615	26.27	0.776	337.0

Table S.14 - Summary of Input and Output Data

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 (ft)	Shrt Lane (ft)
West: Acceso Oeste												
1 L	332			332	0	1899	26		0.389	19.7	192	1600
2 LTR	296	32	8	336	0	1900	26		0.389	18.9	182	1600
	628	32	8	668	0				0.389	42.7	578	
South: Acceso Sur												
1 T		28		28	0	1899	21		0.039	11.9	16	1600
2 T		28		28	0	1899	21		0.039	11.9	16	1600
3 TR		27	1	28	0	1899	21	1	0.039	9.2	14	1600
	0	84	1	85	0				0.039	11.0	16	
North: Acceso Norte												
1 L	36			36	0	1900	21		0.062	21.0	21	1600
2 T		24		24	0	1900	21		0.033	11.8	14	1600
3 T		24		24	0	1900	21		0.033	11.8	14	1600
	36	48	0	84	0				0.062	15.8	21	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	837	0	55	0.389	36.3	578

Peak flow period = 15 minutes.

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

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

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	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	Longest Queue 95% Back (vehs)	(ft)
West: Acceso Oeste										
5L	L	0.473		628	1614	0.389*	41.6	D	23.1	578
2T	T	0.473		32	82	0.389*	57.5	E	23.1	578
2R	R	0.382	0.473*	8	21	0.385	19.9	B	7.3	182
South: Acceso Sur										
8T	T	0.382		84	2155	0.039	10.9	B	0.6	16
8R	R	0.382	0.473	1	25	0.039	17.8	B	0.6	14
North: Acceso Norte										
7L	L	0.382*		36	578	0.062	21.0	C	0.8	21
4T	T	0.382		48	1451	0.033	11.8	B	0.5	14
ALL VEHICLES:				837		0.389	36.3	D	23.1	578
INTERSECTION (persons):				1004			36.3		23.1	578

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.
* 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.16 - SCATS MF Parameter

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Stopline Flow (veh/h)	Capacity (veh/h)	SCATS Satn Flow	SCATS MF	Deg. Satn x	Lane Util. %
West: Acceso Oeste						
1 L	332	853	1805	1564	0.389	100
2 LTR	336	863	1809	NA	0.389	100
South: Acceso Sur						
1 T	28	725	1900	1596	0.039	100
2 T	28	725	1900	1596	0.039	100
3 TR	28	730	1888	NA	0.039	100
North: Acceso Norte						
1 L	36	578	1805	1516	0.062	100
2 T	24	725	1900	1596	0.033	53P
3 T	24	725	1900	1596	0.033	53P

NA Not Applicable - SCATS MF was not calculated for this lane due to one of the following reasons:
- the lane is not controlled by signals (slip or continuous lane)
- two movements share this lane and do not run in the same phases

P Lane under-utilisation found by the "Program". This includes cases where the value of lane under-utilisation due to downstream effects has been modified by the program during lane flow calculations (e.g. a de facto exclusive lane has been found).

STOPLINE FLOW: Departure flow rate in veh/h as measured at the stop line. This cannot exceed capacity.

SCATS SATURATION FLOW: This allows for lane width, approach grade and turning vehicles. Saturation flow scale applies if specified. The effects of heavy vehicles, parking manoeuvres, number of buses stopping and conflicting pedestrian volume are not included.

SCATS MF: This emulates the MF (Maximum Flow) parameter used in the SCATS control system. It is calculated from the SCATS SATURATION FLOW parameter.

DEG. SATN: The Demand (Arrival) Flow Rate may exceed the Stopline Flow Rate, therefore x > 1 is possible.

Table D.0 - Geometric Delay Data

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

From Approach	To Approach	Turn	Negn Radius (ft)	Negn Speed (mph)	Negn Dist. (ft)	Appr. Dist. (ft)	Downstream (ft)	Distance User Spec?
West: Acceso Oeste								
	South	Right	32.8	12.5	51.5	1600	387	No
	East	Thru	S	40.0	91.0	1600	403	No
	North	Left	39.3	13.4	61.7	1600	394	No
South: Acceso Sur								
	East	Right	32.8	12.5	51.5	1600	387	No
	North	Thru	S	40.0	36.0	1600	403	No
North: Acceso Norte								
	South	Thru	S	40.0	36.0	1600	403	No
	East	Left	39.8	13.5	62.5	1600	394	No

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.

Table D.1 - Lane Delays

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A

Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
West: Acceso Oeste										
1 L	0.389	10.7	0.2	10.9	2.9	8.0	0.0	8.0	8.8	19.7
2 LTR	0.389	57.2	0.3	57.5	4.7	51.6	0.0	51.6	8.0	65.5
South: Acceso Sur										
1 T	0.039	11.9	0.0	11.9	5.6	6.3	0.0	6.3	0.0	11.9
2 T	0.039	11.9	0.0	11.9	5.6	6.3	0.0	6.3	0.0	11.9
3 TR	0.039	8.9	0.0	8.9	5.4	3.9	0.0	3.9	0.3	9.2
North: Acceso Norte										
1 L	0.062	12.1	0.0	12.2	2.8	9.4	0.0	9.4	8.8	21.0
2 T	0.033	11.8	0.0	11.8	5.6	6.2	0.0	6.2	0.0	11.8
3 T	0.033	11.8	0.0	11.8	5.6	6.2	0.0	6.2	0.0	11.8

dn is average stop-start delay for all vehicles queued and unqueued

Table D.2 - Lane Stops

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hig	Overall h	Prop. Queued pq	Queue Move-up Rate hqm
West: Acceso Oeste							
1 L	0.389	0.57	0.00	0.22	0.80	0.671	0.00
2 LTR	0.389	0.99	0.00	0.01	0.99	1.000	0.00
South: Acceso Sur							
1 T	0.039	0.47	0.00	0.00	0.47	0.634	0.00
2 T	0.039	0.47	0.00	0.00	0.47	0.634	0.00
3 TR	0.039	0.43	0.00	0.01	0.44	0.619	0.00
North: Acceso Norte							
1 L	0.062	0.48	0.00	0.24	0.72	0.642	0.00
2 T	0.033	0.46	0.00	0.00	0.46	0.632	0.00
3 T	0.033	0.46	0.00	0.00	0.46	0.632	0.00

hig is the average value for all movements in a shared lane
hqm is average queue move-up rate for all vehicles queued and unqueued

Table D.3A - Lane Queues (veh)

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)

Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nb1	Nb2	Nb	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
West: Acceso Oeste											
1 L	0.389	0.3	3.6	0.3	3.9	4.6	6.1	6.7	7.7	9.5	0.12
2 LTR	0.389	0.0	12.9	0.0	12.9	15.1	19.3	20.7	23.1	26.7	0.36
South: Acceso Sur											
1 T	0.039	0.0	0.3	0.0	0.3	0.4	0.5	0.6	0.6	0.8	0.01
2 T	0.039	0.0	0.3	0.0	0.3	0.4	0.5	0.6	0.6	0.8	0.01
3 TR	0.039	0.0	0.3	0.0	0.3	0.3	0.4	0.5	0.6	0.7	0.01
North: Acceso Norte											
1 L	0.062	0.0	0.4	0.0	0.4	0.5	0.6	0.7	0.8	1.1	0.01
2 T	0.033	0.0	0.2	0.0	0.3	0.3	0.4	0.5	0.5	0.7	0.01
3 T	0.033	0.0	0.2	0.0	0.3	0.3	0.4	0.5	0.5	0.7	0.01

Values printed in this table are back of queue (vehicles).

Table D.3B - Lane Queues (feet)

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (feet) Nb1	Nb2	Nb	Percentile (feet) 70%	85%	90%	95%	98%	Queue Stor. Ratio
West: Acceso Oeste											
1 L	0.389	7.4	89.6	7.4	97.0	115.5	151.7	167.8	192.4	236.9	0.12
2 LTR	0.389	0.5	321.6	0.5	322.1	377.6	481.6	518.5	577.5	667.0	0.36
South: Acceso Sur											
1 T	0.039	0.4	7.3	0.4	7.7	9.3	12.4	13.9	16.2	20.7	0.01
2 T	0.039	0.4	7.3	0.4	7.7	9.3	12.4	13.9	16.2	20.7	0.01
3 TR	0.039	0.4	6.3	0.4	6.7	8.0	10.7	12.0	14.0	18.0	0.01
North: Acceso Norte											
1 L	0.062	0.6	9.5	0.6	10.1	12.1	16.2	18.1	21.1	27.0	0.01
2 T	0.033	0.4	6.2	0.4	6.5	7.9	10.5	11.7	13.7	17.5	0.01
3 T	0.033	0.4	6.2	0.4	6.5	7.9	10.5	11.7	13.7	17.5	0.01

Values printed in this table are back of queue (feet).

Table D.4 - Movement Speeds (mph) and Geometric Delay

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A

Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	App. Speeds Cruise	App. Speeds Negn	Exit Speeds Negn	Exit Speeds Cruise	Queue Move-up 1st Grn	Queue Move-up 2nd Grn	Av. Section Spd Running	Av. Section Spd Overall	Geom Delay (sec)
West: Acceso Oeste									
5L L	40.0	13.4	13.4	40.0			29.3	18.0	8.8
2T T	40.0	40.0	40.0	40.0			31.7	14.9	0.0
2R R	40.0	12.5	12.5	40.0			29.8	25.2	8.9
South: Acceso Sur									
8T T	40.0	40.0	40.0	40.0			34.4	30.2	0.0
8R R	40.0	12.5	12.5	40.0			29.9	26.2	8.9
North: Acceso Norte									
7L L	40.0	13.5	13.5	40.0			29.8	24.7	8.8
4T T	40.0	40.0	40.0	40.0			34.3	29.7	0.0

"Running Speed" is the average speed excluding stopped periods.

Table D.5 - Progression Factors and Actuated Signal Parameters

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Gap Settings es	Gap Settings eh	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
West: Acceso Oeste											
5L L	VA	No	3	1.000	1.000	2.0	2.6	6	20		
2T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
2R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
South: Acceso Sur											
8T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
8R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
North: Acceso Norte											
7L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
4T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		

Table D.6 - Gap Acceptance Parameters

Intersecci n Avenida Los ngeles y Calle Norte
Existente (PM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Critical Gap

Mov ID	Mov Type	Opng Flow (pcu/h)	Hdwy (s)	Dist (ft)	Foll-up Headway (s)	Entry HV Equiv
West: Acceso Oeste						
2R R	Normal	48	6.00	352.0	3.00	2.00
South: Acceso Sur						
8R R	Normal	32	6.00	352.0	3.00	2.00
North: Acceso Norte						
7L L	Normal	84	4.50	264.0	2.50	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.

SIDRA SOLUTIONS

Site: New Site - 1
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Processed Jan 23, 2008 11:03:29AM

A1460, PLC, Large Office
Produced by SIDRA Intersection 3.2.0.1455
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SIDRA INTERSECTION

Output Tables

Intersección Avenida Los Ángeles & Calle W

Existente (PM)

Run Information

```
Cycle Time =   55  (Sum of User-given Phase Times)

* 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 optimum cycle time specification
    Any green split priority specification
  For actuated signal timings, cycle increment is set to 1 second
  Driving on the right-hand side of the road
  Input data specified in US units
  Model Defaults: US HCM (US)
  Peak Flow Period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes.
  Delay definition: Control delay
                    Geometric delay included
  HCM Delay Model option selected
  HCM Queue Model option selected
  Level of Service based on: Delay (HCM method)
  Queue definition: Back of queue, 95th Percentile

* Iteration Data:
  No. of Main (Timing-Capacity) Iterations =  1
  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)
```

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)

```
Intersecci n Avenida Los  ngeles    Calle W
Existente  (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------------------------
 From      To          Mov           Flow Rate   Flow   Peak Flow
 Approach  Approach    ID    Turn     LV    HV   Scale    Factor
-----------------------------------------------------------------
 South: Acceso Sur
          West         3L   Left      8     0    1.00     1.00
```

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```
          North        8T   Thru     84     0    1.00     1.00
-----------------------------------------------------------------
 East: Acceso Este
          West         6T   Thru     52     0    1.00     1.00
          South        1L   Left      4     0    1.00     1.00
          North        6R   Right   284     0    1.00     1.00
-----------------------------------------------------------------
 North: Acceso Norte
          West         4R   Right   276     0    1.00     1.00
          South        4T   Thru     48     0    1.00     1.00
-----------------------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)

```
Intersecci n Avenida Los  ngeles    Calle W
Existente  (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------
  Mov          Left       Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
South: Acceso Sur
   3L L       8     0      0     0      0     0
   8T T       0     0     84     0      0     0
-----------------------------------------------
East: Acceso Este
   1L L       4     0      0     0      0     0
   6T T       0     0     52     0      0     0
   6R R       0     0      0     0    284     0
-----------------------------------------------
North: Acceso Norte
   4T T       0     0     48     0      0     0
   4R R       0     0      0     0    276     0
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2B - Flow Rates (Total Vehicles and Percent Heavy)

```
Intersecci n Avenida Los  ngeles    Calle W
Existente  (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

--------------------------------------------------
  Mov          Left         Through        Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
--------------------------------------------------
```

```
Demand flows in veh/hour as used by the program
South: Acceso Sur
   3L L        8   0.0       0   0.0       0   0.0
   8T T        0   0.0      84   0.0       0   0.0
-------------------------------------------------
East: Acceso Este
   1L L        4   0.0       0   0.0       0   0.0
   6T T        0   0.0      52   0.0       0   0.0
   6R R        0   0.0       0   0.0     284   0.0
-------------------------------------------------
North: Acceso Norte
   4T T        0   0.0      48   0.0       0   0.0
   4R R        0   0.0       0   0.0     276   0.0
-------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table S.1 - Movement Phase and Timing Parameters

```
Intersecci n Avenida Los  ngeles    Calle W
Existente  (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------------------
 Mov     Mov          P H A S E  M A T R I X          Lost Tim  Req.Mov.Time     Eff. Grn
 ID      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
-------------------------------------------------------------------------------------------
South: Acceso Sur
  3L L        1      2      Y                             4        10.0Min           21
  8T T        1      2                                    4        10.0Min           21
-------------------------------------------------------------------------------------------
East: Acceso Este
  1L L        2      1                                    4        10.0Min           26
  6T T        2      1                                    4        10.0Min           26
  6R R        1      2      Y     *2      1               4    4   12.6     19.2     21   26
-------------------------------------------------------------------------------------------
North: Acceso Norte
  4T T        1      2                                    4        10.0Min           21
  4R R       *1      2             2      1      Y        4    4   12.6     21.0     21   26
-------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
-------------------------------------------------------------------------------------------
  *  Critical Movement/Green Period

Movement Types:                            Under heading 'Op':
  Slp  Slip Lane Movement                    Y   If opposed turn
  Ped  Pedestrian
  Dum  Dummy
```

Table S.2 - Movement Capacity Parameters

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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: Acceso Sur											
3L L	8	0.0	470		0.017		179	0.90	1919	100	0.045
8T T	84	0.0	4936		0.017		1885	0.90	1919	100	0.045
East: Acceso Este											
1L L	4	0.0	135		0.030		64	0.90	1336	26	0.063
6T T	52	0.0	1758		0.030		831	0.90	1338	26	0.063
6R R	284	0.0	1115	1615	0.071	0.127	1189	0.90	277	100	0.239*
North: Acceso Norte											
4T T	48	0.0	5700		0.008		2176	0.90	3981	100	0.022
4R R	276	0.0	1615	1138	0.071	0.141	1155	0.90	277	100	0.239*

Table S.3 - Intersection Parameters

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
4R	N_R	1st	1	2	4	0.071	0.155	12.6
6R	E_R	2nd	2	1	4	0.127	0.277	19.2
				Total:	8	0.198	0.432	31.8

Cycle Time:

Minimum	Maximum	Practical	Chosen
20	NA	20	55

(Phase times user specified, cycle time = sum of phase times)

NA Cmax does not apply at actuated signals

Intersection Level of Service	=	A
Worst movement Level of Service	=	C
Average intersection delay (s/pers)	=	10.0
Largest average movement delay (s)	=	20.8
Largest back of queue, 95% (ft)	=	34
Performance Index	=	15.32
Degree of saturation (highest)	=	0.239
Practical Spare Capacity (lowest)	=	277 %
Effective intersection capacity, (veh/h)	=	3163
Total vehicle flow (veh/h)	=	756
Total person flow (pers/h)	=	907
Total vehicle delay (veh-h/h)	=	2.10
Total person delay (pers-h/h)	=	2.52
Total effective vehicle stops (veh/h)	=	494

Total effective person stops (pers/h)	=	593
Total vehicle travel (veh-mi/h)	=	285.0
Total cost ($/h)	=	155.11
Total fuel (gal/h)	=	14.0
Total CO2 (kg/h)	=	132.61

Table S.4 - Phase Information

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
1	0	4	4	21	25	4	25	45%
2	25	4	29	26	55	4	30	55%

(Phase times specified by the user)
Current Phase Sequence: Two-phase
Input phase sequence: 1 2
Output phase sequence: 1 2

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 95% (vehs)	Back (ft)	Perf. Index	Aver. Speed (mph)
South: Acceso Sur									
3L L	0.05	0.06	20.8	0.64	0.71	0.6	16	0.24	24.8
8T T	0.28	0.33	12.0	0.64	0.47	0.7	19	2.22	29.6
East: Acceso Este									
1L L	0.02	0.02	17.6	0.55	0.72	1.1	28	0.11	26.4
6T T	0.13	0.15	8.8	0.55	0.42	1.1	28	1.24	31.8
6R R	0.75	0.90	9.5	0.19	0.72	1.4	34	5.21	31.1
North: Acceso Norte									
4T T	0.16	0.19	11.7	0.63	0.45	0.4	9	1.25	29.8
4R R	0.72	0.87	9.5	0.19	0.72	1.3	33	5.05	31.1

Table S.6 - Intersection Performance

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B

Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 (ft)	Perf. Index	Aver. Speed (mph)
South: Acceso Sur									
92	0.045	0.33	0.39	12.7	0.64	0.49	19	2.46	29.1
East: Acceso Este									
340	0.239	0.89	1.07	9.5	0.25	0.67	34	6.56	31.1
North: Acceso Norte									
324	0.239	0.88	1.06	9.8	0.26	0.68	33	6.30	30.9
ALL VEHICLES:									
756	0.239	2.10	2.52	10.0	0.30	0.65	34	15.32	30.8
INTERSECTION (persons):									
907	0.239		2.52	10.0	0.30	0.65		15.32	30.8

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

Table S.7 - Lane Performance

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Effective Red and Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	(ft)	Lane Length (ft)
South: Acceso Sur												
1 LT	34	21	0	0	27	613	0.045	14.6	0.54	0.6	15.8	1600.0
2 T	34	21	0	0	32	725	0.045	11.9	0.47	0.7	18.5	1600.0
3 T	34	21	0	0	32	725	0.045	11.9	0.47	0.7	18.5	1600.0
East: Acceso Este												
1 LT	29	26	0	0	56	895	0.063	9.4	0.45	1.1	27.7	1600.0
2 R	4	21	4	26	284	1189	0.239	9.5	0.72	1.4	34.3	1600.0
North: Acceso Norte												
1 T	34	21	0	0	16	725	0.022	11.7	0.45	0.4	9.1	1600.0
2 T	34	21	0	0	16	725	0.022	11.7	0.45	0.4	9.1	1600.0
3 T	34	21	0	0	16	725	0.022	11.7	0.45	0.4	9.1	1600.0
4 R	4	21	4	26	276	1154	0.239	9.5	0.72	1.3	32.7	1600.0

Table S.8 - Lane Flow and Capacity Information

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (ft)	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: Acceso Sur												
1 LT	8	19	0	27	12.0	1900	1606	0	85	613	0.045	100
2 T	0	32	0	32	12.0	1900	1900	0	0	725	0.045	100
3 T	0	32	0	32	12.0	1900	1900	0	0	725	0.045	100
East: Acceso Este												
1 LT	4	52	0	56	12.0	1900	1893	0	0	895	0.063	26P
2 R	0	0	284	284	12.0	1900	1115	1615	65	1189	0.239	100
North: Acceso Norte												
1 T	0	16	0	16	12.0	1900	1900	0	0	725	0.022	100
2 T	0	16	0	16	12.0	1900	1900	0	0	725	0.022	100
3 T	0	16	0	16	12.0	1900	1900	0	0	725	0.022	100
4 R	0	0	276	276	12.0	1900	1615	1138	65	1154	0.239	100

P Lane under-utilisation found by the "Program". This includes cases where the value of lane under-utilisation due to downstream effects has been modified by the program during lane flow calculations (e.g. a de facto exclusive lane has been found).

