hem is average queue move-up rate for all vehicles queued and unqueued

:ro de Mercadeo - Palmas del Mar * Y906CDM2
:rseccion semaforizada PR-906 y Centro de Mercadeo (MAIN) 2020
:rsection No.: 1B
Cycle Time = 50

le D.3 - LANE QUEUES

Lane No.	Mov No.	Deg. Satn x	Ovrfl. Queue No	Average Nb1	Average Nb2	Average Nb	Percentile 90%	Percentile 95%	Percentile 98%	Queue Stor. Ratio
West: Centro de Mercadeo (MAIN)										
1 L	12, 13	0.862	0.2	2.6	0.3	2.9	5.1	6.2	7.3	0.00
2 R	13	0.716	0.3	3.9	0.5	4.4	7.5	8.8	10.2	0.00
South: Desde Candelero Abajo										
1 L	32	0.816	0.2	2.6	0.3	2.9	5.2	6.3	7.5	0.08
2 LT	32, 31	0.816	0.3	3.1	0.4	3.4	6.0	7.2	8.4	0.01
3 T	31	0.816	1.5	8.3	2.4	10.7	16.7	18.4	20.1	0.03
North: Desde PR-53 y PR-3										
1 T	41	0.861	1.8	8.3	2.6	10.9	17.0	18.7	20.4	0.01
2 T	41	0.861	1.8	8.3	2.6	10.9	17.0	18.7	20.4	0.01
3 R	43	0.182	0.0	0.5	0.0	0.5	1.0	1.3	1.6	0.02

Values printed in this table are back of queue.

C :ro de Mercadeo - Palmas del Mar * Y906CDM2
Interseccion semaforizada PR-906 y Centro de Mercadeo (MAIN) 2020
Intersection No.: 1B
Cycle Time = 50

Table D.4 - MOVEMENT SPEEDS (km/h)

Mov No.	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
West: Centro de Mercadeo (MAIN)								
12	64.0	23.0	23.0	64.0	4.4		51.4	35.5
13	64.0	18.0	18.0	64.0	5.4	4.1	52.5	47.3
South: Desde Candelero Abajo								
32	64.0	22.0	22.0	64.0	4.8		40.1	23.1
31	64.0	64.0	64.0	64.0	10.0		47.9	45.2
North: Desde PR-53 y PR-3								
41	64.0	64.0	64.0	64.0	8.6		54.4	48.9
43	64.0	18.0	18.0	64.0			54.6	54.1

C :ro de Mercadeo - Palmas del Mar * Y906CDM2
I :rseccion semaforizada PR-906 y Centro de Mercadeo (MAIN) 2020
Intersection No.: 1B
Cycle Time = 50

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
West: Centro de Mercadeo (MAIN)									
2	PT	Yes	4	1.000	0.991	6	NA		
3	PT	No	3	1.000	1.000	6	NA	6	NA
South: Desde Candelero Abajo									
32	PT	No	3	1.000	1.000	6	NA		
31	PT	No	3	1.000	1.000	6	NA		
North: Desde PR-53 y PR-3									
41	PT	No	3	1.000	1.000	6	NA		
43	PT	No	3	1.000	1.000	6	NA	6	NA
Pedestrians									
14	PT	No	3	1.000	1.000				
44	PT	No	3	1.000	1.000				

