SIDRA INTERSECTION

Output Tables

INTERSECCIÓN CARRETERA PR- 2 & PR- 464

FIGURA 30 MEJORAS PROPUESTAS F(AM)

Run Information

```
Cycle Time =   95  (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 CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
           South        2R   Right   148     0    1.00     1.00
```

```
          East         2T   Thru   1038     0    1.00     1.00
          North        5L   Left      4     0    1.00     1.00
-----------------------------------------------------------------
 South: ACCESO SUR (PR-464)
          West         3L   Left     85     0    1.00     1.00
          East         8R   Right   124     0    1.00     1.00
          North        8T   Thru      1     0    1.00     1.00
-----------------------------------------------------------------
 East: ACCESO ESTE
          West         6T   Thru   2027     0    1.00     1.00
          South        1L   Left    156     0    1.00     1.00
          North        6R   Right     1     0    1.00     1.00
-----------------------------------------------------------------
 North: ACCESO NORTE
          West         4R   Right     1     0    1.00     1.00
          South        4T   Thru      1     0    1.00     1.00
          East         7L   Left      1     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 CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
   5L L       4     0      0     0      0     0
   2T T       0     0   1038     0      0     0
   2R R       0     0      0     0    148     0
-----------------------------------------------
South: ACCESO SUR (PR-464)
   3L L      85     0      0     0      0     0
   8T T       0     0      1     0      0     0
   8R R       0     0      0     0    124     0
-----------------------------------------------
East: ACCESO ESTE
   1L L     156     0      0     0      0     0
   6T T       0     0   2027     0      0     0
   6R R       0     0      0     0      1     0
-----------------------------------------------
North: ACCESO NORTE
   7L L       1     0      0     0      0     0
   4T T       0     0      1     0      0     0
   4R R       0     0      0     0      1     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 CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
   5L L        4   0.0       0   0.0       0   0.0
   2T T        0   0.0    1038   0.0       0   0.0
   2R R        0   0.0       0   0.0     148   0.0
-------------------------------------------------
South: ACCESO SUR (PR-464)
   3L L       85   0.0       0   0.0       0   0.0
   8T T        0   0.0       1   0.0       0   0.0
   8R R        0   0.0       0   0.0     124   0.0
-------------------------------------------------
East: ACCESO ESTE
   1L L      156   0.0       0   0.0       0   0.0
   6T T        0   0.0    2027   0.0       0   0.0
   6R R        0   0.0       0   0.0       1   0.0
-------------------------------------------------
North: ACCESO NORTE
   7L L        1   0.0       0   0.0       0   0.0
   4T T        0   0.0       1   0.0       0   0.0
   4R R        0   0.0       0   0.0       1   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 CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L         3     4                                   4        10.0Min            6
  2T T         1     2            *3     4               4    4   28.2     15.5     41    6
  2R R         1     2             2     1       Y       4   11   17.2     30.0Min  41   39
-------------------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L        *4     1      Y                            4        24.1              16
  8T T         4     1                                   4        23.6              16
  8R R         1     4      Y      4     1              20    4   30.0Min  19.0     55   16
-------------------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L        *2     3                                   4        22.1              16
  6T T         1     3                                   4        54.0Max           61
  6R R        *1     2             2     1       Y       4    4   28.2     49.8     41   46
-------------------------------------------------------------------------------------------
```

```
North: ACCESO NORTE
  7L L        4      1      Y                          13        13.2              7
  4T T        4      1                                  4        10.0Min          16
  4R R        1      4      Y      4      1            49    4   30.0Min  10.0Min  26   16
-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
  Current Phase Sequence: Split Phasing
  Input phase sequence: 1 2 3 4
  Output phase sequence: 1 2 3 4
-----------------------------------------------------------------------------------------
  *  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 CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L       4    0.0  1775        0.002        112  0.90  2422   100  0.036
  2T T    1038    0.0  3737  3737  0.188 0.090  1849  0.90    60   100  0.561
  2R R     148    0.0   895< 1046< 0.062 0.089   816  0.90   396   100  0.181
-------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L      85    0.0   813        0.105         137  0.90    45   100  0.621
  8T T       1    0.0    10        0.100           2  0.90    52   100  0.594
  8R R     124    0.0    91   875  0.000 0.142   200  0.90    45   100  0.620
-------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L     156    0.0  1775        0.088         299  0.90    72   100  0.522
  6T T    2027    0.0  3741        0.542        2402  0.90     7   100  0.844*
  6R R       1    0.0     0     2  0.209 0.395     1  0.90    26   100  0.714
-------------------------------------------------------------------------------
North: ACCESO NORTE
  7L L       1    0.0  1337        0.001          99  0.90  8766   100  0.010
  4T T       1    0.0   585        0.002          99  0.90  8767   100  0.010
  4R R       1    0.0    84   449  0.000 0.002    99  0.90  8775   100  0.010
-------------------------------------------------------------------------------
```

Table S.3 - Intersection Parameters

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
```

Actuated Isolated Signals, Cycle Time = 95 (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
6R	E_R	1st	1	2	4	0.209	0.255	28.2
1L	E_L		2	3	4	0.088	0.190	22.1
2T	W_T	2nd	3	4	4	0.090	0.121	15.5
3L	S_L		4	1	4	0.105	0.211	24.1
				Total:	16	0.491	0.778	89.9

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	NA	73	95

(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	=	F
Average intersection delay (s/pers)	=	23.0
Largest average movement delay (s)	=	121.3
Largest back of queue, 95% (ft)	=	1066
Performance Index	=	151.33
Degree of saturation (highest)	=	0.844
Practical Spare Capacity (lowest)	=	7 %
Effective intersection capacity, (veh/h)	=	4251
Total vehicle flow (veh/h)	=	3587
Total person flow (pers/h)	=	4304
Total vehicle delay (veh-h/h)	=	22.95
Total person delay (pers-h/h)	=	27.55
Total effective vehicle stops (veh/h)	=	2694
Total effective person stops (pers/h)	=	3232
Total vehicle travel (veh-mi/h)	=	1359.4
Total cost ($/h)	=	877.70
Total fuel (gal/h)	=	71.1
Total CO2 (kg/h)	=	672.59

Table S.4 - Phase Information

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 30 MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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	41	45	4	45	47%
2	45	4	49	16	65	4	20	21%
3	65	4	69	6	75	4	10	11%
4	75	4	79	16	95	4	20	21%

(Phase times specified by the user)
Current Phase Sequence: Split Phasing
Input phase sequence: 1 2 3 4
Output phase sequence: 1 2 3 4

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 (PR-2)									
5L L	0.06	0.08	57.1	0.94	0.64	0.2	6	0.23	14.9
2T T	4.03	4.83	14.0	0.73	0.67	14.8	369	33.39	28.4
2R R	0.41	0.49	10.0	0.18	0.71	1.5	37	3.09	30.9
South: ACCESO SUR (PR-464)									
3L L	2.86	3.44	121.3	1.00	0.88	14.1	353	7.10	8.8
8T T	0.03	0.04	112.5	1.00	0.88	14.1	353	0.08	9.3
8R R	1.93	2.32	56.1	0.98	0.80	11.8	295	7.26	15.1
East: ACCESO ESTE									
1L L	2.25	2.69	51.8	0.93	0.80	8.9	223	8.95	15.8
6T T	11.33	13.60	20.1	0.83	0.78	42.6	1066	91.01	25.2
6R R	0.01	0.01	28.7	0.82	0.89	0.0	0	0.05	21.6
North: ACCESO NORTE									
7L L	0.01	0.02	52.6	0.89	0.66	0.2	4	0.06	15.7
4T T	0.01	0.01	43.7	0.89	0.59	0.2	4	0.05	17.5
4R R	0.01	0.02	50.6	0.89	0.63	0.2	4	0.05	16.0

Table S.6 - Intersection Performance

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 30 MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)									
1190	0.561	4.50	5.40	13.6	0.67	0.68	369	36.72	28.6
South: ACCESO SUR (PR-464)									
210	0.621	4.83	5.79	82.7	0.99	0.83	353	14.44	11.6
East: ACCESO ESTE									
2184	0.844	13.59	16.30	22.4	0.83	0.78	1066	100.01	24.2
North: ACCESO NORTE									
3	0.010	0.04	0.05	49.0	0.89	0.63	4	0.16	16.4
ALL VEHICLES:									
3587	0.844	22.95	27.55	23.0	0.79	0.75	1066	151.33	23.9
INTERSECTION (persons):									
4304	0.844		27.55	23.0	0.79	0.75		151.33	23.9

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

Table S.7 - Lane Performance

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 30 MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)												
1 L	89	6	0	0	4	112	0.036	57.1	0.64	0.2	6.2	230.0T
2 T	24	41	24	6	519	924	0.561	14.0	0.67	14.8	369.1	1600.0
3 T	24	41	24	6	519	924	0.561	14.0	0.67	14.8	369.1	1600.0
4 R	4	41	11	39	148	816	0.181	10.0	0.71	1.5	36.6	230.0T
South: ACCESO SUR (PR-464)												
1 LTR	79	16	0	0	210	338	0.620	121.3	0.83	14.1	352.9	1600.0
East: ACCESO ESTE												
1 L	79	16	0	0	156	299	0.522	51.8	0.80	8.9	223.2	230.0T
2 T	34	61	0	0	1012	1200	0.844	20.5	0.79	42.6	1065.8	1600.0
3 TR	33	45	0	17	1016	1204	0.844	19.8	0.77	42.3	1056.7	1600.0
North: ACCESO NORTE												
1 LTR	84	11	0	0	3	296	0.010	47.6	0.63	0.2	4.1	1600.0

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 30 MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)												
1 L	4	0	0	4	11.5	1868	1775	0	0	112	0.036	100
2 T	0	519	0	519	11.5	1868	1868	1868	0	924	0.561	100
3 T	0	519	0	519	11.5	1868	1868	1868	0	924	0.561	100
4 R	0	0	148	148	11.5	1868	895<	1046<	38	816	0.181	100
South: ACCESO SUR (PR-464)												
1 LTR	85	1	124	210	11.5	1868	350	0	91	338	0.620	100
East: ACCESO ESTE												
1 L	156	0	0	156	11.5	1868	1775	0	0	299	0.522	100
2 T	0	1012	0	1012	11.5	1868	1868	0	0	1200	0.844	100
3 TR	0	1015	1	1016	11.5	1868	1868	1783	38	1204	0.844	100
North: ACCESO NORTE												
1 LTR	1	1	1	3	10.0	1773	757	0	88	296	0.010	100

< Reduced saturation flow due to a short lane effect

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

Table S.9 - Signal Timing Diagram

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

            Phase 1                 Phase 2    Phase 3     Phase 4

0                               45            65      75              95
I-------------------------------I-------------I-------I--------------I
...GGGGGGGGGGGGGGGGGGGGGGGGGGGG....GGGGGGGGGG.....GGG....GGGGGGGGGGG.
  4                               49             69     79


Effective (Movement) Green Times


 West: ACCESO OESTE (PR-2)

Mov.    5L (L)
I                               I             I       I               I
.................................................GGGG..............
                                                 71    77

Mov.    2T (T)
I                               I             I       I               I
....GGGGGGGGGGGGGGGGGGGGGGGGGGGGG................GGGGGG.............
   6                             47              71    77

Mov.    2R (R)
I                               I             I       I               I
G...GGGGGGGGGGGGGGGGGGGGGGGGGGGGG........GGGGGGGGGGGGGGGGGGGGGGGGGGGGG
2  6                             47       58


 South: ACCESO SUR (PR-464)

Mov.    3L (L)
I                               I             I       I               I
............................................................GGGGGGGGGG
2                                                           81

Mov.    8T (T)
I                               I             I       I               I
............................................................GGGGGGGGGG
2                                                           81

Mov.    8R (R)
I                               I             I       I               I
G..............GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG...GGGGGGGGGGG
2             22                                        77  81


 East: ACCESO ESTE

Mov.    1L (L)
I                               I             I       I               I
....................................GGGGGGGGGG......................
                                     51          67
```

```
Mov.    6T (T)
I                                I             I       I              I
....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.....................
   6                                             67

Mov.    6R (R)
I                                I             I       I              I
G...GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG...GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
2  6                              47  51


 North: ACCESO NORTE

Mov.    7L (L)
I                                I             I       I              I
.................................................................GGGG
2                                                                 90

Mov.    4T (T)
I                                I             I       I              I
...........................................................GGGGGGGGGG
2                                                           81

Mov.    4R (R)
I                                I             I       I              I
G....................................GGGGGGGGGGGGGGGGGG...GGGGGGGGGGG
2                                     51                 77  81


I-----I------I------I------I------I------I------I------I------I------I---->
0     10     19     29     38     48     57     67     76     86     95

                                T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)											
5L	L	4	112	100	0.036	6		57.1	0.64	0.2	0.23
2T	T	1038	1849	100	0.561	41	6*	14.0	0.67	14.8	33.39
2R	R	148	816<	100	0.181	41	39	10.0	0.71	1.5	3.09
South: ACCESO SUR (PR-464)											
3L	L	85	137	100	0.621	16*		121.3	0.88	14.1	7.10
8T	T	1	2	100	0.594	16		112.5	0.88	14.1	0.08
8R	R	124	200	100	0.620	55	16	56.1	0.80	11.8	7.26
East: ACCESO ESTE											
1L	L	156	299	100	0.522	16*		51.8	0.80	8.9	8.95
6T	T	2027	2402	100	0.844*	61		20.1	0.78	42.6	91.01
6R	R	1	1	100	0.714	41*	46	28.7	0.89	0.0	0.05
North: ACCESO NORTE											
7L	L	1	99	100	0.010	7		52.6	0.66	0.2	0.06
4T	T	1	99	100	0.010	16		43.7	0.59	0.2	0.05
4R	R	1	99	100	0.010	26	16	50.6	0.63	0.2	0.05

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

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

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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
-------------------------------------------------------------
West: ACCESO OESTE (PR-2)
   5L L           0.1     1.41   0.002    0.07   0.002     0.9
   2T T          19.0   222.40   0.309   13.69   0.429   179.8
   2R R           2.8    30.63   0.047    2.34   0.068    26.6
                ---------------------------------------------
                 21.9   254.43   0.357   16.09   0.499   207.3
-------------------------------------------------------------
South: ACCESO SUR (PR-464)
   3L L           2.6    46.57   0.049    1.54   0.046    24.6
   8T T           0.0     0.52   0.001    0.02   0.001     0.3
   8R R           3.0    43.34   0.053    2.15   0.062    28.3
                ---------------------------------------------
                  5.6    90.43   0.103    3.70   0.108    53.2
-------------------------------------------------------------
East: ACCESO ESTE
   1L L           3.7    52.45   0.066    2.70   0.078    35.0
   6T T          39.8   479.40   0.662   29.65   0.898   376.4
   6R R           0.0     0.00   0.000    0.00   0.000     0.0
                ---------------------------------------------
                 43.5   531.86   0.728   32.35   0.976   411.4
-------------------------------------------------------------
North: ACCESO NORTE
   7L L           0.0     0.34   0.000    0.02   0.000     0.2
   4T T           0.0     0.31   0.000    0.02   0.000     0.2
   4R R           0.0     0.33   0.000    0.02   0.000     0.2
                ---------------------------------------------
                  0.1     0.98   0.001    0.05   0.001     0.7
-------------------------------------------------------------
 INTERSECTION:   71.1   877.70   1.189   52.19   1.585   672.6
-------------------------------------------------------------


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 CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-------------------------------------------------------------
  Mov            Fuel    Cost     HC      CO     NOX     CO2
  ID             Eff.    Rate    Rate    Rate    Rate    Rate
                 mpg     $/mi    g/km    g/km    g/km    g/km
-------------------------------------------------------------
West: ACCESO OESTE (PR-2)
   5L L          15.5     0.58   0.718   28.83   0.833   379.6
   2T T          20.7     0.35   0.487   21.60   0.677   283.6
   2R R          19.8     0.34   0.523   26.06   0.755   297.0
                ---------------------------------------------
                 20.6     0.35   0.492   22.17   0.687   285.6
-------------------------------------------------------------
South: ACCESO SUR (PR-464)
   3L L          12.4     0.90   0.940   29.64   0.882   475.7
   8T T          12.6     0.86   0.913   29.64   0.879   465.1
   8R R          15.6     0.58   0.711   28.62   0.829   377.0
                ---------------------------------------------
                 14.1     0.71   0.805   29.04   0.851   417.5
-------------------------------------------------------------
East: ACCESO ESTE
   1L L          15.9     0.56   0.698   28.63   0.826   370.9
   6T T          19.3     0.39   0.535   23.95   0.726   304.1
   6R R           0.0     0.00   0.000    0.00   0.000     0.0
                ---------------------------------------------
                 19.0     0.40   0.546   24.27   0.732   308.7
-------------------------------------------------------------
North: ACCESO NORTE
   7L L          15.9     0.56   0.694   28.23   0.820   369.8
   4T T          17.0     0.51   0.635   25.66   0.770   346.4
   4R R          16.0     0.55   0.689   28.32   0.821   367.5
                ---------------------------------------------
                 16.3     0.54   0.672   27.40   0.803   361.2
-------------------------------------------------------------
 INTERSECTION:   19.1     0.40   0.544   23.86   0.724   307.4
-------------------------------------------------------------
```

Table S.14 - Summary of Input and Output Data

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
1 L       4                4    0  1868    6       0.036   57.1     6   230
2 T          519         519    0  1868   41    6  0.561   14.0   369  1600
3 T          519         519    0  1868   41    6  0.561   14.0   369  1600
4 R               148    148    0  1868   41   39  0.181   10.0    37   230
         ------------------------------------------------------------------
          4 1038  148   1190    0                  0.561   13.6   369
-----------------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
1 LTR    85    1  124    210    0  1868   16       0.620   56.0   295  1600
         ------------------------------------------------------------------
```

```
         85    1  124   210    0                 0.620  121.3   353
-----------------------------------------------------------------------
 East: ACCESO ESTE
1 L     156             156    0  1868   16      0.522   51.8   223   230
2 T         1012        1012    0  1868   61      0.844   20.5  1066  1600
3 TR        1015    1   1016    0  1868   45  17  0.844   19.8  1057  1600
        ---------------------------------------------------------------
        156 2027    1   2184    0                 0.844   22.4  1066
-----------------------------------------------------------------------
 North: ACCESO NORTE
1 LTR     1    1    1      3    0  1773   11      0.010   47.6     4  1600
        ---------------------------------------------------------------
          1    1    1      3    0                 0.010   47.6     4
=======================================================================
 ALL VEHICLES          Total   %       Cycle      Max   Aver.   Max
                       Flow   HV       Time        X    Delay  Queue
                       3587    0         95      0.844   23.0  1066
=======================================================================
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 CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L        0.063             4    112   0.036    57.1    E      0.2      6
  2T T        0.432  0.063*  1038   1849   0.561    14.0    B     14.8    369
  2R R        0.432  0.411    148    816<  0.181    10.0    A      1.5     37
-------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L        0.168*           85    137   0.621   121.3    F     14.1    353
  8T T        0.168             1      2   0.594   112.5    F     14.1    353
  8R R        0.579  0.168    124    200   0.620    56.1    E     11.8    295
-------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L        0.168*          156    299   0.522    51.8    D      8.9    223
  6T T        0.642          2027   2402   0.844*   20.1    C     42.6   1066
  6R R        0.432* 0.484      1      1   0.714    28.7    C      0.0      0
-------------------------------------------------------------------------------
North: ACCESO NORTE
  7L L        0.074             1     99   0.010    52.6    D      0.2      4
  4T T        0.168             1     99   0.010    43.7    D      0.2      4
  4R R        0.274  0.168      1     99   0.010    50.6    D      0.2      4
-------------------------------------------------------------------------------
  ALL VEHICLES:               3587          0.844    23.0    C     42.6   1066
-------------------------------------------------------------------------------
  INTERSECTION (persons):     4304                   23.0          42.6   1066
-------------------------------------------------------------------------------
     Level of Service calculations are based on
     average control delay including geometric delay (HCM criteria),
     independent of the current delay definition used.
     For the criteria, refer to the "Level of Service" topic in the
```

```
   SIDRA Output Guide or the Output section of the on-line help.
 <  Reduced capacity due to a short lane effect
 *  Maximum v/c ratio, or critical green periods
 "  Movement Level of service has been determined using adjacent lane
    v/c ratio rather than short lane v/c ratio (v/c=1.0)
```

Table S.16 - SCATS MF Parameter

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)						
1 L	4	112	1775	1065	0.036	100
2 T	519	924	1868	1702	0.561	100
3 T	519	924	1868	1702	0.561	100
4 R	148	816	1588	1447	0.181	100
South: ACCESO SUR (PR-464)						
1 LTR	210	338	1660	NA	0.620	100
East: ACCESO ESTE						
1 L	156	299	1775	1420	0.522	100
2 T	1012	1200	1868	1753	0.844	100
3 TR	1016	1204	1868	NA	0.844	100
North: ACCESO NORTE						
1 LTR	3	296	1648	NA	0.010	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 CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
```

Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)								
	South	Right	32.8	12.5	51.5	1600	387	No
	East	Thru	S	40.0	35.0	1600	403	No
	North	Left	28.2	11.8	44.3	1600	381	No
South: ACCESO SUR (PR-464)								
	West	Left	43.8	14.0	68.8	1600	399	No
	East	Right	32.8	12.5	51.5	1600	387	No
	North	Thru	S	40.0	81.0	1600	403	No
East: ACCESO ESTE								
	West	Thru	S	40.0	35.0	1600	403	No
	South	Left	29.3	12.0	46.1	1600	383	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	81.0	1600	403	No
	East	Left	35.5	12.9	55.7	1600	390	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 CARRETERA PR- 2 PR- 464
FIGURA 30 MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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) ----------								
West: ACCESO OESTE (PR-2)										
1 L	0.036	48.0	0.1	48.1	3.7	44.4	0.0	44.4	9.0	57.1
2 T	0.561	13.2	0.8	14.0	6.5	7.5	0.6	6.9	0.0	14.0
3 T	0.561	13.2	0.8	14.0	6.5	7.5	0.6	6.9	0.0	14.0
4 R	0.181	0.9	0.1	1.0	0.8	0.4	0.0	0.4	8.9	10.0
South: ACCESO SUR (PR-464)										
1 LTR	0.620	109.0	3.5	112.5	4.3	69.7	0.0	69.7	8.8	121.3
East: ACCESO ESTE										
1 L	0.522	41.5	1.3	42.8	3.7	39.1	0.0	39.1	9.0	51.8
2 T	0.844	14.8	5.7	20.5	7.4	13.0	0.1	12.9	0.0	20.5
3 TR	0.844	14.1	5.7	19.8	7.2	12.6	0.1	12.4	0.0	19.8
North: ACCESO NORTE										
1 LTR	0.010	43.7	0.0	43.7	5.1	37.9	0.0	37.9	5.9	49.6

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

Table D.2 - Lane Stops

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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
-------------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L   0.036  0.60  0.00  0.04   0.64    0.942   0.00
 2 T   0.561  0.64  0.03  0.00   0.67    0.733   0.09
 3 T   0.561  0.64  0.03  0.00   0.67    0.733   0.09
 4 R   0.181  0.15  0.00  0.56   0.71    0.185   0.00
-------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR 0.620  0.83  0.00  0.01   0.83    1.000   0.00
-------------------------------------------------------
 East: ACCESO ESTE
 1 L   0.522  0.76  0.00  0.05   0.80    0.935   0.00
 2 T   0.844  0.78  0.02  0.00   0.79    0.838   0.02
 3 TR  0.844  0.75  0.01  0.00   0.77    0.815   0.02
-------------------------------------------------------
 North: ACCESO NORTE
 1 LTR 0.010  0.58  0.00  0.05   0.63    0.889   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 CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------------
        Deg.  Ovrfl.   Average (veh)                Percentile (veh)            Queue
 Lane   Satn  Queue ------------------- ----------------------------------- Stor.
 No.     x    No      Nb1    Nb2     Nb     70%    85%    90%    95%    98%   Ratio
-------------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L   0.036    0.0     0.1    0.0    0.1     0.1    0.2    0.2    0.2    0.3   0.03
 2 T   0.561    0.9     7.0    0.9    7.8     9.2   12.0   13.1   14.8   17.6   0.23
 3 T   0.561    0.9     7.0    0.9    7.8     9.2   12.0   13.1   14.8   17.6   0.23
 4 R   0.181    0.1     0.6    0.1    0.7     0.8    1.1    1.3    1.5    1.9   0.16
-------------------------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR 0.620    0.2     7.2    0.2    7.4     8.8   11.4   12.5   14.1   16.8   0.22
-------------------------------------------------------------------------------------
 East: ACCESO ESTE
 1 L   0.522    0.4     4.2    0.4    4.5     5.4    7.1    7.8    8.9   10.9*  0.97
 2 T   0.844    3.7    22.3    3.7   26.0    29.9   37.0   39.2   42.6   47.7   0.67
 3 TR  0.844    3.7    22.0    3.7   25.7    29.6   36.7   38.8   42.3   47.3   0.66
-------------------------------------------------------------------------------------
 North: ACCESO NORTE
 1 LTR 0.010    0.0     0.1    0.0    0.1     0.1    0.1    0.1    0.2    0.2   0.00
-------------------------------------------------------------------------------------
```

Values printed in this table are back of queue (vehicles).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

Table D.3B - Lane Queues (feet)

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 30 MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)											
1 L	0.036	0.2	2.8	0.2	3.0	3.6	4.7	5.3	6.2	8.0	0.03
2 T	0.561	21.4	174.0	21.4	195.4	231.0	299.2	326.5	369.1	439.3	0.23
3 T	0.561	21.4	174.0	21.4	195.4	231.0	299.2	326.5	369.1	439.3	0.23
4 R	0.181	3.5	14.2	3.5	17.6	21.1	28.1	31.5	36.6	46.7	0.16
South: ACCESO SUR (PR-464)											
1 LTR	0.620	5.3	180.8	5.3	186.0	220.1	285.4	311.8	352.9	421.2	0.22
East: ACCESO ESTE											
1 L	0.522	9.2	104.3	9.2	113.5	135.0	176.9	195.1	223.2	273.1*	0.97
2 T	0.844	92.7	556.5	92.7	649.2	748.0	925.9	979.8	1065.8	1191.7	0.67
3 TR	0.844	92.9	550.0	92.9	642.9	741.0	917.6	971.1	1056.7	1181.8	0.66
North: ACCESO NORTE											
1 LTR	0.010	0.0	1.9	0.0	2.0	2.4	3.1	3.5	4.1	5.3	0.00

Values printed in this table are back of queue (feet).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

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

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 30 MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)									
5L L	40.0	11.8	11.8	40.0			29.1	14.9	9.0
2T T	40.0	40.0	40.0	40.0		11.7	33.1	28.4	0.0
2R R	40.0	12.5	12.5	40.0			31.1	30.9	8.9