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.9 - Signal Timing Diagram

```
Intersecci n Avenida Los  ngeles    Calle W
Existente  (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

           Phase 1                              Phase 2

0                              25                                      55
I------------------------------I--------------------------------------I
.....GGGGGGGGGGGGGGGGGGGGGGGGG.......GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.
    4                                29


Effective (Movement) Green Times


 South: Acceso Sur

Mov.    3L (L)
I                              I                                       I
........GGGGGGGGGGGGGGGGGGGGGGGGG....................................
       6                          27

Mov.    8T (T)
I                              I                                       I
........GGGGGGGGGGGGGGGGGGGGGGGGG....................................
       6                          27


 East: Acceso Este

Mov.    1L (L)
```

```
I                               I                                     I
GG.................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                 31

Mov.    6T (T)
I                               I                                     I
GG.................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                 31

Mov.    6R (R)
I                               I                                     I
GGG.....GGGGGGGGGGGGGGGGGGGGGGGGG.....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2    6                         27    31


 North: Acceso Norte

Mov.    4T (T)
I                               I                                     I
........GGGGGGGGGGGGGGGGGGGGGGGGG...................................
       6                         27

Mov.    4R (R)
I                               I                                     I
GGG.....GGGGGGGGGGGGGGGGGGGGGGGGG.....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2    6                         27    31


I-----I------I------I------I------I------I------I------I------I------I---->
0      6     11     17     22     28     33     39     44     50     55

                                T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
Intersecci n Avenida Los  ngeles    Calle W
Existente  (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)
```

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	95% Back of Queue (veh)	Perf. Index
South: Acceso Sur											
3L	L	8	179	100	0.045	21		20.8	0.71	0.6	0.24
8T	T	84	1885	100	0.045	21		12.0	0.47	0.7	2.22
East: Acceso Este											
1L	L	4	64	26	0.063	26		17.6	0.72	1.1	0.11
6T	T	52	831	26	0.063	26		8.8	0.42	1.1	1.24
6R	R	284	1189	100	0.239*	21	26*	9.5	0.72	1.4	5.21
North: Acceso Norte											
4T	T	48	2176	100	0.022	21		11.7	0.45	0.4	1.25
4R	R	276	1155	100	0.239*	21*	26	9.5	0.72	1.3	5.05

* Maximum degree of saturation, or critical green periods

Table S.12A - Fuel Consumption, Emissions and Cost (TOTAL)

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Fuel Total gal/h	Cost Total $/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h
South: Acceso Sur						
3L L	0.2	1.93	0.003	0.13	0.004	1.5
8T T	1.5	17.16	0.023	0.99	0.032	13.8
	1.6	19.09	0.026	1.12	0.036	15.3
East: Acceso Este						
1L L	0.1	0.92	0.001	0.06	0.002	0.8
6T T	0.9	9.97	0.013	0.55	0.019	8.1
6R R	5.4	58.51	0.090	4.48	0.130	51.0
	6.3	69.40	0.104	5.10	0.151	59.9
North: Acceso Norte						
4T T	0.8	9.76	0.013	0.56	0.018	7.9
4R R	5.2	56.85	0.087	4.36	0.126	49.6
	6.1	66.62	0.100	4.91	0.145	57.4
INTERSECTION:	14.0	155.11	0.231	11.13	0.331	132.6

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/US gal)	=	2.400
Fuel resource cost factor	=	0.70
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	19.00
Time value factor	=	0.40
Light vehicle mass (1000 lb)	=	3.1
Heavy vehicle mass (1000 lb)	=	24.0
Light vehicle idle fuel rate (US gal/h)	=	0.360
Heavy vehicle idle fuel rate (US gal/h)	=	0.530

Table S.12B - Fuel Consumption, Emissions and Cost (RATE)

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Fuel Eff. mpg	Cost Rate $/mi	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km
South: Acceso Sur						
3L L	18.6	0.40	0.567	26.72	0.776	316.2
8T T	21.9	0.33	0.452	19.23	0.631	269.0
	21.5	0.34	0.462	19.88	0.644	273.1

```
East: Acceso Este
   1L L          18.9     0.38   0.553   26.49   0.769   310.3
   6T T          23.1     0.31   0.419   17.28   0.592   254.8
   6R R          19.8     0.34   0.522   26.07   0.755   296.6
                ---------------------------------------------
                 20.3     0.34   0.507   24.72   0.730   290.4
-------------------------------------------------------------
North: Acceso Norte
   4T T          22.0     0.33   0.450   19.06   0.628   267.9
   4R R          19.8     0.34   0.522   26.06   0.755   296.6
                ---------------------------------------------
                 20.1     0.34   0.511   25.02   0.736   292.3
-------------------------------------------------------------
 INTERSECTION:   20.3     0.34   0.503   24.26   0.722   289.1
-------------------------------------------------------------
```

Table S.14 - Summary of Input and Output Data

```
Intersecci n Avenida Los  ngeles    Calle W
Existente  (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

---------------------------------------------------------------------------
 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)   (ft)  (ft)
---------------------------------------------------------------------------
 South: Acceso Sur
1 LT      8   19         27    0  1900   21      0.045   14.6    16  1600
2 T           32         32    0  1900   21      0.045   11.9    19  1600
3 T           32         32    0  1900   21      0.045   11.9    19  1600
        -------------------------------------------------------------------
          8   84    0    92    0                 0.045   12.7    19
---------------------------------------------------------------------------
 East: Acceso Este
1 LT      4   52         56    0  1900   26      0.063    9.4    28  1600
2 R               284   284    0  1900   21  26  0.239    9.5    34  1600
        -------------------------------------------------------------------
          4   52  284   340    0                 0.239    9.5    34
---------------------------------------------------------------------------
 North: Acceso Norte
1 T           16         16    0  1899   21      0.022   11.7     9  1600
2 T           16         16    0  1899   21      0.022   11.7     9  1600
3 T           16         16    0  1899   21      0.022   11.7     9  1600
4 R               276   276    0  1899   21  26  0.239    9.5    33  1600
        -------------------------------------------------------------------
          0   48  276   324    0                 0.239    9.8    33
===========================================================================
 ALL VEHICLES           Total   %       Cycle      Max   Aver.   Max
                        Flow   HV       Time        X    Delay  Queue
                         756    0         55      0.239   10.0    34
===========================================================================
Peak flow period = 15 minutes.

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

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

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 Queue 95% Back (vehs)	(ft)
South: Acceso Sur										
3L	L	0.382		8	179	0.045	20.8	C	0.6	16
8T	T	0.382		84	1885	0.045	12.0	B	0.7	19
East: Acceso Este										
1L	L	0.473		4	64	0.063	17.6	B	1.1	28
6T	T	0.473		52	831	0.063	8.8	A	1.1	28
6R	R	0.382	0.473*	284	1189	0.239*	9.5	A	1.4	34
North: Acceso Norte										
4T	T	0.382		48	2176	0.022	11.7	B	0.4	9
4R	R	0.382*	0.473	276	1155	0.239*	9.5	A	1.3	33
ALL VEHICLES:				756		0.239	10.0	A	1.4	34
INTERSECTION (persons):				907			10.0		1.4	34

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.
* 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.16 - SCATS MF Parameter

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Stopline Flow (veh/h)	Capacity (veh/h)	SCATS Satn Flow	SCATS MF	Deg. Satn x	Lane Util. %
South: Acceso Sur						
1 LT	27	613	1871	1572	0.045	100
2 T	32	725	1900	1596	0.045	100
3 T	32	725	1900	1596	0.045	100
East: Acceso Este						
1 LT	56	895	1893	1640	0.063	26P
2 R	284	1189	1615	NA	0.239	100
North: Acceso Norte						
1 T	16	725	1900	1596	0.022	100
2 T	16	725	1900	1596	0.022	100
3 T	16	725	1900	1596	0.022	100
4 R	276	1154	1615	1400	0.239	100

```
-------------------------------------------------------
  NA Not Applicable - SCATS MF was not calculated for this lane due to one
     of the following reasons:
      - the lane is not controlled by signals (slip or continuous lane)
      - two movements share this lane and do not run in the same phases
  P  Lane under-utilisation found by the "Program".  This includes cases where
     the value of lane under-utilisation due to downstream effects has been
     modified by the program during lane flow calculations (e.g. a de facto
     exclusive lane has been found).

  STOPLINE FLOW: Departure flow rate in veh/h as measured at the stop line.
  This cannot exceed capacity.

  SCATS SATURATION FLOW: This allows for lane width, approach grade and
  turning vehicles.  Saturation flow scale applies if specified.
  The effects of heavy vehicles, parking manoeuvres, number of buses
  stopping and conflicting pedestrian volume are not included.

  SCATS MF: This emulates the MF (Maximum Flow) parameter used in the SCATS
  control system. It is calculated from the SCATS SATURATION FLOW parameter.

  DEG. SATN: The Demand (Arrival) Flow Rate may exceed the Stopline Flow
  Rate, therefore x > 1 is possible.
```

Table D.0 - Geometric Delay Data

```
Intersecci n Avenida Los  ngeles    Calle W
Existente  (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)
```

From Approach	To Approach	Turn	Negn Radius (ft)	Negn Speed (mph)	Negn Dist. (ft)	Appr. Dist. (ft)	Downstream Distance (ft)	User Spec?
South: Acceso Sur								
	West	Left	39.8	13.5	62.5	1600	394	No
	North	Thru	S	40.0	36.0	1600	403	No
East: Acceso Este								
	West	Thru	S	40.0	103.0	1600	403	No
	South	Left	39.3	13.4	61.7	1600	394	No
	North	Right	32.8	12.5	51.5	1600	387	No
North: Acceso Norte								
	West	Right	32.8	12.5	51.5	1600	387	No
	South	Thru	S	40.0	36.0	1600	403	No

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.

Table D.1 - Lane Delays

```
Intersecci n Avenida Los  ngeles    Calle W
Existente  (PM)
```

```
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------------------------------
                    ----------  Delay (seconds/veh)  ----------------
         Deg.   Stop-line Delay  Acc.   Queuing   Stopd
 Lane    Satn   1st   2nd Total  Dec.  Total MvUp (Idle) Geom Control
 No.       x     d1    d2   dSL   dn    dq   dqm    di    dig   dic
-----------------------------------------------------------------------
 South: Acceso Sur
 1 LT   0.045  12.0   0.0  12.0   4.8   7.2   0.0   7.2   2.6   14.6
 2 T    0.045  11.9   0.0  11.9   5.7   6.3   0.0   6.3   0.0   11.9
 3 T    0.045  11.9   0.0  11.9   5.7   6.3   0.0   6.3   0.0   11.9
-----------------------------------------------------------------------
 East: Acceso Este
 1 LT   0.063   8.8   0.0   8.8   4.7   4.1   0.0   4.1   0.6    9.4
 2 R    0.239   0.4   0.1   0.5   0.8   0.0   0.0   0.0   8.9    9.5
-----------------------------------------------------------------------
 North: Acceso Norte
 1 T    0.022  11.7   0.0  11.7   5.6   6.2   0.0   6.2   0.0   11.7
 2 T    0.022  11.7   0.0  11.7   5.6   6.2   0.0   6.2   0.0   11.7
 3 T    0.022  11.7   0.0  11.7   5.6   6.2   0.0   6.2   0.0   11.7
 4 R    0.239   0.4   0.1   0.5   0.8   0.0   0.0   0.0   8.9    9.5
-----------------------------------------------------------------------
  dn is average stop-start delay for all vehicles queued and unqueued
```

Table D.2 - Lane Stops

```
Intersecci n Avenida Los  ngeles    Calle W
Existente  (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------------
                                                Queue
         Deg.  -- Effective Stop Rate --   Prop. Move-up
 Lane    Satn              Geom. Overall  Queued  Rate
 No.       x    he1   he2   hig     h       pq     hqm
-------------------------------------------------------
 South: Acceso Sur
 1 LT   0.045  0.47  0.00  0.07   0.54    0.636   0.00
 2 T    0.045  0.47  0.00  0.00   0.47    0.636   0.00
 3 T    0.045  0.47  0.00  0.00   0.47    0.636   0.00
-------------------------------------------------------
 East: Acceso Este
 1 LT   0.063  0.42  0.00  0.02   0.45    0.552   0.00
 2 R    0.239  0.17  0.00  0.55   0.72    0.193   0.00
-------------------------------------------------------
 North: Acceso Norte
 1 T    0.022  0.45  0.00  0.00   0.45    0.629   0.00
 2 T    0.022  0.45  0.00  0.00   0.45    0.629   0.00
 3 T    0.022  0.45  0.00  0.00   0.45    0.629   0.00
 4 R    0.239  0.16  0.00  0.56   0.72    0.191   0.00
-------------------------------------------------------
  hig is the average value for all movements in a shared lane
  hqm is average queue move-up rate for all vehicles queued and unqueued
```

Table D.3A - Lane Queues (veh)

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nb1	Nb2	Nb	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
South: Acceso Sur											
1 LT	0.045	0.0	0.3	0.0	0.3	0.4	0.5	0.5	0.6	0.8	0.01
2 T	0.045	0.0	0.3	0.0	0.4	0.4	0.6	0.6	0.7	0.9	0.01
3 T	0.045	0.0	0.3	0.0	0.4	0.4	0.6	0.6	0.7	0.9	0.01
East: Acceso Este											
1 LT	0.063	0.0	0.5	0.0	0.5	0.6	0.8	1.0	1.1	1.4	0.02
2 R	0.239	0.2	0.5	0.2	0.7	0.8	1.1	1.2	1.4	1.7	0.02
North: Acceso Norte											
1 T	0.022	0.0	0.2	0.0	0.2	0.2	0.3	0.3	0.4	0.5	0.01
2 T	0.022	0.0	0.2	0.0	0.2	0.2	0.3	0.3	0.4	0.5	0.01
3 T	0.022	0.0	0.2	0.0	0.2	0.2	0.3	0.3	0.4	0.5	0.01
4 R	0.239	0.2	0.5	0.2	0.6	0.8	1.0	1.1	1.3	1.7	0.02

Values printed in this table are back of queue (vehicles).

Table D.3B - Lane Queues (feet)

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (feet) Nb1	Nb2	Nb	Percentile (feet) 70%	85%	90%	95%	98%	Queue Stor. Ratio
South: Acceso Sur											
1 LT	0.045	0.4	7.1	0.4	7.6	9.1	12.1	13.6	15.8	20.3	0.01
2 T	0.045	0.5	8.4	0.5	8.9	10.6	14.2	15.9	18.5	23.7	0.01
3 T	0.045	0.5	8.4	0.5	8.9	10.6	14.2	15.9	18.5	23.7	0.01
East: Acceso Este											
1 LT	0.063	0.8	12.5	0.8	13.3	16.0	21.2	23.8	27.7	35.4	0.02
2 R	0.239	4.5	12.0	4.5	16.5	19.8	26.3	29.5	34.3	43.7	0.02
North: Acceso Norte											
1 T	0.022	0.2	4.1	0.2	4.3	5.2	6.9	7.8	9.1	11.6	0.01
2 T	0.022	0.2	4.1	0.2	4.3	5.2	6.9	7.8	9.1	11.6	0.01
3 T	0.022	0.2	4.1	0.2	4.3	5.2	6.9	7.8	9.1	11.6	0.01
4 R	0.239	4.4	11.3	4.4	15.7	18.9	25.1	28.1	32.7	41.7	0.02

Values printed in this table are back of queue (feet).

Table D.4 - Movement Speeds (mph) and Geometric Delay

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	App. Speeds Cruise	App. Speeds Negn	Exit Speeds Negn	Exit Speeds Cruise	Queue Move-up 1st Grn	Queue Move-up 2nd Grn	Av. Section Spd Running	Av. Section Spd Overall	Geom Delay (sec)
South: Acceso Sur									
3L L	40.0	13.5	13.5	40.0			29.9	24.8	8.8
8T T	40.0	40.0	40.0	40.0			34.3	29.6	0.0
East: Acceso Este									
1L L	40.0	13.4	13.4	40.0			30.1	26.4	8.8
6T T	40.0	40.0	40.0	40.0			35.0	31.8	0.0
6R R	40.0	12.5	12.5	40.0			31.1	31.1	8.9
North: Acceso Norte									
4T T	40.0	40.0	40.0	40.0			34.4	29.8	0.0
4R R	40.0	12.5	12.5	40.0			31.1	31.1	8.9

"Running Speed" is the average speed excluding stopped periods.

Table D.5 - Progression Factors and Actuated Signal Parameters

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Gap Settings es	Gap Settings eh	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
South: Acceso Sur											
3L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
8T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
East: Acceso Este											
1L L	VA	No	3	1.000	1.000	2.0	2.6	6	20		
6T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
6R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
North: Acceso Norte											
4T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
4R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50

Table D.6 - Gap Acceptance Parameters

Intersecci n Avenida Los ngeles Calle W
Existente (PM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Mov Type	Opng Flow (pcu/h)	Critical Gap Hdwy (s)	Critical Gap Dist (ft)	Foll-up Headway (s)	Entry HV Equiv
South: Acceso Sur						
3L L	Normal	324	4.50	130.9	2.50	2.00
East: Acceso Este						
1L L	Normal	0	4.50	254.0	2.50	2.00
6R R	Normal	84	6.00	352.0	3.00	2.00
North: Acceso Norte						
4R R	Normal	52	6.00	352.0	3.00	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.

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SIDRA INTERSECTION

Output Tables

Intersección Avenida Los Ángeles y PR-26

Existente (PM)

Run Information

```
Cycle Time =   50  (Sum of User-given Phase Times)

* 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 optimum cycle time specification
    Any green split priority specification
  For actuated signal timings, cycle increment is set to 1 second
  Driving on the right-hand side of the road
  Input data specified in US units
  Model Defaults: US HCM (US)
  Peak Flow Period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes.
  Delay definition: Control delay
                    Geometric delay included
  HCM Delay Model option selected
  HCM Queue Model option selected
  Level of Service based on: Delay (HCM method)
  Queue definition: Back of queue, 95th Percentile

* Iteration Data:
  No. of Main (Timing-Capacity) Iterations =  1
  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)
```

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-----------------------------------------------------------------
 From       To           Mov            Flow Rate   Flow   Peak Flow
 Approach   Approach     ID    Turn      LV    HV   Scale    Factor
-----------------------------------------------------------------
 SouthEast: Acceso Sureste
            NorthWest    16T   Thru     524     0    1.00     1.00
```

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```
-----------------------------------------------------------------
 NorthEast: Acceso Noreste
          SouthWest   14T   Thru    288     0    1.00     1.00
-----------------------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-----------------------------------------------
  Mov          Left       Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
SouthEast: Acceso Sureste
  16T T       0     0    524     0      0     0
-----------------------------------------------
NorthEast: Acceso Noreste
  14T T       0     0    288     0      0     0
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2B - Flow Rates (Total Vehicles and Percent Heavy)

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

--------------------------------------------------
  Mov          Left        Through        Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
--------------------------------------------------
Demand flows in veh/hour as used by the program
SouthEast: Acceso Sureste
  16T T        0   0.0     524   0.0       0   0.0
--------------------------------------------------
NorthEast: Acceso Noreste
  14T T        0   0.0     288   0.0       0   0.0
--------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table S.1 - Movement Phase and Timing Parameters