--- End of SIDRA Output ---

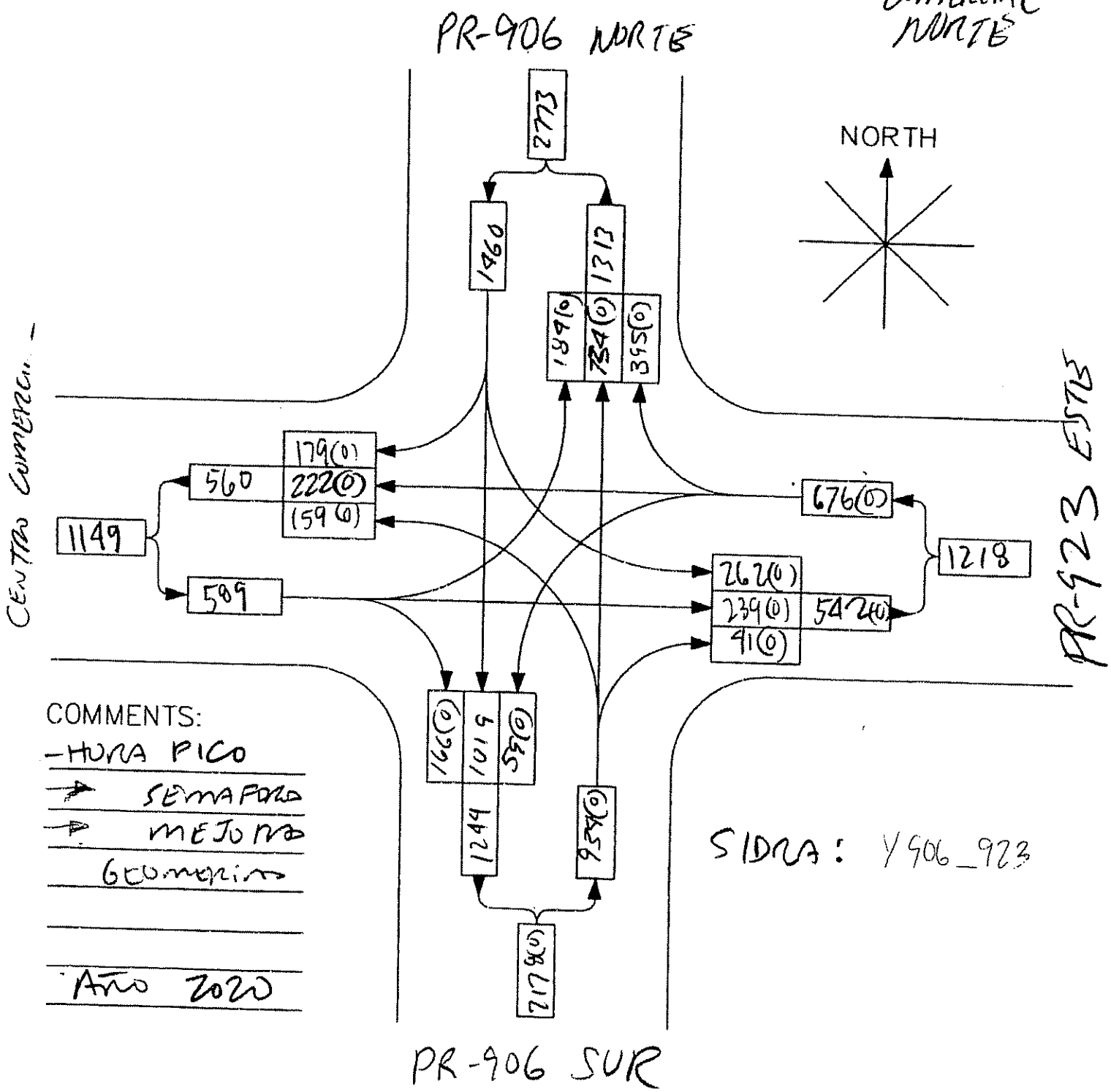
TRAFFIC ANALYSIS

GRAPHIC SUMMARY OF TRAFFIC FLOW

DATE _____ DAY _____ WEATHER _____ PERIOD 3PM TO 6PM

MUNICIPALITY HUMACAO URBAN ZONE ☐ RURAL ☐ SUB-URBAN ☒

INTERSECTION OF PR-906 WITH PR-923 / CENTRO COMERCIAL NORTE



COMMENTS:

- HORA PICO
- → SEMAFORO
- → MEJORAS GEOMETRICAS

AÑO 2020

SIDRA: Y906_923

ARRB Transport Research Ltd - SIDRA 5.02a

CMA ARCHITECTS & ENGINEERS
CIVIL Registered User No. M0138
Time and Date of Analysis 17:03:37 12/19/00

C :o de Mercadeo - Palmas del Mar * Y906_923
In..rsecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2

SIDRA US Highway Capacity Manual (1994) Version
Cycle Time = 90

```
*****************************************************************
*  UNSETTLED RESULTS.  SIDRA HAS NOT BEEN ABLE TO SOLVE THIS CASE, *
*  PROBABLY DUE TO HIGH CONGESTION LEVELS.                         *
*****************************************************************
```

RUN INFORMATION

---

* Basic Parameters:
  Intersection Type: Signalised - Pretimed
  Driving on the right-hand side of the road
  SIDRA US Highway Capacity Manual (1994) Version
  Input data specified in Metric units
  Default Values File No. 11
  Peak flow period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes (Total Flow Period)
  Delay definition: Overall delay,
  Geometric delay included
  Delay formula: Highway Capacity Manual
  Level of Service based on: Delay (HCM)
  ue definition: Back of queue, 95th_Percentile
  ogression (platooned arrival) Factors or Actuated Control Factors
  apply for some or all movements.
  See Table D.5 for the factors used.

* No. of Main (Timing-Capacity) Iterations = 4 (Max)
  The differences between main iterations indicate that this may be an
  unstable solution (see the information given below).
  Use of the variable cycle time facility (LT 21) to check results for various
  cycle times can give a further idea about the stability of this case.
  Comparison of last two iterations:
    Difference in intersection degree of satn = 26.8 %
    Difference in total vehicle capacity = 1.3 %
    Largest difference in eff. green times = 5 secs
    (max. value for stopping = 1 secs)
  Information on Previous Iteration:
    Cycle Time = 100
    Phase Times: 0, 11, 41, 80
    Critical Movements: 23(1st), 31, 41, 11

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2

PARAMETERS

Default values for some of the important general parameters:
(Default Values File: DEF11.SDF)

1. Basic saturation flow: 1900 tcu/h

   This value applies to signalised intersections and priority and

continuous movements at roundabouts and unsignalised intersections. Saturation flows (capacities) for all opposed movements at roundabouts and sign-controlled intersections are estimated from a gap-acceptance based model.