```
 South: ACCESO SUR (PR-464)
   3L L     40.0  14.0   14.0  40.0                    28.9     8.8     8.7
   8T T     40.0  40.0   40.0  40.0                    31.7     9.3     0.0
   8R R     40.0  12.5   12.5  40.0                    29.0    15.1     8.9
-----------------------------------------------------------------------------
 East: ACCESO ESTE
   1L L     40.0  12.0   12.0  40.0                    29.1    15.8     9.0
   6T T     40.0  40.0   40.0  40.0    34.8            32.8    25.2     0.0
   6R R     40.0  12.5   12.5  40.0    32.2            29.3    21.6     8.9
-----------------------------------------------------------------------------
 North: ACCESO NORTE
   7L L     40.0  12.9   12.9  40.0                    29.2    15.7     8.9
   4T T     40.0  40.0   40.0  40.0                    32.5    17.5     0.0
   4R R     40.0  12.5   12.5  40.0                    29.2    16.0     8.9
-----------------------------------------------------------------------------

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

Table D.5 - Progression Factors and Actuated Signal Parameters

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------------
                                     Delay   Queue     Gap      Disp. Grn. Settings
  Mov                        Arrival Prog.   Prog.   Settings    1st Grn   2nd Grn
  ID      Control  Coord.     Type   Factor  Factor   es   eh   Gmin Gmax Gmin Gmax
-------------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-2)
   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     6   50
   2R R     VA      No         3     1.000   1.000   2.5  3.1     6   50     6   50
-------------------------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
   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   2.0  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
   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 CARRETERA PR- 2   PR- 464
FIGURA 30   MEJORAS PROPUESTAS F(AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)						
5L L	Normal	0	4.50	263.9	2.50	2.00
2R R	Normal	1	6.00	107.2	3.00	2.00
South: ACCESO SUR (PR-464)						
3L L	Normal	2	4.50	263.8	2.50	2.00
8R R	Normal	1038	6.00	352.0	3.00	2.00
East: ACCESO ESTE						
1L L	Normal	0	4.50	241.4	2.50	2.00
6R R	Normal	1	6.00	153.7	3.00	2.00
North: ACCESO NORTE						
7L L	Normal	125	4.50	84.2	2.50	2.00
4R R	Normal	1015	6.00	352.0	3.00	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 Mar 26, 2008 01:04:40PM

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

Output Tables

INTERSECCIÓN CARRETERA PR- 2 & PR- 464

FIGURA 31 MEJORAS PROPUESTAS F(PM)

Run Information

```
Cycle Time =   95  (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 CARRETERA PR- 2   PR- 464
FIGURA 31  MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
          South        2R   Right   263     0    1.00     1.00
```

```
          East         2T   Thru   1585     0    1.00     1.00
          North        5L   Left      1     0    1.00     1.00
-----------------------------------------------------------------
 South: ACCESO SUR (PR-464)
          West         3L   Left    140     0    1.00     1.00
          East         8R   Right   216     0    1.00     1.00
          North        8T   Thru      1     0    1.00     1.00
-----------------------------------------------------------------
 East: ACCESO ESTE
          West         6T   Thru   1413     0    1.00     1.00
          South        1L   Left    205     0    1.00     1.00
          North        6R   Right     1     0    1.00     1.00
-----------------------------------------------------------------
 North: ACCESO NORTE
          West         4R   Right     1     0    1.00     1.00
          South        4T   Thru      1     0    1.00     1.00
          East         7L   Left      1     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 CARRETERA PR- 2   PR- 464
FIGURA 31  MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
   5L L       1     0      0     0      0     0
   2T T       0     0   1585     0      0     0
   2R R       0     0      0     0    263     0
-----------------------------------------------
South: ACCESO SUR (PR-464)
   3L L     140     0      0     0      0     0
   8T T       0     0      1     0      0     0
   8R R       0     0      0     0    216     0
-----------------------------------------------
East: ACCESO ESTE
   1L L     205     0      0     0      0     0
   6T T       0     0   1413     0      0     0
   6R R       0     0      0     0      1     0
-----------------------------------------------
North: ACCESO NORTE
   7L L       1     0      0     0      0     0
   4T T       0     0      1     0      0     0
   4R R       0     0      0     0      1     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 CARRETERA PR- 2   PR- 464
FIGURA 31  MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
   5L L        1   0.0       0   0.0       0   0.0
   2T T        0   0.0    1585   0.0       0   0.0
   2R R        0   0.0       0   0.0     263   0.0
-------------------------------------------------
South: ACCESO SUR (PR-464)
   3L L      140   0.0       0   0.0       0   0.0
   8T T        0   0.0       1   0.0       0   0.0
   8R R        0   0.0       0   0.0     216   0.0
-------------------------------------------------
East: ACCESO ESTE
   1L L      205   0.0       0   0.0       0   0.0
   6T T        0   0.0    1413   0.0       0   0.0
   6R R        0   0.0       0   0.0       1   0.0
-------------------------------------------------
North: ACCESO NORTE
   7L L        1   0.0       0   0.0       0   0.0
   4T T        0   0.0       1   0.0       0   0.0
   4R R        0   0.0       0   0.0       1   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 CARRETERA PR- 2   PR- 464
FIGURA 31  MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L        3     4                                   4        10.0Min            6
  2T T        1     2            *3     4               4    4   40.8     11.4     41    6
  2R R        1     2             2     1      Y        4   14   32.0     30.0Min  41   36
-------------------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L       *4     1      Y                            4        30.1              16
  8T T        4     1                                   4        29.3              16
  8R R        1     4      Y      4     1              37    4   30.0Min  28.1     38   16
-------------------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L       *2     3                                   4        24.0Max           16
  6T T        1     3                                   4        48.4              61
  6R R       *1     2             2     1      Y        4    4   40.8     36.5     41   46
-------------------------------------------------------------------------------------------
```

```
North: ACCESO NORTE
  7L L        4      1      Y                          13        13.2              7
  4T T        4      1                                  4        10.0Min          16
  4R R        1      4      Y      4      1            30    4   30.0Min  10.0Min  45   16
-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
  Current Phase Sequence: Split Phasing
  Input phase sequence: 1 2 3 4
  Output phase sequence: 1 2 3 4
-----------------------------------------------------------------------------------------
  *  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 CARRETERA PR- 2   PR- 464
FIGURA 31  MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L       1    0.0  1775        0.001         112  0.90  9989   100  0.009
  2T T    1585    0.0  3737  3737  0.353 0.071  1849  0.90     5   100  0.857
  2R R     263    0.0   832< 1052< 0.184 0.105   758  0.90   159   100  0.347
-------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L     140    0.0   794        0.176         134  0.90   -14   100  1.047*
  8T T       1    0.0     6        0.167           1  0.90    -9   100  0.990
  8R R     216    0.0   139   896  0.000 0.241   207  0.90   -14   100  1.046
-------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L     205    0.0  1775        0.115         299  0.90    31   100  0.686
  6T T    1413    0.0  3740        0.378        2401  0.90    53   100  0.588
  6R R       1    0.0     0     3  0.274 0.242     2  0.90    70   100  0.531
-------------------------------------------------------------------------------
North: ACCESO NORTE
  7L L       1    0.0  1339        0.001          99  0.90  8780   100  0.010
  4T T       1    0.0   586        0.002          99  0.90  8783   100  0.010
  4R R       1    0.0    49   448  0.000 0.002    99  0.90  8780   100  0.010
-------------------------------------------------------------------------------
```

Table S.3 - Intersection Parameters

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 31  MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
```

Actuated Isolated Signals, Cycle Time = 95 (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
6R	E_R	1st	1	2	4	0.274	0.387	40.8
1L	E_L		2	3	24	-	-	24.0Max
2T	W_T	2nd	3	4	4	0.071	0.078	11.4
3L	S_L		4	1	4	0.176	0.274	30.1
				Total:	36	0.521	0.740	106.3

- 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
40	NA	139	95

(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	=	F
Average intersection delay (s/pers)	=	28.8
Largest average movement delay (s)	=	107.3
Largest back of queue, 95% (ft)	=	843
Performance Index	=	170.65
Degree of saturation (highest)	=	1.047
Practical Spare Capacity (lowest)	=	-14 %
Effective intersection capacity, (veh/h)	=	3656
Total vehicle flow (veh/h)	=	3828
Total person flow (pers/h)	=	4594
Total vehicle delay (veh-h/h)	=	30.62
Total person delay (pers-h/h)	=	36.74
Total effective vehicle stops (veh/h)	=	2941
Total effective person stops (pers/h)	=	3529
Total vehicle travel (veh-mi/h)	=	1450.0
Total cost ($/h)	=	1003.94
Total fuel (gal/h)	=	78.1
Total CO2 (kg/h)	=	738.66

Table S.4 - Phase Information

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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	41	45	4	45	47%
2	45	4	49	16	65	4	20	21%
3	65	4	69	6	75	4	10	11%
4	75	4	79	16	95	4	20	21%

(Phase times specified by the user)
Current Phase Sequence: Split Phasing
Input phase sequence: 1 2 3 4
Output phase sequence: 1 2 3 4

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 (PR-2)									
5L L	0.02	0.02	56.1	0.94	0.59	0.1	2	0.06	15.0
2T T	12.46	14.95	28.3	0.93	0.92	33.7	843	75.29	21.9
2R R	0.79	0.95	10.8	0.25	0.73	3.6	90	6.10	30.3
South: ACCESO SUR (PR-464)									
3L L	3.08	3.70	79.3	1.00	1.02	27.2	680	11.29	12.0
8T T	0.02	0.02	70.6	1.00	1.02	27.2	680	0.08	13.0
8R R	6.44	7.72	107.3	1.00	0.94	24.9	624	18.10	9.6
East: ACCESO ESTE									
1L L	3.30	3.96	57.9	0.97	0.82	12.3	306	12.54	14.7
6T T	4.46	5.35	11.4	0.60	0.55	22.5	563	47.01	30.0
6R R	0.01	0.01	20.0	0.59	0.82	22.3	557	0.04	25.1
North: ACCESO NORTE									
7L L	0.01	0.02	52.5	0.89	0.66	0.2	4	0.06	15.7
4T T	0.01	0.01	43.7	0.89	0.59	0.2	4	0.05	17.6
4R R	0.01	0.02	50.6	0.89	0.63	0.2	4	0.05	16.0

Table S.6 - Intersection Performance

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)									
1849	0.857	13.27	15.92	25.8	0.83	0.89	843	81.45	22.8
South: ACCESO SUR (PR-464)									
357	1.047	9.54	11.45	96.2	1.00	0.97	680	29.46	10.4
East: ACCESO ESTE									
1619	0.686	7.77	9.32	17.3	0.65	0.58	563	59.58	26.6
North: ACCESO NORTE									
3	0.010	0.04	0.05	49.0	0.89	0.63	4	0.16	16.4
ALL VEHICLES:									
3828	1.047	30.62	36.74	28.8	0.77	0.77	843	170.65	21.7
INTERSECTION (persons):									
4594	1.047		36.74	28.8	0.77	0.77		170.65	21.7

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

Table S.7 - Lane Performance

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 31  MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------
        Effective Red and   Dem                              Q u e u e
        Green Times (sec)   Flow  Cap  Deg.  Aver.  Eff.   95% Back     Lane
 Lane   -----------------   (veh (veh  Satn  Delay  Stop  -----------  Length
 No.     R1  G1   R2  G2     /h)  /h)   x    (sec)  Rate  (vehs) (ft)   (ft)
-------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L     89   6    0   0      1  112 0.009   56.1  0.59   0.1    1.5   230.0T
 2 T     24  41   24   6    793  924 0.857   28.3  0.92  33.7  842.8  1600.0
 3 T     24  41   24   6    793  924 0.857   28.3  0.92  33.7  842.8  1600.0
 4 R      4  41   14  36    263  758 0.347   10.8  0.73   3.6   90.5   230.0T
-------------------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR   79  16    0   0    357  341 1.046   79.4  0.97  27.2  680.2  1600.0
-------------------------------------------------------------------------------
 East: ACCESO ESTE
 1 L     79  16    0   0    205  299 0.686   57.9  0.82  12.3* 306.4   230.0T
 2 T     34  61    0   0    706 1200 0.588   11.6  0.56  22.5  563.2  1600.0
 3 TR    33  45    0  17    708 1204 0.588   11.1  0.54  22.3  556.8  1600.0
-------------------------------------------------------------------------------
 North: ACCESO NORTE
 1 LTR   84  11    0   0      3  296 0.010   47.6  0.63   0.2    4.1  1600.0
-------------------------------------------------------------------------------
  *  Queue length exceeds short lane length due to specification of a
     percentile queue in the Tools-Options (Model tab). For calculation
     of this statistic, you may specify the lane with full length.
  T  Short lane due to specification of Turn Slot
```

Table S.8 - Lane Flow and Capacity Information

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 31  MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
 1 L       1    0    0    1  11.5  1868 1775     0    0  112 0.009  100
 2 T       0  793    0  793  11.5  1868 1868  1868    0  924 0.857  100
 3 T       0  793    0  793  11.5  1868 1868  1868    0  924 0.857  100
 4 R       0    0  263  263  11.5  1868  832< 1052<  38  758 0.347  100
-----------------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR   140    1  216  357  11.5  1868  368     0   91  341 1.046  100
-----------------------------------------------------------------------------
 East: ACCESO ESTE
 1 L     205    0    0  205  11.5  1868 1775     0    0  299 0.686  100
```

```
 2 T       0  706    0  706  11.5  1868 1868     0    0 1200 0.588  100
 3 TR      0  707    1  708  11.5  1868 1868  1782   38 1204 0.588  100
-----------------------------------------------------------------------
 North: ACCESO NORTE
 1 LTR     1    1    1    3  10.0  1773  761     0   88  296 0.010  100
-----------------------------------------------------------------------
  <  Reduced saturation flow due to a short lane effect

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

Table S.9 - Signal Timing Diagram

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 31  MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

            Phase 1                 Phase 2    Phase 3     Phase 4

0                               45            65      75              95
I-------------------------------I-------------I-------I--------------I
...GGGGGGGGGGGGGGGGGGGGGGGGGGGG....GGGGGGGGGG.....GGG....GGGGGGGGGGG.
  4                               49             69     79


Effective (Movement) Green Times


 West: ACCESO OESTE (PR-2)

Mov.    5L (L)
I                               I             I       I               I
.................................................GGGG..............
                                                 71    77

Mov.    2T (T)
I                               I             I       I               I
....GGGGGGGGGGGGGGGGGGGGGGGGGGGGG................GGGGGG.............
   6                             47              71    77

Mov.    2R (R)
I                               I             I       I               I
G...GGGGGGGGGGGGGGGGGGGGGGGGGGGGG..........GGGGGGGGGGGGGGGGGGGGGGGGGGG
2  6                             47         61


 South: ACCESO SUR (PR-464)

Mov.    3L (L)
I                               I             I       I               I
............................................................GGGGGGGGGG
2                                                           81

Mov.    8T (T)
I                               I             I       I               I
............................................................GGGGGGGGGG
2                                                           81

Mov.    8R (R)
I                               I             I       I               I
G...........................GGGGGGGGGGGGGGGGGGGGGGGGGGGG...GGGGGGGGGGG
2                          39                           77  81
```

```
 East: ACCESO ESTE

Mov.    1L (L)
I                                I             I       I              I
.....................................GGGGGGGGGG......................
                                    51          67

Mov.    6T (T)
I                                I             I       I              I
....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG......................
   6                                             67

Mov.    6R (R)
I                                I             I       I              I
G...GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG...GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
2  6                              47   51


 North: ACCESO NORTE

Mov.    7L (L)
I                                I             I       I              I
..................................................................GGGG
2                                                                  90

Mov.    4T (T)
I                                I             I       I              I
............................................................GGGGGGGGGG
2                                                            81

Mov.    4R (R)
I                                I             I       I              I
G.......................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG...GGGGGGGGGG
2                     32                                77   81


I-----I------I------I------I------I------I------I------I------I------I---->
0     10     19     29     38     48     57     67     76     86     95

                              T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)											
5L	L	1	112	100	0.009	6		56.1	0.59	0.1	0.06
2T	T	1585	1849	100	0.857	41	6*	28.3	0.92	33.7	75.29
2R	R	263	758<	100	0.347	41	36	10.8	0.73	3.6	6.10
South: ACCESO SUR (PR-464)											
3L	L	140	134	100	1.047*	16*		79.3	1.02	27.2	11.29
8T	T	1	1	100	0.990	16		70.6	1.02	27.2	0.08
8R	R	216	207	100	1.046	38	16	107.3	0.94	24.9	18.10
East: ACCESO ESTE											
1L	L	205	299	100	0.686	16*		57.9	0.82	12.3	12.54

6T T	1413	2401	100	0.588	61		11.4	0.55	22.5	47.01
6R R	1	2	100	0.531	41*	46	20.0	0.82	22.3	0.04
North: ACCESO NORTE										
7L L	1	99	100	0.010	7		52.5	0.66	0.2	0.06
4T T	1	99	100	0.010	16		43.7	0.59	0.2	0.05
4R R	1	99	100	0.010	45	16	50.6	0.63	0.2	0.05

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

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

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)						
5L L	0.0	0.35	0.000	0.02	0.001	0.2
2T T	33.7	421.43	0.577	25.93	0.758	319.3
2R R	5.0	55.17	0.084	4.17	0.121	47.6
	38.8	476.95	0.661	30.12	0.880	367.2
South: ACCESO SUR (PR-464)						
3L L	3.7	58.99	0.068	2.48	0.073	35.2
8T T	0.0	0.40	0.000	0.02	0.001	0.2
8R R	6.3	109.26	0.118	3.95	0.116	60.0
	10.1	168.65	0.186	6.45	0.189	95.5
East: ACCESO ESTE						
1L L	5.0	72.77	0.089	3.57	0.103	47.2
6T T	24.1	284.35	0.381	15.91	0.531	228.0
6R R	0.0	0.24	0.000	0.02	0.000	0.2
	29.1	357.36	0.470	19.50	0.635	275.4
North: ACCESO NORTE						
7L L	0.0	0.34	0.000	0.02	0.000	0.2
4T T	0.0	0.31	0.000	0.02	0.000	0.2
4R R	0.0	0.33	0.000	0.02	0.000	0.2
	0.1	0.98	0.001	0.05	0.001	0.7
INTERSECTION:	78.1	1003.94	1.319	56.12	1.705	738.7

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 CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)						
5L L	15.6	0.58	0.715	28.80	0.832	378.0
2T T	17.8	0.44	0.596	26.79	0.784	329.9
2R R	19.7	0.35	0.528	26.20	0.759	299.0
	18.1	0.42	0.586	26.71	0.780	325.6
South: ACCESO SUR (PR-464)						
3L L	14.3	0.69	0.791	29.06	0.850	412.4
8T T	14.6	0.65	0.765	29.06	0.847	401.9
8R R	12.8	0.84	0.904	30.21	0.884	459.0
	13.3	0.78	0.859	29.76	0.871	440.5
East: ACCESO ESTE						
1L L	15.4	0.59	0.721	28.83	0.833	380.8
6T T	22.3	0.33	0.441	18.44	0.616	264.3
6R R	18.6	0.39	0.570	27.06	0.781	316.8
	21.1	0.36	0.476	19.75	0.643	278.9
North: ACCESO NORTE						
7L L	15.9	0.56	0.693	28.23	0.820	369.8
4T T	17.0	0.51	0.635	25.66	0.770	346.4
4R R	16.0	0.55	0.689	28.32	0.821	367.5
	16.3	0.54	0.672	27.40	0.803	361.2
INTERSECTION:	18.6	0.43	0.565	24.05	0.731	316.5

Table S.14 - Summary of Input and Output Data

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)												
1 L	1			1	0	1868	6		0.009	56.1	2	230
2 T		793		793	0	1868	41	6	0.857	28.3	843	1600
3 T		793		793	0	1868	41	6	0.857	28.3	843	1600

```
4 R                263   263    0  1868   41  36  0.347   10.8    90   230
         ---------------------------------------------------------------------
           1 1585  263  1849    0                 0.857   25.8   843
-----------------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
1 LTR    140    1  216   357    0  1868   16      1.046  107.2   624  1600
         ---------------------------------------------------------------------
         140    1  216   357    0                 1.046   79.4   680
-----------------------------------------------------------------------------
 East: ACCESO ESTE
1 L      205              205    0  1868   16      0.686   57.9   306*  230
2 T          706          706    0  1868   61      0.588   11.6   563  1600
3 TR         707    1     708    0  1868   45  17  0.588   11.1   557  1600
         ---------------------------------------------------------------------
         205 1413    1   1619    0                 0.686   17.3   563
-----------------------------------------------------------------------------
 North: ACCESO NORTE
1 LTR      1    1    1      3    0  1773   11      0.010   47.6     4  1600
         ---------------------------------------------------------------------
           1    1    1      3    0                 0.010   47.6     4
=============================================================================
 ALL VEHICLES          Total   %       Cycle      Max   Aver.   Max
                       Flow   HV       Time        X    Delay  Queue
                       3828    0         95      1.047   28.8   843
=============================================================================
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.

  *  Queue length exceeds short lane length due to specification of a
     percentile queue in the Tools-Options (Model tab). For calculation
     of this statistic, you may specify the lane with full length.
```

Table S.15 - Capacity and Level of Service

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 31  MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L        0.063            1    112   0.009    56.1    E      0.1      2
  2T T        0.432  0.063*  1585   1849   0.857    28.3    C     33.7    843
  2R R        0.432  0.379    263    758<  0.347    10.8    B      3.6     90
-------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L        0.168*         140    134   1.047*   79.3    E     27.2    680
  8T T        0.168            1      1   0.990    70.6    E     27.2    680
  8R R        0.400  0.168   216    207   1.046   107.3    F     24.9    624
-------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L        0.168*         205    299   0.686    57.9    E     12.3    306
  6T T        0.642         1413   2401   0.588    11.4    B     22.5    563
  6R R        0.432* 0.484     1      2   0.531    20.0    C     22.3    557
-------------------------------------------------------------------------------
North: ACCESO NORTE
  7L L        0.074            1     99   0.010    52.5    D      0.2      4
```

4T T	0.168		1	99	0.010	43.7	D	0.2	4
4R R	0.474	0.168	1	99	0.010	50.6	D	0.2	4
ALL VEHICLES:			3828		1.047	28.8	C	33.7	843
INTERSECTION (persons):			4594			28.8		33.7	843

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

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

Table S.16 - SCATS MF Parameter

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)						
1 L	1	112	1775	1065	0.009	100
2 T	793	924	1868	1702	0.857	100
3 T	793	924	1868	1702	0.857	100
4 R	263	758	1588	1447	0.347	100
South: ACCESO SUR (PR-464)						
1 LTR	341	341	1657	NA	1.046	100
East: ACCESO ESTE						
1 L	205	299	1775	1420	0.686	100
2 T	706	1200	1868	1753	0.588	100
3 TR	708	1204	1868	NA	0.588	100
North: ACCESO NORTE						
1 LTR	3	296	1648	NA	0.010	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 CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)								
	South	Right	32.8	12.5	51.5	1600	387	No
	East	Thru	S	40.0	35.0	1600	403	No
	North	Left	28.2	11.8	44.3	1600	381	No
South: ACCESO SUR (PR-464)								
	West	Left	43.8	14.0	68.8	1600	399	No
	East	Right	32.8	12.5	51.5	1600	387	No
	North	Thru	S	40.0	81.0	1600	403	No
East: ACCESO ESTE								
	West	Thru	S	40.0	35.0	1600	403	No
	South	Left	29.3	12.0	46.1	1600	383	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	81.0	1600	403	No
	East	Left	35.5	12.9	55.7	1600	390	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 CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (Sum of User-given Phase Times)

		Delay (seconds/veh)								
		Stop-line Delay			Acc.	Queuing		Stopd		
Lane No.	Deg. Satn x	1st d1	2nd d2	Total dSL	Dec. dn	Total dq	MvUp dqm	(Idle) di	Geom dig	Control dic
West: ACCESO OESTE (PR-2)										
1 L	0.009	47.1	0.0	47.1	3.7	43.5	0.0	43.5	9.0	56.1
2 T	0.857	20.2	8.1	28.3	8.3	20.0	1.3	18.7	0.0	28.3
3 T	0.857	20.2	8.1	28.3	8.3	20.0	1.3	18.7	0.0	28.3
4 R	0.347	1.6	0.3	1.9	1.0	0.9	0.0	0.9	8.9	10.8
South: ACCESO SUR (PR-464)										
1 LTR	1.046	9.2	61.4	70.6	4.2	83.1	2.1	81.1	8.8	79.4
East: ACCESO ESTE										
1 L	0.686	42.9	6.0	49.0	3.8	45.1	0.0	45.1	9.0	57.9
2 T	0.588	10.8	0.8	11.6	5.4	6.2	0.0	6.2	0.0	11.6

3 TR	0.588	10.3	0.8	11.1	5.3	5.9	0.0	5.9	0.0	11.1
North: ACCESO NORTE										
1 LTR	0.010	43.7	0.0	43.7	5.1	37.9	0.0	37.9	5.9	49.6

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

Table D.2 - Lane Stops

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)							
1 L	0.009	0.55	0.00	0.04	0.59	0.939	0.00
2 T	0.857	0.84	0.08	0.00	0.92	0.930	0.20
3 T	0.857	0.84	0.08	0.00	0.92	0.930	0.20
4 R	0.347	0.22	0.00	0.51	0.73	0.251	0.00
South: ACCESO SUR (PR-464)							
1 LTR	1.046	0.86	0.11	0.00	0.97	1.000	0.39
East: ACCESO ESTE							
1 L	0.686	0.80	0.00	0.02	0.82	0.968	0.00
2 T	0.588	0.56	0.00	0.00	0.56	0.610	0.00
3 TR	0.588	0.54	0.00	0.00	0.54	0.593	0.00
North: ACCESO NORTE							
1 LTR	0.010	0.58	0.00	0.05	0.63	0.889	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 CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)											
1 L	0.009	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.01
2 T	0.857	3.4	16.4	3.4	19.8	23.0	28.9	30.7	33.7	38.0	0.53
3 T	0.857	3.4	16.4	3.4	19.8	23.0	28.9	30.7	33.7	38.0	0.53
4 R	0.347	0.3	1.5	0.3	1.8	2.1	2.8	3.1	3.6	4.6	0.39

South: ACCESO SUR (PR-464)											
1 LTR	1.046	3.6	11.9	3.6	15.5	18.1	22.9	24.6	27.2	31.1	0.43
East: ACCESO ESTE											
1 L	0.686	0.7	5.7	0.7	6.4	7.6	9.8*	10.8*	12.3*	14.8*	1.33
2 T	0.588	1.1	11.4	1.1	12.5	14.7	18.8	20.2	22.5	26.1	0.35
3 TR	0.588	1.1	11.2	1.1	12.4	14.5	18.5	20.0	22.3	25.8	0.35
North: ACCESO NORTE											
1 LTR	0.010	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.00

Values printed in this table are back of queue (vehicles).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

Table D.3B - Lane Queues (feet)

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)											
1 L	0.009	0.0	0.7	0.0	0.7	0.9	1.2	1.3	1.5	2.0	0.01
2 T	0.857	84.7	411.2	84.7	496.0	575.8	721.6	767.9	842.8	951.0	0.53
3 T	0.857	84.7	411.2	84.7	496.0	575.8	721.6	767.9	842.8	951.0	0.53
4 R	0.347	8.0	36.3	8.0	44.3	52.9	70.1	78.2	90.5	113.9	0.39
South: ACCESO SUR (PR-464)											
1 LTR	1.046	90.8	297.1	90.8	388.0	453.1	573.7	614.6	680.2	777.1	0.43
East: ACCESO ESTE											
1 L	0.686	17.8	141.7	17.8	159.5	189.1	246.0*	269.7*	306.4*	368.8*	1.33
2 T	0.588	27.9	285.1	27.9	313.0	367.2	468.8	505.2	563.2	651.6	0.35
3 TR	0.588	28.0	281.0	28.0	309.0	362.6	463.1	499.2	556.8	644.7	0.35
North: ACCESO NORTE											
1 LTR	0.010	0.0	1.9	0.0	2.0	2.4	3.1	3.5	4.1	5.3	0.00

Values printed in this table are back of queue (feet).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

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

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)									
5L L	40.0	11.8	11.8	40.0			29.1	15.0	9.0
2T T	40.0	40.0	40.0	40.0	30.7	11.7	31.2	21.9	0.0
2R R	40.0	12.5	12.5	40.0			30.9	30.3	8.9
South: ACCESO SUR (PR-464)									
3L L	40.0	14.0	14.0	40.0	8.5		27.6	12.0	8.7
8T T	40.0	40.0	40.0	40.0	8.5		30.3	13.0	0.0
8R R	40.0	12.5	12.5	40.0	8.5		27.7	9.6	8.9
East: ACCESO ESTE									
1L L	40.0	12.0	12.0	40.0			29.0	14.7	9.0
6T T	40.0	40.0	40.0	40.0			34.6	30.0	0.0
6R R	40.0	12.5	12.5	40.0			30.0	25.1	8.9
North: ACCESO NORTE									
7L L	40.0	12.9	12.9	40.0			29.2	15.7	8.9
4T T	40.0	40.0	40.0	40.0			32.5	17.6	0.0
4R R	40.0	12.5	12.5	40.0			29.2	16.0	8.9

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

Table D.5 - Progression Factors and Actuated Signal Parameters

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)											
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	6	50
2R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
South: ACCESO SUR (PR-464)											
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	2.0	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											
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 CARRETERA PR- 2 PR- 464
FIGURA 31 MEJORAS PROPUESTAS F(PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)						
5L L	Normal	0	4.50	263.9	2.50	2.00
2R R	Normal	1	6.00	106.8	3.00	2.00
South: ACCESO SUR (PR-464)						
3L L	Normal	2	4.50	263.9	2.50	2.00
8R R	Normal	1585	6.00	352.0	3.00	2.00
East: ACCESO ESTE						
1L L	Normal	0	4.50	238.2	2.50	2.00
6R R	Normal	1	6.00	228.0	3.00	2.00
North: ACCESO NORTE						
7L L	Normal	217	4.50	83.5	2.50	2.00
4R R	Normal	707	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 CARRETERA PR- 2 & PR- 464

FIGURA 32 PROYECCIÓN AÑO 2023 (AM)

Run Information