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-----------------------------------------------------------------------------------------
 Mov     Mov           P H A S E  M A T R I X          Lost Tim  Req.Mov.Time     Eff. Grn
 ID      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
-----------------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T       *1      2                                    4        18.5              21
-----------------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T       *2      1                                    4        13.5              21
-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
-----------------------------------------------------------------------------------------
  *  Critical Movement/Green Period

Movement Types:                              Under heading 'Op':
  Slp  Slip Lane Movement                      Y   If opposed turn
  Ped  Pedestrian
  Dum  Dummy
```

Table S.2 - Movement Capacity Parameters

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov      Dem          Satn Flow   Flow Ratio  Total Prac. Prac. Lane   Deg.
 ID       Flow        -----------  ---------   Cap. Deg.  Spare Util   Satn
          (veh    HV   1st   2nd    1st   2nd  (veh  Satn  Cap.
           /h)    (%)  Grn   Grn    Grn   Grn   /h)   xp    (%)   (%)     x
-------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T    524    0.0  3800        0.138        1596  0.90   174   100  0.328*
-------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T    288    0.0  3800        0.076        1596  0.90   399   100  0.180
-------------------------------------------------------------------------------
```

Table S.3 - Intersection Parameters

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

---------------------------------------------------------------------------
   Crit App.  Green   Phases   Adjusted    Adjusted   Required   Required
   Mov  and   Period  ------     Lost        Flow     Grn Time   Movement
   ID   Turn          Fr  To     Time        Ratio     Ratio       Time
---------------------------------------------------------------------------
   16T  SE_T         1    2        4        0.138      0.291       18.5
   14T  NE_T         2    1        4        0.076      0.189       13.5
                                 ----       ------     ------      ------
                          Total:   8        0.214      0.480       32.0
---------------------------------------------------------------------------

   Cycle Time:
     Minimum   Maximum   Practical   Chosen
        20        NA         20         50
     (Phase times user specified, cycle time = sum of phase times)

 NA  Cmax does not apply at actuated signals

   Intersection Level of Service              =         B
   Worst movement Level of Service            =         B
   Average intersection delay (s/pers)        =      11.0
   Largest average movement delay (s)         =      11.4
   Largest back of queue, 95% (ft)            =       146
   Performance Index                          =     21.44
   Degree of saturation (highest)             =     0.328
   Practical Spare Capacity (lowest)          =       174 %
   Effective intersection capacity, (veh/h)   =      2473
   Total vehicle flow (veh/h)                 =       812
   Total person flow (pers/h)                 =       974
   Total vehicle delay (veh-h/h)              =      2.49
   Total person delay (pers-h/h)              =      2.99
   Total effective vehicle stops (veh/h)      =       455
   Total effective person stops (pers/h)      =       546
   Total vehicle travel (veh-mi/h)            =     308.1
   Total cost ($/h)                           =    164.80
   Total fuel (gal/h)                         =      14.3
   Total CO2 (kg/h)                           =    134.90
```

Table S.4 - Phase Information

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

---------------------------------------------------------------------------
Phase  Change  Starting  Green  Displayed  Green  Terminating  Phase  Phase
        Time    Intgrn   Start    Green     End     Intgrn     Time   Split
---------------------------------------------------------------------------
 1        0       4        4       21       25        4         25    50%
 2       25       4       29       21       50        4         25    50%
---------------------------------------------------------------------------
            (Phase times specified by the user)
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
```

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 95% Back (vehs)	(ft)	Perf. Index	Aver. Speed (mph)
SouthEast: Acceso Sureste									
16T T	1.66	1.99	11.4	0.70	0.58	5.8	146	14.12	30.0
NorthEast: Acceso Noreste									
14T T	0.83	1.00	10.4	0.64	0.52	3.0	75	7.33	30.6

Table S.6 - Intersection Performance

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

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 (ft)	Perf. Index	Aver. Speed (mph)
SouthEast: Acceso Sureste									
524	0.328	1.66	1.99	11.4	0.70	0.58	146	14.12	30.0
NorthEast: Acceso Noreste									
288	0.180	0.83	1.00	10.4	0.64	0.52	75	7.33	30.6
ALL VEHICLES:									
812	0.328	2.49	2.99	11.0	0.68	0.56	146	21.44	30.2
INTERSECTION (persons):									
974	0.328		2.99	11.0	0.68	0.56		21.44	30.2

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

Table S.7 - Lane Performance

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane	Effective Red and Green Times (sec)	Dem Flow (veh	Cap (veh	Deg. Satn	Aver. Delay	Eff. Stop	Queue 95% Back	Lane Length

No.	R1	G1	R2	G2	/h)	/h)	x	(sec)	Rate	(vehs)	(ft)	(ft)
SouthEast: Acceso Sureste												
1 T	29	21	0	0	262	798	0.328	11.4	0.58	5.8	145.6	1600.0
2 T	29	21	0	0	262	798	0.328	11.4	0.58	5.8	145.6	1600.0
NorthEast: Acceso Noreste												
1 T	29	21	0	0	144	798	0.180	10.4	0.52	3.0	75.2	1600.0
2 T	29	21	0	0	144	798	0.180	10.4	0.52	3.0	75.2	1600.0

Table S.8 - Lane Flow and Capacity Information

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (ft)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
SouthEast: Acceso Sureste												
1 T	0	262	0	262	12.0	1900	1900	0	0	798	0.328	100
2 T	0	262	0	262	12.0	1900	1900	0	0	798	0.328	100
NorthEast: Acceso Noreste												
1 T	0	144	0	144	12.0	1900	1900	0	0	798	0.180	100
2 T	0	144	0	144	12.0	1900	1900	0	0	798	0.180	100

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

Table S.9 - Signal Timing Diagram

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

```
             Phase 1                              Phase 2

0                                 25                                   50
I---------------------------------I-----------------------------------I
......GGGGGGGGGGGGGGGGGGGGGGGGGGGG.......GGGGGGGGGGGGGGGGGGGGGGGGGGGGG.
     4                                   29
```

Effective (Movement) Green Times

SouthEast: Acceso Sureste

```
Mov.   16T (T)
I                                I                                I
........GGGGGGGGGGGGGGGGGGGGGGGGGGGGG..............................
       6                            27


 NorthEast: Acceso Noreste

Mov.   14T (T)
I                                I                                I
GG.......................................GGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                     31


I-----I------I------I------I------I------I------I------I------I------I---->
0     5     10     15     20     25     30     35     40     45     50

                              T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov     Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%    Perf.
 ID      Typ  Flow   Cap.  Util  Satn  -------- Delay  Stop  Back of  Index
              (veh  (veh                1st  2nd        Rate   Queue
               /h)   /h)   (%)     x   Grn  Grn  (sec)         (veh)
-------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T         524  1596   100  0.328*  21*       11.4  0.58    5.8   14.12
-------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T         288  1596   100  0.180   21*       10.4  0.52    3.0    7.33
-------------------------------------------------------------------------------
  *  Maximum degree of saturation, or critical green periods
```

Table S.12A - Fuel Consumption, Emissions and Cost (TOTAL)

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------
  Mov            Fuel    Cost     HC      CO     NOX     CO2
  ID             Total   Total   Total   Total  Total   Total
                 gal/h  $/h      kg/h    kg/h   kg/h    kg/h
-------------------------------------------------------------
SouthEast: Acceso Sureste
  16T T           9.3   107.24   0.149    6.57   0.210    87.9
               ----------------------------------------------
                  9.3   107.24   0.149    6.57   0.210    87.9
-------------------------------------------------------------
NorthEast: Acceso Noreste
  14T T           5.0    57.56   0.079    3.40   0.111    47.0
```

	5.0	57.56	0.079	3.40	0.111	47.0
INTERSECTION:	14.3	164.80	0.228	9.97	0.321	134.9

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/US gal)	=	2.400
Fuel resource cost factor	=	0.70
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	19.00
Time value factor	=	0.40
Light vehicle mass (1000 lb)	=	3.1
Heavy vehicle mass (1000 lb)	=	24.0
Light vehicle idle fuel rate (US gal/h)	=	0.360
Heavy vehicle idle fuel rate (US gal/h)	=	0.530

Table S.12B - Fuel Consumption, Emissions and Cost (RATE)

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Mov ID	Fuel Eff. mpg	Cost Rate $/mi	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km
SouthEast: Acceso Sureste						
16T T	21.4	0.34	0.466	20.53	0.656	274.6
	21.4	0.34	0.466	20.53	0.656	274.6
NorthEast: Acceso Noreste						
14T T	22.0	0.33	0.449	19.35	0.633	267.4
	22.0	0.33	0.449	19.35	0.633	267.4
INTERSECTION:	21.6	0.33	0.460	20.11	0.648	272.1

Table S.14 - Summary of Input and Output Data

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

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 (ft)	Shrt Lane (ft)
SouthEast: Acceso Sureste												
1 T		262		262	0	1899	21		0.328	11.4	146	1600

```
2 T          262        262    0  1899   21      0.328   11.4   146  1600
        ---------------------------------------------------------------------
          0  524    0   524    0                 0.328   11.4   146
-----------------------------------------------------------------------------
 NorthEast: Acceso Noreste
1 T          144        144    0  1899   21      0.180   10.4    75  1600
2 T          144        144    0  1899   21      0.180   10.4    75  1600
        ---------------------------------------------------------------------
          0  288    0   288    0                 0.180   10.4    75
=============================================================================
 ALL VEHICLES          Total   %       Cycle      Max   Aver.   Max
                       Flow   HV       Time        X    Delay  Queue
                        812    0         50      0.328   11.0   146
=============================================================================
Peak flow period = 15 minutes.

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

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

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov     Mov    Green Time  Total  Total    Deg.   Aver.   LOS  Longest Queue
 ID      Typ    Ratio (g/C) Flow   Cap.     of    Delay          95% Back
               ------------ (veh   (veh     Satn                (vehs)  (ft)
                1st   2nd    /h)    /h)     (v/c)  (sec)
                grn   grn
-------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T        0.420*          524   1596   0.328*   11.4    B      5.8    146
-------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T        0.420*          288   1596   0.180    10.4    B      3.0     75
-------------------------------------------------------------------------------
  ALL VEHICLES:                812          0.328    11.0    B      5.8    146
-------------------------------------------------------------------------------
  INTERSECTION (persons):      974                   11.0           5.8    146
-------------------------------------------------------------------------------
     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.
  *  Maximum v/c ratio, or critical green periods
```

Table S.16 - SCATS MF Parameter

```
Intersecci n Avenida Los  ngeles y  PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)
```

Lane No.	Stopline Flow (veh/h)	Capacity (veh/h)	SCATS Satn Flow	SCATS MF	Deg. Satn x	Lane Util. %
SouthEast: Acceso Sureste						
1 T	262	798	1900	1596	0.328	100
2 T	262	798	1900	1596	0.328	100
NorthEast: Acceso Noreste						
1 T	144	798	1900	1596	0.180	100
2 T	144	798	1900	1596	0.180	100

STOPLINE FLOW: Departure flow rate in veh/h as measured at the stop line. This cannot exceed capacity.

SCATS SATURATION FLOW: This allows for lane width, approach grade and turning vehicles. Saturation flow scale applies if specified. The effects of heavy vehicles, parking manoeuvres, number of buses stopping and conflicting pedestrian volume are not included.

SCATS MF: This emulates the MF (Maximum Flow) parameter used in the SCATS control system. It is calculated from the SCATS SATURATION FLOW parameter.

DEG. SATN: The Demand (Arrival) Flow Rate may exceed the Stopline Flow Rate, therefore x > 1 is possible.

Table D.0 - Geometric Delay Data

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

From Approach	To Approach	Turn	Negn Radius (ft)	Negn Speed (mph)	Negn Dist. (ft)	Appr. Dist. (ft)	Downstream Distance (ft)	User Spec?
SouthEast: Acceso Sureste								
	NorthWest	Thru	S	40.0	36.0	1600	403	No
NorthEast: Acceso Noreste								
	SouthWest	Thru	S	40.0	36.0	1600	403	No

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.

Table D.1 - Lane Delays

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
		---------- Delay (seconds/veh) ----------								
SouthEast: Acceso Sureste										
1 T	0.328	11.1	0.2	11.4	6.2	5.2	0.0	5.2	0.0	11.4
2 T	0.328	11.1	0.2	11.4	6.2	5.2	0.0	5.2	0.0	11.4
NorthEast: Acceso Noreste										
1 T	0.180	10.3	0.1	10.4	5.7	4.7	0.0	4.7	0.0	10.4
2 T	0.180	10.3	0.1	10.4	5.7	4.7	0.0	4.7	0.0	10.4

dn is average stop-start delay for all vehicles queued and unqueued

Table D.2 - Lane Stops

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hig	Overall h	Prop. Queued pq	Queue Move-up Rate hqm
SouthEast: Acceso Sureste							
1 T	0.328	0.58	0.00	0.00	0.58	0.695	0.00
2 T	0.328	0.58	0.00	0.00	0.58	0.695	0.00
NorthEast: Acceso Noreste							
1 T	0.180	0.52	0.00	0.00	0.52	0.643	0.00
2 T	0.180	0.52	0.00	0.00	0.52	0.643	0.00

hig is the average value for all movements in a shared lane
hqm is average queue move-up rate for all vehicles queued and unqueued

Table D.3A - Lane Queues (veh)

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nb1	Nb2	Nb	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
SouthEast: Acceso Sureste											
1 T	0.328	0.2	2.7	0.2	2.9	3.5	4.6	5.1	5.8	7.2	0.09
2 T	0.328	0.2	2.7	0.2	2.9	3.5	4.6	5.1	5.8	7.2	0.09
NorthEast: Acceso Noreste											
1 T	0.180	0.1	1.4	0.1	1.5	1.8	2.3	2.6	3.0	3.8	0.05

2 T	0.180	0.1	1.4	0.1	1.5	1.8	2.3	2.6	3.0	3.8	0.05

Values printed in this table are back of queue (vehicles).

Table D.3B - Lane Queues (feet)

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (feet) Nb1	Nb2	Nb	Percentile (feet) 70%	85%	90%	95%	98%	Queue Stor. Ratio
SouthEast: Acceso Sureste											
1 T	0.328	5.2	67.2	5.2	72.4	86.4	113.8	126.4	145.6	181.0	0.09
2 T	0.328	5.2	67.2	5.2	72.4	86.4	113.8	126.4	145.6	181.0	0.09
NorthEast: Acceso Noreste											
1 T	0.180	2.3	34.3	2.3	36.6	43.8	58.1	64.9	75.2	95.0	0.05
2 T	0.180	2.3	34.3	2.3	36.6	43.8	58.1	64.9	75.2	95.0	0.05

Values printed in this table are back of queue (feet).

Table D.4 - Movement Speeds (mph) and Geometric Delay

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Mov ID	App. Speeds Cruise	Negn	Exit Speeds Negn	Cruise	Queue Move-up 1st Grn	2nd Grn	Av. Section Spd Running	Overall	Geom Delay (sec)
SouthEast: Acceso Sureste									
16T T	40.0	40.0	40.0	40.0			33.9	30.0	0.0
NorthEast: Acceso Noreste									
14T T	40.0	40.0	40.0	40.0			34.3	30.6	0.0

"Running Speed" is the average speed excluding stopped periods.

Table D.5 - Progression Factors and Actuated Signal Parameters

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Mov ID	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Gap Settings es	Gap Settings eh	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
SouthEast: Acceso Sureste											
16T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
NorthEast: Acceso Noreste											
14T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		

Table D.6 - Gap Acceptance Parameters

Intersecci n Avenida Los ngeles y PR-26
Existente (PM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

No opposed movements at this intersection

SIDRA SOLUTIONS

Site: New Site - 1
C:\Documents and Settings\Alidys Alicea\My Documents\Tilysay's Documents\Estudios (Tilysay Hernandez)\Laguna Plaza\Laguna Plaza\Corridas SIDRA\Int. Existentes\Int. Avenida Los Angeles y PR-26\Int. Avenida Los Angeles y PR-26 E (PM).aap
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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Tilysay Hernández Acevedo
Agency/Co.:	PLC Traffic Consulting
Date performed:	12/13/2007
Analysis time period:	24 horas
Freeway/Dir of Travel:	Rampa Este
Junction:	
Jurisdiction:	Caguas
Analysis Year:	2007
Description:	Plaza Laguna E (PM)

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	3160	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	168	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3160	168		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	878	47		v
Trucks and buses	0	0		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade	%	%		%
Length	mi	mi		mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

FIGURA 36

Heavy vehicle adjustment, fHV	1.000	1.000	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	3511	187	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2077 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3698	6750	No
v_{R12}	2264	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 51.6	mph
Space mean speed for all vehicles,	S = 51.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Tilysay Hernandez Acevedo
Agency/Co.:	PLC Traffic Consulting
Date performed:	12/13/2007
Analysis time period:	24 horas
Freeway/Dir of Travel:	Rampa Oeste
Junction:	
Jurisdiction:	Caguas
Analysis Year:	2007
Description:	Laguna Plaza E (PM)

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	3160	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	372	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3160	372		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	878	103		v
Trucks and buses	0	0		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade	%	%		%
Length	mi	mi		mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

FIGURA 37

Heavy vehicle adjustment, fHV	1.000	1.000	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	3511	413	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2077 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3924	6750	No
v_{R12}	2739	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.346	
Space mean speed in ramp influence area,	S_R = 50.5	mph
Space mean speed in outer lanes,	S_O = 52.5	mph
Space mean speed for all vehicles,	S = 51.1	mph

SIDRA INTERSECTION

Output Tables

Intersección Avenida Ls Flores & Calle Hortensia

Futura (AM)

Run Information

```
Cycle Time =   35  (Sum of User-given Phase Times)

* 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 optimum cycle time specification
    Any green split priority specification
  For actuated signal timings, cycle increment is set to 1 second
  Driving on the right-hand side of the road
  Input data specified in US units
  Model Defaults: US HCM (US)
  Peak Flow Period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes.
  Delay definition: Control delay
                    Geometric delay included
  HCM Delay Model option selected
  HCM Queue Model option selected
  Level of Service based on: Delay (HCM method)
  Queue definition: Back of queue, 95th Percentile

* Iteration Data:
  No. of Main (Timing-Capacity) Iterations =  1
  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)
```

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)

```
Intersecci n Avenida Ls Flores   Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

-----------------------------------------------------------------
 From      To          Mov           Flow Rate   Flow   Peak Flow
 Approach  Approach    ID    Turn     LV    HV   Scale    Factor
-----------------------------------------------------------------
 West: Acceso Oeste
           South        2R   Right   544     0    1.00     1.00
```

FIGURA 38