2. Through car equivalents for signalised intersections

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

3. Opposed turn parameters (Signalised intersection)

	Crit. Gap	Fol.up Hdway	Deps at End	% Exit Flow Opposing
Left turns :	4.0	2.57	2.0	0
Right turns:	4.0	2.57	2.5	0

4. Cruise speed= 40 km/h, Approach Distance= 1500 m

5. Queue space per vehicle in metres
   Light vehicles: 0.3 Heavy vehicles: 0.4

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left LV	Left HV	Through LV	Through HV	Right LV	Right HV	Flow Scale	Peak Flow Factor
West: Centro de Mercadeo								
12	204	6	0	0	0	0	1.00	0.90
11	0	0	266	6	0	0	1.00	0.90
13	0	0	0	0	184	6	1.00	0.90
South: Desde Palmas del Mar								
32	173	3	0	0	0	0	1.00	0.90
31	0	0	816	11	0	0	1.00	0.90
33	0	0	0	0	46	2	1.00	0.90
East: Desde Palmas del Mar								
22	66	3	247	6	0	0	1.00	0.90
23	0	0	0	0	439	4	1.00	0.90
North: Desde PR-906(PR-53,PR-3)								
42	291	22	0	0	0	0	1.00	0.90
41	0	0	1132	4	0	0	1.00	0.90
43	0	0	0	0	199	2	1.00	0.90
PEDESTRIANS	Flow (ped/hour)							
14		6					1.00	0.90
34		6					1.00	0.90

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

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov No.	Mov Typ	PHASE MATRIX First Green Fr	To	Op	Pr	Second Green Fr	To	Op	Pr	Lost Tim 1st Grn	2nd Grn	Req.Mov.Time 1st Grn	2nd Grn	Eff. Grn 1st Grn	2nd Grn
West: Centro de Mercadeo															
2 L		F	B							2		14.0Min		13	
11 T		*F	B							2		18.8		13	
13 R	(Un1)	B	F	R		F	B			28	2	31.0Min	14.0Min	47	13
South: Desde Palmas del Mar															
32 L		C	E							2		13.4		26	
31 T		*C	E							2		27.4		26	
33 R	(Un2)	C	E			E	C	R		2	16	13.0Min	32.0Min	26	46
East: Desde Palmas del Mar															
22 LT		B	C							2		9.5		8	
23 R	(Un2)	*B	C			C	B	R		2	23	9.5	48.1	8	57
North: Desde PR-906(PR-53,PR-3)															
42 L		E	F							2		22.9		35	
41 T		*E	F							2		36.0		35	
43 R	(Un2)	E	F			F	E	R		2	8	9.0Min	36.0Min	35	45
Pedestrians															
14	(Ped)	C	E							4		13.0Min		24	
34	(Ped)	F	B							5		14.0Min		10	

Current Phase Sequence No.: 9
Input phase sequence: B C E F
Output phase sequence: B C E F

C ro de Mercadeo - Palmas del Mar * Y906_923
I rsección Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh /h)	Satn Flow 1st Grn	2nd Grn	Flow Ratio 1st Grn	2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
West: Centro de Mercadeo										
12 L	210	3059		0.069		442	0.90	89	41	0.475
11 T	272	1616		0.168		233	0.90	-23	41	1.165*
13 R	190	1200	1373	0.000	0.138	825	0.90	291	20	0.230
South: Desde Palmas del Mar										
32 L	176	1545		0.114		446	0.90	128	45	0.394
31 T	827	3260		0.254		942	0.90	2	100	0.878
33 R	48	1364	1087	0.035	0.000	950	0.90	1681	100	0.051
East: Desde Palmas del Mar										
22 LT	322	4265		0.075		379	0.90	6	59	0.849
23 R	443	1437	1331	0.075	0.251	971	0.90	97	54	0.456
No h: Desde PR-906(PR-53,PR-3)										
L	313	1498		0.209		583	0.90	68	61	0.537
41 T	1136	3341		0.340		1299	0.90	3	100	0.874
43 R	201	1415	1377	0.142	0.000	1239	0.90	455	19	0.162
Pedestrians										
14	6	20000		0.000		5333	0.90		100	0.001

6	20000	0.000	2222	0.90	100	0.003

---

o de Mercadeo - Palmas del Mar * Y906_923
secci¢n Semaforizada PR-906 y PR-923 2020
rsection No.: 2
Cycle Time = 90

le S.3 - INTERSECTION PARAMETERS

Crit Mov No.	App. & Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
23	E_R	1st	B	C	2	0.075	0.084	9.5
31	S_T		C	E	2	0.254	0.282	27.4
41	N_T		E	F	2	0.340	0.378	36.0
11	W_T		F	B	2	0.168	0.187	18.8
				Total:	8	0.838	0.931	91.8

Cycle Time:

Minimum	Maximum	Practical	Chosen
45	180	115	90

Degree of Saturation (Highest) = 1.165
Practical Spare Capacity (Lowest) = -23 %
Total Vehicle Flow = 4138
Total Vehicle Capacity (all lanes) = 8366

Centro de Mercadeo - Palmas del Mar * Y906_923
I rsecci¢n Semaforizada PR-906 y PR-923 2020
1 rsection No.: 2
Cycle Time = 90

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Grn+Intgrn Prop.
B	0	3	7	10	0.111
C	10	13	25	28	0.311
E	38	41	34	37	0.411
F	75	78	12	15	0.167

Current Phase Sequence No.: 9
Input phase sequence: B C E F
Output phase sequence: B C E F

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table S.5 - MOVEMENT PERFORMANCE

v	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 95% (vehs)	Longest Queue Back (m)	Perf. Index	Aver. Speed (km/h)
West: Centro de Mercadeo								
12 L	2.72	46.6	0.96	0.79	5.9	4	9.89	20.3
11 T	13.55	179.3	1.00	1.00	22.6	14	29.38	6.4