```
Cycle Time =   95  (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 CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
           South        2R   Right   173     0    1.00     1.00
```

```
          East         2T   Thru   1265     0    1.00     1.00
          North        5L   Left      5     0    1.00     1.00
-----------------------------------------------------------------
 South: ACCESO SUR (PR-464)
          West         3L   Left     95     0    1.00     1.00
          East         8R   Right   137     0    1.00     1.00
          North        8T   Thru      1     0    1.00     1.00
-----------------------------------------------------------------
 East: ACCESO ESTE
          West         6T   Thru   2471     0    1.00     1.00
          South        1L   Left    179     0    1.00     1.00
          North        6R   Right     1     0    1.00     1.00
-----------------------------------------------------------------
 North: ACCESO NORTE
          West         4R   Right     1     0    1.00     1.00
          South        4T   Thru      1     0    1.00     1.00
          East         7L   Left      1     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 CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
   5L L       5     0      0     0      0     0
   2T T       0     0   1265     0      0     0
   2R R       0     0      0     0    173     0
-----------------------------------------------
South: ACCESO SUR (PR-464)
   3L L      95     0      0     0      0     0
   8T T       0     0      1     0      0     0
   8R R       0     0      0     0    137     0
-----------------------------------------------
East: ACCESO ESTE
   1L L     179     0      0     0      0     0
   6T T       0     0   2471     0      0     0
   6R R       0     0      0     0      1     0
-----------------------------------------------
North: ACCESO NORTE
   7L L       1     0      0     0      0     0
   4T T       0     0      1     0      0     0
   4R R       0     0      0     0      1     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 CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
   5L L        5   0.0       0   0.0       0   0.0
   2T T        0   0.0    1265   0.0       0   0.0
   2R R        0   0.0       0   0.0     173   0.0
--------------------------------------------------
South: ACCESO SUR (PR-464)
   3L L       95   0.0       0   0.0       0   0.0
   8T T        0   0.0       1   0.0       0   0.0
   8R R        0   0.0       0   0.0     137   0.0
--------------------------------------------------
East: ACCESO ESTE
   1L L      179   0.0       0   0.0       0   0.0
   6T T        0   0.0    2471   0.0       0   0.0
   6R R        0   0.0       0   0.0       1   0.0
--------------------------------------------------
North: ACCESO NORTE
   7L L        1   0.0       0   0.0       0   0.0
   4T T        0   0.0       1   0.0       0   0.0
   4R R        0   0.0       0   0.0       1   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 CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L        3     4                                    4        10.0Min            6
  2T T        1     2            *3     4                4    4   33.9     13.6     41    6
  2R R        1     2             2     1      Y         4   13   21.7     30.0Min  41   37
-------------------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L       *4     1      Y                             4        25.1              16
  8T T        4     1                                    4        24.7              16
  8R R        1     4      Y      4     1               26    4   30.0Min  20.5     49   16
-------------------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L       *2     3                                    4        23.4              16
  6T T        1     3                                    4        54.0Max           61
  6R R       *1     2             2     1      Y         4    4   33.9     47.0     41   46
-------------------------------------------------------------------------------------------
```

```
North: ACCESO NORTE
  7L L        4      1      Y                          13        13.2                7
  4T T        4      1                                  4        10.0Min            16
  4R R        1      4      Y      4      1            65    4   30.0Min  10.0Min  10   16
-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
  Current Phase Sequence: Split Phasing
  Input phase sequence: 1 2 3 4
  Output phase sequence: 1 2 3 4
-----------------------------------------------------------------------------------------
  *  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 CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L       5    0.0  1775        0.003        112  0.90  1918   100  0.045
  2T T    1265    0.0  3737  3737  0.257 0.082 1849  0.90    32   100  0.684
  2R R     173    0.0   860< 1059< 0.092 0.088  784  0.90   308   100  0.221
-------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L      95    0.0   818        0.116        138  0.90    31   100  0.690
  8T T       1    0.0     9        0.111          2  0.90    36   100  0.660
  8R R     137    0.0   101   871  0.000 0.157  199  0.90    31   100  0.689
-------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L     179    0.0  1775        0.101        299  0.90    50   100  0.599
  6T T    2471    0.0  3742        0.660       2403  0.90   -12   100  1.028*
  6R R       1    0.0     0     2  0.258 0.371    1  0.90    26   100  0.714
-------------------------------------------------------------------------------
North: ACCESO NORTE
  7L L       1    0.0  1337        0.001         99  0.90  8766   100  0.010
  4T T       1    0.0   585        0.002         99  0.90  8767   100  0.010
  4R R       1    0.0   217   449  0.000 0.002   98  0.90  8762   100  0.010
-------------------------------------------------------------------------------
```

Table S.3 - Intersection Parameters

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
```

Actuated Isolated Signals, Cycle Time = 95 (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
6R	E_R	1st	1	2	4	0.258	0.315	33.9
1L	E_L		2	3	4	0.101	0.204	23.4
2T	W_T	2nd	3	4	4	0.082	0.101	13.6
3L	S_L		4	1	4	0.116	0.223	25.1
				Total:	16	0.557	0.842	96.0

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	NA	102	95

(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	=	F
Average intersection delay (s/pers)	=	41.7
Largest average movement delay (s)	=	148.7
Largest back of queue, 95% (ft)	=	1857
Performance Index	=	244.81
Degree of saturation (highest)	=	1.028
Practical Spare Capacity (lowest)	=	-12 %
Effective intersection capacity, (veh/h)	=	4210
Total vehicle flow (veh/h)	=	4330
Total person flow (pers/h)	=	5196
Total vehicle delay (veh-h/h)	=	50.11
Total person delay (pers-h/h)	=	60.13
Total effective vehicle stops (veh/h)	=	4581
Total effective person stops (pers/h)	=	5497
Total vehicle travel (veh-mi/h)	=	1641.1
Total cost ($/h)	=	1352.80
Total fuel (gal/h)	=	102.4
Total CO2 (kg/h)	=	968.67

Table S.4 - Phase Information

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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	41	45	4	45	47%
2	45	4	49	16	65	4	20	21%
3	65	4	69	6	75	4	10	11%
4	75	4	79	16	95	4	20	21%

(Phase times specified by the user)
Current Phase Sequence: Split Phasing
Input phase sequence: 1 2 3 4
Output phase sequence: 1 2 3 4

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)
West: ACCESO OESTE (PR-2)									
5L L	0.08	0.10	57.3	0.94	0.65	0.3	8	0.29	14.8
2T T	6.39	7.67	18.2	0.80	0.76	21.4	535	47.35	26.1
2R R	0.50	0.60	10.4	0.21	0.72	2.0	50	3.79	30.6
South: ACCESO SUR (PR-464)									
3L L	3.92	4.71	148.7	1.00	0.89	15.7	391	8.69	7.5
8T T	0.04	0.05	139.9	1.00	0.89	15.7	391	0.09	7.8
8R R	2.26	2.71	59.3	1.00	0.81	13.3	331	8.24	14.5
East: ACCESO ESTE									
1L L	2.69	3.23	54.1	0.95	0.81	10.4	261	10.54	15.4
6T T	34.18	41.01	49.8	1.00	1.27	74.3	1857	165.59	16.3
6R R	0.02	0.02	56.0	1.00	1.24	0.0	0	0.07	15.1
North: ACCESO NORTE									
7L L	0.01	0.02	52.6	0.89	0.66	0.2	4	0.06	15.7
4T T	0.01	0.01	43.7	0.89	0.59	0.2	4	0.05	17.5
4R R	0.01	0.02	50.6	0.89	0.63	0.2	4	0.05	16.0

Table S.6 - Intersection Performance

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)									
1443	0.684	6.97	8.36	17.4	0.73	0.76	535	51.43	26.5
South: ACCESO SUR (PR-464)									
233	0.690	6.22	7.46	96.1	1.00	0.84	391	17.02	10.4
East: ACCESO ESTE									
2651	1.028	36.88	44.26	50.1	1.00	1.24	1857	176.20	16.2
North: ACCESO NORTE									
3	0.010	0.04	0.05	49.0	0.89	0.63	4	0.16	16.4
ALL VEHICLES:									
4330	1.028	50.11	60.13	41.7	0.91	1.06	1857	244.81	18.0
INTERSECTION (persons):									
5196	1.028		60.13	41.7	0.91	1.06		244.81	18.0

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

Table S.7 - Lane Performance

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)												
1 L	89	6	0	0	5	112	0.045	57.3	0.65	0.3	7.8	230.0T
2 T	24	41	24	6	633	924	0.684	18.2	0.76	21.4	534.5	1600.0
3 T	24	41	24	6	633	924	0.684	18.2	0.76	21.4	534.5	1600.0
4 R	4	41	13	37	173	784	0.221	10.4	0.72	2.0	50.4	230.0T
South: ACCESO SUR (PR-464)												
1 LTR	79	16	0	0	233	338	0.690	148.7	0.84	15.7	391.3	1600.0
East: ACCESO ESTE												
1 L	79	16	0	0	179	299	0.599	54.1	0.81	10.4*	260.8	230.0T
2 T	34	61	0	0	1234	1200	1.029	52.5	1.31	74.3	1856.8	1600.0
3 TR	33	45	0	17	1238	1204	1.029	47.1	1.24	65.9	1648.2	1600.0
North: ACCESO NORTE												
1 LTR	84	11	0	0	3	295	0.010	47.6	0.63	0.2	4.1	1600.0

* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.
T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)												
1 L	5	0	0	5	11.5	1868	1775	0	0	112	0.045	100
2 T	0	633	0	633	11.5	1868	1868	1868	0	924	0.684	100
3 T	0	633	0	633	11.5	1868	1868	1868	0	924	0.684	100
4 R	0	0	173	173	11.5	1868	860<	1059<	38	784	0.221	100
South: ACCESO SUR (PR-464)												
1 LTR	95	1	137	233	11.5	1868	346	0	91	338	0.690	100
East: ACCESO ESTE												
1 L	179	0	0	179	11.5	1868	1775	0	0	299	0.599	100
2 T	0	1234	0	1234	11.5	1868	1868	0	0	1200	1.029	100
3 TR	0	1237	1	1238	11.5	1868	1868	1783	38	1204	1.029	100
North: ACCESO NORTE												

```
 1 LTR     1    1    1    3  10.0  1773  757     0   88  295 0.010  100
-----------------------------------------------------------------------------
  <  Reduced saturation flow due to a short lane effect

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

Table S.9 - Signal Timing Diagram

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

            Phase 1                 Phase 2    Phase 3     Phase 4

0                               45            65      75              95
I-------------------------------I-------------I-------I--------------I
...GGGGGGGGGGGGGGGGGGGGGGGGGGGG....GGGGGGGGGG.....GGG....GGGGGGGGGGG.
  4                               49             69     79


Effective (Movement) Green Times


 West: ACCESO OESTE (PR-2)

Mov.    5L (L)
I                               I             I       I               I
.....................................................GGGG..............
                                                     71    77

Mov.    2T (T)
I                               I             I       I               I
....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG................GGGGGG.............
   6                             47              71    77

Mov.    2R (R)
I                               I             I       I               I
G...GGGGGGGGGGGGGGGGGGGGGGGGGGGGG.........GGGGGGGGGGGGGGGGGGGGGGGGGGGG
2  6                             47        60


 South: ACCESO SUR (PR-464)

Mov.    3L (L)
I                               I             I       I               I
............................................................GGGGGGGGGG
2                                                           81

Mov.    8T (T)
I                               I             I       I               I
............................................................GGGGGGGGGG
2                                                           81

Mov.    8R (R)
I                               I             I       I               I
G....................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG...GGGGGGGGGGG
2                  28                                   77  81


 East: ACCESO ESTE

Mov.    1L (L)
```

```
I                            I            I      I            I
....................................GGGGGGGGGG.....................
                                   51         67

Mov.    6T (T)
I                            I            I      I            I
....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.....................
   6                                           67

Mov.    6R (R)
I                            I            I      I            I
G...GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG...GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
2  6                          47  51


 North: ACCESO NORTE

Mov.    7L (L)
I                            I            I      I            I
..............................................................GGGG
2                                                           90

Mov.    4T (T)
I                            I            I      I            I
........................................................GGGGGGGGGG
2                                                     81

Mov.    4R (R)
I                            I            I      I            I
G............................................GGGGGGG...GGGGGGGGGGG
2                                         67      77  81


I-----I------I------I------I------I------I------I------I------I------I------I---->
0     10     19     29     38     48     57     67     76     86     95

                                  T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)											
5L	L	5	112	100	0.045	6		57.3	0.65	0.3	0.29
2T	T	1265	1849	100	0.684	41	6*	18.2	0.76	21.4	47.35
2R	R	173	784<	100	0.221	41	37	10.4	0.72	2.0	3.79
South: ACCESO SUR (PR-464)											
3L	L	95	138	100	0.690	16*		148.7	0.89	15.7	8.69
8T	T	1	2	100	0.660	16		139.9	0.89	15.7	0.09
8R	R	137	199	100	0.689	49	16	59.3	0.81	13.3	8.24
East: ACCESO ESTE											
1L	L	179	299	100	0.599	16*		54.1	0.81	10.4	10.54
6T	T	2471	2403	100	1.028*	61		49.8	1.27	74.3	165.59
6R	R	1	1	100	0.714	41*	46	56.0	1.24	0.0	0.07
North: ACCESO NORTE											

7L	L	1	99	100	0.010	7		52.6	0.66	0.2	0.06
4T	T	1	99	100	0.010	16		43.7	0.59	0.2	0.05
4R	R	1	98	100	0.010	10	16	50.6	0.63	0.2	0.05

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

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

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)						
5L L	0.1	1.76	0.002	0.09	0.003	1.1
2T T	24.4	290.69	0.403	18.05	0.551	230.5
2R R	3.3	36.03	0.055	2.74	0.079	31.2
	27.8	328.48	0.460	20.87	0.633	262.9
South: ACCESO SUR (PR-464)						
3L L	3.2	59.96	0.060	1.75	0.052	30.0
8T T	0.0	0.61	0.001	0.02	0.001	0.3
8R R	3.3	49.20	0.060	2.38	0.069	31.7
	6.6	109.76	0.121	4.15	0.122	62.0
East: ACCESO ESTE						
1L L	4.3	61.43	0.076	3.11	0.090	40.5
6T T	63.7	852.13	1.146	52.02	1.418	602.6
6R R	0.0	0.00	0.000	0.00	0.000	0.0
	68.0	913.57	1.223	55.13	1.507	643.1
North: ACCESO NORTE						
7L L	0.0	0.34	0.000	0.02	0.000	0.2
4T T	0.0	0.31	0.000	0.02	0.000	0.2
4R R	0.0	0.33	0.000	0.02	0.000	0.2
	0.1	0.98	0.001	0.05	0.001	0.7
INTERSECTION:	102.4	1352.80	1.805	80.20	2.264	968.7

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 CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)						
5L L	15.5	0.58	0.719	28.83	0.833	379.9
2T T	19.7	0.38	0.522	23.37	0.713	298.4
2R R	19.7	0.34	0.525	26.12	0.757	297.9
	19.7	0.37	0.523	23.71	0.719	298.6
South: ACCESO SUR (PR-464)						
3L L	11.3	1.04	1.040	30.27	0.907	518.2
8T T	11.6	0.99	1.013	30.26	0.904	507.6
8R R	15.4	0.59	0.723	28.73	0.833	382.1
	13.4	0.78	0.854	29.36	0.864	438.4
East: ACCESO ESTE						
1L L	15.7	0.57	0.706	28.71	0.829	374.6
6T T	14.7	0.56	0.760	34.48	0.939	399.4
6R R	0.0	0.00	0.000	0.00	0.000	0.0
	14.8	0.56	0.756	34.08	0.932	397.6
North: ACCESO NORTE						
7L L	15.9	0.56	0.694	28.23	0.820	369.8
4T T	17.0	0.51	0.635	25.66	0.770	346.5
4R R	16.0	0.55	0.689	28.32	0.821	367.5
	16.3	0.54	0.672	27.40	0.803	361.2
INTERSECTION:	16.0	0.51	0.683	30.37	0.857	366.8

Table S.14 - Summary of Input and Output Data

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)												
1 L	5			5	0	1868	6		0.045	57.3	8	230
2 T		633		633	0	1868	41	6	0.684	18.2	535	1600
3 T		633		633	0	1868	41	6	0.684	18.2	535	1600
4 R			173	173	0	1868	41	37	0.221	10.4	50	230
	5	1265	173	1443	0				0.684	17.4	535	

```
 South: ACCESO SUR (PR-464)
1 LTR    95    1  137   233    0  1868   16      0.690   59.1   331  1600
        ---------------------------------------------------------------------
         95    1  137   233    0                 0.690  148.7   391
-----------------------------------------------------------------------------
 East: ACCESO ESTE
1 L     179             179    0  1868   16      0.599   54.1   261*  230
2 T        1234        1234    0  1868   61      1.029   52.5  1857  1600
3 TR       1237    1   1238    0  1868   45  17  1.029   47.1  1648  1600
        ---------------------------------------------------------------------
        179 2471    1   2651    0                 1.029   50.1  1857
-----------------------------------------------------------------------------
 North: ACCESO NORTE
1 LTR     1    1    1      3    0  1773   11      0.010   47.6     4  1600
        ---------------------------------------------------------------------
          1    1    1      3    0                 0.010   47.6     4
=============================================================================
 ALL VEHICLES           Total   %       Cycle      Max   Aver.   Max
                        Flow   HV       Time        X    Delay  Queue
                        4330    0         95      1.028   41.7  1857
=============================================================================
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.

  *  Queue length exceeds short lane length due to specification of a
     percentile queue in the Tools-Options (Model tab). For calculation
     of this statistic, you may specify the lane with full length.
```

Table S.15 - Capacity and Level of Service

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L        0.063              5    112   0.045    57.3    E      0.3      8
  2T T        0.432  0.063*   1265   1849   0.684    18.2    B     21.4    535
  2R R        0.432  0.389    173    784<   0.221    10.4    B      2.0     50
-------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L        0.168*            95    138   0.690   148.7    F     15.7    391
  8T T        0.168              1      2   0.660   139.9    F     15.7    391
  8R R        0.516  0.168     137    199   0.689    59.3    E     13.3    331
-------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L        0.168*           179    299   0.599    54.1    D     10.4    261
  6T T        0.642           2471   2403   1.028*   49.8    D     74.3   1857
  6R R        0.432* 0.484       1      1   0.714    56.0    E      0.0      0
-------------------------------------------------------------------------------
North: ACCESO NORTE
  7L L        0.074              1     99   0.010    52.6    D      0.2      4
  4T T        0.168              1     99   0.010    43.7    D      0.2      4
  4R R        0.105  0.168       1     98   0.010    50.6    D      0.2      4
-------------------------------------------------------------------------------
  ALL VEHICLES:               4330          1.028    41.7    D     74.3   1857
```

```
-------------------------------------------------------------------------------
  INTERSECTION (persons):    5196                    41.7          74.3   1857
-------------------------------------------------------------------------------
     Level of Service calculations are based on
     average control delay including geometric delay (HCM criteria),
     independent of the current delay definition used.
     For the criteria, refer to the "Level of Service" topic in the
     SIDRA Output Guide or the Output section of the on-line help.
  <  Reduced capacity due to a short lane effect
  *  Maximum v/c ratio, or critical green periods
  "  Movement Level of service has been determined using adjacent lane
     v/c ratio rather than short lane v/c ratio (v/c=1.0)
```

Table S.16 - SCATS MF Parameter

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-----------------------------------------------------
 Lane   Stopline Capacity  SCATS  SCATS   Deg.  Lane
 No.      Flow   (veh/h)   Satn    MF     Satn  Util.
        (veh/h)            Flow            x     %
-----------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L         5     112     1775   1065   0.045   100
 2 T       633     924     1868   1702   0.684   100
 3 T       633     924     1868   1702   0.684   100
 4 R       173     784     1588   1447   0.221   100
-----------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR     233     338     1660     NA   0.690   100
-----------------------------------------------------
 East: ACCESO ESTE
 1 L       179     299     1775   1420   0.599   100
 2 T      1200    1200     1868   1753   1.029   100
 3 TR     1204    1204     1868     NA   1.029   100
-----------------------------------------------------
 North: ACCESO NORTE
 1 LTR       3     295     1648     NA   0.010   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 CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)								
	South	Right	32.8	12.5	51.5	1600	387	No
	East	Thru	S	40.0	35.0	1600	403	No
	North	Left	28.2	11.8	44.3	1600	381	No
South: ACCESO SUR (PR-464)								
	West	Left	43.8	14.0	68.8	1600	399	No
	East	Right	32.8	12.5	51.5	1600	387	No
	North	Thru	S	40.0	81.0	1600	403	No
East: ACCESO ESTE								
	West	Thru	S	40.0	35.0	1600	403	No
	South	Left	29.3	12.0	46.1	1600	383	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	81.0	1600	403	No
	East	Left	35.5	12.9	55.7	1600	390	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 CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)										
1 L	0.045	48.2	0.1	48.3	3.7	44.6	0.0	44.6	9.0	57.3
2 T	0.684	16.1	2.1	18.2	7.1	11.0	0.8	10.2	0.0	18.2
3 T	0.684	16.1	2.1	18.2	7.1	11.0	0.8	10.2	0.0	18.2
4 R	0.221	1.3	0.1	1.4	0.9	0.6	0.0	0.6	8.9	10.4
South: ACCESO SUR (PR-464)										
1 LTR	0.690	134.1	5.9	139.9	4.2	83.0	0.0	83.0	8.8	148.7
East: ACCESO ESTE										
1 L	0.599	42.2	2.9	45.1	3.8	41.4	0.0	41.4	9.0	54.1
2 T	1.029	18.9	33.5	52.5	8.9	43.6	2.6	40.9	0.0	52.5
3 TR	1.029	13.6	33.5	47.1	8.9	38.2	3.1	35.1	0.0	47.1
North: ACCESO NORTE										

```
 1 LTR  0.010  43.7   0.0  43.7   5.1  37.9   0.0  37.9   5.9   49.6
-----------------------------------------------------------------------
  dn is average stop-start delay for all vehicles queued and unqueued
```

Table D.2 - Lane Stops

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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
-------------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L   0.045  0.61  0.00  0.04   0.65    0.943   0.00
 2 T   0.684  0.71  0.05  0.00   0.76    0.804   0.13
 3 T   0.684  0.71  0.05  0.00   0.76    0.804   0.13
 4 R   0.221  0.18  0.00  0.54   0.72    0.215   0.00
-------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR 0.690  0.84  0.00  0.00   0.84    1.000   0.00
-------------------------------------------------------
 East: ACCESO ESTE
 1 L   0.599  0.78  0.00  0.03   0.81    0.950   0.00
 2 T   1.029  0.94  0.37  0.00   1.31    1.000   0.39
 3 TR  1.029  0.93  0.31  0.00   1.24    1.000   0.39
-------------------------------------------------------
 North: ACCESO NORTE
 1 LTR 0.010  0.58  0.00  0.05   0.63    0.889   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 CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------------
        Deg.  Ovrfl.   Average (veh)              Percentile (veh)            Queue
 Lane   Satn  Queue ------------------- ----------------------------------- Stor.
 No.      x    No      Nb1    Nb2     Nb     70%    85%    90%    95%    98%  Ratio
-------------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L   0.045    0.0     0.1    0.0    0.1     0.2    0.2    0.3    0.3    0.4   0.03
 2 T   0.684    1.4    10.4    1.4   11.8    13.9   17.7   19.1   21.4   24.8   0.33
 3 T   0.684    1.4    10.4    1.4   11.8    13.9   17.7   19.1   21.4   24.8   0.33
 4 R   0.221    0.2     0.8    0.2    1.0     1.2    1.6    1.7    2.0    2.6   0.22
-------------------------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR 0.690    0.3     8.1    0.3    8.3     9.8   12.7   13.9   15.7   18.6   0.24
-------------------------------------------------------------------------------------
```

```
 East: ACCESO ESTE
 1 L   0.599    0.5     4.9    0.5    5.4     6.4    8.3    9.1   10.4*  12.7*  1.13
 2 T   1.029   13.4    34.8   13.4   48.2    54.5   65.5   69.2   74.3   83.1   1.16
 3 TR  1.029   13.5    28.9   13.5   42.3    48.0   58.1   61.3   65.9   73.6   1.03
-------------------------------------------------------------------------------------
 North: ACCESO NORTE
 1 LTR 0.010    0.0     0.1    0.0    0.1     0.1    0.1    0.1    0.2    0.2   0.00
-------------------------------------------------------------------------------------