```
          East         2T   Thru     51     0    1.00     1.00
          North        5L   Left      4     0    1.00     1.00
-----------------------------------------------------------------
 South: Acceso Sur
          West         3L   Left    181     0    1.00     1.00
          East         8R   Right    34     0    1.00     1.00
          North        8T   Thru     47     0    1.00     1.00
-----------------------------------------------------------------
 East: Acceso Este
          West         6T   Thru     85     0    1.00     1.00
          South        1L   Left     30     0    1.00     1.00
          North        6R   Right    51     0    1.00     1.00
-----------------------------------------------------------------
 North: Acceso Norte
          West         4R   Right    13     0    1.00     1.00
          South        4T   Thru    136     0    1.00     1.00
          East         7L   Left      4     0    1.00     1.00
-----------------------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)

```
Intersecci n Avenida Ls Flores   Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

-----------------------------------------------
  Mov          Left        Through       Right
  ID        ---------     ---------    ---------
             LV    HV      LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
West: Acceso Oeste
   5L L       4     0       0     0      0     0
   2T T       0     0      51     0      0     0
   2R R       0     0       0     0    544     0
-----------------------------------------------
South: Acceso Sur
   3L L     181     0       0     0      0     0
   8T T       0     0      47     0      0     0
   8R R       0     0       0     0     34     0
-----------------------------------------------
East: Acceso Este
   1L L      30     0       0     0      0     0
   6T T       0     0      85     0      0     0
   6R R       0     0       0     0     51     0
-----------------------------------------------
North: Acceso Norte
   7L L       4     0       0     0      0     0
   4T T       0     0     136     0      0     0
   4R R       0     0       0     0     13     0
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2B - Flow Rates (Total Vehicles and Percent Heavy)

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Left Total	Left %HV	Through Total	Through %HV	Right Total	Right %HV
Demand flows in veh/hour as used by the program						
West: Acceso Oeste						
5L L	4	0.0	0	0.0	0	0.0
2T T	0	0.0	51	0.0	0	0.0
2R R	0	0.0	0	0.0	544	0.0
South: Acceso Sur						
3L L	181	0.0	0	0.0	0	0.0
8T T	0	0.0	47	0.0	0	0.0
8R R	0	0.0	0	0.0	34	0.0
East: Acceso Este						
1L L	30	0.0	0	0.0	0	0.0
6T T	0	0.0	85	0.0	0	0.0
6R R	0	0.0	0	0.0	51	0.0
North: Acceso Norte						
7L L	4	0.0	0	0.0	0	0.0
4T T	0	0.0	136	0.0	0	0.0
4R R	0	0.0	0	0.0	13	0.0

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Mov Typ	PHASE MATRIX First Green Fr	First Green To	First Green Op Pr	Second Green Fr	Second Green To	Second Green 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: Acceso Oeste													
5L L		*2	1	Y				7		19.6		13	
2T T		2	1					4		18.2		16	
2R R		1	2	Y	2	1		5	4	10.0Min	18.7	10	16
South: Acceso Sur													
3L L		*1	2	Y				5		14.1		10	
8T T		1	2					4		10.0Min		11	
8R R		1	2		2	1	Y	4	4	10.0Min	10.0Min	11	16
East: Acceso Este													
1L L		2	1	Y				15		17.1		5	
6T T		2	1					4		10.8		16	
6R R		1	2	Y	2	1		4	4	10.0Min	10.3	11	16

```
North: Acceso Norte
  7L L        1      2      Y                            4        10.0Min           11
  4T T        1      2                                   4        10.0Min           11
  4R R        1      2             2      1      Y       4    5   10.0Min  10.0Min  11   15
-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
-----------------------------------------------------------------------------------------
  *  Critical Movement/Green Period

Movement Types:                              Under heading 'Op':
  Slp  Slip Lane Movement                      Y   If opposed turn
  Ped  Pedestrian
  Dum  Dummy
```

Table S.2 - Movement Capacity Parameters

```
Intersecci n Avenida Ls Flores   Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)
```

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
West: Acceso Oeste											
5L L	4	0.0	21		0.190		8	0.90	75	100	0.513*
2T T	51	0.0	221		0.231		101	0.90	78	100	0.505
2R R	544	0.0	1087	1676	0.000	0.325	1077	0.90	78	100	0.505
South: Acceso Sur											
3L L	181	0.0	1721		0.105		492	0.90	144	100	0.368
8T T	47	0.0	1182		0.040		371	0.90	611	34	0.127
8R R	34	0.0	628	156	0.054	0.000	269	0.90	611	34	0.127
East: Acceso Este											
1L L	30	0.0	1238		0.024		177	0.90	431	100	0.170
6T T	85	0.0	1097		0.077		501	0.90	431	100	0.169
6R R	51	0.0	197	523	0.000	0.098	301	0.90	431	100	0.169
North: Acceso Norte											
7L L	4	0.0	100		0.040		31	0.90	607	100	0.127
4T T	136	0.0	3393		0.040		1066	0.90	606	100	0.128
4R R	13	0.0	245	58	0.053	0.000	102	0.90	605	100	0.128

Table S.3 - Intersection Parameters

```
Intersecci n Avenida Ls Flores   Calle Hortensia
Futura (AM)
Intersection ID: 1
```

Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
3L	S_L		1	2	5	0.105	0.261	14.1
5L	W_L		2	1	7	0.190	0.359	19.6
				Total:	12	0.296	0.619	33.7

Cycle Time:

Minimum	Maximum	Practical	Chosen
20	NA	32	35

(Phase times user specified, cycle time = sum of phase times)

NA Cmax does not apply at actuated signals

Intersection Level of Service	=	B
Worst movement Level of Service	=	C
Average intersection delay (s/pers)	=	16.8
Largest average movement delay (s)	=	26.3
Largest back of queue, 95% (ft)	=	340
Performance Index	=	32.58
Degree of saturation (highest)	=	0.513
Practical Spare Capacity (lowest)	=	75 %
Effective intersection capacity, (veh/h)	=	2301
Total vehicle flow (veh/h)	=	1180
Total person flow (pers/h)	=	1416
Total vehicle delay (veh-h/h)	=	5.52
Total person delay (pers-h/h)	=	6.62
Total effective vehicle stops (veh/h)	=	907
Total effective person stops (pers/h)	=	1089
Total vehicle travel (veh-mi/h)	=	444.9
Total cost ($/h)	=	269.66
Total fuel (gal/h)	=	23.3
Total CO2 (kg/h)	=	220.97

Table S.4 - Phase Information

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
1	0	4	4	11	15	4	15	43%
2	15	4	19	16	35	4	20	57%

(Phase times specified by the user)
Current Phase Sequence: Two-phase
Input phase sequence: 1 2
Output phase sequence: 1 2

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 95% Back (vehs)	(ft)	Perf. Index	Aver. Speed (mph)
West: Acceso Oeste									
5L L	0.03	0.04	26.3	1.00	0.90	13.6	340	0.13	22.5
2T T	0.25	0.30	17.4	1.00	0.90	13.6	340	1.59	26.5
2R R	2.85	3.42	18.9	0.90	0.85	11.4	285	15.91	25.7
South: Acceso Sur									
3L L	1.07	1.28	21.3	0.82	0.79	3.6	90	5.32	24.6
8T T	0.07	0.09	5.5	0.65	0.44	1.0	26	0.92	33.8
8R R	0.14	0.16	14.4	0.65	0.74	1.0	26	0.80	28.0
East: Acceso Este									
1L L	0.17	0.21	20.6	0.82	0.80	3.2	79	0.87	24.9
6T T	0.27	0.33	11.6	0.82	0.67	3.2	79	2.19	29.8
6R R	0.28	0.33	19.7	0.78	0.78	2.9	73	1.42	25.3
North: Acceso Norte									
7L L	0.02	0.03	19.0	0.73	0.75	1.3	33	0.11	25.6
4T T	0.31	0.37	8.2	0.71	0.52	1.3	33	3.01	31.9
4R R	0.05	0.07	15.2	0.70	0.74	1.0	26	0.31	27.6

Table S.6 - Intersection Performance

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

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 (ft)	Perf. Index	Aver. Speed (mph)
West: Acceso Oeste									
599	0.513	3.13	3.75	18.8	0.91	0.86	340	17.63	25.7
South: Acceso Sur									
262	0.368	1.28	1.53	17.5	0.77	0.72	90	7.04	26.3
East: Acceso Este									
166	0.170	0.72	0.87	15.7	0.81	0.73	79	4.48	27.4
North: Acceso Norte									
153	0.128	0.39	0.46	9.1	0.71	0.55	33	3.43	31.3
ALL VEHICLES:									
1180	0.513	5.52	6.62	16.8	0.84	0.77	340	32.58	26.7
INTERSECTION (persons):									
1416	0.513		6.62	16.8	0.84	0.77		32.58	26.7

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

Table S.7 - Lane Performance

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

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 95% Back (vehs)	(ft)	Lane Length (ft)
West: Acceso Oeste												
1 LTR	19	16	0	0	599	1185	0.505	25.5	0.86	13.6	340.0	1600.0
South: Acceso Sur												
1 L	25	10	0	0	181	492	0.368	21.3	0.79	3.6	89.8	1600.0
2 TR	17	11	4	3	81	640	0.127	9.2	0.57	1.0	25.8	1600.0
East: Acceso Este												
1 LTR	24	11	0	0	166	979	0.170	16.0	0.73	3.2	79.5	1600.0
North: Acceso Norte												
1 LT	24	11	0	0	75	588	0.128	10.5	0.57	1.3	32.5	1600.0
2 TR	18	11	5	1	78	611	0.128	7.8	0.53	1.0	26.0	1600.0

Table S.8 - Lane Flow and Capacity Information

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (ft)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
West: Acceso Oeste												
1 LTR	4	51	544	599	12.0	1900	956	0	206	1185	0.505	100
South: Acceso Sur												
1 L	181	0	0	181	12.0	1900	1721	0	206	492	0.368	100
2 TR	0	47	34	81	12.0	1900	1769	981	103	640	0.127	34P
East: Acceso Este												
1 LTR	30	85	51	166	12.0	1900	1194	0	224	979	0.170	100
North: Acceso Norte												
1 LT	4	71	0	75	12.0	1900	1872	0	108	588	0.128	100
2 TR	0	65	13	78	12.0	1900	1846	1090	103	611	0.128	100

P Lane under-utilisation found by the "Program". This includes cases where the value of lane under-utilisation due to downstream effects has been modified by the program during lane flow calculations (e.g. a de facto exclusive lane has been found).

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.9 - Signal Timing Diagram

```
Intersecci n Avenida Ls Flores   Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

           Phase 1                            Phase 2

0                             15                                      35
I-----------------------------I--------------------------------------I
........GGGGGGGGGGGGGGGGGGGGG.........GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.
       4                              19


Effective (Movement) Green Times


 West: Acceso Oeste

Mov.    5L (L)
I                             I                                        I
GGG.............................................GGGGGGGGGGGGGGGGGGGGGG
   2                                             24

Mov.    2T (T)
I                             I                                        I
GGG....................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2                                     21

Mov.    2R (R)
I                             I                                        I
GGGG..........GGGGGGGGGGGGGGGGGGG........GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2         7                   17       21


 South: Acceso Sur

Mov.    3L (L)
I                             I                                        I
.............GGGGGGGGGGGGGGGGGGG....................................
            7                   17

Mov.    8T (T)
I                             I                                        I
............GGGGGGGGGGGGGGGGGGGGG....................................
          6                     17

Mov.    8R (R)
I                             I                                        I
GGGG........GGGGGGGGGGGGGGGGGGGGG........GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2       6                   17       21


 East: Acceso Este

Mov.    1L (L)
I                             I                                        I
GGG.............................................................GGGGGG
   2                                                              32

Mov.    6T (T)
I                             I                                        I
GGG....................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2                                     21
```

```
Mov.    6R (R)
I                            I                                        I
GGGG........GGGGGGGGGGGGGGGGGGGG........GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2       6                     17       21


 North: Acceso Norte

Mov.    7L (L)
I                            I                                        I
............GGGGGGGGGGGGGGGGGGGG....................................
          6                     17

Mov.    4T (T)
I                            I                                        I
............GGGGGGGGGGGGGGGGGGGG....................................
          6                     17

Mov.    4R (R)
I                            I                                        I
GGGG........GGGGGGGGGGGGGGGGGGGG..........GGGGGGGGGGGGGGGGGGGGGGGGGGGGG
   2       6                     17         22


I-----I------I------I------I------I------I------I------I------I------I---->
0      4      7     11     14     18     21     25     28     32     35

                                T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
Intersecci n Avenida Ls Flores   Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

--------------------------------------------------------------------------------
 Mov     Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%    Perf.
 ID      Typ  Flow   Cap.  Util  Satn  -------- Delay  Stop  Back of  Index
              (veh  (veh                1st  2nd         Rate   Queue
               /h)   /h)   (%)     x   Grn  Grn  (sec)         (veh)
--------------------------------------------------------------------------------
West: Acceso Oeste
  5L L           4     8   100  0.513*  13*       26.3  0.90   13.6    0.13
  2T T          51   101   100  0.505   16        17.4  0.90   13.6    1.59
  2R R         544  1077   100  0.505   10   16   18.9  0.85   11.4   15.91
--------------------------------------------------------------------------------
South: Acceso Sur
  3L L         181   492   100  0.368   10*       21.3  0.79    3.6    5.32
  8T T          47   371    34  0.127   11         5.5  0.44    1.0    0.92
  8R R          34   269    34  0.127   11   16   14.4  0.74    1.0    0.80
--------------------------------------------------------------------------------
East: Acceso Este
  1L L          30   177   100  0.170    5        20.6  0.80    3.2    0.87
  6T T          85   501   100  0.169   16        11.6  0.67    3.2    2.19
  6R R          51   301   100  0.169   11   16   19.7  0.78    2.9    1.42
--------------------------------------------------------------------------------
North: Acceso Norte
  7L L           4    31   100  0.127   11        19.0  0.75    1.3    0.11
  4T T         136  1066   100  0.128   11         8.2  0.52    1.3    3.01
  4R R          13   102   100  0.128   11   15   15.2  0.74    1.0    0.31
--------------------------------------------------------------------------------
  *  Maximum degree of saturation, or critical green periods
```

Table S.12A - Fuel Consumption, Emissions and Cost (TOTAL)

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Fuel Total gal/h	Cost Total $/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h
West: Acceso Oeste						
5L L	0.1	1.04	0.001	0.07	0.002	0.8
2T T	1.0	11.92	0.018	0.86	0.025	9.9
2R R	11.1	128.48	0.189	9.10	0.261	104.8
	12.2	141.44	0.208	10.02	0.287	115.4
South: Acceso Sur						
3L L	3.7	44.00	0.064	3.03	0.087	35.2
8T T	0.8	8.80	0.012	0.55	0.018	7.5
8R R	0.7	7.55	0.011	0.56	0.016	6.4
	5.2	60.36	0.087	4.14	0.121	49.0
East: Acceso Este						
1L L	0.6	7.23	0.011	0.50	0.014	5.8
6T T	1.6	17.84	0.026	1.21	0.037	15.0
6R R	1.0	12.14	0.018	0.85	0.024	9.8
	3.2	37.22	0.054	2.56	0.076	30.6
North: Acceso Norte						
7L L	0.1	0.94	0.001	0.07	0.002	0.8
4T T	2.4	26.79	0.038	1.74	0.055	22.6
4R R	0.3	2.92	0.004	0.21	0.006	2.4
	2.7	30.65	0.044	2.02	0.063	25.8
INTERSECTION:	23.3	269.66	0.393	18.73	0.547	221.0

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/US gal)	=	2.400
Fuel resource cost factor	=	0.70
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	19.00
Time value factor	=	0.40
Light vehicle mass (1000 lb)	=	3.1
Heavy vehicle mass (1000 lb)	=	24.0
Light vehicle idle fuel rate (US gal/h)	=	0.360
Heavy vehicle idle fuel rate (US gal/h)	=	0.530

Table S.12B - Fuel Consumption, Emissions and Cost (RATE)

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Fuel Eff. mpg	Cost Rate $/mi	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km
West: Acceso Oeste						
5L L	17.8	0.43	0.604	28.09	0.804	331.2
2T T	18.5	0.38	0.567	27.47	0.792	317.5
2R R	18.5	0.39	0.573	27.62	0.792	318.0
	18.5	0.39	0.572	27.61	0.792	318.1
South: Acceso Sur						
3L L	18.3	0.40	0.582	27.65	0.793	321.6
8T T	22.5	0.31	0.434	19.30	0.630	261.1
8R R	19.0	0.37	0.551	27.03	0.778	308.7
	19.0	0.38	0.551	26.06	0.761	309.0
East: Acceso Este						
1L L	18.3	0.40	0.579	27.63	0.792	320.5
6T T	20.4	0.34	0.499	23.33	0.710	288.8
6R R	18.5	0.39	0.573	27.40	0.788	318.0
	19.4	0.37	0.536	25.35	0.748	303.5
North: Acceso Norte						
7L L	18.5	0.39	0.571	27.43	0.787	317.1
4T T	21.6	0.32	0.461	20.92	0.662	272.5
4R R	18.9	0.37	0.555	27.16	0.781	310.3
	21.2	0.33	0.472	21.61	0.675	276.9
INTERSECTION:	19.1	0.38	0.549	26.16	0.764	308.6

Table S.14 - Summary of Input and Output Data

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

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 (ft)	Shrt Lane (ft)
West: Acceso Oeste												
1 LTR	4	51	544	599	0	1900	16		0.505	18.1	285	1600
	4	51	544	599	0				0.505	25.5	340	
South: Acceso Sur												
1 L	181			181	0	1900	10		0.368	21.3	90	1600
2 TR		47	34	81	0	1900	11	3	0.127	9.2	26	1600
	181	47	34	262	0				0.368	17.5	90	
East: Acceso Este												
1 LTR	30	85	51	166	0	1900	11		0.170	15.1	73	1600
	30	85	51	166	0				0.170	16.0	79	
North: Acceso Norte												
1 LT	4	71		75	0	1900	11		0.128	10.5	33	1600

```
2 TR          65   13    78    0  1900   11   1  0.128    7.8    26  1600
        ---------------------------------------------------------------------
          4  136   13   153    0                 0.128    9.1    33
=============================================================================
 ALL VEHICLES          Total    %       Cycle      Max   Aver.   Max
                       Flow    HV       Time       X    Delay  Queue
                       1180     0         35      0.513   16.8   340
=============================================================================
Peak flow period = 15 minutes.