13	R	0.66	12.4	0.14	0.72	1.7	1	2.82	40.6
South: Desde Palmas del Mar									
32	L	1.74	35.6	0.84	0.80	8.0	5	6.92	22.1
31	T	9.80	42.7	0.99	0.91	20.4	12	39.93	18.4
33	R	0.14	10.6	0.00	0.69	0.0	0	0.48	41.2
East: Desde Palmas del Mar									
22	LT	5.90	66.0	0.99	0.84	8.1	5	20.05	16.3
23	R	0.97	7.9	0.07	0.63	1.8	1	7.74	36.5
North: Desde PR-906(PR-53,PR-3)									
42	L	2.84	32.6	0.82	0.83	12.3	11	13.48	35.0
41	T	10.16	32.2	0.94	0.88	25.7	13	55.86	34.2
43	R	0.60	10.7	0.13	0.71	1.4	1	3.68	49.6
Pedestrians									
14		0.04	24.2	0.73	0.73	0.1	0	0.08	26.3
34		0.06	35.6	0.88	0.89	0.1	0	0.97	1.9

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
West: Centro de Mercadeo						
[illegible]	16.92	90.6	0.748	0.85	42.09	12.0
South: Desde Palmas del Mar						
1051	11.68	40.0	0.923	0.88	47.33	19.5
East: Desde Palmas del Mar						
765	6.88	32.4	0.462	0.72	27.79	24.1
North: Desde PR-906(PR-53,PR-3)						
1650	13.59	29.7	0.825	0.85	73.02	35.7
Pedestrians						
12	0.10	29.9	0.811	0.81	1.05	3.5
ALL VEHICLES:						
4138	49.07	42.7	0.770	0.83	190.23	24.4
INTERSECTION:						
4150	49.17	42.7	0.770	0.83	191.29	24.2

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Red and Green Times (sec) R1	G1	R2	G2	Arv Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	(m)	Shrt Lane (m)

West: Centro de Mercadeo													
1 L	12	77	13	0	0	105	221	0.475	46.6	0.79	5.9	4	60
2 L	12, 11	77	13	0	0	105	221	0.475	46.6	0.00	5.9	4	
3 T	11, 13	77	13	0	0	272	233	1.165	179.3	0.00	22.6	14	
.	13	28	47	2	13	190	825	0.230	12.4	0.72	1.7	1	60
South: Desde Palmas del Mar													
1 L	32	64	26	0	0	176	446	0.394	35.6	0.80	8.0	5	60
2 T	32, 31	64	26	0	0	414	471	0.878	42.7	0.91	20.4	12	
3 T	31	64	26	0	0	414	471	0.878	42.7	0.91	20.4	12	
4 R	33	2	26	16	46	48	950	0.051	10.6	0.69	0.0	0	60
East: Desde Palmas del Mar													
1 L	22	82	8	0	0	69	138	0.499	48.4	0.76	4.3	3	60
2 T	22	82	8	0	0	128	150	0.849	70.6	0.86	8.1	5	
3 T	22, 23	82	8	0	0	125	148	0.849	70.9	0.00	8.0	5	
4 R	23	2	8	23	57	443	971	0.456	7.9	0.63	1.8	1	60
North: Desde PR-906(PR-53,PR-3)													
1 L	42	55	35	0	0	313	582	0.537	32.6	0.83	12.3	11	60
2 T	42, 41	55	35	0	0	568	650	0.874	32.2	0.88	25.7	13	
3 T	41, 43	55	35	0	0	568	650	0.874	32.2	0.00	25.7	13	
4 R	43	2	35	8	45	201	1239	0.162	10.7	0.71	1.4	1	60

Centro de Mercadeo - Palmas del Mar * Y906_923
I rsecci¢n Semaforizada PR-906 y PR-923 2020
1 rsection No.: 2
Cycle Time = 90

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

West: Centro de Mercadeo

Effective Lane Use	Mov No.	Arv Flow (veh/h) Lef	Thru	Rig	Tot	Saturation Flow Basic (tcu)	Aver(veh) 1st	2nd	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
* *** * ******	12	105	0	0	105	1652	1530	0	0	221	0.475	41 Prog
* *** * ******	12, 11	105	0	0	105	1651	1530	0	0	221	0.475	41 Prog
* ********** *	11, 13	0	272	0	272	1651	1616	0	0	233	1.165	100
****** * *** *	13	0	0	190	190	1652	1200	1373	40	825	0.230	20 Prog

South: Desde Palmas del Mar

Effective Lane Use	Mov No.	Arv Flow (veh/h) Lef	Thru	Rig	Tot	Saturation Flow Basic (tcu)	Aver(veh) 1st	2nd	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
* *** * ******	32	176	0	0	176	1652	1545	0	0	446	0.394	45 Prog
* ********** *	32, 31	0	414	0	414	1651	1630	0	0	471	0.878	100
* ********** *	31	0	414	0	414	1652	1630	0	0	471	0.878	100
****** * *** *	33	0	0	48	48	1652	1364	1087	40	950	0.051	100

East: Desde Palmas del Mar

Effective Lane Use	Mov No.	Arv Flow (veh/h) Lef	Thru	Rig	Tot	Saturation Flow Basic (tcu)	Aver(veh) 1st	2nd	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
* *** * * **	22	69	0	0	69	1701	1555	0	0	138	0.499	59 Prog
* ********** *	22	0	128	0	128	1729	1689	0	0	150	0.849	100
* ********** *	22, 23	0	125	0	125	1701	1662	0	0	148	0.849	100
****** * *** *	23	0	0	443	443	1701	1437	1331	40	971	0.456	54 Prog

North: Desde PR-906(PR-53,PR-3)