     Values printed in this table are back of queue (vehicles).
  *  Queue length exceeds short lane length due to specification of a
     percentile queue in the Tools-Options (Model tab). For calculation
     of this statistic, you may specify the lane with full length.
```

Table D.3B - Lane Queues (feet)

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------------
        Deg.  Ovrfl.   Average (feet)              Percentile (feet)           Queue
 Lane   Satn  Queue ---------------------  -----------------------------------  Stor.
 No.     x    No      Nb1     Nb2     Nb     70%    85%    90%    95%    98%   Ratio
-------------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L   0.045    0.2     3.5    0.2    3.7     4.5    6.0    6.7    7.8   10.0   0.03
 2 T   0.684   35.5   259.6   35.5  295.1   346.6  443.3  478.5  534.5  620.7   0.33
 3 T   0.684   35.5   259.6   35.5  295.1   346.6  443.3  478.5  534.5  620.7   0.33
 4 R   0.221    4.4    20.0    4.4   24.4    29.2   38.8   43.4   50.4   64.1   0.22
-------------------------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR 0.690    7.0   201.4    7.0  208.4   246.2  318.3  346.8  391.3  464.1   0.24
-------------------------------------------------------------------------------------
 East: ACCESO ESTE
 1 L   0.599   12.5   121.6   12.5  134.1   159.2  207.9  228.7  260.8* 316.6*  1.13
 2 T   1.029  335.4   869.4  335.4 1204.7  1361.3 1638.7 1730.0 1856.8 2077.7   1.16
 3 TR  1.029  336.3   722.2  336.3 1058.5  1201.1 1453.5 1532.9 1648.2 1840.2   1.03
-------------------------------------------------------------------------------------
 North: ACCESO NORTE
 1 LTR 0.010    0.0     1.9    0.0    2.0     2.4    3.1    3.5    4.1    5.3   0.00
-------------------------------------------------------------------------------------

     Values printed in this table are back of queue (feet).
  *  Queue length exceeds short lane length due to specification of a
     percentile queue in the Tools-Options (Model tab). For calculation
     of this statistic, you may specify the lane with full length.
```

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

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 32  PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-----------------------------------------------------------------------------
                                      Queue Move-up
          App. Speeds    Exit Speeds  -------------  Av. Section Spd  Geom
```

Mov ID	Cruise	Negn	Negn	Cruise	1st Grn	2nd Grn	Running	Overall	Delay (sec)
West: ACCESO OESTE (PR-2)									
5L L	40.0	11.8	11.8	40.0			29.1	14.8	9.0
2T T	40.0	40.0	40.0	40.0		11.7	32.4	26.1	0.0
2R R	40.0	12.5	12.5	40.0			31.0	30.6	8.9
South: ACCESO SUR (PR-464)									
3L L	40.0	14.0	14.0	40.0			28.9	7.5	8.7
8T T	40.0	40.0	40.0	40.0			31.7	7.8	0.0
8R R	40.0	12.5	12.5	40.0			28.9	14.5	8.9
East: ACCESO ESTE									
1L L	40.0	12.0	12.0	40.0			29.1	15.4	9.0
6T T	40.0	40.0	40.0	40.0	34.8	0.0	28.6	16.3	0.0
6R R	40.0	12.5	12.5	40.0	32.2	19.3	27.1	15.1	8.9
North: ACCESO NORTE									
7L L	40.0	12.9	12.9	40.0			29.2	15.7	8.9
4T T	40.0	40.0	40.0	40.0			32.5	17.5	0.0
4R R	40.0	12.5	12.5	40.0			29.2	16.0	8.9

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

Table D.5 - Progression Factors and Actuated Signal Parameters

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)											
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	6	50
2R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
South: ACCESO SUR (PR-464)											
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	2.0	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											
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 CARRETERA PR- 2 PR- 464
FIGURA 32 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)						
5L L	Normal	0	4.50	263.9	2.50	2.00
2R R	Normal	1	6.00	107.0	3.00	2.00
South: ACCESO SUR (PR-464)						
3L L	Normal	2	4.50	263.9	2.50	2.00
8R R	Normal	1265	6.00	352.0	3.00	2.00
East: ACCESO ESTE						
1L L	Normal	0	4.50	242.2	2.50	2.00
6R R	Normal	1	6.00	145.4	3.00	2.00
North: ACCESO NORTE						
7L L	Normal	138	4.50	84.0	2.50	2.00
4R R	Normal	1237	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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A1460, PLC, Large Office
Produced by SIDRA Intersection 3.2.0.1455
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SIDRA INTERSECTION

Output Tables

INTERSECCIÓN CARRETERA PR-464 & CAMINO VECINAL

FIGURA 33 PROYECCIÓN AÑO 2023 (AM)

Run Information

```
* Basic Parameters:
  Intersection Type: Unsignalised - Two-Way Stop Control
  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
```

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

```
INTERSECCI N CARRETERA PR-464   CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023   (AM)
Intersection ID: 2
Stop Sign Controlled Intersection
```

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
West: ACCESO OESTE (PR-464)							
	South	2R	Right	6	0	1.00	1.00
	East	2T	Thru	43	0	1.00	1.00
	North	5L	Left	228	0	1.00	1.00
South: ACCESO SUR (CAMINO VECINAL)							
	West	3L	Left	1	0	1.00	1.00
	East	8R	Right	4	0	1.00	1.00
	North	8T	Thru	1	0	1.00	1.00
East: ACCESO ESTE (CAMINO VECINAL)							
	West	6T	Thru	18	0	1.00	1.00
	South	1L	Left	4	0	1.00	1.00
	North	6R	Right	200	0	1.00	1.00
North: ACCESO NORTE(PR-464)							
	West	4R	Right	219	0	1.00	1.00
	South	4T	Thru	1	0	1.00	1.00

```
          East         7L   Left     11     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 CARRETERA PR-464   CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023   (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

-----------------------------------------------
  Mov          Left       Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
   5L L     228     0      0     0      0     0
   2T T       0     0     43     0      0     0
   2R R       0     0      0     0      6     0
-----------------------------------------------
South: ACCESO SUR  (CAMINO VECINAL)
   3L L       1     0      0     0      0     0
   8T T       0     0      1     0      0     0
   8R R       0     0      0     0      4     0
-----------------------------------------------
East: ACCESO ESTE (CAMINO VECINAL)
   1L L       4     0      0     0      0     0
   6T T       0     0     18     0      0     0
   6R R       0     0      0     0    200     0
-----------------------------------------------
North: ACCESO NORTE(PR-464)
   7L L      11     0      0     0      0     0
   4T T       0     0      1     0      0     0
   4R R       0     0      0     0    219     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 CARRETERA PR-464   CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023   (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

--------------------------------------------------
  Mov          Left         Through        Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
--------------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
```

```
   5L L      228   0.0       0   0.0       0   0.0
   2T T        0   0.0      43   0.0       0   0.0
   2R R        0   0.0       0   0.0       6   0.0
-------------------------------------------------
South: ACCESO SUR  (CAMINO VECINAL)
   3L L        1   0.0       0   0.0       0   0.0
   8T T        0   0.0       1   0.0       0   0.0
   8R R        0   0.0       0   0.0       4   0.0
-------------------------------------------------
East: ACCESO ESTE (CAMINO VECINAL)
   1L L        4   0.0       0   0.0       0   0.0
   6T T        0   0.0      18   0.0       0   0.0
   6R R        0   0.0       0   0.0     200   0.0
-------------------------------------------------
North: ACCESO NORTE(PR-464)
   7L L       11   0.0       0   0.0       0   0.0
   4T T        0   0.0       1   0.0       0   0.0
   4R R        0   0.0       0   0.0     219   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.2 - Movement Capacity Parameters

```
INTERSECCI N CARRETERA PR-464   CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023   (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

-------------------------------------------------------------------------
 Mov                    Opposing Movement  Total Prac. Prac.  Lane  Deg.
 ID      Demand                   Adjust.  Cap. Deg.  Spare  Util  Satn
         Flow     HV   Flow   HV   Flow    (veh Satn  Cap.
         (veh/h)  (%)  (veh/h) (%)  (pcu/h) /h)  xp    (%)    (%)   x
-------------------------------------------------------------------------
West: ACCESO OESTE (PR-464)
  5L L     228    0.0   331+  0.0    331    525  0.80    84   100  0.434*
  2T T      43    0.0   116+  0.0    116     99  0.80    84   100  0.434*
  2R R       6    0.0     1   0.0      1     14  0.80    87   100  0.429
-------------------------------------------------------------------------
South: ACCESO SUR  (CAMINO VECINAL)
  3L L       1    0.0   220   0.0    220    267  0.80  ****   100  0.004
  8T T       1    0.0     0                 267  0.80  ****   100  0.004
  8R R       4    0.0     0                1067  0.80  ****   100  0.004
-------------------------------------------------------------------------
East: ACCESO ESTE (CAMINO VECINAL)
  1L L       4    0.0    64+  0.0     64     46  0.80   820   100  0.087
  6T T      18    0.0   223+  0.0    223    208  0.80   824   100  0.087
  6R R     200    0.0     1   0.0      1   2315  0.80   826   100  0.086
-------------------------------------------------------------------------
North: ACCESO NORTE(PR-464)
  7L L      11    0.0     5   0.0      5     77  0.80   460   100  0.143
  4T T       1    0.0     1   0.0      1      7  0.80   460   100  0.143
  4R R     219    0.0     0                1526  0.80   457   100  0.144
-------------------------------------------------------------------------
  +  Percentage of exiting flow included in total opposing flow
```

Table S.3 - Intersection Parameters

```
INTERSECCI N CARRETERA PR-464   CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023   (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

---------------------------------------------------------------------------
   Intersection Level of Service                =        NA
   Worst movement Level of Service              =         B
   Average intersection delay (s/pers)          =      10.4
   Largest average movement delay (s)           =      14.9
   Largest back of queue, 95% (ft)              =       101
   Performance Index                            =     14.41
   Degree of saturation (highest)               =     0.434
   Practical Spare Capacity (lowest)            =        84 %
   Effective intersection capacity, (veh/h)     =      1695
   Total vehicle flow (veh/h)                   =       736
   Total person flow (pers/h)                   =       883
   Total vehicle delay (veh-h/h)                =      2.13
   Total person delay (pers-h/h)                =      2.56
   Total effective vehicle stops (veh/h)        =       650
   Total effective person stops (pers/h)        =       780
   Total vehicle travel (veh-mi/h)              =     276.3
   Total cost ($/h)                             =    163.81
   Total fuel (gal/h)                           =      14.6
   Total CO2 (kg/h)                             =    138.40

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

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 (PR-464)									
5L L	0.94	1.13	14.9	0.13	1.00	4.0	101	5.43	24.8
2T T	0.18	0.21	14.9	0.13	0.98	4.0	101	1.02	24.9
2R R	0.02	0.03	14.9	0.13	0.91	4.0	101	0.14	24.8
South: ACCESO SUR (CAMINO VECINAL)									
3L L	0.00	0.00	9.9	0.47	0.59	0.0	1	0.02	30.3
8T T	0.00	0.00	0.7	0.47	0.00	0.0	1	0.01	35.7
8R R	0.01	0.01	9.6	0.47	0.37	0.0	1	0.06	30.3
East: ACCESO ESTE (CAMINO VECINAL)									
1L L	0.01	0.01	6.5	0.00	1.00	0.5	13	0.07	29.1
6T T	0.03	0.04	6.5	0.00	1.00	0.5	13	0.31	29.3
6R R	0.36	0.44	6.5	0.00	1.00	0.5	13	3.50	29.1
North: ACCESO NORTE(PR-464)									
7L L	0.03	0.03	9.1	0.05	0.69	0.9	21	0.19	31.3
4T T	0.00	0.00	0.0	0.05	0.00	0.9	21	0.01	39.5
4R R	0.54	0.65	8.9	0.05	0.65	0.9	21	3.65	31.5

Table S.6 - Intersection Performance

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)									
277	0.434	1.15	1.38	14.9	0.13	1.00	101	6.58	24.8
South: ACCESO SUR (CAMINO VECINAL)									
6	0.004	0.01	0.02	8.1	0.47	0.34	1	0.09	31.1
East: ACCESO ESTE (CAMINO VECINAL)									
222	0.087	0.40	0.48	6.5	0.00	1.00	13	3.89	29.1
North: ACCESO NORTE(PR-464)									
231	0.144	0.57	0.69	8.9	0.05	0.65	21	3.85	31.5
ALL VEHICLES:									
736	0.434	2.13	2.56	10.4	0.07	0.88	101	14.41	28.0
INTERSECTION (persons):									
883	0.434		2.56	10.4	0.07	0.88		14.41	28.0

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

Table S.7 - Lane Performance

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	Queue 95% Back (ft)	Lane Length (ft)
West: ACCESO OESTE (PR-464)								
1 LTR	277	638	0.434	14.9	1.00	4.0	101.2	1600.0
South: ACCESO SUR (CAMINO VECINAL)								
1 LTR	6	1600	0.004	8.1	0.34	0.0	0.6	1600.0
East: ACCESO ESTE (CAMINO VECINAL)								
1 LTR	222	2570	0.086	6.5	1.00	0.5	13.4	1600.0
North: ACCESO NORTE(PR-464)								
1 LTR	231	1610	0.143	8.9	0.65	0.9	21.4	1600.0

Table S.8 - Lane Flow and Capacity Information

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
West: ACCESO OESTE (PR-464)								
1 LTR	228	43	6	277	60	638	0.434	100
South: ACCESO SUR (CAMINO VECINAL)								
1 LTR	1	1	4	6	6	1600	0.004	100
East: ACCESO ESTE (CAMINO VECINAL)								
1 LTR	4	18	200	222	60	2570	0.086	100
North: ACCESO NORTE(PR-464)								
1 LTR	11	1	219	231	231	1610	0.143	100

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

Table S.10 - Movement Capacity and Performance Summary

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	95% Back of Queue (veh)	Perf. Index
West: ACCESO OESTE (PR-464)									
5L	L	228	525	100	0.434*	14.9	1.00	4.0	5.43
2T	T	43	99	100	0.434*	14.9	0.98	4.0	1.02
2R	R	6	14	100	0.429	14.9	0.91	4.0	0.14
South: ACCESO SUR (CAMINO VECINAL)									
3L	L	1	267	100	0.004	9.9	0.59	0.0	0.02
8T	T	1	267	100	0.004	0.7	0.00	0.0	0.01
8R	R	4	1067	100	0.004	9.6	0.37	0.0	0.06
East: ACCESO ESTE (CAMINO VECINAL)									
1L	L	4	46	100	0.087	6.5	1.00	0.5	0.07
6T	T	18	208	100	0.087	6.5	1.00	0.5	0.31
6R	R	200	2315	100	0.086	6.5	1.00	0.5	3.50
North: ACCESO NORTE(PR-464)									
7L	L	11	77	100	0.143	9.1	0.69	0.9	0.19
4T	T	1	7	100	0.143	0.0	0.00	0.9	0.01
4R	R	219	1526	100	0.144	8.9	0.65	0.9	3.65

* Maximum degree of saturation

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

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	4.7	55.26	0.081	3.91	0.111	44.8
2T T	0.9	10.37	0.015	0.73	0.021	8.4
2R R	0.1	1.47	0.002	0.10	0.003	1.2
	5.7	67.10	0.099	4.74	0.134	54.4
South: ACCESO SUR (CAMINO VECINAL)						
3L L	0.0	0.21	0.000	0.02	0.000	0.2
8T T	0.0	0.17	0.000	0.01	0.000	0.1
8R R	0.1	0.84	0.001	0.06	0.002	0.7
	0.1	1.23	0.002	0.09	0.003	1.1
East: ACCESO ESTE (CAMINO VECINAL)						
1L L	0.1	0.87	0.001	0.07	0.002	0.8
6T T	0.4	3.89	0.006	0.30	0.009	3.4
6R R	4.0	43.68	0.067	3.35	0.096	37.7
	4.4	48.45	0.074	3.72	0.106	41.8
North: ACCESO NORTE(PR-464)						
7L L	0.2	2.25	0.004	0.18	0.005	2.0
4T T	0.0	0.15	0.000	0.00	0.000	0.1
4R R	4.1	44.63	0.069	3.42	0.099	39.0
	4.3	47.04	0.072	3.60	0.105	41.1
INTERSECTION:	14.6	163.81	0.247	12.15	0.348	138.4

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 CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	18.0	0.40	0.591	28.46	0.806	326.3
2T T	18.1	0.40	0.586	28.18	0.804	325.2
2R R	17.9	0.40	0.593	28.76	0.815	328.4
	18.0	0.40	0.591	28.42	0.806	326.1
South: ACCESO SUR (CAMINO VECINAL)						
3L L	19.2	0.35	0.548	27.64	0.784	306.0
8T T	24.7	0.29	0.379	15.24	0.551	238.0
8R R	19.5	0.35	0.533	26.61	0.767	301.1
	20.2	0.34	0.510	24.87	0.733	291.3
East: ACCESO ESTE (CAMINO VECINAL)						
1L L	18.8	0.36	0.563	28.30	0.797	313.5
6T T	18.9	0.36	0.553	27.78	0.793	311.4
6R R	18.9	0.36	0.553	27.66	0.790	311.2
	18.9	0.36	0.553	27.68	0.790	311.3
North: ACCESO NORTE(PR-464)						
7L L	19.6	0.34	0.535	26.99	0.770	300.4
4T T	31.5	0.24	0.258	5.92	0.370	186.7
4R R	20.0	0.34	0.517	25.79	0.749	294.3
	20.0	0.34	0.517	25.76	0.748	294.1
INTERSECTION:	18.9	0.37	0.555	27.33	0.782	311.3

Table S.14 - Summary of Input and Output Data

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)												
1 LTR	228	43	6	277	0				0.434	14.9	101	1600
	228	43	6	277	0				0.434	14.9	101	
South: ACCESO SUR (CAMINO VECINAL)												
1 LTR	1	1	4	6	0				0.004	8.1	1	1600
	1	1	4	6	0				0.004	8.1	1	
East: ACCESO ESTE (CAMINO VECINAL)												
1 LTR	4	18	200	222	0				0.086	6.5	13	1600
	4	18	200	222	0				0.086	6.5	13	

```
-----------------------------------------------------------------------------
 North: ACCESO NORTE(PR-464)
1 LTR    11    1  219   231    0                 0.143    8.9    21  1600
        ----------------------------------------------------------------------
         11    1  219   231    0                 0.143    8.9    21
=============================================================================
 ALL VEHICLES          Total   %                  Max   Aver.   Max
                       Flow   HV                   X    Delay  Queue
                        736    0                 0.434   10.4   101
=============================================================================
Peak flow period = 15 minutes.

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

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

Table S.15 - Capacity and Level of Service

```
INTERSECCI N CARRETERA PR-464   CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023   (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

-------------------------------------------------------------------
 Mov     Mov    Total  Total    Deg.   Aver.   LOS  Longest Queue
 ID      Typ    Flow    Cap.     of    Delay          95% Back
                (veh   (veh     Satn                (vehs)  (ft)
                  /h)    /h)    (v/c)  (sec)
-------------------------------------------------------------------
West: ACCESO OESTE (PR-464)
  5L L           228    525   0.434*   14.9    B      4.0    101
  2T T            43     99   0.434*   14.9    B      4.0    101
  2R R             6     14   0.429    14.9    B      4.0    101
-------------------------------------------------------------------
South: ACCESO SUR  (CAMINO VECINAL)
  3L L             1    267   0.004     9.9    A      0.0      1
  8T T             1    267   0.004     0.7    A      0.0      1
  8R R             4   1067   0.004     9.6    A      0.0      1
-------------------------------------------------------------------
East: ACCESO ESTE (CAMINO VECINAL)
  1L L             4     46   0.087     6.5    A      0.5     13
  6T T            18    208   0.087     6.5    A      0.5     13
  6R R           200   2315   0.086     6.5    A      0.5     13
-------------------------------------------------------------------
North: ACCESO NORTE(PR-464)
  7L L            11     77   0.143     9.1    A      0.9     21
  4T T             1      7   0.143     0.0    A      0.9     21
  4R R           219   1526   0.144     8.9    A      0.9     21
-------------------------------------------------------------------
 ALL VEHICLES:   736          0.434    10.4   NA      4.0    101
-------------------------------------------------------------------
     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.

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

  *  Maximum v/c ratio, or critical green periods
  "  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 D.0 - Geometric Delay Data

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)								
	South	Right	32.8	12.5	51.5	1600	387	No
	East	Thru	S	12.4	35.0	1600	374	No
	North	Left	23.0	10.9	36.1	1600	375	No
South: ACCESO SUR (CAMINO VECINAL)								
	West	Left	19.8	10.3	32.8	1600	374	No
	East	Right	32.8	12.5	51.5	1600	387	No
	North	Thru	S	40.0	35.0	1600	403	No
East: ACCESO ESTE (CAMINO VECINAL)								
	West	Thru	S	12.4	35.0	1600	374	No
	South	Left	17.6	9.9	32.8	1600	377	No
	North	Right	32.8	12.5	51.5	1600	387	No
North: ACCESO NORTE(PR-464)								
	West	Right	32.8	12.5	51.5	1600	387	No
	South	Thru	S	40.0	35.0	1600	403	No
	East	Left	21.1	10.6	33.1	1600	373	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 CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

		Stop-line Delay			Delay (seconds/veh)					
Lane No.	Deg. Satn x	1st d1	2nd d2	Total dSL	Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
West: ACCESO OESTE (PR-464)										
1 LTR	0.434	5.6	4.3	9.9	0.3	9.7	0.3	9.4	5.0	14.9
South: ACCESO SUR (CAMINO VECINAL)										
1 LTR	0.004	0.7	0.0	0.7	2.2	0.0	0.0	0.0	7.5	8.1
East: ACCESO ESTE (CAMINO VECINAL)										
1 LTR	0.086	1.4	0.1	1.5	0.0	1.5	0.0	1.5	5.0	6.5
North: ACCESO NORTE(PR-464)										
1 LTR	0.143	0.0	0.0	0.0	0.2	0.0	0.0	0.0	8.9	8.9

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

Table D.2 - Lane Stops

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)							
1 LTR	0.434	0.12	0.02	0.87	1.00	0.135	0.04
South: ACCESO SUR (CAMINO VECINAL)							
1 LTR	0.004	0.03	0.00	0.31	0.34	0.465	0.00
East: ACCESO ESTE (CAMINO VECINAL)							
1 LTR	0.086	0.00	0.00	1.00	1.00	0.003	0.00
North: ACCESO NORTE(PR-464)							
1 LTR	0.143	0.00	0.00	0.65	0.65	0.051	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 CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)											
1 LTR	0.434	0.2	1.0	0.3	1.3	2.3	2.9	3.3	4.0	4.7	0.06
South: ACCESO SUR (CAMINO VECINAL)											
1 LTR	0.004	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
East: ACCESO ESTE (CAMINO VECINAL)											
1 LTR	0.086	0.0	0.2	0.0	0.2	0.3	0.4	0.4	0.5	0.6	0.01
North: ACCESO NORTE(PR-464)											
1 LTR	0.143	0.0	0.3	0.0	0.3	0.5	0.6	0.7	0.9	1.0	0.01

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

Table D.3B - Lane Queues (feet)

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)											
1 LTR	0.434	4.1	24.4	8.3	32.7	58.7	71.8	81.6	101.2	117.6	0.06
South: ACCESO SUR (CAMINO VECINAL)											
1 LTR	0.004	0.0	0.2	0.0	0.2	0.3	0.4	0.5	0.6	0.7	0.00
East: ACCESO ESTE (CAMINO VECINAL)											
1 LTR	0.086	0.0	4.2	0.0	4.2	7.9	9.6	10.9	13.4	15.5	0.01
North: ACCESO NORTE(PR-464)											
1 LTR	0.143	0.0	6.7	0.0	6.7	12.7	15.3	17.4	21.4	24.8	0.01

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

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

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)									
5L L	40.0	0.0	10.9	40.0	12.4		30.0	24.8	5.0
2T T	40.0	0.0	12.4	40.0	19.0		30.1	24.9	5.0
2R R	40.0	0.0	12.5	40.0	40.0		29.8	24.8	5.0
South: ACCESO SUR (CAMINO VECINAL)									
3L L	40.0	10.3	10.3	40.0			30.3	30.3	9.2
8T T	40.0	40.0	40.0	40.0			35.7	35.7	0.0
8R R	40.0	12.5	12.5	40.0			30.3	30.3	8.9
East: ACCESO ESTE (CAMINO VECINAL)									
1L L	40.0	0.0	9.9	40.0			30.1	29.1	5.0
6T T	40.0	0.0	12.4	40.0			30.3	29.3	5.0
6R R	40.0	0.0	12.5	40.0			30.0	29.1	5.0
North: ACCESO NORTE(PR-464)									
7L L	40.0	10.6	10.6	40.0			31.3	31.3	9.1
4T T	40.0	40.0	40.0	40.0			39.5	39.5	0.0
4R R	40.0	12.5	12.5	40.0			31.5	31.5	8.9

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

Table D.6 - Gap Acceptance Parameters

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 33 PROYECCI N A O 2023 (AM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	Normal	331+	7.50	138.6	3.50	2.00
2T T	Normal	116+	6.50	120.7	4.00	2.00
2R R	Normal	1	2.00	117.3	1.00	2.00
South: ACCESO SUR (CAMINO VECINAL)						
3L L	Normal	220	4.10	76.1	2.20	2.00
East: ACCESO ESTE (CAMINO VECINAL)						
1L L	Normal	64+	7.50	142.3	3.50	2.00
6T T	Normal	223+	6.50	120.7	4.00	2.00
6R R	Normal	1	2.00	117.3	1.00	2.00
North: ACCESO NORTE(PR-464)						
7L L	Normal	5	4.10	108.4	2.20	2.00
4T T	Normal	1	6.50	381.3	4.00	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.
+ Percentage of exiting flow included in total opposing flow

SIDRA SOLUTIONS

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SIDRA INTERSECTION

Output Tables

INTERSECCION CARRETERA PR-464 & CALLE 3

FIGURA 34 PROYECCIÓN AÑO 2023 (AM)

Run Information

```
* Basic Parameters:
  Intersection Type: Unsignalised - Two-Way Stop Control
  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
```

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

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 34  PROYECCI N A O 2023  (AM)
Intersection ID: 0
Stop Sign Controlled Intersection
```

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
West: ACCESO OESTE (PR-464)							
	East	2T	Thru	258	0	1.00	1.00
	North	5L	Left	187	0	1.00	1.00
East: ACCESO ESTE							
	West	6T	Thru	215	0	1.00	1.00
	North	6R	Right	85	0	1.00	1.00
North: ACCESO NORTE (CALLE 3)							
	West	4R	Right	173	0	1.00	1.00
	East	7L	Left	73	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 CARRETERA PR-464   CALLE 3
FIGURA 34  PROYECCI N A O 2023  (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