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

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

```
Intersecci n Avenida Ls Flores   Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

-----------------------------------------------------------------------------
 Mov     Mov    Green Time  Total  Total    Deg.   Aver.   LOS  Longest Queue
 ID      Typ    Ratio (g/C) Flow   Cap.     of    Delay          95% Back
               ------------ (veh   (veh     Satn                (vehs)  (ft)
                1st   2nd    /h)    /h)     (v/c)  (sec)
                grn   grn
-----------------------------------------------------------------------------
West: Acceso Oeste
  5L L        0.371*            4      8   0.513*   26.3    C     13.6    340
  2T T        0.457            51    101   0.505    17.4    B     13.6    340
  2R R        0.286  0.457    544   1077   0.505    18.9    B     11.4    285
-----------------------------------------------------------------------------
South: Acceso Sur
  3L L        0.286*          181    492   0.368    21.3    C      3.6     90
  8T T        0.314            47    371   0.127     5.5    A      1.0     26
  8R R        0.314  0.457     34    269   0.127    14.4    B      1.0     26
-----------------------------------------------------------------------------
East: Acceso Este
  1L L        0.143            30    177   0.170    20.6    C      3.2     79
  6T T        0.457            85    501   0.169    11.6    B      3.2     79
  6R R        0.314  0.457     51    301   0.169    19.7    B      2.9     73
-----------------------------------------------------------------------------
North: Acceso Norte
  7L L        0.314             4     31   0.127    19.0    B      1.3     33
  4T T        0.314           136   1066   0.128     8.2    A      1.3     33
  4R R        0.314  0.429     13    102   0.128    15.2    B      1.0     26
-----------------------------------------------------------------------------
  ALL VEHICLES:               1180          0.513    16.8    B     13.6    340
-----------------------------------------------------------------------------
  INTERSECTION (persons):     1416                   16.8          13.6    340
-----------------------------------------------------------------------------
     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.
  *  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.16 - SCATS MF Parameter

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Lane No.	Stopline Flow (veh/h)	Capacity (veh/h)	SCATS Satn Flow	SCATS MF	Deg. Satn x	Lane Util. %
West: Acceso Oeste						
1 LTR	599	1185	1637	NA	0.505	100
South: Acceso Sur						
1 L	181	492	1805	1203	0.368	100
2 TR	81	640	1769	NA	0.127	34P
East: Acceso Este						
1 LTR	166	979	1786	NA	0.170	100
North: Acceso Norte						
1 LT	75	588	1895	1389	0.128	100
2 TR	78	611	1846	NA	0.128	100

NA Not Applicable - SCATS MF was not calculated for this lane due to one of the following reasons:
- the lane is not controlled by signals (slip or continuous lane)
- two movements share this lane and do not run in the same phases

P Lane under-utilisation found by the "Program". This includes cases where the value of lane under-utilisation due to downstream effects has been modified by the program during lane flow calculations (e.g. a de facto exclusive lane has been found).

STOPLINE FLOW: Departure flow rate in veh/h as measured at the stop line. This cannot exceed capacity.

SCATS SATURATION FLOW: This allows for lane width, approach grade and turning vehicles. Saturation flow scale applies if specified. The effects of heavy vehicles, parking manoeuvres, number of buses stopping and conflicting pedestrian volume are not included.

SCATS MF: This emulates the MF (Maximum Flow) parameter used in the SCATS control system. It is calculated from the SCATS SATURATION FLOW parameter.

DEG. SATN: The Demand (Arrival) Flow Rate may exceed the Stopline Flow Rate, therefore x > 1 is possible.

Table D.0 - Geometric Delay Data

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

From Approach	To Approach	Turn	Negn Radius (ft)	Negn Speed (mph)	Negn Dist. (ft)	Appr. Dist. (ft)	Downstream (ft)	Distance User Spec?
West: Acceso Oeste								
	South	Right	32.8	12.5	51.5	1600	387	No
	East	Thru	S	40.0	60.0	1600	403	No
	North	Left	30.6	12.2	48.1	1600	384	No

```
 South: Acceso Sur
              West   Left    30.6   12.2   48.1   1600     384         No
              East   Right   32.8   12.5   51.5   1600     387         No
             North   Thru       S   40.0   36.0   1600     403         No
-------------------------------------------------------------------------
 East: Acceso Este
              West   Thru       S   40.0   60.0   1600     403         No
             South   Left    30.6   12.2   48.1   1600     384         No
             North   Right   32.8   12.5   51.5   1600     387         No
-------------------------------------------------------------------------
 North: Acceso Norte
              West   Right   32.8   12.5   51.5   1600     387         No
             South   Thru       S   40.0   36.0   1600     403         No
              East   Left    30.6   12.2   48.1   1600     384         No
-------------------------------------------------------------------------

  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.
```

Table D.1 - Lane Delays

```
Intersecci n Avenida Ls Flores   Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

-----------------------------------------------------------------------
                    ----------  Delay (seconds/veh)  ----------------
         Deg.   Stop-line Delay  Acc.   Queuing   Stopd
 Lane    Satn   1st   2nd Total  Dec.  Total MvUp (Idle) Geom Control
 No.       x     d1    d2   dSL   dn    dq   dqm    di    dig   dic
-----------------------------------------------------------------------
 West: Acceso Oeste
 1 LTR  0.505  17.0   0.4  17.4   4.5   6.5   0.0   6.5   8.2   25.5
-----------------------------------------------------------------------
 South: Acceso Sur
 1 L    0.368  11.8   0.5  12.3   3.3   9.0   0.0   9.0   9.0   21.3
 2 TR   0.127   5.4   0.1   5.5   4.4   1.5   0.0   1.5   3.7    9.2
-----------------------------------------------------------------------
 East: Acceso Este
 1 LTR  0.170  11.6   0.1  11.6   5.4   6.1   0.0   6.1   4.4   16.0
-----------------------------------------------------------------------
 North: Acceso Norte
 1 LT   0.128   9.9   0.1  10.0   6.3   3.8   0.0   3.8   0.5   10.5
 2 TR   0.128   6.2   0.1   6.3   5.7   1.3   0.0   1.3   1.5    7.8
-----------------------------------------------------------------------
  dn is average stop-start delay for all vehicles queued and unqueued
```

Table D.2 - Lane Stops

```
Intersecci n Avenida Ls Flores   Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time =  35 (Sum of User-given Phase Times)

-------------------------------------------------------
                                              Queue
```

Lane No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hig	Overall h	Prop. Queued pq	Move-up Rate hqm
West: Acceso Oeste							
1 LTR	0.505	0.80	0.00	0.06	0.86	1.000	0.00
South: Acceso Sur							
1 L	0.368	0.66	0.00	0.12	0.79	0.819	0.00
2 TR	0.127	0.46	0.00	0.10	0.57	0.645	0.00
East: Acceso Este							
1 LTR	0.170	0.66	0.00	0.07	0.73	0.820	0.00
North: Acceso Norte							
1 LT	0.128	0.56	0.00	0.01	0.57	0.726	0.00
2 TR	0.128	0.50	0.00	0.03	0.53	0.703	0.00

hig is the average value for all movements in a shared lane
hqm is average queue move-up rate for all vehicles queued and unqueued

Table D.3A - Lane Queues (veh)

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nb1	Nb2	Nb	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
West: Acceso Oeste											
1 LTR	0.505	0.2	6.9	0.2	7.1	8.5	11.0	12.0	13.6	16.3	0.21
South: Acceso Sur											
1 L	0.368	0.1	1.6	0.1	1.8	2.1	2.8	3.1	3.6	4.5	0.06
2 TR	0.127	0.0	0.5	0.0	0.5	0.6	0.8	0.9	1.0	1.3	0.02
East: Acceso Este											
1 LTR	0.170	0.0	1.5	0.0	1.6	1.9	2.5	2.7	3.2	4.0	0.05
North: Acceso Norte											
1 LT	0.128	0.0	0.6	0.0	0.6	0.8	1.0	1.1	1.3	1.7	0.02
2 TR	0.128	0.0	0.5	0.0	0.5	0.6	0.8	0.9	1.0	1.3	0.02

Values printed in this table are back of queue (vehicles).

Table D.3B - Lane Queues (feet)

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (feet) Nb1	Nb2	Nb	Percentile (feet) 70%	85%	90%	95%	98%	Queue Stor. Ratio
West: Acceso Oeste											
1 LTR	0.505	6.1	172.6	6.1	178.6	211.4	274.4	300.1	340.0	406.7	0.21
South: Acceso Sur											
1 L	0.368	3.7	40.2	3.7	44.0	52.6	69.6	77.6	89.8	113.1	0.06
2 TR	0.127	1.1	11.3	1.1	12.4	14.8	19.7	22.1	25.8	32.9	0.02
East: Acceso Este											
1 LTR	0.170	1.1	37.7	1.1	38.8	46.4	61.4	68.6	79.5	100.3	0.05
North: Acceso Norte											
1 LT	0.128	1.0	14.6	1.0	15.7	18.8	24.9	28.0	32.5	41.5	0.02
2 TR	0.128	1.1	11.4	1.1	12.5	15.0	19.9	22.4	26.0	33.2	0.02

Values printed in this table are back of queue (feet).

Table D.4 - Movement Speeds (mph) and Geometric Delay

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	App. Speeds Cruise	Negn	Exit Speeds Negn	Cruise	Queue Move-up 1st Grn	2nd Grn	Av. Section Spd Running	Overall	Geom Delay (sec)
West: Acceso Oeste									
5L L	40.0	12.2	12.2	40.0			28.9	22.5	9.0
2T T	40.0	40.0	40.0	40.0			31.7	26.5	0.0
2R R	40.0	12.5	12.5	40.0			29.2	25.7	8.9
South: Acceso Sur									
3L L	40.0	12.2	12.2	40.0			29.4	24.6	9.0
8T T	40.0	40.0	40.0	40.0			34.3	33.8	0.0
8R R	40.0	12.5	12.5	40.0			29.8	28.0	8.9
East: Acceso Este									
1L L	40.0	12.2	12.2	40.0			29.4	24.9	9.0
6T T	40.0	40.0	40.0	40.0			33.0	29.8	0.0
6R R	40.0	12.5	12.5	40.0			29.5	25.3	8.9
North: Acceso Norte									
7L L	40.0	12.2	12.2	40.0			29.6	25.6	9.0
4T T	40.0	40.0	40.0	40.0			33.7	31.9	0.0
4R R	40.0	12.5	12.5	40.0			29.7	27.6	8.9

"Running Speed" is the average speed excluding stopped periods.

Table D.5 - Progression Factors and Actuated Signal Parameters

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Gap Settings es	Gap Settings eh	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
West: Acceso Oeste											
5L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
2T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
2R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
South: Acceso Sur											
3L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
8T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
8R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
East: Acceso Este											
1L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
6T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
6R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
North: Acceso Norte											
7L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
4T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
4R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50

Table D.6 - Gap Acceptance Parameters

Intersecci n Avenida Ls Flores Calle Hortensia
Futura (AM)
Intersection ID: 1
Actuated Isolated Signals, Cycle Time = 35 (Sum of User-given Phase Times)

Mov ID	Mov Type	Opng Flow (pcu/h)	Critical Gap Hdwy (s)	Critical Gap Dist (ft)	Foll-up Headway (s)	Entry HV Equiv
West: Acceso Oeste						
5L L	Normal	136	4.50	196.0	2.50	2.00
2R R	Normal	136	6.00	352.0	3.00	2.00
South: Acceso Sur						
3L L	Normal	149	4.50	248.2	2.50	2.00
8R R	Normal	51	6.00	352.0	3.00	2.00
East: Acceso Este						
1L L	Normal	595	4.50	98.2	2.50	2.00
6R R	Normal	47	6.00	352.0	3.00	2.00
North: Acceso Norte						
7L L	Normal	81	4.50	187.9	2.50	2.00
4R R	Normal	85	6.00	352.0	3.00	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.

Site: New Site - 1
C:\Documents and Settings\Alidys Alicea\My Documents\Tilysay's Documents\Estudios (Tilysay Hernandez)\Laguna Plaza\Laguna Plaza\Corridas SIDRA\Int. Existentes\Int. Ave. Las Flores & Calle Hortensia\Int. Ave. Las Flores & Calle Hortensia F (AM).aap
Processed Jan 23, 2008 10:25:58AM

A1460, PLC, Large Office
Produced by SIDRA Intersection 3.2.0.1455
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SIDRA INTERSECTION

Output Tables

Intersección Avenida Los Ángeles & Calle Norte

Futura (AM)

Run Information

```
Cycle Time =   55  (Sum of User-given Phase Times)

* 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 optimum cycle time specification
    Any green split priority specification
  For actuated signal timings, cycle increment is set to 1 second
  Driving on the right-hand side of the road
  Input data specified in US units
  Model Defaults: US HCM (US)
  Peak Flow Period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes.
  Delay definition: Control delay
                    Geometric delay included
  HCM Delay Model option selected
  HCM Queue Model option selected
  Level of Service based on: Delay (HCM method)
  Queue definition: Back of queue, 95th Percentile

* Iteration Data:
  No. of Main (Timing-Capacity) Iterations =  1
  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)
```

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)

```
Intersecci n Avenida Los  ngeles    Calle Norte
Futura  (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------------------------
 From      To          Mov           Flow Rate   Flow   Peak Flow
 Approach  Approach    ID    Turn     LV    HV   Scale    Factor
-----------------------------------------------------------------
 West: Acceso Oeste
          South        2R   Right     8     0    1.00     1.00
```

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```
          East         2T   Thru     21     0    1.00     1.00
          North        5L   Left    918     0    1.00     1.00
-----------------------------------------------------------------
 South: Acceso Sur
          East         8R   Right     4     0    1.00     1.00
          North        8T   Thru    140     0    1.00     1.00
-----------------------------------------------------------------
 North: Acceso Norte
          South        4T   Thru      4     0    1.00     1.00
          East         7L   Left      4     0    1.00     1.00
-----------------------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)

```
Intersecci n Avenida Los  ngeles    Calle Norte
Futura  (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------
  Mov          Left       Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
West: Acceso Oeste
   5L L     918     0      0     0      0     0
   2T T       0     0     21     0      0     0
   2R R       0     0      0     0      8     0
-----------------------------------------------
South: Acceso Sur
   8T T       0     0    140     0      0     0
   8R R       0     0      0     0      4     0
-----------------------------------------------
North: Acceso Norte
   7L L       4     0      0     0      0     0
   4T T       0     0      4     0      0     0
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2B - Flow Rates (Total Vehicles and Percent Heavy)

```
Intersecci n Avenida Los  ngeles    Calle Norte
Futura  (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

---------------------------------------------------
  Mov          Left         Through        Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
---------------------------------------------------
```

```
Demand flows in veh/hour as used by the program
West: Acceso Oeste
   5L L      918   0.0       0   0.0       0   0.0
   2T T        0   0.0      21   0.0       0   0.0
   2R R        0   0.0       0   0.0       8   0.0
-------------------------------------------------
South: Acceso Sur
   8T T        0   0.0     140   0.0       0   0.0
   8R R        0   0.0       0   0.0       4   0.0
-------------------------------------------------
North: Acceso Norte
   7L L        4   0.0       0   0.0       0   0.0
   4T T        0   0.0       4   0.0       0   0.0
-------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table S.1 - Movement Phase and Timing Parameters

```
Intersecci n Avenida Los  ngeles    Calle Norte
Futura  (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------------------
 Mov     Mov          P H A S E  M A T R I X          Lost Tim  Req.Mov.Time     Eff. Grn
 ID      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: Acceso Oeste
  5L L        2      1                                   4        24.0Max           26
  2T T        2      1                                   4        26.0              26
  2R R        1      2      Y     *2      1              4    4   10.0Min  31.6     21   26
-------------------------------------------------------------------------------------------
South: Acceso Sur
  8T T        1      2                                   4        10.0Min           21
  8R R       *1      2             2      1      Y       4    4   10.0Min  10.0Min  21   26
-------------------------------------------------------------------------------------------
North: Acceso Norte
  7L L        1      2      Y                            4        10.0Min           21
  4T T        1      2                                   4        10.0Min           21
-------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
-------------------------------------------------------------------------------------------
  *  Critical Movement/Green Period

Movement Types:                            Under heading 'Op':
  Slp  Slip Lane Movement                    Y   If opposed turn
  Ped  Pedestrian
  Dum  Dummy
```

Table S.2 - Movement Capacity Parameters

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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
West: Acceso Oeste											
5L L	918	0.0	3516		0.261		1662	0.90	63	100	0.552
2T T	21	0.0	80		0.262		38	0.90	62	100	0.555*
2R R	8	0.0	13	20	0.000	0.400	14	0.90	62	100	0.555*
South: Acceso Sur											
8T T	140	0.0	5547		0.025		2118	0.90	1262	100	0.066
8R R	4	0.0	131	22	0.031	0.000	60	0.90	1259	100	0.066
North: Acceso Norte											
7L L	4	0.0	1431		0.003		546	0.90	****	100	0.007
4T T	4	0.0	3800		0.001		1451	0.90	****	38	0.003

Table S.3 - Intersection Parameters

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
8R	S_R	1st	1	2	10	-	-	10.0Min
2R	W_R	2nd	2	1	4	0.351	0.502	31.6
				Total:	14	0.351	0.502	41.6

- 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
20	NA	29	55

(Phase times user specified, cycle time = sum of phase times)

NA Cmax does not apply at actuated signals

Intersection Level of Service	=	D
Worst movement Level of Service	=	E
Average intersection delay (s/pers)	=	40.0
Largest average movement delay (s)	=	60.1
Largest back of queue, 95% (ft)	=	627
Performance Index	=	49.61
Degree of saturation (highest)	=	0.555
Practical Spare Capacity (lowest)	=	62 %
Effective intersection capacity, (veh/h)	=	1979
Total vehicle flow (veh/h)	=	1099
Total person flow (pers/h)	=	1319

Total vehicle delay (veh-h/h)	=	12.21
Total person delay (pers-h/h)	=	14.66
Total effective vehicle stops (veh/h)	=	935
Total effective person stops (pers/h)	=	1122
Total vehicle travel (veh-mi/h)	=	415.3
Total cost ($/h)	=	328.67
Total fuel (gal/h)	=	24.3
Total CO2 (kg/h)	=	230.10

Table S.4 - Phase Information

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
1	0	4	4	21	25	4	25	45%
2	25	4	29	26	55	4	30	55%

(Phase times specified by the user)
Current Phase Sequence: Two-phase
Input phase sequence: 1 2
Output phase sequence: 1 2

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 95% (vehs)	Back (ft)	Perf. Index	Aver. Speed (mph)
West: Acceso Oeste									
5L L	11.33	13.59	44.4	0.87	0.91	25.1	627	44.11	17.3
2T T	0.35	0.42	60.1	1.00	1.00	25.1	627	1.29	14.5
2R R	0.05	0.06	21.6	0.75	0.77	11.1	278	0.25	24.4
South: Acceso Sur									
8T T	0.43	0.52	11.2	0.64	0.47	1.1	28	3.62	30.1
8R R	0.02	0.02	18.0	0.63	0.73	1.0	24	0.11	26.1
North: Acceso Norte									
7L L	0.02	0.03	20.4	0.62	0.66	0.1	2	0.12	25.0
4T T	0.01	0.02	11.4	0.62	0.39	0.0	1	0.10	30.0

Table S.6 - Intersection Performance

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 (ft)	Perf. Index	Aver. Speed (mph)
West: Acceso Oeste									
947	0.555	11.72	14.07	44.6	0.87	0.91	627	45.66	17.3
South: Acceso Sur									
144	0.066	0.45	0.54	11.3	0.64	0.48	28	3.73	29.9
North: Acceso Norte									
8	0.007	0.04	0.04	15.9	0.62	0.53	2	0.22	27.2
ALL VEHICLES:									
1099	0.555	12.21	14.66	40.0	0.84	0.85	627	49.61	18.4
INTERSECTION (persons):									
1319	0.555		14.66	40.0	0.84	0.85		49.61	18.4

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

Table S.7 - Lane Performance

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 95% Back (vehs)	(ft)	Lane Length (ft)
West: Acceso Oeste												
1 L	29	26	0	0	471	853	0.552	21.3	0.82	11.9	298.6	1600.0
2 LTR	29	26	0	0	476	861	0.552	68.4	1.00	25.1	627.0	1600.0
South: Acceso Sur												
1 T	34	21	0	0	48	725	0.066	12.1	0.49	1.1	27.8	1600.0
2 T	34	21	0	0	48	725	0.066	12.1	0.49	1.1	27.8	1600.0
3 TR	29	21	4	1	48	728	0.066	9.8	0.47	1.0	24.0	1600.0
North: Acceso Norte												
1 L	34	21	0	0	4	546	0.007	20.4	0.66	0.1	2.3	1600.0
2 T	34	21	0	0	2	725	0.003	11.4	0.39	0.0	1.1	1600.0
3 T	34	21	0	0	2	725	0.003	11.4	0.39	0.0	1.1	1600.0

Table S.8 - Lane Flow and Capacity Information

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)

Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (ft)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
West: Acceso Oeste												
1 L	471	0	0	471	12.0	1900	1805	0	0	853	0.552	100
2 LTR	447	21	8	476	12.0	1900	17	0	65	861	0.552	100
South: Acceso Sur												
1 T	0	48	0	48	12.0	1900	1900	0	0	725	0.066	100
2 T	0	48	0	48	12.0	1900	1900	0	0	725	0.066	100
3 TR	0	44	4	48	12.0	1900	1873	697	65	728	0.066	100
North: Acceso Norte												
1 L	4	0	0	4	12.0	1900	1431	0	131	546	0.007	100
2 T	0	2	0	2	12.0	1900	1900	0	0	725	0.003	38P
3 T	0	2	0	2	12.0	1900	1900	0	0	725	0.003	38P

P Lane under-utilisation found by the "Program". This includes cases where the value of lane under-utilisation due to downstream effects has been modified by the program during lane flow calculations (e.g. a de facto exclusive lane has been found).

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.9 - Signal Timing Diagram

```
Intersecci n Avenida Los  ngeles    Calle Norte
Futura  (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

           Phase 1                              Phase 2

0                              25                                      55
I-----------------------------I-------------------------------------I
.....GGGGGGGGGGGGGGGGGGGGGGGGG.......GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.
    4                                29


Effective (Movement) Green Times


 West: Acceso Oeste

Mov.    5L (L)
I                              I                                       I
GG.....................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                    31

Mov.    2T (T)
I                              I                                       I
GG.....................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                    31