Effective Lane Use	Mov No.	Arv Flow (veh/h) Lef	Thru	Rig	Tot	Saturation Flow Basic (tcu)	Aver(veh) 1st	2nd	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
* *** * ******	42	313	0	0	313	1676	1498	0	0	582	0.537	61 Prog
* ********** *	42, 41	0	568	0	568	1676	1671	0	0	650	0.874	100
*												

```
***********      41,     0  568    0  568 1676 1671     0    0  650 0.874  100
         *       43

******           43      0    0  201  201 1676 1415  1377   40 1239 0.162   19
      *                                                                     Prog
     ***
      *
  ---------------------------------------------------------------------------
  Prog  Lane under-utilisation found by the "Program"
```

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table S.9 - SIGNAL TIMING DIAGRAM

Displayed (Phase) Green Times

```
Ph.B         Phase C                    Phase E              Phase F

0     10                     38                           75          90
I-----I---------------------I----------------------------I-----------I
..GGGG....GGGGGGGGGGGGGGGGGG....GGGGGGGGGGGGGGGGGGGGGGGGG....GGGGGGGG.
 3       13                     41                           78
```

Effective (Movement) Green Times

```
 ' ~t: Centro de Mercadeo

Mov.   12 (L)
I     I                     I                            I           I
G.............................................................GGGGGGGG
 3                                                            80

Mov.   11 (T)
I     I                     I                            I           I
G.............................................................GGGGGGGG
 3                                                            80

Mov.   13 (R)
I     I                     I                            I           I
GG......................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.GGGGGGGGG
 3                     31                                   78 80

 South: Desde Palmas del Mar

Mov.   32 (L)
I     I                     I                            I           I
............GGGGGGGGGGGGGGGGGGG.......................................
          15                   41

Mov.   31 (T)
I     I                     I                            I           I
..  ........GGGGGGGGGGGGGGGGGGG.......................................
          15                   41

Mov.   33 (R)
I     I                     I                            I           I
GGGGGGGGGG..GGGGGGGGGGGGGGGGGGG............GGGGGGGGGGGGGGGGGGGGGGGGGGGGG
         13 15                   41          57
```

```
 East: Desde Palmas del Mar

Mov.   22 (LT)
I     I                     I                               I           I
.   GGGGG.....................................................................
          13

Mov.   23 (R)
I     I                     I                               I           I
GG..GGGGG..................GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
 3 5     13                36


 North: Desde PR-906(PR-53,PR-3)

Mov.   42 (L)
I     I                     I                               I           I
...............................GGGGGGGGGGGGGGGGGGGGGGGGGGGG..........
                                43                            78

Mov.   41 (T)
I     I                     I                               I           I
...............................GGGGGGGGGGGGGGGGGGGGGGGGGGGG..........
                                43                            78

Mov.   43 (R)
I     I                     I                               I           I
GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.GGGGGGGGGGGGGGGGGGGGGGGGGGGG......GGGG
                                41 43                           78     86


 T 'estrian Movements

Mov.   14
I     I                     I                               I           I
...........GGGGGGGGGGGGGGGGGG.......................................
         14                 38

Mov.   34
I     I                     I                               I           I
.......................................................GGGGGGG..
                                                         79       89


I-----I------I------I------I------I------I------I------I------I------I---->
0      9     18     27     36     45     54     63     72     81     90

                              T I M E  (s)

Centro de Mercadeo - Palmas del Mar                                  * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.:     2
                 Cycle Time =  90
```

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total $/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
West: Centro de Mercadeo							
12 L	23.9	68.81	0.087	4.93	0.134	59.7	0.00000
11 T	30.5	191.95	0.203	7.22	0.160	76.0	0.00000
13 R	24.1	46.81	0.064	4.87	0.153	60.0	0.00000

	78.4	307.57	0.354	17.02	0.447	195.7	0.00000
h: Desde Palmas del Mar							
2 L	20.6	51.19	0.064	4.38	0.136	51.5	0.00000
1 T	81.0	219.82	0.347	21.33	0.519	202.4	0.00000
3 R	3.8	8.50	0.016	0.92	0.017	9.5	0.00000
	105.5	279.50	0.427	26.63	0.672	263.4	0.00000
st: Desde Palmas del Mar							
22 LT	45.3	147.11	0.179	9.34	0.270	112.9	0.00000
23 R	48.1	117.16	0.169	9.22	0.233	120.2	0.00000
	93.4	264.27	0.348	18.56	0.503	233.1	0.00000
North: Desde PR-906(PR-53,PR-3)							
42 L	40.7	111.74	0.153	6.55	0.117	101.2	0.00000
41 T	179.2	413.68	0.543	30.05	0.803	447.8	0.00000
43 R	32.0	66.51	0.082	4.83	0.141	79.9	0.00000
	251.9	591.93	0.778	41.43	1.060	628.8	0.00000
Pedestrians							
14		0.58					
34		8.06					
		8.63					
ALL VEHICLES:	529.2	1443.27	1.907	103.63	2.683	1318.6	0.00000
INTERSECTION:	529.2	1451.90	1.907	103.63	2.683	1318.6	0.00000

C ro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table S.12B - FUEL CONSUMPTION, EMISSIONS AND COST - RATE