-----------------------------------------------
  Mov          Left        Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
   5L L     187     0      0     0      0     0
   2T T       0     0    258     0      0     0
-----------------------------------------------
East: ACCESO ESTE
   6T T       0     0    215     0      0     0
   6R R       0     0      0     0     85     0
-----------------------------------------------
North: ACCESO NORTE (CALLE 3)
   7L L      73     0      0     0      0     0
   4R R       0     0      0     0    173     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 CARRETERA PR-464   CALLE 3
FIGURA 34  PROYECCI N A O 2023  (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

--------------------------------------------------
  Mov          Left         Through        Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
--------------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
   5L L      187   0.0       0   0.0       0   0.0
   2T T        0   0.0     258   0.0       0   0.0
--------------------------------------------------
East: ACCESO ESTE
   6T T        0   0.0     215   0.0       0   0.0
   6R R        0   0.0       0   0.0      85   0.0
--------------------------------------------------
North: ACCESO NORTE (CALLE 3)
   7L L       73   0.0       0   0.0       0   0.0
   4R R        0   0.0       0   0.0     173   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.2 - Movement Capacity Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 34 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

Mov ID	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
West: ACCESO OESTE (PR-464)										
5L L	187	0.0	300	0.0	300	651	0.80	179	100	0.287*
2T T	258	0.0	0			898	0.80	178	100	0.287*
East: ACCESO ESTE										
6T T	215	0.0	0			1297	0.80	383	100	0.166
6R R	85	0.0	0			513	0.80	383	100	0.166
North: ACCESO NORTE (CALLE 3)										
7L L	73	0.0	703+	0.0	703	266	0.80	192	100	0.274
4R R	173	0.0	215	0.0	215	630	0.80	191	100	0.275

+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 34 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	B
Average intersection delay (s/pers)	=	5.8
Largest average movement delay (s)	=	10.6
Largest back of queue, 95% (ft)	=	59
Performance Index	=	14.36
Degree of saturation (highest)	=	0.287
Practical Spare Capacity (lowest)	=	178 %
Effective intersection capacity, (veh/h)	=	3449
Total vehicle flow (veh/h)	=	991
Total person flow (pers/h)	=	1189
Total vehicle delay (veh-h/h)	=	1.59
Total person delay (pers-h/h)	=	1.90
Total effective vehicle stops (veh/h)	=	402
Total effective person stops (pers/h)	=	483
Total vehicle travel (veh-mi/h)	=	373.8
Total cost ($/h)	=	188.81
Total fuel (gal/h)	=	16.7
Total CO2 (kg/h)	=	157.69

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

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)	Queue Back (ft)	Perf. Index	Aver. Speed (mph)
West: ACCESO OESTE (PR-464)									
5L L	0.55	0.66	10.6	0.47	0.73	2.3	59	3.37	30.3
2T T	0.11	0.13	1.5	0.47	0.00	2.3	59	2.99	35.7
East: ACCESO ESTE									
6T T	0.00	0.00	0.0	0.00	0.00	0.0	0	2.04	40.0
6R R	0.21	0.25	8.9	0.00	0.69	0.0	0	1.33	31.7
North: ACCESO NORTE (CALLE 3)									
7L L	0.21	0.26	10.5	0.42	1.00	1.4	36	1.44	27.2
4R R	0.51	0.61	10.5	0.42	0.78	1.4	36	3.20	27.2

Table S.6 - Intersection Performance

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 34 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)									
445	0.287	0.66	0.79	5.3	0.47	0.31	59	6.36	33.2
East: ACCESO ESTE									
300	0.166	0.21	0.25	2.5	0.00	0.19	0	3.37	37.2
North: ACCESO NORTE (CALLE 3)									
246	0.275	0.72	0.86	10.5	0.42	0.85	36	4.63	27.2
ALL VEHICLES:									
991	0.287	1.59	1.90	5.8	0.31	0.41	59	14.36	32.5
INTERSECTION (persons):									
1189	0.287		1.90	5.8	0.31	0.41		14.36	32.5

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

Table S.7 - Lane Performance

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 34  PROYECCI N A O 2023  (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------
          Dem                              Q u e u e
         Flow   Cap  Deg.  Aver.  Eff.   95% Back       Lane
 Lane    (veh   (veh  Satn  Delay  Stop  ------------   Length
 No.       /h)   /h)   x    (sec)  Rate  (vehs)  (ft)    (ft)
-------------------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT      445  1550 0.287    5.3  0.31    2.3   58.6   1600.0
-------------------------------------------------------------
 East: ACCESO ESTE
 1 TR      300  1810 0.166    2.5  0.19    0.0    0.0   1600.0
-------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR      246   895 0.275   10.5  0.85    1.4   35.5   1600.0
-------------------------------------------------------------
```

Table S.8 - Lane Flow and Capacity Information

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 34  PROYECCI N A O 2023  (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

---------------------------------------------------
                              Min  Tot
 Lane     Dem Flow (veh/h)    Cap  Cap  Deg.  Lane
 No.    -------------------  (veh (veh  Satn  Util
        Lef Thru  Rig  Tot    /h)  /h)   x     %
---------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT    187  258    0  445   445 1550  0.287  100
---------------------------------------------------
 East: ACCESO ESTE
 1 TR      0  215   85  300   300 1810  0.166  100
---------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR     73    0  173  246    60  895  0.275  100
---------------------------------------------------

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

Table S.10 - Movement Capacity and Performance Summary

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 34  PROYECCI N A O 2023  (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------------
 Mov     Mov  Dem   Total  Lane  Deg.  Aver.  Eff.    95%    Perf.
 ID      Typ  Flow   Cap.  Util  Satn  Delay  Stop  Back of  Index
              (veh  (veh                      Rate   Queue
```

	/h)	/h)	(%)	x	(sec)		(veh)	
West: ACCESO OESTE (PR-464)								
5L L	187	651	100	0.287*	10.6	0.73	2.3	3.37
2T T	258	898	100	0.287*	1.5	0.00	2.3	2.99
East: ACCESO ESTE								
6T T	215	1297	100	0.166	0.0	0.00	0.0	2.04
6R R	85	513	100	0.166	8.9	0.69	0.0	1.33
North: ACCESO NORTE (CALLE 3)								
7L L	73	266	100	0.274	10.5	1.00	1.4	1.44
4R R	173	630	100	0.275	10.5	0.78	1.4	3.20

* Maximum degree of saturation

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

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 34 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	3.6	39.34	0.061	3.08	0.088	34.3
2T T	4.0	44.99	0.060	2.40	0.087	37.5
	7.6	84.33	0.121	5.49	0.175	71.8
East: ACCESO ESTE						
6T T	2.5	31.21	0.032	0.63	0.046	23.7
6R R	1.6	17.26	0.027	1.32	0.038	15.1
	4.1	48.46	0.058	1.95	0.084	38.8
North: ACCESO NORTE (CALLE 3)						
7L L	1.5	16.59	0.025	1.24	0.035	14.0
4R R	3.5	39.43	0.059	2.90	0.083	33.1
	5.0	56.02	0.084	4.15	0.118	47.1
INTERSECTION:	16.7	188.81	0.264	11.58	0.377	157.7

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 CARRETERA PR-464 CALLE 3
FIGURA 34 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	19.3	0.35	0.545	27.40	0.780	304.8
2T T	24.7	0.29	0.379	15.24	0.551	238.0
	22.1	0.31	0.448	20.31	0.646	265.9
East: ACCESO ESTE						
6T T	32.6	0.24	0.243	4.77	0.347	180.3
6R R	20.0	0.34	0.515	25.68	0.747	293.5
	27.7	0.27	0.320	10.66	0.460	212.2
North: ACCESO NORTE (CALLE 3)						
7L L	18.5	0.38	0.572	28.26	0.799	318.1
4R R	18.6	0.38	0.564	27.73	0.793	316.1
	18.6	0.38	0.567	27.89	0.795	316.7
INTERSECTION:	22.4	0.31	0.438	19.25	0.626	262.1

Table S.14 - Summary of Input and Output Data

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 34 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)												
1 LT	187	258		445	0				0.287	5.3	59	1600
	187	258	0	445	0				0.287	5.3	59	
East: ACCESO ESTE												
1 TR		215	85	300	0				0.166	2.5	0	1600
	0	215	85	300	0				0.166	2.5		
North: ACCESO NORTE (CALLE 3)												
1 LR	73		173	246	0				0.275	10.5	36	1600
	73	0	173	246	0				0.275	10.5	36	

ALL VEHICLES	Total Flow	% HV	Max X	Aver. Delay	Max Queue
	991	0	0.287	5.8	59

```
==============================================================================
Peak flow period = 15 minutes.

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

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

Table S.15 - Capacity and Level of Service

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 34  PROYECCI N A O 2023  (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

-----------------------------------------------------------------
 Mov     Mov    Total  Total    Deg.   Aver.   LOS  Longest Queue
 ID      Typ    Flow    Cap.     of    Delay          95% Back
                (veh   (veh     Satn                (vehs)  (ft)
                  /h)    /h)    (v/c)  (sec)
-----------------------------------------------------------------
West: ACCESO OESTE (PR-464)
  5L L           187    651   0.287*   10.6    B      2.3     59
  2T T           258    898   0.287*    1.5    A      2.3     59
-----------------------------------------------------------------
East: ACCESO ESTE
  6T T           215   1297   0.166     0.0    A      0.0      0
  6R R            85    513   0.166     8.9    A      0.0      0
-----------------------------------------------------------------
North: ACCESO NORTE (CALLE 3)
  7L L            73    266   0.274    10.5    B      1.4     36
  4R R           173    630   0.275    10.5    B      1.4     36
-----------------------------------------------------------------
 ALL VEHICLES:    991          0.287     5.8   NA      2.3     59
-----------------------------------------------------------------
     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.

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

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

Table D.0 - Geometric Delay Data

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 34  PROYECCI N A O 2023  (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------------------------
                              Negn  Negn   Negn   Appr.   Downstream  Distance
 From      To                Radius Speed  Dist.  Dist.   ---------------------
 Approach  Approach  Turn     (ft)  (mph)  (ft)   (ft)      (ft)      User Spec?
-------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-464)
```

East	Thru	S	40.0	35.0	1600	403		No
North	Left	23.0	10.9	36.1	1600	375		No
East: ACCESO ESTE								
West	Thru	S	40.0	35.0	1600	403		No
North	Right	32.8	12.5	51.5	1600	387		No
North: ACCESO NORTE (CALLE 3)								
West	Right	32.8	12.5	51.5	1600	387		No
East	Left	23.0	10.9	36.1	1600	375		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 CARRETERA PR-464 CALLE 3
FIGURA 34 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)										
1 LT	0.287	1.5	0.0	1.5	3.1	0.0	0.0	0.0	3.8	5.3
East: ACCESO ESTE										
1 TR	0.166	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.5
North: ACCESO NORTE (CALLE 3)										
1 LR	0.275	4.0	1.5	5.5	0.9	4.7	0.0	4.7	5.0	10.5

Delay (seconds/veh)

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

Table D.2 - Lane Stops

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 34 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)							
1 LT	0.287	0.15	0.00	0.16	0.31	0.465	0.00
East: ACCESO ESTE							
1 TR	0.166	0.00	0.00	0.19	0.19	0.000	0.00

```
-----------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR  0.275  0.27  0.00  0.58   0.85    0.424   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 CARRETERA PR-464   CALLE 3
FIGURA 34  PROYECCI N A O 2023  (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------------------------------
        Deg.  Ovrfl.   Average (veh)                Percentile (veh)            Queue
 Lane   Satn  Queue ---------------------  ----------------------------------  Stor.
 No.     x    No      Nb1    Nb2     Nb     70%    85%    90%    95%    98%   Ratio
-------------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT  0.287    0.0     0.7    0.0    0.7     1.4    1.7    1.9    2.3    2.7   0.04
-------------------------------------------------------------------------------------
 East: ACCESO ESTE
 1 TR  0.166    0.0     0.0    0.0    0.0     0.0    0.0    0.0    0.0    0.0   0.00
-------------------------------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR  0.275    0.0     0.4    0.0    0.4     0.8    1.0    1.2    1.4    1.6   0.02
-------------------------------------------------------------------------------------

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

Table D.3B - Lane Queues (feet)

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 34  PROYECCI N A O 2023  (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------------------------------
        Deg.  Ovrfl.   Average (feet)                Percentile (feet)           Queue
 Lane   Satn  Queue ---------------------  ----------------------------------  Stor.
 No.     x    No      Nb1    Nb2     Nb     70%    85%    90%    95%    98%   Ratio
-------------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT  0.287    0.0    18.7    0.0   18.7    34.3   41.8   47.4   58.6   67.9   0.04
-------------------------------------------------------------------------------------
 East: ACCESO ESTE
 1 TR  0.166    0.0     0.0    0.0    0.0     0.0    0.0    0.0    0.0    0.0   0.00
-------------------------------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR  0.275    0.0    11.2    0.0   11.2    20.9   25.4   28.8   35.5   41.1   0.02
-------------------------------------------------------------------------------------

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

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

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 34 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)									
5L L	40.0	10.9	10.9	40.0			30.3	30.3	9.1
2T T	40.0	40.0	40.0	40.0			35.7	35.7	0.0
East: ACCESO ESTE									
6T T	40.0	40.0	40.0	40.0			40.0	40.0	0.0
6R R	40.0	12.5	12.5	40.0			31.7	31.7	8.9
North: ACCESO NORTE (CALLE 3)									
7L L	40.0	0.0	10.9	40.0			30.1	27.2	5.0
4R R	40.0	0.0	12.5	40.0			30.0	27.2	5.0

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

Table D.6 - Gap Acceptance Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 34 PROYECCI N A O 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	Normal	300	4.10	193.7	2.20	2.00
East: ACCESO ESTE						
No opposed movements on this approach						
North: ACCESO NORTE (CALLE 3)						
7L L	Normal	703+	7.50	325.3	3.50	2.00
4R R	Normal	215	2.00	117.3	1.00	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.
+ Percentage of exiting flow included in total opposing flow

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SIDRA INTERSECTION

Output Tables

INTERSECCIÓN CARRETERA PR- 2 & PR- 464

FIGURA 35 PROYECCIÓN AÑO 2023 (PM)

Run Information

```
Cycle Time =   95  (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 CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
           South        2R   Right   301     0    1.00     1.00
```

```
          East         2T   Thru   1933     0    1.00     1.00
          North        5L   Left      1     0    1.00     1.00
-----------------------------------------------------------------
 South: ACCESO SUR (PR-464)
          West         3L   Left    153     0    1.00     1.00
          East         8R   Right   237     0    1.00     1.00
          North        8T   Thru      1     0    1.00     1.00
-----------------------------------------------------------------
 East: ACCESO ESTE
          West         6T   Thru   1723     0    1.00     1.00
          South        1L   Left    222     0    1.00     1.00
          North        6R   Right     1     0    1.00     1.00
-----------------------------------------------------------------
 North: ACCESO NORTE
          West         4R   Right     1     0    1.00     1.00
          South        4T   Thru      1     0    1.00     1.00
          East         7L   Left      1     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 CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
   5L L       1     0      0     0      0     0
   2T T       0     0   1933     0      0     0
   2R R       0     0      0     0    301     0
-----------------------------------------------
South: ACCESO SUR (PR-464)
   3L L     153     0      0     0      0     0
   8T T       0     0      1     0      0     0
   8R R       0     0      0     0    237     0
-----------------------------------------------
East: ACCESO ESTE
   1L L     222     0      0     0      0     0
   6T T       0     0   1723     0      0     0
   6R R       0     0      0     0      1     0
-----------------------------------------------
North: ACCESO NORTE
   7L L       1     0      0     0      0     0
   4T T       0     0      1     0      0     0
   4R R       0     0      0     0      1     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 CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
   5L L        1   0.0       0   0.0       0   0.0
   2T T        0   0.0    1933   0.0       0   0.0
   2R R        0   0.0       0   0.0     301   0.0
-------------------------------------------------
South: ACCESO SUR (PR-464)
   3L L      153   0.0       0   0.0       0   0.0
   8T T        0   0.0       1   0.0       0   0.0
   8R R        0   0.0       0   0.0     237   0.0
-------------------------------------------------
East: ACCESO ESTE
   1L L      222   0.0       0   0.0       0   0.0
   6T T        0   0.0    1723   0.0       0   0.0
   6R R        0   0.0       0   0.0       1   0.0
-------------------------------------------------
North: ACCESO NORTE
   7L L        1   0.0       0   0.0       0   0.0
   4T T        0   0.0       1   0.0       0   0.0
   4R R        0   0.0       0   0.0       1   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 CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L         3     4                                   4        10.0Min            6
  2T T         1     2            *3     4               4    4   49.1     10.6     41    6
  2R R         1     2             2     1       Y       4   15   36.6     30.0Min  41   35
-------------------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L         4     1      Y                            4        31.3              16
  8T T        *4     1                                   4        31.8              16
  8R R         1     4      Y      4     1              49    4   30.0Min  30.4     26   16
-------------------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L        *2     3                                   4        24.0Max           16
  6T T         1     3                                   4        53.0              61
  6R R        *1     2             2     1       Y       4    4   49.1     39.4     41   46
-------------------------------------------------------------------------------------------
```

```
North: ACCESO NORTE
  7L L        4      1      Y                          13        13.2                7
  4T T        4      1                                  4        10.0Min            16
  4R R        1      4      Y      4      1            39    4   30.0Min  10.0Min  36   16
-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
  Current Phase Sequence: Split Phasing
  Input phase sequence: 1 2 3 4
  Output phase sequence: 1 2 3 4
-----------------------------------------------------------------------------------------
  *  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 CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L       1    0.0  1775        0.001         112  0.90  9989   100  0.009
  2T T    1933    0.0  3737  3737  0.451 0.066  1849  0.90   -14   100  1.046
  2R R     301    0.0   813< 1058< 0.231 0.107   741  0.90   121   100  0.406
-------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L     153    0.0   793        0.193         134  0.90   -21   100  1.146
  8T T       1    0.0     5        0.200           1  0.90   -24   100  1.188*
  8R R     237    0.0   203   898  0.000 0.264   207  0.90   -21   100  1.146
-------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L     222    0.0  1775        0.125         299  0.90    21   100  0.743
  6T T    1723    0.0  3741        0.461        2402  0.90    25   100  0.717
  6R R       1    0.0     0     2  0.389 0.305     1  0.90    26   100  0.714
-------------------------------------------------------------------------------
North: ACCESO NORTE
  7L L       1    0.0  1337        0.001          99  0.90  8766   100  0.010
  4T T       1    0.0   585        0.002          99  0.90  8767   100  0.010
  4R R       1    0.0    61   448  0.000 0.002    99  0.90  8771   100  0.010
-------------------------------------------------------------------------------
```

Table S.3 - Intersection Parameters

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
```

Actuated Isolated Signals, Cycle Time = 95 (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
6R	E_R	1st	1	2	4	0.389	0.475	49.1
1L	E_L		2	3	24	-	-	24.0Max
2T	W_T	2nd	3	4	4	0.066	0.070	10.6
8T	S_T		4	1	4	0.200	0.292	31.8
				Total:	36	0.655	0.837	115.5

- 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
40	NA	221	95

(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	=	F
Average intersection delay (s/pers)	=	43.8
Largest average movement delay (s)	=	140.4
Largest back of queue, 95% (ft)	=	1243
Performance Index	=	249.03
Degree of saturation (highest)	=	1.188
Practical Spare Capacity (lowest)	=	-24 %
Effective intersection capacity, (veh/h)	=	3853
Total vehicle flow (veh/h)	=	4575
Total person flow (pers/h)	=	5490
Total vehicle delay (veh-h/h)	=	55.72
Total person delay (pers-h/h)	=	66.86
Total effective vehicle stops (veh/h)	=	4264
Total effective person stops (pers/h)	=	5117
Total vehicle travel (veh-mi/h)	=	1733.1
Total cost ($/h)	=	1434.03
Total fuel (gal/h)	=	104.5
Total CO2 (kg/h)	=	989.33

Table S.4 - Phase Information

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 35 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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	41	45	4	45	47%
2	45	4	49	16	65	4	20	21%
3	65	4	69	6	75	4	10	11%
4	75	4	79	16	95	4	20	21%

(Phase times specified by the user)
Current Phase Sequence: Split Phasing
Input phase sequence: 1 2 3 4
Output phase sequence: 1 2 3 4

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 (PR-2)									
5L L	0.02	0.02	56.1	0.94	0.59	0.1	2	0.06	15.0
2T T	29.99	35.99	55.9	1.00	1.21	49.7	1243	123.12	15.2
2R R	0.94	1.13	11.2	0.28	0.74	4.6	115	7.27	30.0
South: ACCESO SUR (PR-464)									
3L L	4.78	5.74	112.5	1.00	1.11	34.2	855	15.06	9.3
8T T	0.03	0.03	103.7	1.00	1.11	34.2	855	0.10	9.9
8R R	9.24	11.09	140.4	1.00	1.03	31.8	795	24.08	7.8
East: ACCESO ESTE									
1L L	3.80	4.56	61.7	0.98	0.84	13.6	339	14.04	14.2
6T T	6.87	8.24	14.3	0.70	0.64	31.0	774	65.09	28.2
6R R	0.01	0.01	23.0	0.69	0.84	30.6	766	0.04	23.8
North: ACCESO NORTE									
7L L	0.01	0.02	52.6	0.89	0.66	0.2	4	0.06	15.7
4T T	0.01	0.01	43.7	0.89	0.59	0.2	4	0.05	17.5
4R R	0.01	0.02	50.6	0.89	0.63	0.2	4	0.05	16.0

Table S.6 - Intersection Performance

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 35 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)									
2235	1.046	30.95	37.14	49.9	0.90	1.14	1243	130.44	16.2
South: ACCESO SUR (PR-464)									
391	1.188	14.05	16.86	129.4	1.00	1.07	855	39.24	8.3
East: ACCESO ESTE									
1946	0.743	10.68	12.81	19.8	0.73	0.66	774	79.18	25.3
North: ACCESO NORTE									
3	0.010	0.04	0.05	49.0	0.89	0.63	4	0.16	16.4
ALL VEHICLES:									
4575	1.188	55.72	66.86	43.8	0.84	0.93	1243	249.03	17.5
INTERSECTION (persons):									
5490	1.188		66.86	43.8	0.84	0.93		249.03	17.5

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

Table S.7 - Lane Performance

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-----------------------------------------------------------------------------
        Effective Red and   Dem                              Q u e u e
        Green Times (sec)  Flow  Cap  Deg.  Aver.  Eff.   95% Back     Lane
 Lane   -----------------  (veh (veh  Satn  Delay  Stop  -----------  Length
 No.     R1  G1   R2  G2     /h)  /h)   x   (sec)  Rate  (vehs) (ft)    (ft)
-----------------------------------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L     89   6    0   0      1  112 0.009   56.1  0.59   0.1    1.5   230.0T
 2 T     24  41   24   6    967  924 1.046   55.9  1.21  49.7 1242.6  1600.0
 3 T     24  41   24   6    967  924 1.046   55.9  1.21  49.7 1242.6  1600.0
 4 R      4  41   15  35    301  740 0.407   11.2  0.74   4.6  114.9   230.0T
-----------------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR   79  16    0   0    391  341 1.146  112.6  1.07  34.2  854.9  1600.0
-----------------------------------------------------------------------------
 East: ACCESO ESTE
 1 L     79  16    0   0    222  299 0.743   61.7  0.84  13.6* 339.0   230.0T
 2 T     34  61    0   0    861 1200 0.717   14.6  0.65  31.0  773.9  1600.0
 3 TR    33  45    0  17    863 1204 0.717   14.1  0.63  30.6  766.1  1600.0
-----------------------------------------------------------------------------
 North: ACCESO NORTE
 1 LTR   84  11    0   0      3  296 0.010   47.6  0.63   0.2    4.1  1600.0
-----------------------------------------------------------------------------
  *  Queue length exceeds short lane length due to specification of a
     percentile queue in the Tools-Options (Model tab). For calculation
     of this statistic, you may specify the lane with full length.
  T  Short lane due to specification of Turn Slot
```

Table S.8 - Lane Flow and Capacity Information

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
 1 L       1    0    0    1  11.5  1868 1775     0    0  112 0.009  100
 2 T       0  967    0  967  11.5  1868 1868  1868    0  924 1.046  100
 3 T       0  967    0  967  11.5  1868 1868  1868    0  924 1.046  100
 4 R       0    0  301  301  11.5  1868  813< 1058<  38  740 0.407  100
-----------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR   153    1  237  391  11.5  1868  369     0   91  341 1.146  100
-----------------------------------------------------------------------
 East: ACCESO ESTE
 1 L     222    0    0  222  11.5  1868 1775     0    0  299 0.743  100
```

```
 2 T       0  861    0  861  11.5  1868 1868     0    0 1200 0.717  100
 3 TR      0  862    1  863  11.5  1868 1868  1783   38 1204 0.717  100
-----------------------------------------------------------------------
 North: ACCESO NORTE
 1 LTR     1    1    1    3  10.0  1773  759     0   88  296 0.010  100
-----------------------------------------------------------------------
  <  Reduced saturation flow due to a short lane effect

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

Table S.9 - Signal Timing Diagram

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

Displayed (Phase) Green Times

            Phase 1                 Phase 2    Phase 3     Phase 4

0                               45            65      75             95
I-------------------------------I-------------I-------I--------------I
...GGGGGGGGGGGGGGGGGGGGGGGGGGGG....GGGGGGGGGG.....GGG....GGGGGGGGGGG.
  4                               49             69     79


Effective (Movement) Green Times


 West: ACCESO OESTE (PR-2)

Mov.    5L (L)
I                               I             I       I              I
.................................................GGGG..............
                                                 71    77

Mov.    2T (T)
I                               I             I       I              I
....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG................GGGGGG.............
   6                             47              71    77

Mov.    2R (R)
I                               I             I       I              I
G...GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG...........GGGGGGGGGGGGGGGGGGGGGGGGG
2  6                            47         62


 South: ACCESO SUR (PR-464)

Mov.    3L (L)
I                               I             I       I              I
...........................................................GGGGGGGGGG
2                                                          81

Mov.    8T (T)
I                               I             I       I              I
...........................................................GGGGGGGGGG
2                                                          81

Mov.    8R (R)
I                               I             I       I              I
G.................................GGGGGGGGGGGGGGGGGGG...GGGGGGGGGGG
2                                   51                 77  81
```

```
 East: ACCESO ESTE

Mov.    1L (L)
I                                I             I       I              I
.....................................GGGGGGGGGG......................
                                       51         67

Mov.    6T (T)
I                                I             I       I              I
....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG......................
   6                                                 67

Mov.    6R (R)
I                                I             I       I              I
G...GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG...GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
2  6                              47  51


 North: ACCESO NORTE

Mov.    7L (L)
I                                I             I       I              I
.................................................................GGGG
2                                                                  90

Mov.    4T (T)
I                                I             I       I              I
.........................................................GGGGGGGGGG
2                                                          81

Mov.    4R (R)
I                                I             I       I              I
G..............................GGGGGGGGGGGGGGGGGGGGGGGGGGG...GGGGGGGGGGG
2                            41                          77  81


I-----I------I------I------I------I------I------I------I------I------I---->
0     10     19     29     38     48     57     67     76     86     95

                                 T I M E  (s)
```