Mov.    2R (R)
I                              I                                       I
GGG.....GGGGGGGGGGGGGGGGGGGGGGGGGGG.....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
```

```
  2    6                        27    31

 South: Acceso Sur

Mov.    8T (T)
I                              I                                    I
........GGGGGGGGGGGGGGGGGGGGGGGGG.....................................
       6                        27

Mov.    8R (R)
I                              I                                    I
GGG.....GGGGGGGGGGGGGGGGGGGGGGGGG.....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2    6                        27    31


 North: Acceso Norte

Mov.    7L (L)
I                              I                                    I
........GGGGGGGGGGGGGGGGGGGGGGGGG.....................................
       6                        27

Mov.    4T (T)
I                              I                                    I
........GGGGGGGGGGGGGGGGGGGGGGGGG.....................................
       6                        27


I-----I------I------I------I------I------I------I------I------I------I----->
0      6     11     17     22     28     33     39     44     50     55

                                T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
Intersecci n Avenida Los  ngeles    Calle Norte
Futura  (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov     Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%    Perf.
 ID      Typ  Flow   Cap.  Util  Satn  -------- Delay  Stop  Back of  Index
              (veh  (veh                1st  2nd        Rate   Queue
               /h)   /h)   (%)     x   Grn  Grn  (sec)         (veh)
-------------------------------------------------------------------------------
West: Acceso Oeste
  5L L         918  1662   100  0.552   26        44.4  0.91   25.1   44.11
  2T T          21    38   100  0.555*  26        60.1  1.00   25.1    1.29
  2R R           8    14   100  0.555*  21   26*  21.6  0.77   11.1    0.25
-------------------------------------------------------------------------------
South: Acceso Sur
  8T T         140  2118   100  0.066   21        11.2  0.47    1.1    3.62
  8R R           4    60   100  0.066   21*  26   18.0  0.73    1.0    0.11
-------------------------------------------------------------------------------
North: Acceso Norte
  7L L           4   546   100  0.007   21        20.4  0.66    0.1    0.12
  4T T           4  1451    38  0.003   21        11.4  0.39    0.0    0.10
-------------------------------------------------------------------------------
  *  Maximum degree of saturation, or critical green periods
```

Table S.12A - Fuel Consumption, Emissions and Cost (TOTAL)

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Fuel Total gal/h	Cost Total $/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h
West: Acceso Oeste						
5L L	21.0	288.05	0.368	15.51	0.451	198.5
2T T	0.5	7.64	0.009	0.36	0.011	4.9
2R R	0.2	1.95	0.003	0.13	0.004	1.6
	21.7	297.64	0.380	16.01	0.466	205.0
South: Acceso Sur						
8T T	2.4	28.33	0.039	1.65	0.054	22.9
8R R	0.1	0.93	0.001	0.07	0.002	0.8
	2.5	29.26	0.040	1.71	0.056	23.7
North: Acceso Norte						
7L L	0.1	0.96	0.001	0.06	0.002	0.8
4T T	0.1	0.81	0.001	0.05	0.002	0.7
	0.1	1.77	0.002	0.11	0.003	1.4
INTERSECTION:	24.3	328.67	0.422	17.83	0.525	230.1

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/US gal)	=	2.400
Fuel resource cost factor	=	0.70
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	19.00
Time value factor	=	0.40
Light vehicle mass (1000 lb)	=	3.1
Heavy vehicle mass (1000 lb)	=	24.0
Light vehicle idle fuel rate (US gal/h)	=	0.360
Heavy vehicle idle fuel rate (US gal/h)	=	0.530

Table S.12B - Fuel Consumption, Emissions and Cost (RATE)

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Fuel Eff. mpg	Cost Rate $/mi	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km
West: Acceso Oeste						
5L L	16.5	0.52	0.660	27.80	0.809	355.8
2T T	15.3	0.60	0.723	28.45	0.831	383.9
2R R	18.3	0.40	0.579	27.39	0.788	320.7
	16.5	0.52	0.660	27.81	0.809	356.1

South: Acceso Sur						
8T T	21.9	0.33	0.451	19.27	0.632	268.3
8R R	18.7	0.38	0.563	27.08	0.780	314.0
	21.8	0.33	0.454	19.49	0.636	269.5
North: Acceso Norte						
7L L	18.6	0.39	0.565	26.68	0.775	315.5
4T T	22.1	0.33	0.446	18.88	0.624	266.5
	20.2	0.36	0.506	22.77	0.699	290.9
INTERSECTION:	17.1	0.49	0.632	26.68	0.785	344.3

Table S.14 - Summary of Input and Output Data

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 (ft)	Shrt Lane (ft)
West: Acceso Oeste													
1 L	471			471	0	1899	26			0.552	21.3	299	1600
2 LTR	447	21	8	476	0	1900	26			0.552	21.1	278	1600
	918	21	8	947	0					0.552	45.0	627	
South: Acceso Sur													
1 T		48		48	0	1899	21			0.066	12.1	28	1600
2 T		48		48	0	1899	21			0.066	12.1	28	1600
3 TR		44	4	48	0	1899	21		1	0.066	9.8	24	1600
	0	140	4	144	0					0.066	11.3	28	
North: Acceso Norte													
1 L	4			4	0	1900	21			0.007	20.4	2	1600
2 T		2		2	0	1900	21			0.003	11.4	1	1600
3 T		2		2	0	1900	21			0.003	11.4	1	1600
	4	4	0	8	0					0.007	15.9	2	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	1099	0	55	0.555	40.0	627

Peak flow period = 15 minutes.

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

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

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Mov Typ	Green 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 Queue 95% Back (vehs)	(ft)
West: Acceso Oeste										
5L	L	0.473		918	1662	0.552	44.4	D	25.1	627
2T	T	0.473		21	38	0.555*	60.1	E	25.1	627
2R	R	0.382	0.473*	8	14	0.555*	21.6	C	11.1	278
South: Acceso Sur										
8T	T	0.382		140	2118	0.066	11.2	B	1.1	28
8R	R	0.382*	0.473	4	60	0.066	18.0	B	1.0	24
North: Acceso Norte										
7L	L	0.382		4	546	0.007	20.4	C	0.1	2
4T	T	0.382		4	1451	0.003	11.4	B	0.0	1
ALL VEHICLES:				1099		0.555	40.0	D	25.1	627
INTERSECTION (persons):				1319			40.0		25.1	627

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.
* 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.16 - SCATS MF Parameter

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Stopline Flow (veh/h)	Capacity (veh/h)	SCATS Satn Flow	SCATS MF	Deg. Satn x	Lane Util. %
West: Acceso Oeste						
1 L	471	853	1805	1564	0.552	100
2 LTR	476	861	1805	NA	0.552	100
South: Acceso Sur						
1 T	48	725	1900	1596	0.066	100
2 T	48	725	1900	1596	0.066	100
3 TR	48	728	1873	NA	0.066	100
North: Acceso Norte						
1 L	4	546	1805	1516	0.007	100
2 T	2	725	1900	1596	0.003	38P
3 T	2	725	1900	1596	0.003	38P

NA Not Applicable - SCATS MF was not calculated for this lane due to one of the following reasons:
- the lane is not controlled by signals (slip or continuous lane)
- two movements share this lane and do not run in the same phases

P Lane under-utilisation found by the "Program". This includes cases where the value of lane under-utilisation due to downstream effects has been modified by the program during lane flow calculations (e.g. a de facto exclusive lane has been found).

STOPLINE FLOW: Departure flow rate in veh/h as measured at the stop line. This cannot exceed capacity.

SCATS SATURATION FLOW: This allows for lane width, approach grade and turning vehicles. Saturation flow scale applies if specified. The effects of heavy vehicles, parking manoeuvres, number of buses stopping and conflicting pedestrian volume are not included.

SCATS MF: This emulates the MF (Maximum Flow) parameter used in the SCATS control system. It is calculated from the SCATS SATURATION FLOW parameter.

DEG. SATN: The Demand (Arrival) Flow Rate may exceed the Stopline Flow Rate, therefore x > 1 is possible.

Table D.0 - Geometric Delay Data

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

From Approach	To Approach	Turn	Negn Radius (ft)	Negn Speed (mph)	Negn Dist. (ft)	Appr. Dist. (ft)	Downstream Distance (ft)	User Spec?
West: Acceso Oeste								
	South	Right	32.8	12.5	51.5	1600	387	No
	East	Thru	S	40.0	91.0	1600	403	No
	North	Left	39.3	13.4	61.7	1600	394	No
South: Acceso Sur								
	East	Right	32.8	12.5	51.5	1600	387	No
	North	Thru	S	40.0	36.0	1600	403	No
North: Acceso Norte								
	South	Thru	S	40.0	36.0	1600	403	No
	East	Left	39.8	13.5	62.5	1600	394	No

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.

Table D.1 - Lane Delays

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A

Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
West: Acceso Oeste										
1 L	0.552	11.8	0.7	12.5	3.2	9.3	0.0	9.3	8.8	21.3
2 LTR	0.552	59.4	0.8	60.1	4.5	54.7	0.0	54.7	8.4	68.6
South: Acceso Sur										
1 T	0.066	12.1	0.0	12.1	5.7	6.4	0.0	6.4	0.0	12.1
2 T	0.066	12.1	0.0	12.1	5.7	6.4	0.0	6.4	0.0	12.1
3 TR	0.066	9.0	0.0	9.1	5.3	4.2	0.0	4.2	0.7	9.8
North: Acceso Norte										
1 L	0.007	11.7	0.0	11.7	2.7	9.0	0.0	9.0	8.8	20.4
2 T	0.003	11.4	0.0	11.4	5.5	5.9	0.0	5.9	0.0	11.4
3 T	0.003	11.4	0.0	11.4	5.5	5.9	0.0	5.9	0.0	11.4

dn is average stop-start delay for all vehicles queued and unqueued

Table D.2 - Lane Stops

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hig	Overall h	Prop. Queued pq	Queue Move-up Rate hqm
West: Acceso Oeste							
1 L	0.552	0.65	0.00	0.17	0.82	0.747	0.00
2 LTR	0.552	0.99	0.00	0.00	1.00	1.000	0.00
South: Acceso Sur							
1 T	0.066	0.49	0.00	0.00	0.49	0.643	0.00
2 T	0.066	0.49	0.00	0.00	0.49	0.643	0.00
3 TR	0.066	0.45	0.00	0.02	0.47	0.628	0.00
North: Acceso Norte							
1 L	0.007	0.41	0.00	0.25	0.66	0.623	0.00
2 T	0.003	0.39	0.00	0.00	0.39	0.621	0.00
3 T	0.003	0.39	0.00	0.00	0.39	0.621	0.00

hig is the average value for all movements in a shared lane
hqm is average queue move-up rate for all vehicles queued and unqueued

Table D.3A - Lane Queues (veh)

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)

Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nb1	Nb2	Nb	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
West: Acceso Oeste											
1 L	0.552	0.6	5.6	0.6	6.2	7.4	9.6	10.5	11.9	14.4	0.19
2 LTR	0.552	0.0	14.1	0.0	14.1	16.5	21.0	22.6	25.1	28.8	0.39
South: Acceso Sur											
1 T	0.066	0.0	0.5	0.0	0.5	0.6	0.9	1.0	1.1	1.4	0.02
2 T	0.066	0.0	0.5	0.0	0.5	0.6	0.9	1.0	1.1	1.4	0.02
3 TR	0.066	0.0	0.4	0.0	0.5	0.6	0.7	0.8	1.0	1.2	0.02
North: Acceso Norte											
1 L	0.007	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.00
2 T	0.003	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.00
3 T	0.003	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.00

Values printed in this table are back of queue (vehicles).

Table D.3B - Lane Queues (feet)

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (feet) Nb1	Nb2	Nb	Percentile (feet) 70%	85%	90%	95%	98%	Queue Stor. Ratio
West: Acceso Oeste											
1 L	0.552	14.2	140.9	14.2	155.1	183.9	239.5	262.7	298.6	359.9	0.19
2 LTR	0.552	0.9	352.7	0.9	353.5	413.7	525.8	564.7	627.0	720.1	0.39
South: Acceso Sur											
1 T	0.066	0.7	12.6	0.7	13.3	16.0	21.3	23.9	27.8	35.5	0.02
2 T	0.066	0.7	12.6	0.7	13.3	16.0	21.3	23.9	27.8	35.5	0.02
3 TR	0.066	0.8	10.8	0.8	11.5	13.8	18.4	20.6	24.0	30.7	0.02
North: Acceso Norte											
1 L	0.007	0.1	1.0	0.1	1.1	1.3	1.7	2.0	2.3	2.9	0.00
2 T	0.003	0.0	0.5	0.0	0.5	0.6	0.8	1.0	1.1	1.4	0.00
3 T	0.003	0.0	0.5	0.0	0.5	0.6	0.8	1.0	1.1	1.4	0.00

Values printed in this table are back of queue (feet).

Table D.4 - Movement Speeds (mph) and Geometric Delay

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A

Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	App. Speeds Cruise	App. Speeds Negn	Exit Speeds Negn	Exit Speeds Cruise	Queue Move-up 1st Grn	Queue Move-up 2nd Grn	Av. Section Spd Running	Av. Section Spd Overall	Geom Delay (sec)
West: Acceso Oeste									
5L L	40.0	13.4	13.4	40.0			29.2	17.3	8.8
2T T	40.0	40.0	40.0	40.0			31.7	14.5	0.0
2R R	40.0	12.5	12.5	40.0			29.5	24.4	8.9
South: Acceso Sur									
8T T	40.0	40.0	40.0	40.0			34.3	30.1	0.0
8R R	40.0	12.5	12.5	40.0			29.9	26.1	8.9
North: Acceso Norte									
7L L	40.0	13.5	13.5	40.0			29.9	25.0	8.8
4T T	40.0	40.0	40.0	40.0			34.4	30.0	0.0

"Running Speed" is the average speed excluding stopped periods.

Table D.5 - Progression Factors and Actuated Signal Parameters

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Gap Settings es	Gap Settings eh	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
West: Acceso Oeste											
5L L	VA	No	3	1.000	1.000	2.0	2.6	6	20		
2T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
2R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
South: Acceso Sur											
8T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
8R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
North: Acceso Norte											
7L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
4T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		

Table D.6 - Gap Acceptance Parameters

Intersecci n Avenida Los ngeles Calle Norte
Futura (AM)
Intersection ID: 2 A
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Critical Gap

Mov ID	Mov Type	Opng Flow (pcu/h)	Hdwy (s)	Dist (ft)	Foll-up Headway (s)	Entry HV Equiv
West: Acceso Oeste						
2R R	Normal	4	6.00	352.0	3.00	2.00
South: Acceso Sur						
8R R	Normal	21	6.00	352.0	3.00	2.00
North: Acceso Norte						
7L L	Normal	140	4.50	264.0	2.50	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.

SIDRA SOLUTIONS

Site: New Site - 1
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Processed Jan 23, 2008 10:59:31AM

A1460, PLC, Large Office
Produced by SIDRA Intersection 3.2.0.1455
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SIDRA INTERSECTION

Output Tables

Intersección Avenida Los Ángeles & Calle W

Futura (AM)

Run Information

```
Cycle Time =   55  (Sum of User-given Phase Times)

* 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 optimum cycle time specification
    Any green split priority specification
  For actuated signal timings, cycle increment is set to 1 second
  Driving on the right-hand side of the road
  Input data specified in US units
  Model Defaults: US HCM (US)
  Peak Flow Period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes.
  Delay definition: Control delay
                    Geometric delay included
  HCM Delay Model option selected
  HCM Queue Model option selected
  Level of Service based on: Delay (HCM method)
  Queue definition: Back of queue, 95th Percentile

* Iteration Data:
  No. of Main (Timing-Capacity) Iterations =  1
  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)
```

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------------------------
 From      To          Mov           Flow Rate   Flow   Peak Flow
 Approach  Approach    ID    Turn     LV    HV   Scale    Factor
-----------------------------------------------------------------
 South: Acceso Sur
          West         3L   Left      8     0    1.00     1.00
```

FIGURA 40

```
          North        8T   Thru    357     0    1.00     1.00
-----------------------------------------------------------------
 East: Acceso Este
          West         6T   Thru    136     0    1.00     1.00
          South        1L   Left      8     0    1.00     1.00
          North        6R   Right   887     0    1.00     1.00
-----------------------------------------------------------------
 North: Acceso Norte
          West         4R   Right   249     0    1.00     1.00
          South        4T   Thru      4     0    1.00     1.00
-----------------------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-----------------------------------------------
  Mov          Left       Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
South: Acceso Sur
   3L L       8     0      0     0      0     0
   8T T       0     0    357     0      0     0
-----------------------------------------------
East: Acceso Este
   1L L       8     0      0     0      0     0
   6T T       0     0    136     0      0     0
   6R R       0     0      0     0    887     0
-----------------------------------------------
North: Acceso Norte
   4T T       0     0      4     0      0     0
   4R R       0     0      0     0    249     0
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2B - Flow Rates (Total Vehicles and Percent Heavy)

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

--------------------------------------------------
  Mov          Left         Through         Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
--------------------------------------------------
```

```
Demand flows in veh/hour as used by the program
South: Acceso Sur
   3L L        8   0.0       0   0.0       0   0.0
   8T T        0   0.0     357   0.0       0   0.0
-----------------------------------------------
East: Acceso Este
   1L L        8   0.0       0   0.0       0   0.0
   6T T        0   0.0     136   0.0       0   0.0
   6R R        0   0.0       0   0.0     887   0.0
-----------------------------------------------
North: Acceso Norte
   4T T        0   0.0       4   0.0       0   0.0
   4R R        0   0.0       0   0.0     249   0.0
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table S.1 - Movement Phase and Timing Parameters

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------------------
 Mov     Mov          P H A S E  M A T R I X          Lost Tim  Req.Mov.Time     Eff. Grn
 ID      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
-------------------------------------------------------------------------------------------
South: Acceso Sur
  3L L        1      2      Y                            4        12.9             21
  8T T        1      2                                   4        12.9             21
-------------------------------------------------------------------------------------------
East: Acceso Este
  1L L        2      1                                   4        14.5             26
  6T T        2      1                                   4        14.5             26
  6R R        1      2      Y     *2      1              6    4   12.9     35.0    19   26
-------------------------------------------------------------------------------------------
North: Acceso Norte
  4T T        1      2                                   4        10.0Min          21
  4R R       *1      2             2      1      Y       4    6   12.9     20.6    21   24
-------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
-------------------------------------------------------------------------------------------
  *  Critical Movement/Green Period

Movement Types:                          Under heading 'Op':
  Slp  Slip Lane Movement                  Y   If opposed turn
  Ped  Pedestrian
  Dum  Dummy
```

Table S.2 - Movement Capacity Parameters

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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: Acceso Sur											
3L L	8	0.0	123		0.065		47	0.90	428	100	0.170
8T T	357	0.0	5509		0.065		2103	0.90	430	100	0.170
East: Acceso Este											
1L L	8	0.0	105		0.076		50	0.90	458	20	0.161
6T T	136	0.0	1789		0.076		846	0.90	460	20	0.161
6R R	887	0.0	960	1615	0.108	0.485	1095	0.90	11	100	0.810*
North: Acceso Norte											
4T T	4	0.0	5700		0.001		2176	0.90	****	100	0.002
4R R	249	0.0	1615	1054	0.075	0.122	1077	0.90	289	100	0.231

Table S.3 - Intersection Parameters

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
4R	N_R	1st	1	2	4	0.075	0.163	12.9
6R	E_R	2nd	2	1	4	0.485	0.564	35.0
				Total:	8	0.559	0.727	48.0

Cycle Time:

Minimum	Maximum	Practical	Chosen
20	NA	30	55

(Phase times user specified, cycle time = sum of phase times)