Mov No.	Fuel Rate mL/km	Cost Rate c/km	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km	Lead Rate g/km
West: Centro de Mercadeo							
12 L	297.1	85.45	1.075	61.18	1.661	741.0	0.00000
11 T	314.3	198.13	2.095	74.54	1.653	784.4	0.00000
13 R	337.2	65.60	0.900	68.23	2.148	840.8	0.00000
	315.3	123.64	1.422	68.40	1.798	786.5	0.00000
South: Desde Palmas del Mar							
32 L	351.5	87.21	1.098	74.57	2.313	877.6	0.00000
31 T	320.0	86.81	1.370	84.24	2.049	799.2	0.00000
33 R	243.2	54.38	1.007	58.90	1.117	606.0	0.00000
	322.0	85.34	1.304	81.30	2.052	804.0	0.00000
E : Desde Palmas del Mar							
2 LT	304.2	98.88	1.201	62.78	1.817	758.9	0.00000
23 R	228.4	55.61	0.804	43.76	1.107	570.6	0.00000
	259.8	73.52	0.968	51.63	1.401	648.6	0.00000
North: Desde PR-906(PR-53,PR-3)							

42 L	190.3	52.24	0.713	30.61	0.545	473.0	0.00000
41 T	240.4	55.50	0.728	40.31	1.077	600.8	0.00000
43 R	235.7	48.98	0.607	35.57	1.040	588.8	0.00000
	230.0	54.05	0.710	37.83	0.968	574.2	0.00000
Pedestrians							
1		31.95					
34		447.65					
		239.80					
ALL VEHICLES:	260.6	71.07	0.939	51.03	1.321	649.3	0.00000
INTERSECTION:	260.6	71.37	0.939	51.03	1.321	649.3	0.00000

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Ratio 1st grn	Green Ratio 2nd grn	Time (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Centro de Mercadeo									
12 L		0.144			210	442	0.475	46.6	D
T		0.144*			272	233	1.165*	179.3	F
/R	(Un1)	0.522	0.144		190	825	0.230	12.4	A
					672	1500	1.165	90.6	F
South: Desde Palmas del Mar									
32 L		0.289			176	446	0.394	35.6	C
31 T		0.289*			827	942	0.878	42.7	D
33 R	(Un2)	0.289	0.511		48	950	0.051	10.6	A
					1051	2338	0.878	40.0	D
East: Desde Palmas del Mar									
22 LT		0.089			322	379	0.849	66.0	E
23 R	(Un2)	0.089*	0.633		443	971	0.456	7.9	A
					765	1350	0.849	32.4	C
North: Desde PR-906(PR-53,PR-3)									
42 L		0.389			313	583	0.537	32.6	C
41 T		0.389*			1136	1299	0.874	32.2	C
43 R	(Un2)	0.389	0.500		201	1239	0.162	10.7	A
					1650	3121	0.874	29.7	C
Pedestrians									
14	(Ped)	0.267			6	5333	0.001	24.2	C
[illegible]	(Ped)	0.111			6	2222	0.003	35.6	D
					12	7556	0.003	29.9	C
ALL VEHICLES:					4138	8366	1.165	42.7	D
INTERSECTION:					4150	8366	1.165	42.7	D

Level of Service calculations are based on delay (HCM criteria).
Intersection capacity is calculated considering vehicle movements only.
* Maximum v/c ratio, or critical green periods

C ro de Mercadeo - Palmas del Mar * Y906_923
I rsecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table D.0 - GEOMETRIC DELAY DATA

From Approach	To Approach	Negn Radius (m)	Negn Speed (km/h)	Negn Distance (m)
West: Centro de Mercadeo				
	South	10	18	16
	East	S	64	30
	North	18	24	28
South: Desde Palmas del Mar				
	West	18	24	28
	East	10	18	16
	North	S	64	28
East: Desde Palmas del Mar				
	West	S	64	30
	South	18	24	28
	North	10	18	16
' th: Desde PR-906(PR-53,PR-3)				
	West	10	18	16
	South	S	64	28
	East	17	23	27

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table D.1 - LANE DELAYS

Lane No.	Mov No.	Deg. Satn x	Delay (seconds/veh) Analytical Model 1st dm1	2nd dm2	Total dm	Acc. Dec. dn	Queu -ing dq	Ratio dm/ di	Stopd (Idle) di	Geom dg	Overall d
West: Centro de Mercadeo											
1 L	12	0.475	35.4	1.6	37.0	5.4	31.6	1.17	31.6	9.6	46.6
2 L	12,	0.475	35.4	1.6	37.0	5.4	31.6	1.17	31.6	9.6	46.6
	11									0.0	
3 T	11,	1.165	38.5	140.8	179.3	10.7	168.6	1.09	164.5	0.0	179.3
	13									0.0	
4 R	13	0.230	2.0	0.0	2.0	0.7	1.4	1.45	1.4	10.4	12.4
S th: Desde Palmas del Mar											
1	32	0.394	25.7	0.4	26.1	4.8	21.3	1.22	21.3	9.5	35.6
2 T	32,	0.878	30.3	12.3	42.7	10.6	32.0	1.38	31.0	0.0	42.7
	31									0.0	
3 T	31	0.878	30.3	12.3	42.7	10.6	32.0	1.38	31.0	0.0	42.7
4 R	33	0.051	0.0	0.0	0.0	0.0	0.0	0.00	0.0	10.6	10.6