Table S.10 - Movement Capacity and Performance Summary

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L           1   112   100  0.009    6        56.1  0.59    0.1    0.06
  2T T        1933  1849   100  1.046   41    6*  55.9  1.21   49.7  123.12
  2R R         301   741<  100  0.406   41   35   11.2  0.74    4.6    7.27
-------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L         153   134   100  1.146   16       112.5  1.11   34.2   15.06
  8T T           1     1   100  1.188*  16*      103.7  1.11   34.2    0.10
  8R R         237   207   100  1.146   26   16  140.4  1.03   31.8   24.08
-------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L         222   299   100  0.743   16*       61.7  0.84   13.6   14.04
```

```
  6T T        1723  2402   100  0.717   61        14.3  0.64   31.0   65.09
  6R R           1     1   100  0.714   41*  46   23.0  0.84   30.6    0.04
-------------------------------------------------------------------------
North: ACCESO NORTE
  7L L           1    99   100  0.010    7        52.6  0.66    0.2    0.06
  4T T           1    99   100  0.010   16        43.7  0.59    0.2    0.05
  4R R           1    99   100  0.010   36   16   50.6  0.63    0.2    0.05
-------------------------------------------------------------------------
  <  Reduced capacity due to a short lane effect
  *  Maximum degree of saturation, or critical green periods
```

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

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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
-------------------------------------------------------------
West: ACCESO OESTE (PR-2)
   5L L           0.0     0.35   0.000    0.02   0.001     0.2
   2T T          49.7   694.82   0.894   38.51   1.069   470.3
   2R R           5.8    63.52   0.097    4.79   0.139    54.7
                ----------------------------------------------
                 55.5   758.69   0.991   43.31   1.208   525.2
-------------------------------------------------------------
South: ACCESO SUR (PR-464)
   3L L           4.6    79.99   0.085    2.81   0.083    43.4
   8T T           0.0     0.50   0.001    0.02   0.001     0.3
   8R R           7.8   143.91   0.148    4.49   0.132    73.5
                ----------------------------------------------
                 12.4   224.40   0.234    7.32   0.215   117.2
-------------------------------------------------------------
East: ACCESO ESTE
   1L L           5.5    81.36   0.099    3.90   0.113    51.9
   6T T          31.1   368.34   0.502   21.75   0.694   294.1
   6R R           0.0     0.25   0.000    0.02   0.000     0.2
                ----------------------------------------------
                 36.6   449.95   0.601   25.66   0.807   346.3
-------------------------------------------------------------
North: ACCESO NORTE
   7L L           0.0     0.34   0.000    0.02   0.000     0.2
   4T T           0.0     0.31   0.000    0.02   0.000     0.2
   4R R           0.0     0.33   0.000    0.02   0.000     0.2
                ----------------------------------------------
                  0.1     0.98   0.001    0.05   0.001     0.7
-------------------------------------------------------------
 INTERSECTION:  104.5  1434.03   1.827   76.34   2.232   989.3
-------------------------------------------------------------


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 CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)						
5L L	15.6	0.58	0.715	28.80	0.832	378.0
2T T	14.8	0.59	0.757	32.63	0.906	398.5
2R R	19.6	0.35	0.530	26.26	0.760	299.9
	15.3	0.56	0.727	31.77	0.886	385.3
South: ACCESO SUR (PR-464)						
3L L	12.6	0.86	0.916	30.14	0.886	465.4
8T T	12.9	0.82	0.889	30.13	0.883	454.9
8R R	11.5	1.00	1.029	31.29	0.920	512.4
	11.9	0.95	0.984	30.84	0.907	493.8
East: ACCESO ESTE						
1L L	15.2	0.61	0.736	29.04	0.839	387.2
6T T	21.0	0.35	0.477	20.67	0.660	279.6
6R R	18.2	0.41	0.583	27.31	0.787	322.3
	20.2	0.38	0.507	21.62	0.680	291.8
North: ACCESO NORTE						
7L L	15.9	0.56	0.694	28.23	0.820	369.8
4T T	17.0	0.51	0.635	25.66	0.770	346.4
4R R	16.0	0.55	0.689	28.32	0.821	367.5
	16.3	0.54	0.672	27.40	0.803	361.2
INTERSECTION:	16.6	0.51	0.655	27.37	0.800	354.7

Table S.14 - Summary of Input and Output Data

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)												
1 L	1			1	0	1868	6		0.009	56.1	2	230
2 T		967		967	0	1868	41	6	1.046	55.9	1243	1600
3 T		967		967	0	1868	41	6	1.046	55.9	1243	1600

```
4 R                301   301    0  1868   41  35  0.407   11.2   115   230
         ---------------------------------------------------------------------
           1 1933  301  2235    0                 1.046   49.9  1243
-------------------------------------------------------------------------------
 South: ACCESO SUR (PR-464)
1 LTR    153    1  237   391    0  1868   16      1.146  140.3   795  1600
         ---------------------------------------------------------------------
         153    1  237   391    0                 1.146  112.6   855
-------------------------------------------------------------------------------
 East: ACCESO ESTE
1 L      222              222    0  1868   16      0.743   61.7   339*  230
2 T          861          861    0  1868   61      0.717   14.6   774  1600
3 TR         862    1     863    0  1868   45  17  0.717   14.1   766  1600
         ---------------------------------------------------------------------
         222 1723    1  1946    0                 0.743   19.8   774
-------------------------------------------------------------------------------
 North: ACCESO NORTE
1 LTR      1    1    1      3    0  1773   11      0.010   47.6     4  1600
         ---------------------------------------------------------------------
           1    1    1      3    0                 0.010   47.6     4
===============================================================================
 ALL VEHICLES          Total   %       Cycle      Max   Aver.   Max
                       Flow   HV       Time        X    Delay  Queue
                       4575    0         95      1.188   43.8  1243
===============================================================================
Peak flow period = 15 minutes.

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

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

  *  Queue length exceeds short lane length due to specification of a
     percentile queue in the Tools-Options (Model tab). For calculation
     of this statistic, you may specify the lane with full length.
```

Table S.15 - Capacity and Level of Service

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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 (PR-2)
  5L L        0.063             1    112   0.009    56.1    E      0.1      2
  2T T        0.432  0.063*  1933   1849   1.046    55.9    E     49.7   1243
  2R R        0.432  0.368    301    741<  0.406    11.2    B      4.6    115
-------------------------------------------------------------------------------
South: ACCESO SUR (PR-464)
  3L L        0.168           153    134   1.146   112.5    F     34.2    855
  8T T        0.168*            1      1   1.188*  103.7    F     34.2    855
  8R R        0.274  0.168    237    207   1.146   140.4    F     31.8    795
-------------------------------------------------------------------------------
East: ACCESO ESTE
  1L L        0.168*          222    299   0.743    61.7    E     13.6    339
  6T T        0.642          1723   2402   0.717    14.3    B     31.0    774
  6R R        0.432* 0.484      1      1   0.714    23.0    C     30.6    766
-------------------------------------------------------------------------------
North: ACCESO NORTE
  7L L        0.074             1     99   0.010    52.6    D      0.2      4
```

```
  4T T        0.168             1     99   0.010    43.7    D      0.2      4
  4R R        0.379  0.168      1     99   0.010    50.6    D      0.2      4
-------------------------------------------------------------------------------
  ALL VEHICLES:              4575          1.188    43.8    D     49.7   1243
-------------------------------------------------------------------------------
  INTERSECTION (persons):    5490                   43.8          49.7   1243
-------------------------------------------------------------------------------
     Level of Service calculations are based on
     average control delay including geometric delay (HCM criteria),
     independent of the current delay definition used.
     For the criteria, refer to the "Level of Service" topic in the
     SIDRA Output Guide or the Output section of the on-line help.
  <  Reduced capacity due to a short lane effect
  *  Maximum v/c ratio, or critical green periods
  "  Movement Level of service has been determined using adjacent lane
     v/c ratio rather than short lane v/c ratio (v/c=1.0)
```

Table S.16 - SCATS MF Parameter

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-------------------------------------------------------
 Lane   Stopline Capacity  SCATS  SCATS   Deg.  Lane
 No.      Flow   (veh/h)   Satn    MF     Satn  Util.
        (veh/h)            Flow            x     %
-------------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L         1     112     1775   1065   0.009   100
 2 T       924     924     1868   1702   1.046   100
 3 T       924     924     1868   1702   1.046   100
 4 R       301     740     1588   1447   0.407   100
-------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR     341     341     1657     NA   1.146   100
-------------------------------------------------------
 East: ACCESO ESTE
 1 L       222     299     1775   1420   0.743   100
 2 T       861    1200     1868   1753   0.717   100
 3 TR      863    1204     1868     NA   0.717   100
-------------------------------------------------------
 North: ACCESO NORTE
 1 LTR       3     296     1648     NA   0.010   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 CARRETERA PR- 2 PR- 464
FIGURA 35 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)								
	South	Right	32.8	12.5	51.5	1600	387	No
	East	Thru	S	40.0	35.0	1600	403	No
	North	Left	28.2	11.8	44.3	1600	381	No
South: ACCESO SUR (PR-464)								
	West	Left	43.8	14.0	68.8	1600	399	No
	East	Right	32.8	12.5	51.5	1600	387	No
	North	Thru	S	40.0	81.0	1600	403	No
East: ACCESO ESTE								
	West	Thru	S	40.0	35.0	1600	403	No
	South	Left	29.3	12.0	46.1	1600	383	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	81.0	1600	403	No
	East	Left	35.5	12.9	55.7	1600	390	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 CARRETERA PR- 2 PR- 464
FIGURA 35 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (Sum of User-given Phase Times)

		Delay (seconds/veh)								
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 (PR-2)										
1 L	0.009	47.1	0.0	47.1	3.7	43.5	0.0	43.5	9.0	56.1
2 T	1.046	13.6	42.2	55.9	8.9	47.0	3.4	43.6	0.0	55.9
3 T	1.046	13.6	42.2	55.9	8.9	47.0	3.4	43.6	0.0	55.9
4 R	0.407	1.9	0.4	2.3	1.1	1.2	0.0	1.2	8.9	11.2
South: ACCESO SUR (PR-464)										
1 LTR	1.146	9.2	94.5	103.7	4.2	116.3	3.8	112.5	8.8	112.6
East: ACCESO ESTE										
1 L	0.743	43.5	9.2	52.7	3.9	48.8	0.2	48.6	9.0	61.7
2 T	0.717	12.5	2.1	14.6	6.3	8.3	0.0	8.3	0.0	14.6

```
 3 TR   0.717  12.0   2.1  14.1   6.1   8.0   0.0   8.0   0.0   14.1
-----------------------------------------------------------------------
 North: ACCESO NORTE
 1 LTR  0.010  43.7   0.0  43.7   5.1  37.9   0.0  37.9   5.9   49.6
-----------------------------------------------------------------------
  dn is average stop-start delay for all vehicles queued and unqueued
```

Table D.2 - Lane Stops

```
INTERSECCI N CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (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
-------------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L   0.009  0.55  0.00  0.04   0.59    0.939   0.00
 2 T   1.046  0.91  0.30  0.00   1.21    1.000   0.44
 3 T   1.046  0.91  0.30  0.00   1.21    1.000   0.44
 4 R   0.407  0.24  0.00  0.50   0.74    0.276   0.00
-------------------------------------------------------
 South: ACCESO SUR (PR-464)
 1 LTR 1.146  0.86  0.20  0.00   1.07    1.000   0.73
-------------------------------------------------------
 East: ACCESO ESTE
 1 L   0.743  0.81  0.01  0.01   0.84    0.979   0.02
 2 T   0.717  0.65  0.00  0.00   0.65    0.708   0.00
 3 TR  0.717  0.63  0.00  0.00   0.63    0.688   0.00
-------------------------------------------------------
 North: ACCESO NORTE
 1 LTR 0.010  0.58  0.00  0.05   0.63    0.889   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 CARRETERA PR- 2   PR- 464
FIGURA 35  PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time =  95 (Sum of User-given Phase Times)

-------------------------------------------------------------------------------------
        Deg.  Ovrfl.   Average (veh)                Percentile (veh)            Queue
 Lane   Satn  Queue ---------------------  ----------------------------------  Stor.
 No.      x    No      Nb1     Nb2     Nb     70%    85%    90%    95%    98%   Ratio
-------------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-2)
 1 L   0.009    0.0     0.0     0.0    0.0     0.0    0.0    0.1    0.1    0.1   0.01
 2 T   1.046   12.1    18.8    12.1   30.9    35.4   43.5   45.9   49.7   55.4   0.78
 3 T   1.046   12.1    18.8    12.1   30.9    35.4   43.5   45.9   49.7   55.4   0.78
 4 R   0.407    0.4     1.9     0.4    2.3     2.7    3.6    4.0    4.6    5.8   0.50
-------------------------------------------------------------------------------------
```

South: ACCESO SUR (PR-464)											
1 LTR	1.146	7.1	13.0	7.1	20.2	23.4	29.3	31.2	34.2	38.6	0.53
East: ACCESO ESTE											
1 L	0.743	0.9	6.2	0.9	7.1	8.4	10.9*	12.0*	13.6*	16.2*	1.47
2 T	0.717	1.9	16.1	1.9	18.0	20.9	26.3	28.1	31.0	35.1	0.48
3 TR	0.717	1.9	15.8	1.9	17.8	20.7	26.1	27.8	30.6	34.8	0.48
North: ACCESO NORTE											
1 LTR	0.010	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.00

Values printed in this table are back of queue (vehicles).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

Table D.3B - Lane Queues (feet)

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 35 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)											
1 L	0.009	0.0	0.7	0.0	0.7	0.9	1.2	1.3	1.5	2.0	0.01
2 T	1.046	301.8	471.0	301.8	772.9	885.9	1087.5	1147.9	1242.6	1385.6	0.78
3 T	1.046	301.8	471.0	301.8	772.9	885.9	1087.5	1147.9	1242.6	1385.6	0.78
4 R	0.407	10.1	46.5	10.1	56.6	67.6	89.4	99.5	114.9	143.8	0.50
South: ACCESO SUR (PR-464)											
1 LTR	1.146	178.7	325.4	178.7	504.1	585.0	732.6	779.3	854.9	963.9	0.53
East: ACCESO ESTE											
1 L	0.743	22.8	155.3	22.8	178.1	210.8	273.6*	299.2*	339.0*	405.7*	1.47
2 T	0.717	48.2	401.5	48.2	449.7	523.4	658.7	702.8	773.9	877.2	0.48
3 TR	0.717	48.3	396.2	48.3	444.5	517.5	651.6	695.4	766.1	868.9	0.48
North: ACCESO NORTE											
1 LTR	0.010	0.0	1.9	0.0	2.0	2.4	3.1	3.5	4.1	5.3	0.00

Values printed in this table are back of queue (feet).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

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

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 35 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)									
5L L	40.0	11.8	11.8	40.0			29.1	15.0	9.0
2T T	40.0	40.0	40.0	40.0	30.7	11.7	29.4	15.2	0.0
2R R	40.0	12.5	12.5	40.0			30.8	30.0	8.9
South: ACCESO SUR (PR-464)									
3L L	40.0	14.0	14.0	40.0	8.5		26.7	9.3	8.7
8T T	40.0	40.0	40.0	40.0	8.5		29.2	9.9	0.0
8R R	40.0	12.5	12.5	40.0	8.5		26.7	7.8	8.9
East: ACCESO ESTE									
1L L	40.0	12.0	12.0	40.0	18.7		28.9	14.2	9.0
6T T	40.0	40.0	40.0	40.0			33.9	28.2	0.0
6R R	40.0	12.5	12.5	40.0			29.7	23.8	8.9
North: ACCESO NORTE									
7L L	40.0	12.9	12.9	40.0			29.2	15.7	8.9
4T T	40.0	40.0	40.0	40.0			32.5	17.5	0.0
4R R	40.0	12.5	12.5	40.0			29.2	16.0	8.9

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

Table D.5 - Progression Factors and Actuated Signal Parameters

INTERSECCI N CARRETERA PR- 2 PR- 464
FIGURA 35 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)											
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	6	50
2R R	VA	No	3	1.000	1.000	2.5	3.1	6	50	6	50
South: ACCESO SUR (PR-464)											
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	2.0	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											
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 CARRETERA PR- 2 PR- 464
FIGURA 35 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Actuated Isolated Signals, Cycle Time = 95 (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 (PR-2)						
5L L	Normal	0	4.50	263.9	2.50	2.00
2R R	Normal	1	6.00	106.8	3.00	2.00
South: ACCESO SUR (PR-464)						
3L L	Normal	2	4.50	263.9	2.50	2.00
8R R	Normal	1933	6.00	352.0	3.00	2.00
East: ACCESO ESTE						
1L L	Normal	0	4.50	239.6	2.50	2.00
6R R	Normal	1	6.00	228.0	3.00	2.00
North: ACCESO NORTE						
7L L	Normal	238	4.50	83.5	2.50	2.00
4R R	Normal	862	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 CARRETERA PR-464 & CAMINO VECINAL

FIGURA 36 PROYECCIÓN AÑO 2023 (PM)

Run Information

```
* Basic Parameters:
  Intersection Type: Unsignalised - Two-Way Stop Control
  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
```

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

```
INTERSECCI N CARRETERA PR-464   CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023  (PM)
Intersection ID: 2
Stop Sign Controlled Intersection
```

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
West: ACCESO OESTE (PR-464)							
	South	2R	Right	7	0	1.00	1.00
	East	2T	Thru	31	0	1.00	1.00
	North	5L	Left	355	0	1.00	1.00
South: ACCESO SUR (CAMINO VECINAL)							
	West	3L	Left	6	0	1.00	1.00
	East	8R	Right	4	0	1.00	1.00
	North	8T	Thru	1	0	1.00	1.00
East: ACCESO ESTE (CAMINO VECINAL)							
	West	6T	Thru	30	0	1.00	1.00
	South	1L	Left	4	0	1.00	1.00
	North	6R	Right	236	0	1.00	1.00
North: ACCESO NORTE(PR-464)							
	West	4R	Right	345	0	1.00	1.00
	South	4T	Thru	5	0	1.00	1.00

```
            East          7L   Left     11     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 CARRETERA PR-464   CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023  (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

-----------------------------------------------
  Mov          Left       Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
   5L L     355     0      0     0      0     0
   2T T       0     0     31     0      0     0
   2R R       0     0      0     0      7     0
-----------------------------------------------
South: ACCESO SUR  (CAMINO VECINAL)
   3L L       6     0      0     0      0     0
   8T T       0     0      1     0      0     0
   8R R       0     0      0     0      4     0
-----------------------------------------------
East: ACCESO ESTE (CAMINO VECINAL)
   1L L       4     0      0     0      0     0
   6T T       0     0     30     0      0     0
   6R R       0     0      0     0    236     0
-----------------------------------------------
North: ACCESO NORTE(PR-464)
   7L L      11     0      0     0      0     0
   4T T       0     0      5     0      0     0
   4R R       0     0      0     0    345     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 CARRETERA PR-464   CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023  (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

---------------------------------------------------
  Mov          Left         Through         Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
---------------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
```

5L L	355	0.0	0	0.0	0	0.0
2T T	0	0.0	31	0.0	0	0.0
2R R	0	0.0	0	0.0	7	0.0
South: ACCESO SUR (CAMINO VECINAL)						
3L L	6	0.0	0	0.0	0	0.0
8T T	0	0.0	1	0.0	0	0.0
8R R	0	0.0	0	0.0	4	0.0
East: ACCESO ESTE (CAMINO VECINAL)						
1L L	4	0.0	0	0.0	0	0.0
6T T	0	0.0	30	0.0	0	0.0
6R R	0	0.0	0	0.0	236	0.0
North: ACCESO NORTE(PR-464)						
7L L	11	0.0	0	0.0	0	0.0
4T T	0	0.0	5	0.0	0	0.0
4R R	0	0.0	0	0.0	345	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.2 - Movement Capacity Parameters

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
West: ACCESO OESTE (PR-464)										
5L L	355	0.0	451+	0.0	451	467	0.80	5	100	0.760
2T T	31	0.0	183+	0.0	183	41	0.80	6	100	0.756
2R R	7	0.0	5	0.0	5	9	0.80	3	100	0.778*
South: ACCESO SUR (CAMINO VECINAL)										
3L L	6	0.0	350	0.0	350	738	0.80	9740	100	0.008
8T T	1	0.0	0			123	0.80	9740	100	0.008
8R R	4	0.0	0			492	0.80	9740	100	0.008
East: ACCESO ESTE (CAMINO VECINAL)										
1L L	4	0.0	57+	0.0	57	33	0.80	560	100	0.121
6T T	30	0.0	353+	0.0	353	246	0.80	556	100	0.122
6R R	236	0.0	1	0.0	1	1934	0.80	556	100	0.122
North: ACCESO NORTE(PR-464)										
7L L	11	0.0	5	0.0	5	49	0.80	256	100	0.224
4T T	5	0.0	1	0.0	1	22	0.80	252	100	0.227
4R R	345	0.0	0			1527	0.80	254	100	0.226

+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	D
Average intersection delay (s/pers)	=	16.6
Largest average movement delay (s)	=	30.7
Largest back of queue, 95% (ft)	=	303
Performance Index	=	24.96
Degree of saturation (highest)	=	0.778
Practical Spare Capacity (lowest)	=	3 %
Effective intersection capacity, (veh/h)	=	1331
Total vehicle flow (veh/h)	=	1035
Total person flow (pers/h)	=	1242
Total vehicle delay (veh-h/h)	=	4.78
Total person delay (pers-h/h)	=	5.74
Total effective vehicle stops (veh/h)	=	1002
Total effective person stops (pers/h)	=	1203
Total vehicle travel (veh-mi/h)	=	388.5
Total cost ($/h)	=	249.19
Total fuel (gal/h)	=	21.3
Total CO2 (kg/h)	=	201.39

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

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 (PR-464)									
5L L	3.03	3.63	30.7	0.51	1.25	12.1	303	12.57	19.4
2T T	0.26	0.32	30.7	0.51	1.25	12.1	303	1.10	19.5
2R R	0.06	0.07	30.7	0.51	1.28	12.1	303	0.25	19.4
South: ACCESO SUR (CAMINO VECINAL)									
3L L	0.02	0.02	10.4	0.46	0.65	0.0	1	0.10	30.3
8T T	0.00	0.00	1.2	0.46	0.00	0.0	1	0.01	35.7
8R R	0.01	0.01	10.1	0.46	0.37	0.0	1	0.06	30.3
East: ACCESO ESTE (CAMINO VECINAL)									
1L L	0.01	0.01	6.9	0.00	1.00	0.7	18	0.07	28.9
6T T	0.06	0.07	6.9	0.00	1.00	0.7	18	0.53	29.1
6R R	0.45	0.54	6.9	0.00	1.00	0.7	18	4.18	28.9
North: ACCESO NORTE(PR-464)									
7L L	0.03	0.03	9.1	0.04	0.70	1.6	40	0.19	31.4
4T T	0.00	0.00	0.0	0.04	0.00	1.6	40	0.05	39.6
4R R	0.86	1.03	8.9	0.04	0.66	1.6	40	5.85	31.6

Table S.6 - Intersection Performance

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)									
393	0.778	3.35	4.02	30.7	0.51	1.25	303	13.92	19.4
South: ACCESO SUR (CAMINO VECINAL)									
11	0.008	0.03	0.03	9.4	0.46	0.49	1	0.18	30.7
East: ACCESO ESTE (CAMINO VECINAL)									
270	0.122	0.51	0.62	6.9	0.00	1.00	18	4.78	28.9
North: ACCESO NORTE(PR-464)									
361	0.227	0.88	1.06	8.8	0.04	0.65	40	6.09	31.6
ALL VEHICLES:									
1035	0.778	4.78	5.74	16.6	0.21	0.97	303	24.96	25.0
INTERSECTION (persons):									
1242	0.778		5.74	16.6	0.21	0.97		24.96	25.0

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

Table S.7 - Lane Performance

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	Queue 95% Back (ft)	Lane Length (ft)
West: ACCESO OESTE (PR-464)								
1 LTR	393	517	0.760	30.7	1.25	12.1	303.2	1600.0
South: ACCESO SUR (CAMINO VECINAL)								
1 LTR	11	1353	0.008	9.4	0.49	0.0	1.2	1600.0
East: ACCESO ESTE (CAMINO VECINAL)								
1 LTR	270	2213	0.122	6.9	1.00	0.7	18.1	1600.0
North: ACCESO NORTE(PR-464)								
1 LTR	361	1598	0.226	8.8	0.65	1.6	39.6	1600.0

Table S.8 - Lane Flow and Capacity Information

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
West: ACCESO OESTE (PR-464)								
1 LTR	355	31	7	393	60	517	0.760	100
South: ACCESO SUR (CAMINO VECINAL)								
1 LTR	6	1	4	11	11	1353	0.008	100
East: ACCESO ESTE (CAMINO VECINAL)								
1 LTR	4	30	236	270	60	2213	0.122	100
North: ACCESO NORTE(PR-464)								
1 LTR	11	5	345	361	361	1598	0.226	100

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

Table S.10 - Movement Capacity and Performance Summary

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	95% Back of Queue (veh)	Perf. Index
West: ACCESO OESTE (PR-464)									
5L	L	355	467	100	0.760	30.7	1.25	12.1	12.57
2T	T	31	41	100	0.756	30.7	1.25	12.1	1.10
2R	R	7	9	100	0.778*	30.7	1.28	12.1	0.25
South: ACCESO SUR (CAMINO VECINAL)									
3L	L	6	738	100	0.008	10.4	0.65	0.0	0.10
8T	T	1	123	100	0.008	1.2	0.00	0.0	0.01
8R	R	4	492	100	0.008	10.1	0.37	0.0	0.06
East: ACCESO ESTE (CAMINO VECINAL)									
1L	L	4	33	100	0.121	6.9	1.00	0.7	0.07
6T	T	30	246	100	0.122	6.9	1.00	0.7	0.53
6R	R	236	1934	100	0.122	6.9	1.00	0.7	4.18
North: ACCESO NORTE(PR-464)									
7L	L	11	49	100	0.224	9.1	0.70	1.6	0.19
4T	T	5	22	100	0.227	0.0	0.00	1.6	0.05
4R	R	345	1527	100	0.226	8.9	0.66	1.6	5.85

* Maximum degree of saturation

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

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	8.0	103.26	0.141	6.39	0.179	76.0
2T T	0.7	9.04	0.012	0.57	0.016	6.7
2R R	0.2	2.21	0.004	0.19	0.005	1.8
	8.9	114.51	0.157	7.15	0.200	84.5
South: ACCESO SUR (CAMINO VECINAL)						
3L L	0.1	1.26	0.002	0.10	0.003	1.1
8T T	0.0	0.17	0.000	0.01	0.000	0.1
8R R	0.1	0.84	0.001	0.06	0.002	0.7
	0.2	2.28	0.004	0.17	0.005	2.0
East: ACCESO ESTE (CAMINO VECINAL)						
1L L	0.1	0.88	0.001	0.07	0.002	0.8
6T T	0.6	6.51	0.010	0.50	0.014	5.6
6R R	4.7	51.78	0.079	3.95	0.113	44.5
	5.4	59.17	0.091	4.52	0.129	50.9
North: ACCESO NORTE(PR-464)						
7L L	0.2	2.25	0.004	0.18	0.005	2.0
4T T	0.1	0.74	0.001	0.02	0.001	0.6
4R R	6.5	70.24	0.108	5.38	0.156	61.4
	6.8	73.23	0.112	5.58	0.163	64.0
INTERSECTION:	21.3	249.19	0.363	17.43	0.497	201.4