NA Cmax does not apply at actuated signals

Intersection Level of Service	=	B
Worst movement Level of Service	=	C
Average intersection delay (s/pers)	=	14.8
Largest average movement delay (s)	=	21.6
Largest back of queue, 95% (ft)	=	435
Performance Index	=	45.20
Degree of saturation (highest)	=	0.810
Practical Spare Capacity (lowest)	=	11 %
Effective intersection capacity, (veh/h)	=	2036
Total vehicle flow (veh/h)	=	1649
Total person flow (pers/h)	=	1979
Total vehicle delay (veh-h/h)	=	6.76
Total person delay (pers-h/h)	=	8.11
Total effective vehicle stops (veh/h)	=	1251

```
Total effective person stops (pers/h)     =      1502
Total vehicle travel (veh-mi/h)           =     622.0
Total cost ($/h)                          =    363.33
Total fuel (gal/h)                        =      31.7
Total CO2 (kg/h)                          =    299.73
```

Table S.4 - Phase Information

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)
```

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
1	0	4	4	21	25	4	25	45%
2	25	4	29	26	55	4	30	55%

```
            (Phase times specified by the user)
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
```

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 95% (vehs)	Back (ft)	Perf. Index	Aver. Speed (mph)
South: Acceso Sur									
3L L	0.05	0.06	21.6	0.68	0.76	2.9	72	0.25	24.4
8T T	1.27	1.53	12.8	0.68	0.54	3.0	74	9.92	29.1
East: Acceso Este									
1L L	0.04	0.05	18.2	0.58	0.75	3.0	75	0.23	26.1
6T T	0.35	0.43	9.4	0.58	0.48	3.0	75	3.38	31.4
6R R	4.36	5.23	17.7	0.77	0.90	17.4	435	26.52	26.3
North: Acceso Norte									
4T T	0.01	0.02	11.4	0.62	0.38	0.0	1	0.10	30.0
4R R	0.67	0.81	9.7	0.24	0.73	1.6	40	4.79	31.0

Table S.6 - Intersection Performance

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
Intersection ID: 2 B
```

Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 (ft)	Perf. Index	Aver. Speed (mph)
South: Acceso Sur									
365	0.170	1.32	1.58	13.0	0.68	0.55	74	10.17	29.0
East: Acceso Este									
1031	0.810	4.75	5.70	16.6	0.74	0.84	435	30.13	26.9
North: Acceso Norte									
253	0.231	0.69	0.82	9.8	0.24	0.72	40	4.90	30.9
ALL VEHICLES:									
1649	0.810	6.76	8.11	14.8	0.65	0.76	435	45.20	27.9
INTERSECTION (persons):									
1979	0.810		8.11	14.8	0.65	0.76		45.20	27.9

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

Table S.7 - Lane Performance

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

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 95% Back (vehs)	(ft)	Lane Length (ft)
South: Acceso Sur												
1 LT	34	21	0	0	119	700	0.170	13.4	0.56	2.9	71.7	1600.0
2 T	34	21	0	0	123	725	0.170	12.8	0.54	3.0	74.1	1600.0
3 T	34	21	0	0	123	725	0.170	12.8	0.54	3.0	74.1	1600.0
East: Acceso Este												
1 LT	29	26	0	0	144	896	0.161	9.9	0.49	3.0	74.6	1600.0
2 R	6	19	4	26	887	1095	0.810	17.7	0.90	17.4	435.4	1600.0
North: Acceso Norte												
1 T	34	21	0	0	1	725	0.002	11.4	0.38	0.0	0.7	1600.0
2 T	34	21	0	0	1	725	0.002	11.4	0.38	0.0	0.7	1600.0
3 T	34	21	0	0	1	725	0.002	11.4	0.38	0.0	0.7	1600.0
4 R	4	21	6	24	249	1076	0.231	9.7	0.73	1.6	40.2	1600.0

Table S.8 - Lane Flow and Capacity Information

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (ft)	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: Acceso Sur												
1 LT	8	111	0	119	12.0	1900	1832	0	70	700	0.170	100
2 T	0	123	0	123	12.0	1900	1900	0	0	725	0.170	100
3 T	0	123	0	123	12.0	1900	1900	0	0	725	0.170	100
East: Acceso Este												
1 LT	8	136	0	144	12.0	1900	1894	0	0	896	0.161	20P
2 R	0	0	887	887	12.0	1900	960	1615	65	1095	0.810	100
North: Acceso Norte												
1 T	0	1	0	1	12.0	1900	1900	0	0	725	0.002	100
2 T	0	1	0	1	12.0	1900	1900	0	0	725	0.002	100
3 T	0	1	0	1	12.0	1900	1900	0	0	725	0.002	100
4 R	0	0	249	249	12.0	1900	1615	1054	65	1076	0.231	100

P Lane under-utilisation found by the "Program". This includes cases where the value of lane under-utilisation due to downstream effects has been modified by the program during lane flow calculations (e.g. a de facto exclusive lane has been found).

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.9 - Signal Timing Diagram

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

           Phase 1                              Phase 2

0                              25                                      55
I------------------------------I--------------------------------------I
.....GGGGGGGGGGGGGGGGGGGGGGGGG.......GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.
    4                              29


Effective (Movement) Green Times


 South: Acceso Sur

Mov.    3L (L)
I                              I                                       I
........GGGGGGGGGGGGGGGGGGGGGGGGG....................................
       6                          27

Mov.    8T (T)
I                              I                                       I
........GGGGGGGGGGGGGGGGGGGGGGGGG....................................
       6                          27


 East: Acceso Este

Mov.    1L (L)
```

```
I                               I                                     I
GG.....................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                   31

Mov.    6T (T)
I                               I                                     I
GG.....................................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                   31

Mov.    6R (R)
I                               I                                     I
GGG.......GGGGGGGGGGGGGGGGGGGGGGG.....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2      8                       27    31


 North: Acceso Norte

Mov.    4T (T)
I                               I                                     I
........GGGGGGGGGGGGGGGGGGGGGGGGG.....................................
       6                         27

Mov.    4R (R)
I                               I                                     I
GGG.....GGGGGGGGGGGGGGGGGGGGGGGGG........GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2    6                         27       33


I-----I------I------I------I------I------I------I------I------I------I---->
0      6     11     17     22     28     33     39     44     50     55

                                T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

--------------------------------------------------------------------------
 Mov     Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%    Perf.
 ID      Typ  Flow   Cap.  Util  Satn  --------  Delay  Stop  Back of  Index
              (veh  (veh                1st  2nd         Rate   Queue
               /h)   /h)   (%)     x    Grn  Grn  (sec)         (veh)
--------------------------------------------------------------------------
South: Acceso Sur
  3L L           8    47   100  0.170   21        21.6  0.76    2.9    0.25
  8T T         357  2103   100  0.170   21        12.8  0.54    3.0    9.92
--------------------------------------------------------------------------
East: Acceso Este
  1L L           8    50    20  0.161   26        18.2  0.75    3.0    0.23
  6T T         136   846    20  0.161   26         9.4  0.48    3.0    3.38
  6R R         887  1095   100  0.810*  19   26*  17.7  0.90   17.4   26.52
--------------------------------------------------------------------------
North: Acceso Norte
  4T T           4  2176   100  0.002   21        11.4  0.38    0.0    0.10
  4R R         249  1077   100  0.231   21*  24    9.7  0.73    1.6    4.79
--------------------------------------------------------------------------
  *  Maximum degree of saturation, or critical green periods
```

Table S.12A - Fuel Consumption, Emissions and Cost (TOTAL)

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Fuel Total gal/h	Cost Total $/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h
South: Acceso Sur						
3L L	0.2	1.95	0.003	0.13	0.004	1.5
8T T	6.3	74.39	0.102	4.39	0.141	59.9
	6.5	76.34	0.104	4.52	0.145	61.4
East: Acceso Este						
1L L	0.2	1.86	0.003	0.13	0.004	1.5
6T T	2.3	26.47	0.036	1.50	0.050	21.5
6R R	17.9	206.37	0.305	14.82	0.424	169.7
	20.4	234.70	0.343	16.44	0.478	192.8
North: Acceso Norte						
4T T	0.1	0.81	0.001	0.05	0.002	0.7
4R R	4.7	51.47	0.079	3.94	0.114	44.8
	4.8	52.28	0.080	3.99	0.116	45.5
INTERSECTION:	31.7	363.33	0.528	24.95	0.739	299.7

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/US gal)	=	2.400
Fuel resource cost factor	=	0.70
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	19.00
Time value factor	=	0.40
Light vehicle mass (1000 lb)	=	3.1
Heavy vehicle mass (1000 lb)	=	24.0
Light vehicle idle fuel rate (US gal/h)	=	0.360
Heavy vehicle idle fuel rate (US gal/h)	=	0.530

Table S.12B - Fuel Consumption, Emissions and Cost (RATE)

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Fuel Eff. mpg	Cost Rate $/mi	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km
South: Acceso Sur						
3L L	18.5	0.40	0.571	26.83	0.778	317.9
8T T	21.4	0.34	0.466	20.14	0.649	274.8
	21.3	0.34	0.468	20.29	0.652	275.7

```
East: Acceso Este
   1L L          18.9     0.38   0.556   26.58   0.772   311.6
   6T T          22.7     0.32   0.430   18.03   0.607   259.4
   6R R          18.6     0.38   0.568   27.58   0.790   316.0
                ---------------------------------------------
                 19.1     0.38   0.549   26.31   0.765   308.5
-----------------------------------------------------------------
North: Acceso Norte
   4T T          22.1     0.33   0.446   18.86   0.624   266.4
   4R R          19.8     0.34   0.524   26.16   0.757   297.4
                ---------------------------------------------
                 19.8     0.34   0.523   26.04   0.755   296.9
-----------------------------------------------------------------
 INTERSECTION:   19.6     0.36   0.527   24.93   0.739   299.4
-----------------------------------------------------------------
```

Table S.14 - Summary of Input and Output Data

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------------------------------
 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)   (ft)  (ft)
-------------------------------------------------------------------------
 South: Acceso Sur
1 LT      8  111        119    0  1900   21      0.170   13.4    72  1600
2 T         123        123    0  1900   21      0.170   12.8    74  1600
3 T         123        123    0  1900   21      0.170   12.8    74  1600
         ----------------------------------------------------------------
          8  357    0   365    0                 0.170   13.0    74
-------------------------------------------------------------------------
 East: Acceso Este
1 LT      8  136        144    0  1900   26      0.161    9.9    75  1600
2 R              887   887    0  1900   19  26  0.810   17.7   435  1600
         ----------------------------------------------------------------
          8  136  887  1031    0                 0.810   16.6   435
-------------------------------------------------------------------------
 North: Acceso Norte
1 T            1          1    0  1899   21      0.002   11.4     1  1600
2 T            1          1    0  1899   21      0.002   11.4     1  1600
3 T            1          1    0  1899   21      0.002   11.4     1  1600
4 R              249   249    0  1899   21  24  0.231    9.7    40  1600
         ----------------------------------------------------------------
          0    4  249   253    0                 0.231    9.8    40
=========================================================================
 ALL VEHICLES           Total   %       Cycle      Max   Aver.   Max
                        Flow   HV       Time        X    Delay  Queue
                        1649    0         55      0.810   14.8   435
=========================================================================
Peak flow period = 15 minutes.

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

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

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	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	Longest Queue 95% Back (vehs)	(ft)
South: Acceso Sur										
3L	L	0.382		8	47	0.170	21.6	C	2.9	72
8T	T	0.382		357	2103	0.170	12.8	B	3.0	74
East: Acceso Este										
1L	L	0.473		8	50	0.161	18.2	B	3.0	75
6T	T	0.473		136	846	0.161	9.4	A	3.0	75
6R	R	0.345	0.473*	887	1095	0.810*	17.7	B	17.4	435
North: Acceso Norte										
4T	T	0.382		4	2176	0.002	11.4	B	0.0	1
4R	R	0.382*	0.436	249	1077	0.231	9.7	A	1.6	40
ALL VEHICLES:				1649		0.810	14.8	B	17.4	435
INTERSECTION (persons):				1979			14.8		17.4	435

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.
* 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.16 - SCATS MF Parameter

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Stopline Flow (veh/h)	Capacity (veh/h)	SCATS Satn Flow	SCATS MF	Deg. Satn x	Lane Util. %
South: Acceso Sur						
1 LT	119	700	1893	1590	0.170	100
2 T	123	725	1900	1596	0.170	100
3 T	123	725	1900	1596	0.170	100
East: Acceso Este						
1 LT	144	896	1894	1642	0.161	20P
2 R	887	1095	1615	NA	0.810	100
North: Acceso Norte						
1 T	1	725	1900	1596	0.002	100
2 T	1	725	1900	1596	0.002	100
3 T	1	725	1900	1596	0.002	100
4 R	249	1076	1615	1357	0.231	100

```
-------------------------------------------------------
  NA Not Applicable - SCATS MF was not calculated for this lane due to one
     of the following reasons:
      - the lane is not controlled by signals (slip or continuous lane)
      - two movements share this lane and do not run in the same phases
  P  Lane under-utilisation found by the "Program".  This includes cases where
     the value of lane under-utilisation due to downstream effects has been
     modified by the program during lane flow calculations (e.g. a de facto
     exclusive lane has been found).

  STOPLINE FLOW: Departure flow rate in veh/h as measured at the stop line.
  This cannot exceed capacity.

  SCATS SATURATION FLOW: This allows for lane width, approach grade and
  turning vehicles.  Saturation flow scale applies if specified.
  The effects of heavy vehicles, parking manoeuvres, number of buses
  stopping and conflicting pedestrian volume are not included.

  SCATS MF: This emulates the MF (Maximum Flow) parameter used in the SCATS
  control system. It is calculated from the SCATS SATURATION FLOW parameter.

  DEG. SATN: The Demand (Arrival) Flow Rate may exceed the Stopline Flow
  Rate, therefore x > 1 is possible.
```

Table D.0 - Geometric Delay Data

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time =  55 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
                                Negn  Negn   Negn   Appr.   Downstream  Distance
 From      To                  Radius Speed  Dist.  Dist.   ---------------------
 Approach  Approach  Turn       (ft)  (mph)  (ft)   (ft)      (ft)      User Spec?
-------------------------------------------------------------------------------
 South: Acceso Sur
             West    Left     39.8   13.5   62.5   1600      394          No
            North    Thru        S   40.0   36.0   1600      403          No
-------------------------------------------------------------------------------
 East: Acceso Este
             West    Thru        S   40.0  103.0   1600      403          No
            South    Left     39.3   13.4   61.7   1600      394          No
            North    Right    32.8   12.5   51.5   1600      387          No
-------------------------------------------------------------------------------
 North: Acceso Norte
             West    Right    32.8   12.5   51.5   1600      387          No
            South    Thru        S   40.0   36.0   1600      403          No
-------------------------------------------------------------------------------

  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.
```

Table D.1 - Lane Delays

```
Intersecci n Avenida Los  ngeles    Calle W
Futura (AM)
```

Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
South: Acceso Sur										
1 LT	0.170	12.7	0.1	12.8	5.8	7.0	0.0	7.0	0.6	13.4
2 T	0.170	12.7	0.1	12.8	6.0	6.8	0.0	6.8	0.0	12.8
3 T	0.170	12.7	0.1	12.8	6.0	6.8	0.0	6.8	0.0	12.8
East: Acceso Este										
1 LT	0.161	9.3	0.1	9.4	5.0	4.3	0.0	4.3	0.5	9.9
2 R	0.810	4.1	4.7	8.8	3.1	5.6	0.6	5.0	8.9	17.7
North: Acceso Norte										
1 T	0.002	11.4	0.0	11.4	5.5	5.9	0.0	5.9	0.0	11.4
2 T	0.002	11.4	0.0	11.4	5.5	5.9	0.0	5.9	0.0	11.4
3 T	0.002	11.4	0.0	11.4	5.5	5.9	0.0	5.9	0.0	11.4
4 R	0.231	0.7	0.1	0.8	1.0	0.0	0.0	0.0	8.9	9.7

dn is average stop-start delay for all vehicles queued and unqueued

Table D.2 - Lane Stops

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hig	Overall h	Prop. Queued pq	Queue Move-up Rate hqm
South: Acceso Sur							
1 LT	0.170	0.54	0.00	0.01	0.56	0.676	0.00
2 T	0.170	0.54	0.00	0.00	0.54	0.676	0.00
3 T	0.170	0.54	0.00	0.00	0.54	0.676	0.00
East: Acceso Este							
1 LT	0.161	0.48	0.00	0.02	0.49	0.585	0.00
2 R	0.810	0.70	0.04	0.16	0.90	0.767	0.08
North: Acceso Norte							
1 T	0.002	0.38	0.00	0.00	0.38	0.620	0.00
2 T	0.002	0.38	0.00	0.00	0.38	0.620	0.00
3 T	0.002	0.38	0.00	0.00	0.38	0.620	0.00
4 R	0.231	0.20	0.00	0.52	0.73	0.238	0.00

hig is the average value for all movements in a shared lane
hqm is average queue move-up rate for all vehicles queued and unqueued

Table D.3A - Lane Queues (veh)

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nb1	Nb2	Nb	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
South: Acceso Sur											
1 LT	0.170	0.1	1.3	0.1	1.4	1.7	2.2	2.5	2.9	3.6	0.04
2 T	0.170	0.1	1.4	0.1	1.4	1.7	2.3	2.6	3.0	3.7	0.05
3 T	0.170	0.1	1.4	0.1	1.4	1.7	2.3	2.6	3.0	3.7	0.05
East: Acceso Este											
1 LT	0.161	0.1	1.4	0.1	1.5	1.7	2.3	2.6	3.0	3.8	0.05
2 R	0.810	2.1	7.2	2.1	9.4	11.1	14.3	15.5	17.4	20.5	0.27
North: Acceso Norte											
1 T	0.002	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
2 T	0.002	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
3 T	0.002	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
4 R	0.231	0.2	0.6	0.2	0.8	0.9	1.2	1.4	1.6	2.0	0.03

Values printed in this table are back of queue (vehicles).

Table D.3B - Lane Queues (feet)

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (feet) Nb1	Nb2	Nb	Percentile (feet) 70%	85%	90%	95%	98%	Queue Stor. Ratio
South: Acceso Sur											
1 LT	0.170	2.1	32.8	2.1	34.9	41.7	55.3	61.8	71.7	90.6	0.04
2 T	0.170	2.2	33.9	2.2	36.1	43.2	57.2	64.0	74.1	93.7	0.05
3 T	0.170	2.2	33.9	2.2	36.1	43.2	57.2	64.0	74.1	93.7	0.05
East: Acceso Este											
1 LT	0.161	2.3	34.0	2.3	36.3	43.4	57.6	64.3	74.6	94.2	0.05
2 R	0.810	53.4	181.1	53.4	234.6	276.6	356.4	387.1	435.4	512.7	0.27
North: Acceso Norte											
1 T	0.002	0.0	0.3	0.0	0.4	0.4	0.6	0.6	0.7	1.0	0.00
2 T	0.002	0.0	0.3	0.0	0.4	0.4	0.6	0.6	0.7	1.0	0.00
3 T	0.002	0.0	0.3	0.0	0.4	0.4	0.6	0.6	0.7	1.0	0.00
4 R	0.231	4.0	15.4	4.0	19.4	23.2	30.9	34.6	40.2	51.2	0.03

Values printed in this table are back of queue (feet).

Table D.4 - Movement Speeds (mph) and Geometric Delay

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	App. Speeds Cruise	App. Speeds Negn	Exit Speeds Negn	Exit Speeds Cruise	Queue Move-up 1st Grn	Queue Move-up 2nd Grn	Av. Section Spd Running	Av. Section Spd Overall	Geom Delay (sec)
South: Acceso Sur									
3L L	40.0	13.5	13.5	40.0			29.8	24.4	8.8
8T T	40.0	40.0	40.0	40.0			34.0	29.1	0.0
East: Acceso Este									
1L L	40.0	13.4	13.4	40.0			30.0	26.1	8.8
6T T	40.0	40.0	40.0	40.0	24.6		34.7	31.4	0.0
6R R	40.0	12.5	12.5	40.0	15.0		29.1	26.3	8.9
North: Acceso Norte									
4T T	40.0	40.0	40.0	40.0			34.4	30.0	0.0
4R R	40.0	12.5	12.5	40.0			31.0	31.0	8.9

"Running Speed" is the average speed excluding stopped periods.