East: Desde Palmas del Mar											
1 L	22	0.499	39.1	3.1	42.2	5.6	36.6	1.15	36.6	6.3	48.4
2 T	22	0.849	40.4	30.2	70.6	9.6	61.0	1.18	59.8	0.0	70.6
3 T	22, 23	0.849	40.4	30.5	70.9	9.6	61.3	1.18	60.1	0.0 0.0	70.9
4 R	23	0.456	0.7	0.2	0.9	0.3	1.3	0.72	1.3	7.0	7.9
th: Desde PR-906(PR-53,PR-3)											
1 L	42	0.537	21.2	1.0	22.3	4.5	17.8	1.25	17.8	10.3	32.6
2 T	42, 41	0.874	23.1	9.1	32.2	10.1	22.1	1.52	21.2	0.0 0.0	32.2
3 T	41, 43	0.874	23.1	9.1	32.2	10.1	22.1	1.52	21.2	0.0 0.0	32.2
4 R	43	0.162	0.4	0.0	0.4	0.6	0.3	1.41	0.3	10.2	10.7

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

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table D.2 - LANE STOPS

Lane No.	Mov No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hg	Overall h	Prop. Queued pq	Queue Move-up Rate hqm
West: Centro de Mercadeo								
1 L	12	0.475	0.76	0.00	0.02	0.79	0.963	0.00
	12, 11	0.475	0.76	0.00	0.02	0.79	0.963	0.00
3 T	11, 13	1.165	0.84	0.17	0.00	1.00	1.000	1.04
4 R	13	0.230	0.13	0.00	0.59	0.72	0.149	0.00
South: Desde Palmas del Mar								
1 L	32	0.394	0.70	0.00	0.09	0.80	0.849	0.00
2 T	32, 31	0.878	0.86	0.04	0.00	0.91	0.992	0.21
3 T	31	0.878	0.86	0.04	0.00	0.91	0.992	0.21
4 R	33	0.051	0.00	0.00	0.69	0.69	0.000	0.00
East: Desde Palmas del Mar								
1 L	22	0.499	0.76	0.00	0.00	0.76	0.994	0.00
2 T	22	0.849	0.79	0.07	0.00	0.86	1.000	0.38
3 T	22, 23	0.849	0.79	0.07	0.00	0.86	1.000	0.38
4 R	23	0.456	0.06	0.00	0.56	0.63	0.071	0.00
North: Desde PR-906(PR-53,PR-3)								
1 L	42	0.537	0.71	0.00	0.11	0.83	0.824	0.00
2 T	42, 41	0.874	0.84	0.04	0.00	0.88	0.946	0.16
3 T	41, 43	0.874	0.84	0.04	0.00	0.88	0.946	0.16
4 R	43	0.162	0.12	0.00	0.60	0.71	0.138	0.00

hqm is average queue move-up rate for all vehicles queued and unqueued

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2

Cycle Time = 90

Table D.3 - LANE QUEUES

e	Mov No.	Deg. Satn x	Ovrfl. Queue No	Average Nb1	Average Nb2	Average Nb	Percentile 90%	Percentile 95%	Percentile 98%	Queue Stor. Ratio
West: Centro de Mercadeo										
1 L	12	0.475	0.0	2.7	0.0	2.7	4.9	5.9	7.0	0.07
2 L	12, 11	0.475	0.0	2.7	0.0	2.7	4.9	5.9	7.0	0.02
3 T	11, 13	1.165	5.6	7.7	5.8	13.6	20.8	22.6	24.4	0.07
4 R	13	0.230	0.0	0.7	0.0	0.7	1.3	1.7	2.0	0.02
South: Desde Palmas del Mar										
1 L	32	0.394	0.0	3.9	0.0	3.9	6.7	8.0	9.3	0.08
2 T	32, 31	0.878	1.0	10.6	1.5	12.0	18.6	20.4	22.1	0.08
3 T	31	0.878	1.0	10.6	1.5	12.0	18.6	20.4	22.1	0.08
4 R	33	0.051	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
East: Desde Palmas del Mar										
1 L	22	0.499	0.0	1.9	0.0	1.9	3.5	4.3	5.2	0.05
2 T	22	0.849	0.2	3.6	0.3	3.9	6.8	8.1	9.3	0.02
3 T	22, 23	0.849	0.2	3.6	0.3	3.9	6.7	8.0	9.2	0.02
4 R	23	0.456	0.0	0.7	0.0	0.7	1.4	1.8	2.2	0.02
North: Desde PR-906(PR-53,PR-3)										
1 L	42	0.537	0.0	6.6	0.0	6.6	10.8	12.3	13.8	0.18
	42, 41	0.874	1.3	13.6	2.0	15.6	23.8	25.7	27.6	0.03
3 T	41, 43	0.874	1.3	13.6	2.0	15.6	23.8	25.7	27.6	0.03
4 R	43	0.162	0.0	0.6	0.0	0.6	1.1	1.4	1.7	0.01

Values printed in this table are back of queue.

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table D.4 - MOVEMENT SPEEDS (km/h)

Mov No.	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
West: Centro de Mercadeo								
12	64.0	24.0	24.0	64.0			38.0	20.3
11	64.0	64.0	64.0	64.0	7.4		36.8	6.4
13	64.0	18.0	18.0	64.0	12.6		42.4	40.6
South: Desde Palmas del Mar								
	64.0	24.0	24.0	64.0	10.0		36.5	22.1
31	64.0	64.0	64.0	64.0	10.1		38.1	18.4
33	64.0	18.0	18.0	64.0			41.3	41.3
East: Desde Palmas del Mar								
22	40.0	40.0	55.4	64.0	6.0		35.1	16.3