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 CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	16.5	0.48	0.660	29.91	0.839	355.5
2T T	16.4	0.48	0.666	30.69	0.857	359.4
2R R	13.7	0.52	0.831	44.75	1.130	429.2
	16.5	0.48	0.663	30.24	0.846	357.1
South: ACCESO SUR (CAMINO VECINAL)						
3L L	19.2	0.35	0.548	27.64	0.784	306.0
8T T	24.7	0.29	0.379	15.24	0.551	238.0
8R R	19.5	0.35	0.533	26.61	0.767	301.1
	19.7	0.34	0.527	26.12	0.756	297.9
East: ACCESO ESTE (CAMINO VECINAL)						
1L L	18.7	0.36	0.564	28.31	0.798	314.0
6T T	18.9	0.36	0.555	27.79	0.793	311.9
6R R	18.9	0.36	0.554	27.67	0.790	311.7
	18.9	0.36	0.554	27.69	0.791	311.8
North: ACCESO NORTE(PR-464)						
7L L	19.6	0.34	0.534	26.97	0.769	300.2
4T T	31.8	0.24	0.254	5.60	0.363	184.9
4R R	20.0	0.34	0.516	25.76	0.748	294.1
	20.1	0.34	0.513	25.51	0.744	292.7
INTERSECTION:	18.3	0.40	0.581	27.88	0.795	322.1

Table S.14 - Summary of Input and Output Data

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)												
1 LTR	355	31	7	393	0				0.760	30.7	303	1600
	355	31	7	393	0				0.760	30.7	303	
South: ACCESO SUR (CAMINO VECINAL)												
1 LTR	6	1	4	11	0				0.008	9.4	1	1600
	6	1	4	11	0				0.008	9.4	1	
East: ACCESO ESTE (CAMINO VECINAL)												
1 LTR	4	30	236	270	0				0.122	6.9	18	1600
	4	30	236	270	0				0.122	6.9	18	

```
-----------------------------------------------------------------------------
 North: ACCESO NORTE(PR-464)
1 LTR    11    5  345   361    0                 0.226    8.8    40  1600
        ---------------------------------------------------------------------
         11    5  345   361    0                 0.226    8.8    40
=============================================================================
 ALL VEHICLES          Total   %                  Max   Aver.   Max
                       Flow   HV                   X    Delay  Queue
                       1035    0                 0.778   16.6   303
=============================================================================
Peak flow period = 15 minutes.

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

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

Table S.15 - Capacity and Level of Service

```
INTERSECCI N CARRETERA PR-464   CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023  (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

-------------------------------------------------------------------
 Mov     Mov    Total  Total    Deg.   Aver.   LOS  Longest Queue
 ID      Typ    Flow    Cap.     of    Delay          95% Back
                (veh   (veh     Satn                (vehs)  (ft)
                  /h)    /h)    (v/c)  (sec)
-------------------------------------------------------------------
West: ACCESO OESTE (PR-464)
  5L L           355    467   0.760    30.7    D     12.1    303
  2T T            31     41   0.756    30.7    D     12.1    303
  2R R             7      9   0.778*   30.7    D     12.1    303
-------------------------------------------------------------------
South: ACCESO SUR  (CAMINO VECINAL)
  3L L             6    738   0.008    10.4    B      0.0      1
  8T T             1    123   0.008     1.2    A      0.0      1
  8R R             4    492   0.008    10.1    B      0.0      1
-------------------------------------------------------------------
East: ACCESO ESTE (CAMINO VECINAL)
  1L L             4     33   0.121     6.9    A      0.7     18
  6T T            30    246   0.122     6.9    A      0.7     18
  6R R           236   1934   0.122     6.9    A      0.7     18
-------------------------------------------------------------------
North: ACCESO NORTE(PR-464)
  7L L            11     49   0.224     9.1    A      1.6     40
  4T T             5     22   0.227     0.0    A      1.6     40
  4R R           345   1527   0.226     8.9    A      1.6     40
-------------------------------------------------------------------
 ALL VEHICLES:   1035          0.778    16.6   NA     12.1    303
-------------------------------------------------------------------
     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.

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

  *  Maximum v/c ratio, or critical green periods
  "  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 D.0 - Geometric Delay Data

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)								
	South	Right	32.8	12.5	51.5	1600	387	No
	East	Thru	S	12.4	35.0	1600	374	No
	North	Left	23.0	10.9	36.1	1600	375	No
South: ACCESO SUR (CAMINO VECINAL)								
	West	Left	19.8	10.3	32.8	1600	374	No
	East	Right	32.8	12.5	51.5	1600	387	No
	North	Thru	S	40.0	35.0	1600	403	No
East: ACCESO ESTE (CAMINO VECINAL)								
	West	Thru	S	12.4	35.0	1600	374	No
	South	Left	17.6	9.9	32.8	1600	377	No
	North	Right	32.8	12.5	51.5	1600	387	No
North: ACCESO NORTE(PR-464)								
	West	Right	32.8	12.5	51.5	1600	387	No
	South	Thru	S	40.0	35.0	1600	403	No
	East	Left	21.1	10.6	33.1	1600	373	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 CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Delay (seconds/veh) Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
West: ACCESO OESTE (PR-464)										
1 LTR	0.760	7.0	18.8	25.7	1.0	24.7	4.7	20.1	5.0	30.7
South: ACCESO SUR (CAMINO VECINAL)										
1 LTR	0.008	1.2	0.0	1.2	2.0	0.0	0.0	0.0	8.3	9.4
East: ACCESO ESTE (CAMINO VECINAL)										
1 LTR	0.122	1.6	0.2	1.9	0.0	1.8	0.0	1.8	5.0	6.9
North: ACCESO NORTE(PR-464)										
1 LTR	0.226	0.0	0.0	0.0	0.2	0.0	0.0	0.0	8.8	8.8

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

Table D.2 - Lane Stops

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)							
1 LTR	0.760	0.50	0.27	0.49	1.25	0.512	0.74
South: ACCESO SUR (CAMINO VECINAL)							
1 LTR	0.008	0.14	0.00	0.34	0.49	0.465	0.00
East: ACCESO ESTE (CAMINO VECINAL)							
1 LTR	0.122	0.00	0.00	1.00	1.00	0.002	0.00
North: ACCESO NORTE(PR-464)							
1 LTR	0.226	0.00	0.00	0.65	0.65	0.037	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 CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)											
1 LTR	0.760	1.2	1.9	2.2	4.2	6.7	8.4	9.6	12.1	14.2	0.19
South: ACCESO SUR (CAMINO VECINAL)											
1 LTR	0.008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.00
East: ACCESO ESTE (CAMINO VECINAL)											
1 LTR	0.122	0.0	0.2	0.0	0.2	0.4	0.5	0.6	0.7	0.8	0.01
North: ACCESO NORTE(PR-464)											
1 LTR	0.226	0.0	0.5	0.0	0.5	0.9	1.1	1.3	1.6	1.8	0.02

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

Table D.3B - Lane Queues (feet)

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)											
1 LTR	0.760	31.0	48.2	55.7	104.0	168.0	209.6	240.8	303.2	355.1	0.19
South: ACCESO SUR (CAMINO VECINAL)											
1 LTR	0.008	0.0	0.4	0.0	0.4	0.7	0.8	0.9	1.2	1.4	0.00
East: ACCESO ESTE (CAMINO VECINAL)											
1 LTR	0.122	0.0	5.7	0.0	5.7	10.7	13.0	14.7	18.1	21.0	0.01
North: ACCESO NORTE(PR-464)											
1 LTR	0.226	0.0	12.5	0.0	12.5	23.3	28.3	32.1	39.6	45.9	0.02

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

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

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)									
5L L	40.0	0.0	10.9	40.0	10.9		27.4	19.4	5.0
2T T	40.0	0.0	12.4	40.0	15.3		26.9	19.5	5.0
2R R	40.0	0.0	12.5	40.0	40.0		26.2	19.4	5.0
South: ACCESO SUR (CAMINO VECINAL)									
3L L	40.0	10.3	10.3	40.0			30.3	30.3	9.2
8T T	40.0	40.0	40.0	40.0			35.7	35.7	0.0
8R R	40.0	12.5	12.5	40.0			30.3	30.3	8.9
East: ACCESO ESTE (CAMINO VECINAL)									
1L L	40.0	0.0	9.9	40.0			30.1	28.9	5.0
6T T	40.0	0.0	12.4	40.0			30.3	29.1	5.0
6R R	40.0	0.0	12.5	40.0			30.0	28.9	5.0
North: ACCESO NORTE(PR-464)									
7L L	40.0	10.6	10.6	40.0			31.4	31.4	9.1
4T T	40.0	40.0	40.0	40.0			39.6	39.6	0.0
4R R	40.0	12.5	12.5	40.0			31.6	31.6	8.9

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

Table D.6 - Gap Acceptance Parameters

INTERSECCI N CARRETERA PR-464 CAMINO VECINAL
FIGURA 36 PROYECCI N A O 2023 (PM)
Intersection ID: 2
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	Normal	451+	7.50	140.0	3.50	2.00
2T T	Normal	183+	6.50	122.8	4.00	2.00
2R R	Normal	5	2.00	117.3	1.00	2.00
South: ACCESO SUR (CAMINO VECINAL)						
3L L	Normal	350	4.10	77.7	2.20	2.00
East: ACCESO ESTE (CAMINO VECINAL)						
1L L	Normal	57+	7.50	159.4	3.50	2.00
6T T	Normal	353+	6.50	122.8	4.00	2.00
6R R	Normal	1	2.00	117.3	1.00	2.00
North: ACCESO NORTE(PR-464)						
7L L	Normal	5	4.10	108.4	2.20	2.00
4T T	Normal	1	6.50	381.3	4.00	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.
+ Percentage of exiting flow included in total opposing flow

SIDRA SOLUTIONS

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SIDRA INTERSECTION

Output Tables

INTERSECCION CARRETERA PR-464 & CALLE 3

FIGURA 37 PROYECCIÓN AÑO 2023 (PM)

Run Information

```
* Basic Parameters:
  Intersection Type: Unsignalised - Two-Way Stop Control
  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
```

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

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 37 PROYECCI N A O 2023  (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-----------------------------------------------------------------
 From      To          Mov           Flow Rate   Flow   Peak Flow
 Approach  Approach    ID    Turn     LV    HV   Scale    Factor
-----------------------------------------------------------------
 West: ACCESO OESTE (PR-464)
           East        2T    Thru    258     0    1.00     1.00
           North       5L    Left    429     0    1.00     1.00
-----------------------------------------------------------------
 East: ACCESO ESTE
           West        6T    Thru    215     0    1.00     1.00
           North       6R    Right   188     0    1.00     1.00
-----------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
           West        4R    Right   482     0    1.00     1.00
           East        7L    Left    207     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 CARRETERA PR-464   CALLE 3
FIGURA 37 PROYECCI N A O 2023  (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-----------------------------------------------
  Mov          Left        Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
   5L L     429     0      0     0      0     0
   2T T       0     0    258     0      0     0
-----------------------------------------------
East: ACCESO ESTE
   6T T       0     0    215     0      0     0
   6R R       0     0      0     0    188     0
-----------------------------------------------
North: ACCESO NORTE (CALLE 3)
   7L L     207     0      0     0      0     0
   4R R       0     0      0     0    482     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 CARRETERA PR-464   CALLE 3
FIGURA 37 PROYECCI N A O 2023  (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

--------------------------------------------------
  Mov          Left         Through        Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
--------------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
   5L L      429   0.0       0   0.0       0   0.0
   2T T        0   0.0     258   0.0       0   0.0
--------------------------------------------------
East: ACCESO ESTE
   6T T        0   0.0     215   0.0       0   0.0
   6R R        0   0.0       0   0.0     188   0.0
--------------------------------------------------
North: ACCESO NORTE (CALLE 3)
   7L L      207   0.0       0   0.0       0   0.0
   4R R        0   0.0       0   0.0     482   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.2 - Movement Capacity Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 37 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

Mov ID	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
West: ACCESO OESTE (PR-464)										
5L L	429	0.0	403	0.0	403	817	0.80	52	100	0.525
2T T	258	0.0	0			491	0.80	52	100	0.525
East: ACCESO ESTE										
6T T	215	0.0	0			937	0.80	249	100	0.229
6R R	188	0.0	0			819	0.80	249	100	0.230
North: ACCESO NORTE (CALLE 3)										
7L L	207	0.0	996+	0.0	996	176	0.80	-32	100	1.176*
4R R	482	0.0	215	0.0	215	411	0.80	-32	100	1.173

+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 37 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	50.7
Largest average movement delay (s)	=	119.1
Largest back of queue, 95% (ft)	=	1670
Performance Index	=	89.50
Degree of saturation (highest)	=	1.176
Practical Spare Capacity (lowest)	=	-32 %
Effective intersection capacity, (veh/h)	=	1513
Total vehicle flow (veh/h)	=	1779
Total person flow (pers/h)	=	2135
Total vehicle delay (veh-h/h)	=	25.05
Total person delay (pers-h/h)	=	30.06
Total effective vehicle stops (veh/h)	=	3425
Total effective person stops (pers/h)	=	4110
Total vehicle travel (veh-mi/h)	=	669.5
Total cost ($/h)	=	654.00
Total fuel (gal/h)	=	49.6
Total CO2 (kg/h)	=	469.45

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

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% Back (vehs)	Queue (ft)	Perf. Index	Aver. Speed (mph)
West: ACCESO OESTE (PR-464)									
5L L	1.53	1.84	12.8	0.68	0.94	6.8	169	9.19	29.0
2T T	0.27	0.32	3.8	0.68	0.00	6.8	169	3.56	34.0
East: ACCESO ESTE									
6T T	0.00	0.00	0.0	0.00	0.00	0.0	0	2.04	40.0
6R R	0.47	0.56	8.9	0.00	0.69	0.0	0	2.95	31.7
North: ACCESO NORTE (CALLE 3)									
7L L	6.85	8.21	119.1	1.00	2.53	66.8	1670	19.64	8.6
4R R	15.94	19.13	119.1	1.00	4.91	66.8	1670	52.12	8.6

Table S.6 - Intersection Performance

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 37 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)									
687	0.525	1.80	2.16	9.4	0.68	0.59	169	12.75	30.7
East: ACCESO ESTE									
403	0.230	0.47	0.56	4.2	0.00	0.32	0	4.99	35.6
North: ACCESO NORTE (CALLE 3)									
689	1.176	22.79	27.34	119.1	1.00	4.20	1670	71.76	8.6
ALL VEHICLES:									
1779	1.176	25.05	30.06	50.7	0.65	1.93	1670	89.50	15.7
INTERSECTION (persons):									
2135	1.176		30.06	50.7	0.65	1.93		89.50	15.7

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

Table S.7 - Lane Performance

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 37 PROYECCI N A O 2023  (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

----------------------------------------------------------------
          Dem                                Q u e u e
         Flow   Cap  Deg.  Aver.  Eff.   95% Back       Lane
 Lane    (veh  (veh  Satn  Delay  Stop  ------------   Length
 No.       /h)   /h)   x   (sec)  Rate  (vehs)  (ft)    (ft)
----------------------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT      687  1309 0.525    9.4  0.59    6.8  169.4   1600.0
----------------------------------------------------------------
 East: ACCESO ESTE
 1 TR      403  1755 0.230    4.2  0.32    0.0    0.0   1600.0
----------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR      689   587 1.173  119.1  4.20   66.8 1669.6   1600.0
----------------------------------------------------------------
```

Table S.8 - Lane Flow and Capacity Information

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 37 PROYECCI N A O 2023  (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

--------------------------------------------------
                              Min  Tot
 Lane     Dem Flow (veh/h)    Cap  Cap  Deg.  Lane
 No.    -------------------  (veh (veh  Satn  Util
        Lef Thru  Rig  Tot    /h)  /h)   x     %
--------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT    429  258    0  687   687 1309  0.525  100
--------------------------------------------------
 East: ACCESO ESTE
 1 TR      0  215  188  403   403 1755  0.230  100
--------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR    207    0  482  689    60  587  1.173  100
--------------------------------------------------

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

Table S.10 - Movement Capacity and Performance Summary

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 37 PROYECCI N A O 2023  (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

--------------------------------------------------------------------
 Mov     Mov  Dem   Total  Lane  Deg.  Aver.  Eff.    95%    Perf.
 ID      Typ  Flow   Cap.  Util  Satn  Delay  Stop  Back of  Index
              (veh  (veh                      Rate   Queue
```

	/h)	/h)	(%)	x	(sec)		(veh)	
West: ACCESO OESTE (PR-464)								
5L L	429	817	100	0.525	12.8	0.94	6.8	9.19
2T T	258	491	100	0.525	3.8	0.00	6.8	3.56
East: ACCESO ESTE								
6T T	215	937	100	0.229	0.0	0.00	0.0	2.04
6R R	188	819	100	0.230	8.9	0.69	0.0	2.95
North: ACCESO NORTE (CALLE 3)								
7L L	207	176	100	1.176*	119.1	2.53	66.8	19.64
4R R	482	411	100	1.173	119.1	4.91	66.8	52.12

* Maximum degree of saturation

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

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 37 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	8.5	93.58	0.145	7.28	0.206	80.5
2T T	4.4	48.51	0.070	3.17	0.102	41.7
	12.9	142.08	0.215	10.45	0.307	122.3
East: ACCESO ESTE						
6T T	2.5	31.21	0.032	0.63	0.046	23.7
6R R	3.5	38.17	0.059	2.92	0.085	33.4
	6.0	69.37	0.091	3.55	0.131	57.1
North: ACCESO NORTE (CALLE 3)						
7L L	6.7	116.93	0.127	4.42	0.123	63.6
4R R	23.9	325.61	0.482	26.16	0.574	226.5
	30.7	442.54	0.609	30.58	0.697	290.1
INTERSECTION:	49.6	654.00	0.914	44.58	1.135	469.4

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 CARRETERA PR-464 CALLE 3
FIGURA 37 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	18.9	0.36	0.561	28.19	0.796	311.7
2T T	22.2	0.31	0.443	20.12	0.645	264.9
	20.0	0.34	0.516	25.13	0.739	294.0
East: ACCESO ESTE						
6T T	32.6	0.24	0.243	4.77	0.347	180.3
6R R	20.0	0.34	0.515	25.68	0.747	293.5
	25.3	0.28	0.369	14.48	0.533	232.9
North: ACCESO NORTE (CALLE 3)						
7L L	11.5	0.94	1.022	35.45	0.984	510.3
4R R	7.6	1.12	1.650	89.64	1.968	776.1
	8.4	1.06	1.462	73.43	1.674	696.5
INTERSECTION:	13.5	0.61	0.849	41.38	1.053	435.7

Table S.14 - Summary of Input and Output Data

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 37 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)												
1 LT	429	258		687	0				0.525	9.4	169	1600
	429	258	0	687	0				0.525	9.4	169	
East: ACCESO ESTE												
1 TR		215	188	403	0				0.230	4.2	0	1600
	0	215	188	403	0				0.230	4.2		
North: ACCESO NORTE (CALLE 3)												
1 LR	207		482	689	0				1.173	119.1	1670	1600
	207	0	482	689	0				1.173	119.1	1670	

ALL VEHICLES	Total Flow	% HV	Max X	Aver. Delay	Max Queue
	1779	0	1.176	50.7	1670

==========
Peak flow period = 15 minutes.

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

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

Table S.15 - Capacity and Level of Service

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 37 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

Mov ID	Mov Typ	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 (PR-464)								
5L	L	429	817	0.525	12.8	B	6.8	169
2T	T	258	491	0.525	3.8	A	6.8	169
East: ACCESO ESTE								
6T	T	215	937	0.229	0.0	A	0.0	0
6R	R	188	819	0.230	8.9	A	0.0	0
North: ACCESO NORTE (CALLE 3)								
7L	L	207	176	1.176*	119.1	F	66.8	1670
4R	R	482	411	1.173	119.1	F	66.8	1670
ALL VEHICLES:		1779		1.176	50.7	NA	66.8	1670

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.

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

* Maximum v/c ratio, or critical green periods
" 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 D.0 - Geometric Delay Data

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 37 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)
              East   Thru       S   40.0   35.0   1600     403         No
             North   Left    23.0   10.9   36.1   1600     375         No
-------------------------------------------------------------------------------
 East: ACCESO ESTE
              West   Thru       S   40.0   35.0   1600     403         No
             North   Right   32.8   12.5   51.5   1600     387         No
-------------------------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
              West   Right   32.8   12.5   51.5   1600     387         No
              East   Left    23.0   10.9   36.1   1600     375         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 CARRETERA PR-464   CALLE 3
FIGURA 37 PROYECCI N A O 2023  (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-----------------------------------------------------------------------
                    ----------  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 (PR-464)
 1 LT   0.525   3.0   0.8   3.8   3.8   0.8   0.8   0.0   5.7    9.4
-----------------------------------------------------------------------
 East: ACCESO ESTE
 1 TR   0.230   0.0   0.0   0.0   0.0   0.0   0.0   0.0   4.2    4.2
-----------------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR   1.173   6.1 107.9 114.1   2.0 112.0  45.5  66.5   5.0  119.1
-----------------------------------------------------------------------
  dn is average stop-start delay for all vehicles queued and unqueued
```

Table D.2 - Lane Stops

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 37 PROYECCI N A O 2023  (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------
                                                Queue
        Deg.  -- Effective Stop Rate --   Prop. Move-up
 Lane   Satn              Geom. Overall  Queued  Rate
 No.      x    he1   he2   hig     h       pq     hqm
-------------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT  0.525  0.38  0.07  0.14   0.59    0.682   0.26
-------------------------------------------------------
```

```
 East: ACCESO ESTE
 1 TR  0.230  0.00  0.00  0.32   0.32    0.000   0.00
-------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR  1.173  0.69  3.51  0.00   4.20    1.000   6.07
-------------------------------------------------------
  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 CARRETERA PR-464   CALLE 3
FIGURA 37 PROYECCI N A O 2023  (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------------------------------
        Deg.  Ovrfl.   Average (veh)                Percentile (veh)            Queue
 Lane   Satn  Queue --------------------  ------------------------------------  Stor.
 No.     x    No      Nb1    Nb2     Nb     70%    85%    90%    95%    98%   Ratio
-------------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT  0.525    0.3     1.6    0.6    2.2     3.9    4.8    5.4    6.8    7.9   0.11
-------------------------------------------------------------------------------------
 East: ACCESO ESTE
 1 TR  0.230    0.0     0.0    0.0    0.0     0.0    0.0    0.0    0.0    0.0   0.00
-------------------------------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR  1.173   18.2     4.1   22.3   26.4    32.4   43.0   50.9   66.8   80.0   1.04
-------------------------------------------------------------------------------------

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

Table D.3B - Lane Queues (feet)

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 37 PROYECCI N A O 2023  (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------------------------------
        Deg.  Ovrfl.   Average (feet)                Percentile (feet)           Queue
 Lane   Satn  Queue --------------------  ------------------------------------  Stor.
 No.     x    No      Nb1    Nb2     Nb     70%    85%    90%    95%    98%   Ratio
-------------------------------------------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT  0.525    6.5    40.7   15.2   55.9    96.7  119.1  135.9  169.4  197.4   0.11
-------------------------------------------------------------------------------------
 East: ACCESO ESTE
 1 TR  0.230    0.0     0.0    0.0    0.0     0.0    0.0    0.0    0.0    0.0   0.00
-------------------------------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 LR  1.173  456.0   103.5  557.5  661.0   810.2 1074.6 1272.9 1669.6 2000.1   1.04
-------------------------------------------------------------------------------------

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

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

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 37 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)									
5L L	40.0	10.9	10.9	40.0	13.2		29.0	29.0	9.1
2T T	40.0	40.0	40.0	40.0	0.0		34.0	34.0	0.0
East: ACCESO ESTE									
6T T	40.0	40.0	40.0	40.0			40.0	40.0	0.0
6R R	40.0	12.5	12.5	40.0			31.7	31.7	8.9
North: ACCESO NORTE (CALLE 3)									
7L L	40.0	0.0	10.9	40.0	7.7		18.2	8.6	5.0
4R R	40.0	0.0	12.5	40.0	26.5		13.9	8.6	5.0

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

Table D.6 - Gap Acceptance Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 37 PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	Normal	403	4.10	163.5	2.20	2.00
East: ACCESO ESTE						
No opposed movements on this approach						
North: ACCESO NORTE (CALLE 3)						
7L L	Normal	996+	7.50	262.1	3.50	2.00
4R R	Normal	215	2.00	117.3	1.00	2.00

Values in this table are adjusted for heavy vehicles in the entry stream.
\+ Percentage of exiting flow included in total opposing flow

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SIDRA INTERSECTION

Output Tables

INTERSECCION CARRETERA PR-464 & CALLE 3

FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)

Run Information

```
* Basic Parameters:
  Intersection Type: Unsignalised - Two-Way Stop Control
  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
```

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

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 38  MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection
```

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
West: ACCESO OESTE (PR-464)							
	East	2T	Thru	212	0	1.00	1.00
	North	5L	Left	184	0	1.00	1.00
East: ACCESO ESTE							
	West	6T	Thru	177	0	1.00	1.00
	North	6R	Right	83	0	1.00	1.00
North: ACCESO NORTE (CALLE 3)							
	West	4R	Right	173	0	1.00	1.00
	East	7L	Left	73	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 CARRETERA PR-464   CALLE 3
FIGURA 38  MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

-----------------------------------------------
  Mov          Left        Through       Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
   5L L     184     0      0     0      0     0
   2T T       0     0    212     0      0     0
-----------------------------------------------
East: ACCESO ESTE
   6T T       0     0    177     0      0     0
   6R R       0     0      0     0     83     0
-----------------------------------------------
North: ACCESO NORTE (CALLE 3)
   7L L      73     0      0     0      0     0
   4R R       0     0      0     0    173     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 CARRETERA PR-464   CALLE 3
FIGURA 38  MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

--------------------------------------------------
  Mov          Left         Through        Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
--------------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
   5L L      184   0.0       0   0.0       0   0.0
   2T T        0   0.0     212   0.0       0   0.0
--------------------------------------------------
East: ACCESO ESTE
   6T T        0   0.0     177   0.0       0   0.0
   6R R        0   0.0       0   0.0      83   0.0
--------------------------------------------------
North: ACCESO NORTE (CALLE 3)
   7L L       73   0.0       0   0.0       0   0.0
   4R R        0   0.0       0   0.0     173   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.2 - Movement Capacity Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

Mov ID	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
West: ACCESO OESTE (PR-464)										
5L L	184	0.0	260	0.0	260	723	0.80	214	100	0.254
2T T	212	0.0	0			833	0.80	214	100	0.255*
East: ACCESO ESTE										
6T T	177	0.0	0			1224	0.80	453	100	0.145
6R R	83	0.0	0			574	0.80	453	100	0.145
North: ACCESO NORTE (CALLE 3)										
7L L	73	0.0	615+	0.0	615	380	0.80	316	100	0.192
4R R	173	0.0	177	0.0	177	3344	0.80	1446	100	0.052

+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	C
Average intersection delay (s/pers)	=	5.7
Largest average movement delay (s)	=	16.7
Largest back of queue, 95% (ft)	=	49
Performance Index	=	13.24
Degree of saturation (highest)	=	0.255
Practical Spare Capacity (lowest)	=	214 %
Effective intersection capacity, (veh/h)	=	3544
Total vehicle flow (veh/h)	=	902
Total person flow (pers/h)	=	1082
Total vehicle delay (veh-h/h)	=	1.43
Total person delay (pers-h/h)	=	1.72
Total effective vehicle stops (veh/h)	=	411
Total effective person stops (pers/h)	=	494
Total vehicle travel (veh-mi/h)	=	340.4
Total cost ($/h)	=	172.66
Total fuel (gal/h)	=	15.3
Total CO2 (kg/h)	=	144.61

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

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 (PR-464)										
5L	L	0.52	0.62	10.2	0.41	0.70	1.9	49	3.25	30.4
2T	T	0.07	0.08	1.2	0.41	0.00	1.9	49	2.41	36.1
East: ACCESO ESTE										
6T	T	0.00	0.00	0.0	0.00	0.00	0.0	0	1.68	40.0
6R	R	0.21	0.25	8.9	0.00	0.69	0.0	0	1.30	31.7
North: ACCESO NORTE (CALLE 3)										
7L	L	0.34	0.41	16.7	0.68	1.00	1.0	24	1.74	24.4
4R	R	0.29	0.35	6.1	0.18	0.89	0.3	7	2.86	29.5

Table S.6 - Intersection Performance

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)									
396	0.255	0.59	0.71	5.4	0.41	0.32	49	5.66	33.2
East: ACCESO ESTE									
260	0.145	0.21	0.25	2.8	0.00	0.22	0	2.98	36.9
North: ACCESO NORTE (CALLE 3)									
246	0.192	0.63	0.76	9.3	0.33	0.92	24	4.60	27.8
ALL VEHICLES:									
902	0.255	1.43	1.72	5.7	0.27	0.46	49	13.24	32.5
INTERSECTION (persons):									
1082	0.255		1.72	5.7	0.27	0.46		13.24	32.5

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

Table S.7 - Lane Performance

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	Queue 95% Back (ft)	Lane Length (ft)
West: ACCESO OESTE (PR-464)								
1 LT	396	1556	0.254	5.4	0.32	1.9	48.7	1600.0
East: ACCESO ESTE								
1 TR	260	1799	0.145	2.8	0.22	0.0	0.0	1600.0
North: ACCESO NORTE (CALLE 3)								
1 L	73	380	0.192	16.7	1.00	1.0	24.3	1600.0
2 R	173	3344	0.052	6.1	0.89	0.3	7.1	1600.0

Table S.8 - Lane Flow and Capacity Information

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
West: ACCESO OESTE (PR-464)								
1 LT	184	212	0	396	396	1556	0.254	100
East: ACCESO ESTE								
1 TR	0	177	83	260	260	1799	0.145	100
North: ACCESO NORTE (CALLE 3)								
1 L	73	0	0	73	60	380	0.192	100
2 R	0	0	173	173	60	3344	0.052	100

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

Table S.10 - Movement Capacity and Performance Summary

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

Mov	Mov	Dem	Total	Lane	Deg.	Aver.	Eff.	95%	Perf.