Table D.5 - Progression Factors and Actuated Signal Parameters

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Gap Settings es	Gap Settings eh	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
South: Acceso Sur											
3L L	VA	No	3	1.000	1.000	2.5	3.1	6	50		
8T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
East: Acceso Este											
1L L	VA	No	3	1.000	1.000	2.0	2.6	6	20		
6T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
6R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
North: Acceso Norte											
4T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
4R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50

Table D.6 - Gap Acceptance Parameters

Intersecci n Avenida Los ngeles Calle W
Futura (AM)
Intersection ID: 2 B
Actuated Isolated Signals, Cycle Time = 55 (Sum of User-given Phase Times)

Mov ID	Mov Type	Opng Flow (pcu/h)	Critical Gap Hdwy (s)	Critical Gap Dist (ft)	Foll-up Headway (s)	Entry HV Equiv
South: Acceso Sur						
3L L	Normal	253	4.50	148.0	2.50	2.00
East: Acceso Este						
1L L	Normal	0	4.50	260.2	2.50	2.00
6R R	Normal	357	6.00	352.0	3.00	2.00
North: Acceso Norte						
4R R	Normal	136	6.00	352.0	3.00	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.

Site: New Site - 1
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Processed Jan 23, 2008 10:50:22AM

A1460, PLC, Large Office
Produced by SIDRA Intersection 3.2.0.1455
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SIDRA INTERSECTION

Output Tables

Interseccion Avenida Los Ángeles y PR-26

Futura (AM)

Run Information

```
Cycle Time =   50  (Sum of User-given Phase Times)

* 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 optimum cycle time specification
    Any green split priority specification
  For actuated signal timings, cycle increment is set to 1 second
  Driving on the right-hand side of the road
  Input data specified in US units
  Model Defaults: US HCM (US)
  Peak Flow Period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes.
  Delay definition: Control delay
                    Geometric delay included
  HCM Delay Model option selected
  HCM Queue Model option selected
  Level of Service based on: Delay (HCM method)
  Queue definition: Back of queue, 95th Percentile

* Iteration Data:
  No. of Main (Timing-Capacity) Iterations =  1
  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)
```

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)

```
Interseccion Avenida Los  ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

----------------------------------------------------------------
 From      To          Mov           Flow Rate   Flow   Peak Flow
 Approach  Approach    ID    Turn     LV    HV   Scale    Factor
----------------------------------------------------------------
 SouthEast: Acceso Sureste
           NorthWest   16T   Thru   1493     0    1.00     1.00
```

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```
-----------------------------------------------------------------
 NorthEast: Acceso Noreste
           SouthWest   14T   Thru    196     0    1.00     1.00
-----------------------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)

```
Interseccion Avenida Los  ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-----------------------------------------------
  Mov          Left       Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
SouthEast: Acceso Sureste
  16T T       0     0   1493     0      0     0
-----------------------------------------------
NorthEast: Acceso Noreste
  14T T       0     0    196     0      0     0
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table B.2B - Flow Rates (Total Vehicles and Percent Heavy)

```
Interseccion Avenida Los  ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------
  Mov          Left        Through        Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
-------------------------------------------------
Demand flows in veh/hour as used by the program
SouthEast: Acceso Sureste
  16T T        0   0.0    1493   0.0       0   0.0
-------------------------------------------------
NorthEast: Acceso Noreste
  14T T        0   0.0     196   0.0       0   0.0
-------------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor
```

Table S.1 - Movement Phase and Timing Parameters

```
Interseccion Avenida Los  ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-----------------------------------------------------------------------------------------
 Mov     Mov           P H A S E  M A T R I X          Lost Tim  Req.Mov.Time     Eff. Grn
 ID      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
-----------------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T       *1      2                                    4        28.5              21
-----------------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T       *2      1                                    4        10.4              21
-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
  Current Phase Sequence: Two-phase
  Input phase sequence: 1 2
  Output phase sequence: 1 2
-----------------------------------------------------------------------------------------
  *  Critical Movement/Green Period

Movement Types:                              Under heading 'Op':
  Slp  Slip Lane Movement                      Y   If opposed turn
  Ped  Pedestrian
  Dum  Dummy
```

Table S.2 - Movement Capacity Parameters

```
Interseccion Avenida Los  ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov      Dem          Satn Flow   Flow Ratio  Total Prac. Prac. Lane   Deg.
 ID       Flow        -----------  ---------   Cap. Deg.  Spare Util   Satn
          (veh    HV   1st   2nd    1st   2nd  (veh  Satn  Cap.
           /h)    (%)  Grn   Grn    Grn   Grn   /h)   xp    (%)   (%)     x
-------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T    1493    0.0  3800        0.393        1596  0.90    -4   100  0.935*
-------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T     196    0.0  3800        0.052        1596  0.90   633   100  0.123
-------------------------------------------------------------------------------
```

Table S.3 - Intersection Parameters

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
16T	SE_T		1	2	4	0.393	0.490	28.5
14T	NE_T		2	1	4	0.052	0.129	10.4
				Total:	8	0.444	0.619	39.0

Cycle Time:

Minimum	Maximum	Practical	Chosen
20	NA	22	50

(Phase times user specified, cycle time = sum of phase times)

NA Cmax does not apply at actuated signals

Intersection Level of Service	=	C
Worst movement Level of Service	=	C
Average intersection delay (s/pers)	=	31.4
Largest average movement delay (s)	=	34.1
Largest back of queue, 95% (ft)	=	654
Performance Index	=	71.25
Degree of saturation (highest)	=	0.935
Practical Spare Capacity (lowest)	=	-4 %
Effective intersection capacity, (veh/h)	=	1806
Total vehicle flow (veh/h)	=	1689
Total person flow (pers/h)	=	2027
Total vehicle delay (veh-h/h)	=	14.71
Total person delay (pers-h/h)	=	17.65
Total effective vehicle stops (veh/h)	=	1607
Total effective person stops (pers/h)	=	1928
Total vehicle travel (veh-mi/h)	=	640.8
Total cost ($/h)	=	468.06
Total fuel (gal/h)	=	37.1
Total CO2 (kg/h)	=	350.67

Table S.4 - Phase Information

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
1	0	4	4	21	25	4	25	50%
2	25	4	29	21	50	4	25	50%

(Phase times specified by the user)
Current Phase Sequence: Two-phase
Input phase sequence: 1 2
Output phase sequence: 1 2

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 95% Back (vehs)	Queue 95% Back (ft)	Perf. Index	Aver. Speed (mph)
SouthEast: Acceso Sureste									
16T T	14.16	16.99	34.1	1.00	1.01	26.2	654	66.38	20.0
NorthEast: Acceso Noreste									
14T T	0.55	0.66	10.1	0.62	0.49	2.0	50	4.88	30.9

Table S.6 - Intersection Performance

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

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 (ft)	Perf. Index	Aver. Speed (mph)
SouthEast: Acceso Sureste									
1493	0.935	14.16	16.99	34.1	1.00	1.01	654	66.38	20.0
NorthEast: Acceso Noreste									
196	0.123	0.55	0.66	10.1	0.62	0.49	50	4.88	30.9
ALL VEHICLES:									
1689	0.935	14.71	17.65	31.4	0.96	0.95	654	71.25	20.9
INTERSECTION (persons):									
2027	0.935		17.65	31.4	0.96	0.95		71.25	20.9

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

Table S.7 - Lane Performance

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane	Effective Red and Green Times (sec)	Dem Flow (veh	Cap (veh	Deg. Satn	Aver. Delay	Eff. Stop	Queue 95% Back	Lane Length

No.	R1	G1	R2	G2	/h)	/h)	x	(sec)	Rate	(vehs)	(ft)	(ft)
SouthEast: Acceso Sureste												
1 T	29	21	0	0	747	798	0.935	34.1	1.01	26.2	653.8	1600.0
2 T	29	21	0	0	747	798	0.935	34.1	1.01	26.2	653.8	1600.0
NorthEast: Acceso Noreste												
1 T	29	21	0	0	98	798	0.123	10.1	0.49	2.0	50.0	1600.0
2 T	29	21	0	0	98	798	0.123	10.1	0.49	2.0	50.0	1600.0

Table S.8 - Lane Flow and Capacity Information

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (ft)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
SouthEast: Acceso Sureste												
1 T	0	747	0	747	12.0	1900	1900	0	0	798	0.935	100
2 T	0	747	0	747	12.0	1900	1900	0	0	798	0.935	100
NorthEast: Acceso Noreste												
1 T	0	98	0	98	12.0	1900	1900	0	0	798	0.123	100
2 T	0	98	0	98	12.0	1900	1900	0	0	798	0.123	100

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

Table S.9 - Signal Timing Diagram

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

```
             Phase 1                              Phase 2

0                                 25                                    50
I---------------------------------I-----------------------------------I
......GGGGGGGGGGGGGGGGGGGGGGGGGGGG.......GGGGGGGGGGGGGGGGGGGGGGGGGGGGG.
     4                                   29
```

Effective (Movement) Green Times

SouthEast: Acceso Sureste

```
Mov.   16T (T)
I                                I                                I
........GGGGGGGGGGGGGGGGGGGGGGGGGGGG...............................
       6                            27


 NorthEast: Acceso Noreste

Mov.   14T (T)
I                                I                                I
GG.......................................GGGGGGGGGGGGGGGGGGGGGGGGGGGG
  2                                     31


I-----I------I------I------I------I------I------I------I------I------I----->
0      5     10     15     20     25     30     35     40     45     50

                                T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
Interseccion Avenida Los  ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov     Mov  Dem   Total  Lane  Deg.  Eff. Grn  Aver.  Eff.    95%    Perf.
 ID      Typ  Flow   Cap.  Util  Satn  --------  Delay  Stop  Back of  Index
              (veh  (veh                1st  2nd         Rate   Queue
               /h)   /h)   (%)     x    Grn  Grn  (sec)         (veh)
-------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T        1493  1596   100  0.935*  21*       34.1  1.01   26.2   66.38
-------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T         196  1596   100  0.123   21*       10.1  0.49    2.0    4.88
-------------------------------------------------------------------------------
  *  Maximum degree of saturation, or critical green periods
```

Table S.12A - Fuel Consumption, Emissions and Cost (TOTAL)

```
Interseccion Avenida Los  ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------
  Mov            Fuel    Cost     HC      CO     NOX     CO2
  ID             Total   Total   Total   Total  Total   Total
                 gal/h   $/h     kg/h    kg/h   kg/h    kg/h
-------------------------------------------------------------
SouthEast: Acceso Sureste
  16T T          33.7   429.23   0.586   26.57  0.757   319.0
               ---------------------------------------------
                 33.7   429.23   0.586   26.57  0.757   319.0
-------------------------------------------------------------
NorthEast: Acceso Noreste
  14T T           3.3    38.83   0.053    2.26  0.075    31.7
```

	3.3	38.83	0.053	2.26	0.075	31.7
INTERSECTION:	37.1	468.06	0.639	28.84	0.832	350.7

PARAMETERS USED IN COST CALCULATIONS

Pump price of fuel ($/US gal)	=	2.400
Fuel resource cost factor	=	0.70
Ratio of running cost to fuel cost	=	3.0
Average income ($/h)	=	19.00
Time value factor	=	0.40
Light vehicle mass (1000 lb)	=	3.1
Heavy vehicle mass (1000 lb)	=	24.0
Light vehicle idle fuel rate (US gal/h)	=	0.360
Heavy vehicle idle fuel rate (US gal/h)	=	0.530

Table S.12B - Fuel Consumption, Emissions and Cost (RATE)

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Mov ID	Fuel Eff. mpg	Cost Rate $/mi	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km
SouthEast: Acceso Sureste						
16T T	16.8	0.47	0.643	29.15	0.831	349.9
	16.8	0.47	0.643	29.15	0.831	349.9
NorthEast: Acceso Noreste						
14T T	22.2	0.32	0.442	18.92	0.624	264.8
	22.2	0.32	0.442	18.92	0.624	264.8
INTERSECTION:	17.3	0.45	0.620	27.96	0.807	340.0

Table S.14 - Summary of Input and Output Data

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

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 (ft)	Shrt Lane (ft)
SouthEast: Acceso Sureste												
1 T		747		747	0	1899	21		0.935	34.1	654	1600

```
2 T          747        747    0  1899   21      0.935   34.1   654  1600
        ---------------------------------------------------------------------
          0 1493    0  1493    0                 0.935   34.1   654
-----------------------------------------------------------------------------
 NorthEast: Acceso Noreste
1 T           98         98    0  1899   21      0.123   10.1    50  1600
2 T           98         98    0  1899   21      0.123   10.1    50  1600
        ---------------------------------------------------------------------
          0  196    0   196    0                 0.123   10.1    50
=============================================================================
 ALL VEHICLES          Total   %       Cycle      Max   Aver.   Max
                       Flow   HV       Time        X    Delay  Queue
                       1689    0         50      0.935   31.4   654
=============================================================================
Peak flow period = 15 minutes.

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

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

```
Interseccion Avenida Los  ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
 Mov     Mov    Green Time  Total  Total    Deg.   Aver.   LOS  Longest Queue
 ID      Typ    Ratio (g/C) Flow   Cap.     of    Delay          95% Back
               ------------ (veh   (veh     Satn                (vehs)  (ft)
                1st   2nd    /h)    /h)     (v/c)  (sec)
                grn   grn
-------------------------------------------------------------------------------
SouthEast: Acceso Sureste
 16T T        0.420*         1493   1596   0.935*   34.1    C     26.2    654
-------------------------------------------------------------------------------
NorthEast: Acceso Noreste
 14T T        0.420*          196   1596   0.123    10.1    B      2.0     50
-------------------------------------------------------------------------------
  ALL VEHICLES:               1689          0.935    31.4    C     26.2    654
-------------------------------------------------------------------------------
  INTERSECTION (persons):     2027                   31.4          26.2    654
-------------------------------------------------------------------------------
     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.
  *  Maximum v/c ratio, or critical green periods
```

Table S.16 - SCATS MF Parameter

```
Interseccion Avenida Los  ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time =  50 (Sum of User-given Phase Times)
```

Lane No.	Stopline Flow (veh/h)	Capacity (veh/h)	SCATS Satn Flow	SCATS MF	Deg. Satn x	Lane Util. %
SouthEast: Acceso Sureste						
1 T	747	798	1900	1596	0.935	100
2 T	747	798	1900	1596	0.935	100
NorthEast: Acceso Noreste						
1 T	98	798	1900	1596	0.123	100
2 T	98	798	1900	1596	0.123	100

STOPLINE FLOW: Departure flow rate in veh/h as measured at the stop line. This cannot exceed capacity.

SCATS SATURATION FLOW: This allows for lane width, approach grade and turning vehicles. Saturation flow scale applies if specified. The effects of heavy vehicles, parking manoeuvres, number of buses stopping and conflicting pedestrian volume are not included.

SCATS MF: This emulates the MF (Maximum Flow) parameter used in the SCATS control system. It is calculated from the SCATS SATURATION FLOW parameter.

DEG. SATN: The Demand (Arrival) Flow Rate may exceed the Stopline Flow Rate, therefore x > 1 is possible.

Table D.0 - Geometric Delay Data

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

From Approach	To Approach	Turn	Negn Radius (ft)	Negn Speed (mph)	Negn Dist. (ft)	Appr. Dist. (ft)	Downstream (ft)	Distance User Spec?
SouthEast: Acceso Sureste								
	NorthWest	Thru	S	40.0	36.0	1600	403	No
NorthEast: Acceso Noreste								
	SouthWest	Thru	S	40.0	36.0	1600	403	No

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.

Table D.1 - Lane Delays

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
		---------- Delay (seconds/veh) ----------								
SouthEast: Acceso Sureste										
1 T	0.935	16.0	18.1	34.1	8.9	25.3	1.6	23.6	0.0	34.1
2 T	0.935	16.0	18.1	34.1	8.9	25.3	1.6	23.6	0.0	34.1
NorthEast: Acceso Noreste										
1 T	0.123	10.0	0.1	10.1	5.5	4.5	0.0	4.5	0.0	10.1
2 T	0.123	10.0	0.1	10.1	5.5	4.5	0.0	4.5	0.0	10.1

dn is average stop-start delay for all vehicles queued and unqueued

Table D.2 - Lane Stops

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hig	Overall h	Prop. Queued pq	Queue Move-up Rate hqm
SouthEast: Acceso Sureste							
1 T	0.935	0.89	0.12	0.00	1.01	1.000	0.19
2 T	0.935	0.89	0.12	0.00	1.01	1.000	0.19
NorthEast: Acceso Noreste							
1 T	0.123	0.49	0.00	0.00	0.49	0.624	0.00
2 T	0.123	0.49	0.00	0.00	0.49	0.624	0.00

hig is the average value for all movements in a shared lane
hqm is average queue move-up rate for all vehicles queued and unqueued

Table D.3A - Lane Queues (veh)

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nb1	Nb2	Nb	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
SouthEast: Acceso Sureste											
1 T	0.935	3.8	11.0	3.8	14.8	17.3	22.0	23.6	26.2	30.0	0.41
2 T	0.935	3.8	11.0	3.8	14.8	17.3	22.0	23.6	26.2	30.0	0.41
NorthEast: Acceso Noreste											
1 T	0.123	0.1	0.9	0.1	1.0	1.2	1.5	1.7	2.0	2.5	0.03

2 T	0.123	0.1	0.9	0.1	1.0	1.2	1.5	1.7	2.0	2.5	0.03

Values printed in this table are back of queue (vehicles).

Table D.3B - Lane Queues (feet)

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (feet) Nbl	Nb2	Nb	Percentile (feet) 70%	85%	90%	95%	98%	Queue Stor. Ratio
SouthEast: Acceso Sureste											
1 T	0.935	96.1	274.7	96.1	370.8	433.5	549.9	589.8	653.8	748.9	0.41
2 T	0.935	96.1	274.7	96.1	370.8	433.5	549.9	589.8	653.8	748.9	0.41
NorthEast: Acceso Noreste											
1 T	0.123	1.5	22.7	1.5	24.1	28.9	38.4	43.0	50.0	63.5	0.03
2 T	0.123	1.5	22.7	1.5	24.1	28.9	38.4	43.0	50.0	63.5	0.03

Values printed in this table are back of queue (feet).

Table D.4 - Movement Speeds (mph) and Geometric Delay

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Mov ID	App. Speeds Cruise	Negn	Exit Speeds Negn	Cruise	Queue Move-up 1st Grn	2nd Grn	Av. Section Spd Running	Overall	Geom Delay (sec)
SouthEast: Acceso Sureste									
16T T	40.0	40.0	40.0	40.0	22.2		30.6	20.0	0.0
NorthEast: Acceso Noreste									
14T T	40.0	40.0	40.0	40.0			34.4	30.9	0.0

"Running Speed" is the average speed excluding stopped periods.

Table D.5 - Progression Factors and Actuated Signal Parameters

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

Mov ID	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Gap Settings es	Gap Settings eh	Disp. Grn. Settings 1st Grn Gmin	Disp. Grn. Settings 1st Grn Gmax	Disp. Grn. Settings 2nd Grn Gmin	Disp. Grn. Settings 2nd Grn Gmax
SouthEast: Acceso Sureste											
16T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		
NorthEast: Acceso Noreste											
14T T	VA	No	3	1.000	1.000	2.5	3.1	6	50		

Table D.6 - Gap Acceptance Parameters

Interseccion Avenida Los ngeles y PR-26
Futura (AM)
Intersection ID: 3
Actuated Isolated Signals, Cycle Time = 50 (Sum of User-given Phase Times)

No opposed movements at this intersection

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