ID	Typ	Flow (veh /h)	Cap. (veh /h)	Util (%)	Satn x	Delay (sec)	Stop Rate	Back of Queue (veh)	Index
West: ACCESO OESTE (PR-464)									
5L	L	184	723	100	0.254	10.2	0.70	1.9	3.25
2T	T	212	833	100	0.255*	1.2	0.00	1.9	2.41
East: ACCESO ESTE									
6T	T	177	1224	100	0.145	0.0	0.00	0.0	1.68
6R	R	83	574	100	0.145	8.9	0.69	0.0	1.30
North: ACCESO NORTE (CALLE 3)									
7L	L	73	380	100	0.192	16.7	1.00	1.0	1.74
4R	R	173	3344	100	0.052	6.1	0.89	0.3	2.86

* Maximum degree of saturation

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

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	3.5	38.57	0.059	2.98	0.086	33.5
2T T	3.2	36.29	0.047	1.83	0.068	30.0
	6.7	74.86	0.107	4.80	0.154	63.5
East: ACCESO ESTE						
6T T	2.1	25.69	0.026	0.52	0.038	19.5
6R R	1.6	16.85	0.026	1.29	0.038	14.7
	3.6	42.54	0.052	1.81	0.075	34.2
North: ACCESO NORTE (CALLE 3)						
7L L	1.5	17.88	0.026	1.24	0.035	14.4
4R R	3.4	37.38	0.058	2.90	0.083	32.5
	4.9	55.26	0.084	4.13	0.118	46.8
INTERSECTION:	15.3	172.66	0.242	10.74	0.347	144.6

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)

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	19.5	0.35	0.535	26.78	0.770	301.6
2T T	25.4	0.28	0.365	14.10	0.528	231.8
	22.3	0.31	0.443	19.96	0.640	264.0
East: ACCESO ESTE						
6T T	32.6	0.24	0.243	4.77	0.347	180.3
6R R	20.0	0.34	0.515	25.68	0.747	293.5
	27.2	0.27	0.329	11.41	0.474	216.2
North: ACCESO NORTE (CALLE 3)						
7L L	18.1	0.41	0.588	28.03	0.800	325.6
4R R	19.0	0.36	0.550	27.64	0.789	310.0
	18.7	0.37	0.561	27.76	0.793	314.6
INTERSECTION:	22.3	0.32	0.442	19.61	0.633	264.0

Table S.14 - Summary of Input and Output Data

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)												
1 LT	184	212		396	0				0.254	5.4	49	1600
	184	212	0	396	0				0.254	5.4	49	
East: ACCESO ESTE												
1 TR		177	83	260	0				0.145	2.8	0	1600
	0	177	83	260	0				0.145	2.8		
North: ACCESO NORTE (CALLE 3)												
1 L	73			73	0				0.192	16.7	24	1600
2 R			173	173	0				0.052	6.1	7	1600

```
         73    0  173   246    0                  0.192    9.3    24
==============================================================================
 ALL VEHICLES           Total   %                  Max   Aver.   Max
                        Flow   HV                   X    Delay  Queue
                         902    0                 0.255    5.7    49
==============================================================================
Peak flow period = 15 minutes.

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

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

Table S.15 - Capacity and Level of Service

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 38  MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------------
 Mov     Mov    Total  Total    Deg.   Aver.   LOS  Longest Queue
 ID      Typ    Flow    Cap.     of    Delay          95% Back
                (veh   (veh     Satn                (vehs)  (ft)
                  /h)    /h)    (v/c)  (sec)
-------------------------------------------------------------------
West: ACCESO OESTE (PR-464)
  5L L           184    723   0.254    10.2    B      1.9     49
  2T T           212    833   0.255*    1.2    A      1.9     49
-------------------------------------------------------------------
East: ACCESO ESTE
  6T T           177   1224   0.145     0.0    A      0.0      0
  6R R            83    574   0.145     8.9    A      0.0      0
-------------------------------------------------------------------
North: ACCESO NORTE (CALLE 3)
  7L L            73    380   0.192    16.7    C      1.0     24
  4R R           173   3344   0.052     6.1    A      0.3      7
-------------------------------------------------------------------
 ALL VEHICLES:   902          0.255     5.7   NA      1.9     49
-------------------------------------------------------------------
     Level of Service calculations are based on
     average control delay including geometric delay (HCM criteria),
     independent of the current delay definition used.
     For the criteria, refer to the "Level of Service" topic in the
     SIDRA Output Guide or the Output section of the on-line help.

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

  *  Maximum v/c ratio, or critical green periods
  "  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 D.0 - Geometric Delay Data

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 38  MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection
```

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 (PR-464)								
	East	Thru	S	40.0	58.0	1600	403	No
	North	Left	29.3	12.0	46.1	1600	383	No
East: ACCESO ESTE								
	West	Thru	S	40.0	58.0	1600	403	No
	North	Right	32.8	12.5	51.5	1600	387	No
North: ACCESO NORTE (CALLE 3)								
	West	Right	32.8	12.5	51.5	1600	387	No
	East	Left	29.3	12.0	46.1	1600	383	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 CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Delay (seconds/veh) Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
West: ACCESO OESTE (PR-464)										
1 LT	0.254	1.2	0.0	1.2	2.7	0.0	0.0	0.0	4.2	5.4
East: ACCESO ESTE										
1 TR	0.145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8
North: ACCESO NORTE (CALLE 3)										
1 L	0.192	9.5	2.2	11.7	1.4	10.4	0.0	10.4	5.0	16.7
2 R	0.052	1.1	0.1	1.1	0.4	0.8	0.0	0.8	5.0	6.1

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

Table D.2 - Lane Stops

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

	Deg.	-- Effective Stop Rate --		Prop.	Queue Move-up

Lane No.	Satn x	he1	he2	Geom. hig	Overall h	Queued pq	Rate hqm
West: ACCESO OESTE (PR-464)							
1 LT	0.254	0.13	0.00	0.19	0.32	0.414	0.00
East: ACCESO ESTE							
1 TR	0.145	0.00	0.00	0.22	0.22	0.000	0.00
North: ACCESO NORTE (CALLE 3)							
1 L	0.192	0.68	0.00	0.32	1.00	0.679	0.00
2 R	0.052	0.07	0.00	0.82	0.89	0.180	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 CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)											
1 LT	0.254	0.0	0.6	0.0	0.6	1.1	1.4	1.6	1.9	2.3	0.03
East: ACCESO ESTE											
1 TR	0.145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
North: ACCESO NORTE (CALLE 3)											
1 L	0.192	0.0	0.3	0.0	0.3	0.6	0.7	0.8	1.0	1.1	0.02
2 R	0.052	0.0	0.1	0.0	0.1	0.2	0.2	0.2	0.3	0.3	0.00

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

Table D.3B - Lane Queues (feet)

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)											
1 LT	0.254	0.0	15.5	0.0	15.5	28.6	34.8	39.4	48.7	56.4	0.03
East: ACCESO ESTE											
1 TR	0.145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

North: ACCESO NORTE (CALLE 3)											
1 L	0.192	0.0	7.7	0.0	7.7	14.4	17.4	19.7	24.3	28.1	0.02
2 R	0.052	0.0	2.2	0.0	2.2	4.2	5.1	5.8	7.1	8.2	0.00

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

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

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)									
5L L	40.0	12.0	12.0	40.0			30.4	30.4	9.0
2T T	40.0	40.0	40.0	40.0			36.1	36.1	0.0
East: ACCESO ESTE									
6T T	40.0	40.0	40.0	40.0			40.0	40.0	0.0
6R R	40.0	12.5	12.5	40.0			31.7	31.7	8.9
North: ACCESO NORTE (CALLE 3)									
7L L	40.0	0.0	12.0	40.0			30.1	24.4	5.0
4R R	40.0	0.0	12.5	40.0			30.0	29.5	5.0

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

Table D.6 - Gap Acceptance Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 38 MEJORAS PROPUESTA PROYECCION ANO 2023 (AM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	Normal	260	4.10	187.8	2.20	2.00
East: ACCESO ESTE						
No opposed movements on this approach						
North: ACCESO NORTE (CALLE 3)						
7L L	Normal	615+	7.50	315.4	3.50	2.00
4R R	Normal	177	2.00	117.3	1.00	2.00

```
Values in this table are adjusted for heavy vehicles in the entry stream.
+  Percentage of exiting flow included in total opposing flow
```

SIDRA SOLUTIONS

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SIDRA INTERSECTION

Output Tables

INTERSECCION CARRETERA PR-464 & CALLE 3

FIGURA 39 MEJORAS PROPUESTAS PROYECCIÓN AÑO 2023 (PM)

Run Information

```
* Basic Parameters:
  Intersection Type: Unsignalised - Two-Way Stop Control
  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
```

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

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-----------------------------------------------------------------
 From      To          Mov           Flow Rate   Flow   Peak Flow
 Approach  Approach    ID    Turn     LV    HV   Scale    Factor
-----------------------------------------------------------------
 West: ACCESO OESTE (PR-464)
           East        2T    Thru    258     0    1.00     1.00
           North       5L    Left    429     0    1.00     1.00
-----------------------------------------------------------------
 East: ACCESO ESTE
           West        6T    Thru    215     0    1.00     1.00
           North       6R    Right   188     0    1.00     1.00
-----------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
           West        4R    Right   482     0    1.00     1.00
           East        7L    Left    207     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 CARRETERA PR-464   CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-----------------------------------------------
  Mov          Left        Through        Right
  ID        ---------    ---------    ---------
             LV    HV     LV    HV     LV    HV
-----------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
   5L L     429     0      0     0      0     0
   2T T       0     0    258     0      0     0
-----------------------------------------------
East: ACCESO ESTE
   6T T       0     0    215     0      0     0
   6R R       0     0      0     0    188     0
-----------------------------------------------
North: ACCESO NORTE (CALLE 3)
   7L L     207     0      0     0      0     0
   4R R       0     0      0     0    482     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 CARRETERA PR-464   CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

--------------------------------------------------
  Mov          Left         Through         Right
  ID        ----------    ----------    ----------
            Total  %HV    Total  %HV    Total  %HV
--------------------------------------------------
Demand flows in veh/hour as used by the program
West: ACCESO OESTE (PR-464)
   5L L      429   0.0       0   0.0       0   0.0
   2T T        0   0.0     258   0.0       0   0.0
--------------------------------------------------
East: ACCESO ESTE
   6T T        0   0.0     215   0.0       0   0.0
   6R R        0   0.0       0   0.0     188   0.0
--------------------------------------------------
North: ACCESO NORTE (CALLE 3)
   7L L      207   0.0       0   0.0       0   0.0
   4R R        0   0.0       0   0.0     482   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.2 - Movement Capacity Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

Mov ID	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
West: ACCESO OESTE (PR-464)										
5L L	429	0.0	403	0.0	403	817	0.80	52	100	0.525
2T T	258	0.0	0			491	0.80	52	100	0.525
East: ACCESO ESTE										
6T T	215	0.0	0			937	0.80	249	100	0.229
6R R	188	0.0	0			819	0.80	249	100	0.230
North: ACCESO NORTE (CALLE 3)										
7L L	207	0.0	996+	0.0	996	202	0.80	-22	100	1.025*
4R R	482	0.0	215	0.0	215	3291	0.80	446	100	0.146

+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	20.2
Largest average movement delay (s)	=	119.9
Largest back of queue, 95% (ft)	=	392
Performance Index	=	42.29
Degree of saturation (highest)	=	1.025
Practical Spare Capacity (lowest)	=	-22 %
Effective intersection capacity, (veh/h)	=	1736
Total vehicle flow (veh/h)	=	1779
Total person flow (pers/h)	=	2135
Total vehicle delay (veh-h/h)	=	9.99
Total person delay (pers-h/h)	=	11.99
Total effective vehicle stops (veh/h)	=	1358
Total effective person stops (pers/h)	=	1629
Total vehicle travel (veh-mi/h)	=	670.4
Total cost ($/h)	=	432.13
Total fuel (gal/h)	=	35.1
Total CO2 (kg/h)	=	332.08

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

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)	Longest Queue 95% Back (ft)	Perf. Index	Aver. Speed (mph)
West: ACCESO OESTE (PR-464)									
5L L	1.52	1.82	12.7	0.68	0.94	6.8	169	9.18	29.0
2T T	0.27	0.32	3.8	0.68	0.00	6.8	169	3.56	34.0
East: ACCESO ESTE									
6T T	0.00	0.00	0.0	0.00	0.00	0.0	0	2.04	40.0
6R R	0.47	0.56	8.9	0.00	0.69	0.0	0	2.95	31.7
North: ACCESO NORTE (CALLE 3)									
7L L	6.89	8.27	119.9	1.00	1.93	15.7	392	16.55	8.6
4R R	0.84	1.01	6.3	0.21	0.88	0.8	21	8.00	29.5

Table S.6 - Intersection Performance

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)									
687	0.525	1.79	2.15	9.4	0.68	0.59	169	12.74	30.7
East: ACCESO ESTE									
403	0.230	0.47	0.56	4.2	0.00	0.32	0	4.99	35.6
North: ACCESO NORTE (CALLE 3)									
689	1.025	7.74	9.28	40.4	0.45	1.20	392	24.56	17.0
ALL VEHICLES:									
1779	1.025	9.99	11.99	20.2	0.44	0.76	392	42.29	24.0
INTERSECTION (persons):									
2135	1.025		11.99	20.2	0.44	0.76		42.29	24.0

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

Table S.7 - Lane Performance

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------
          Dem                              Q u e u e
         Flow   Cap  Deg.  Aver.  Eff.   95% Back       Lane
 Lane    (veh  (veh  Satn  Delay  Stop  ------------   Length
 No.       /h)   /h)   x   (sec)  Rate  (vehs)  (ft)    (ft)
-------------------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT      687  1309 0.525    9.4  0.59    6.8  169.4   1600.0
-------------------------------------------------------------
 East: ACCESO ESTE
 1 TR      403  1755 0.230    4.2  0.32    0.0    0.0   1600.0
-------------------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 L       207   202 1.027  119.9  1.93   15.7  391.7   1600.0
 2 R       482  3291 0.146    6.3  0.88    0.8   20.8   1600.0
-------------------------------------------------------------
```

Table S.8 - Lane Flow and Capacity Information

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

--------------------------------------------------
                                 Min  Tot
 Lane     Dem Flow (veh/h)       Cap  Cap  Deg.  Lane
 No.    -------------------    (veh (veh  Satn  Util
        Lef Thru  Rig  Tot      /h)  /h)   x     %
--------------------------------------------------
 West: ACCESO OESTE (PR-464)
 1 LT    429  258    0  687    687 1309  0.525  100
--------------------------------------------------
 East: ACCESO ESTE
 1 TR      0  215  188  403    403 1755  0.230  100
--------------------------------------------------
 North: ACCESO NORTE (CALLE 3)
 1 L     207    0    0  207     60  202  1.027  100
 2 R       0    0  482  482     60 3291  0.146  100
--------------------------------------------------

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

Table S.10 - Movement Capacity and Performance Summary

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------------
 Mov     Mov  Dem   Total  Lane  Deg.  Aver.  Eff.    95%    Perf.
```

ID	Typ	Flow (veh /h)	Cap. (veh /h)	Util (%)	Satn x	Delay (sec)	Stop Rate	Back of Queue (veh)	Index
West: ACCESO OESTE (PR-464)									
5L	L	429	817	100	0.525	12.7	0.94	6.8	9.18
2T	T	258	491	100	0.525	3.8	0.00	6.8	3.56
East: ACCESO ESTE									
6T	T	215	937	100	0.229	0.0	0.00	0.0	2.04
6R	R	188	819	100	0.230	8.9	0.69	0.0	2.95
North: ACCESO NORTE (CALLE 3)									
7L	L	207	202	100	1.025*	119.9	1.93	15.7	16.55
4R	R	482	3291	100	0.146	6.3	0.88	0.8	8.00

* Maximum degree of saturation

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

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	8.5	93.39	0.143	7.17	0.204	80.2
2T T	4.4	48.51	0.070	3.17	0.102	41.7
	12.9	141.89	0.213	10.34	0.306	121.9
East: ACCESO ESTE						
6T T	2.5	31.21	0.032	0.63	0.046	23.7
6R R	3.5	38.17	0.059	2.92	0.085	33.4
	6.0	69.37	0.091	3.55	0.131	57.1
North: ACCESO NORTE (CALLE 3)						
7L L	6.6	116.59	0.125	4.16	0.118	62.6
4R R	9.6	104.28	0.161	8.07	0.230	90.5
	16.2	220.86	0.285	12.23	0.349	153.1
INTERSECTION:	35.1	432.13	0.589	26.12	0.785	332.1

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)

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	19.0	0.36	0.553	27.66	0.788	309.2
2T T	22.2	0.31	0.443	20.12	0.645	264.9
	20.1	0.34	0.511	24.81	0.734	292.4
East: ACCESO ESTE						
6T T	32.6	0.24	0.243	4.77	0.347	180.3
6R R	20.0	0.34	0.515	25.68	0.747	293.5
	25.3	0.28	0.369	14.48	0.533	232.9
North: ACCESO NORTE (CALLE 3)						
7L L	11.8	0.93	0.997	33.25	0.946	500.4
4R R	19.0	0.36	0.550	27.64	0.789	310.1
	16.0	0.53	0.684	29.33	0.836	367.2
INTERSECTION:	19.1	0.40	0.546	24.21	0.728	307.8

Table S.14 - Summary of Input and Output Data

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)												
1 LT	429	258		687	0				0.525	9.4	169	1600
	429	258	0	687	0				0.525	9.4	169	
East: ACCESO ESTE												
1 TR		215	188	403	0				0.230	4.2	0	1600
	0	215	188	403	0				0.230	4.2		
North: ACCESO NORTE (CALLE 3)												
1 L	207			207	0				1.027	119.9	392	1600
2 R			482	482	0				0.146	6.3	21	1600

```
        207    0  482   689    0                  1.027   40.4   392
==============================================================================
 ALL VEHICLES           Total   %                  Max   Aver.   Max
                        Flow   HV                   X    Delay  Queue
                        1779    0                 1.025   20.2   392
==============================================================================
Peak flow period = 15 minutes.

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

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

Table S.15 - Capacity and Level of Service

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

-------------------------------------------------------------------
 Mov     Mov    Total  Total    Deg.   Aver.   LOS  Longest Queue
 ID      Typ    Flow   Cap.     of     Delay         95% Back
                (veh   (veh     Satn                (vehs)  (ft)
                  /h)    /h)    (v/c)  (sec)
-------------------------------------------------------------------
West: ACCESO OESTE (PR-464)
  5L L           429    817   0.525    12.7    B      6.8    169
  2T T           258    491   0.525     3.8    A      6.8    169
-------------------------------------------------------------------
East: ACCESO ESTE
  6T T           215    937   0.229     0.0    A      0.0      0
  6R R           188    819   0.230     8.9    A      0.0      0
-------------------------------------------------------------------
North: ACCESO NORTE (CALLE 3)
  7L L           207    202   1.025*  119.9    F     15.7    392
  4R R           482   3291   0.146     6.3    A      0.8     21
-------------------------------------------------------------------
 ALL VEHICLES:   1779          1.025    20.2   NA     15.7    392
-------------------------------------------------------------------
     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.

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

  *  Maximum v/c ratio, or critical green periods
  "  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 D.0 - Geometric Delay Data

```
INTERSECCION CARRETERA PR-464   CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection
```

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 (PR-464)								
	East	Thru	S	40.0	58.0	1600	403	No
	North	Left	29.3	12.0	46.1	1600	383	No
East: ACCESO ESTE								
	West	Thru	S	40.0	58.0	1600	403	No
	North	Right	32.8	12.5	51.5	1600	387	No
North: ACCESO NORTE (CALLE 3)								
	West	Right	32.8	12.5	51.5	1600	387	No
	East	Left	29.3	12.0	46.1	1600	383	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 CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

Lane No.	Deg. Satn x	Stop-line Delay 1st d1	2nd d2	Total dSL	Delay (seconds/veh) Acc. Dec. dn	Queuing Total dq	MvUp dqm	Stopd (Idle) di	Geom dig	Control dic
West: ACCESO OESTE (PR-464)										
1 LT	0.525	3.0	0.8	3.8	4.0	0.7	0.7	0.0	5.6	9.4
East: ACCESO ESTE										
1 TR	0.230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	4.2
North: ACCESO NORTE (CALLE 3)										
1 L	1.027	17.9	97.0	114.9	2.0	112.9	17.9	95.0	5.0	119.9
2 R	0.146	1.1	0.2	1.3	0.4	0.8	0.0	0.8	5.0	6.3

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

Table D.2 - Lane Stops

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

	Deg.	-- Effective Stop Rate --		Prop.	Queue Move-up

Lane No.	Satn x	he1	he2	Geom. hig	Overall h	Queued pq	Rate hqm
West: ACCESO OESTE (PR-464)							
1 LT	0.525	0.38	0.07	0.14	0.59	0.682	0.26
East: ACCESO ESTE							
1 TR	0.230	0.00	0.00	0.32	0.32	0.000	0.00
North: ACCESO NORTE (CALLE 3)							
1 L	1.027	1.00	0.93	0.00	1.93	1.000	3.69
2 R	0.146	0.10	0.00	0.79	0.88	0.211	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 CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)											
1 LT	0.525	0.3	1.6	0.6	2.2	3.9	4.8	5.4	6.8	7.9	0.11
East: ACCESO ESTE											
1 TR	0.230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
North: ACCESO NORTE (CALLE 3)											
1 L	1.027	4.0	1.6	3.9	5.5	8.5	10.7	12.4	15.7	18.4	0.24
2 R	0.146	0.0	0.3	0.0	0.3	0.5	0.6	0.7	0.8	1.0	0.01

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

Table D.3B - Lane Queues (feet)

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)											
1 LT	0.525	6.5	40.7	15.2	55.9	96.7	119.1	135.9	169.4	197.4	0.11
East: ACCESO ESTE											
1 TR	0.230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

North: ACCESO NORTE (CALLE 3)											
1 L	1.027	100.1	40.2	97.2	137.3	213.2	268.1	309.3	391.7	460.4	0.24
2 R	0.146	0.0	6.6	0.0	6.6	12.3	14.9	16.9	20.8	24.1	0.01

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

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

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)									
5L L	40.0	12.0	12.0	40.0	13.2		29.0	29.0	9.0
2T T	40.0	40.0	40.0	40.0	0.0		34.0	34.0	0.0
East: ACCESO ESTE									
6T T	40.0	40.0	40.0	40.0			40.0	40.0	0.0
6R R	40.0	12.5	12.5	40.0			31.7	31.7	8.9
North: ACCESO NORTE (CALLE 3)									
7L L	40.0	0.0	12.0	40.0	7.7		21.5	8.6	5.0
4R R	40.0	0.0	12.5	40.0			30.0	29.5	5.0

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

Table D.6 - Gap Acceptance Parameters

INTERSECCION CARRETERA PR-464 CALLE 3
FIGURA 39 MEJORAS PROPUESTAS PROYECCI N A O 2023 (PM)
Intersection ID: 0
Stop Sign Controlled Intersection

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 (PR-464)						
5L L	Normal	403	4.10	163.5	2.20	2.00
East: ACCESO ESTE						
No opposed movements on this approach						
North: ACCESO NORTE (CALLE 3)						
7L L	Normal	996+	7.50	266.7	3.50	2.00
4R R	Normal	215	2.00	117.3	1.00	2.00

```
Values in this table are adjusted for heavy vehicles in the entry stream.
+  Percentage of exiting flow included in total opposing flow
```

SIDRA SOLUTIONS

Site: New Site - 1
C:\Documents and Settings\Alidys Alicea\My Documents\Tilysay's Documents\Estudios (Tilysay Hernandez)\MOREAU RESORT\CORRIDAS SIDRA\AÑO 2023\MEJORAS PROPUESTAS INT. PR-464& CALLE-3\INT PR-464 & CALLE 3 AÑO 2023 (PM) CM.AAP
Processed Mar 26, 2008 01:12:19PM

A1460, PLC, Large Office
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