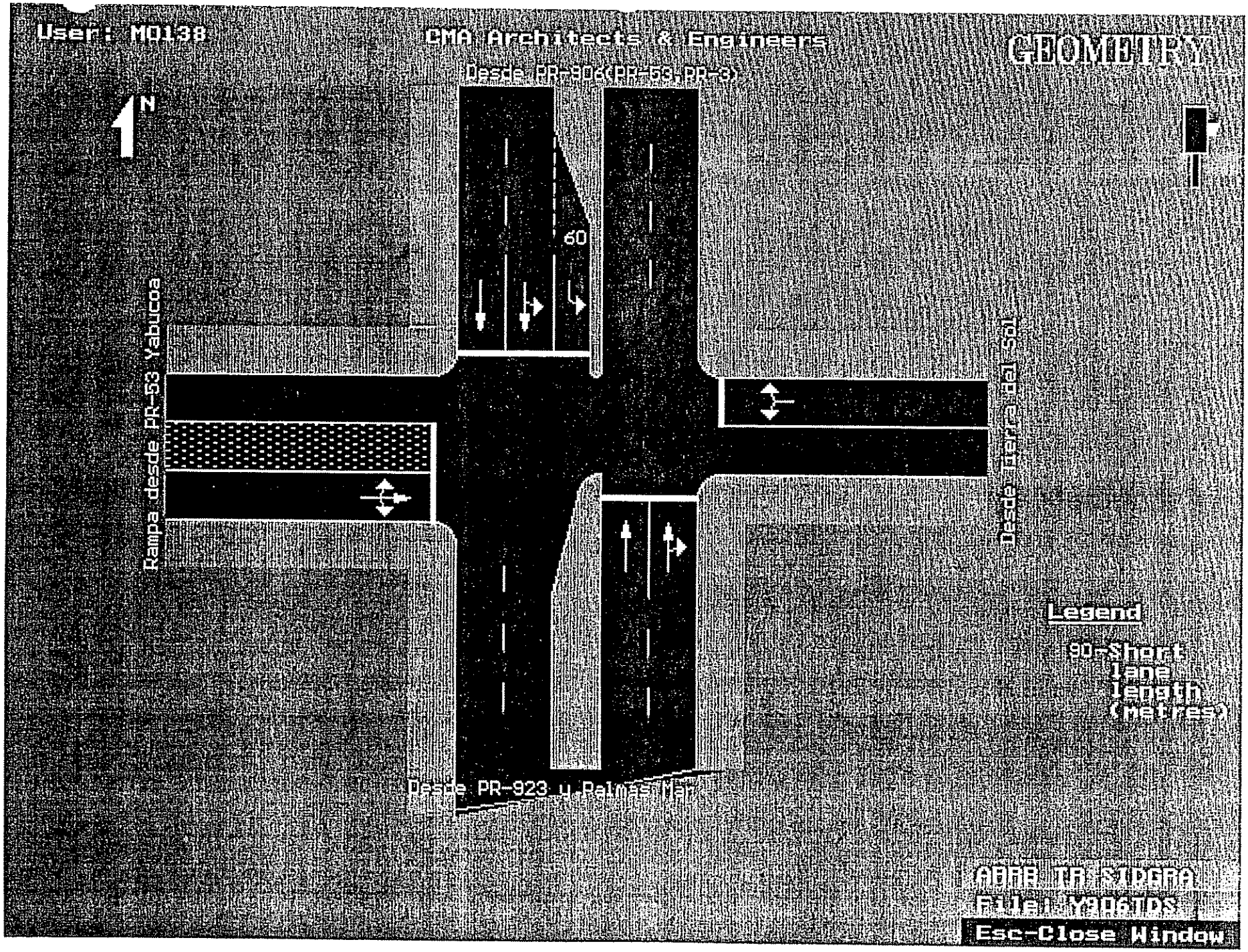
23	40.0	18.0	18.0	64.0	5.1	37.6	36.5
North: Desde PR-906(PR-53,PR-3)							
42	64.0	23.0	23.0	64.0	13.9	46.8	35.0
41	64.0	64.0	64.0	64.0	11.3	49.3	34.2
43	64.0	18.0	18.0	64.0	10.7	49.9	49.6

Centro de Mercadeo - Palmas del Mar * Y906_923
Intersecci¢n Semaforizada PR-906 y PR-923 2020
Intersection No.: 2
Cycle Time = 90

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
West: Centro de Mercadeo									
12	PT	No	3	1.000	1.000	6	NA		
11	PT	Yes	4	1.000	1.000	6	NA		
13	PT	Yes	4	0.383	0.355	6	NA	6	NA
South: Desde Palmas del Mar									
32	PT	No	3	1.000	1.000	6	NA		
31	PT	Yes	4	0.994	0.975	6	NA		
33	PT	Yes	4	0.000	0.000	6	NA	6	NA
East: Desde Palmas del Mar									
22	PT	No	3	1.000	1.000	6	NA		
23	PT	Yes	4	0.153	0.159	6	NA	6	NA
th: Desde PR-906(PR-53,PR-3)									
42	PT	No	3	1.000	1.000	6	NA		
41	PT	Yes	4	0.906	0.951	6	NA		
43	PT	No	3	1.000	1.000	6	NA	6	NA
Pedestrians									
14	PT	No	3	1.000	1.000				
34	PT	No	3	1.000	1.000				

--- End of SIDRA Output ---


User: M0138
GMA Architects & Engineers
GEOMETRY
Desde PR-906(PR-53,PR-9)
N
60
Rampa desde PR-53 Yabucoa
Desde Parc del Sol
Desde PR-923 y Palmas Mar
Legend
90-Short lane length (metres)
ABRA TA STDGRA
File: Y906TDS
Esc-Close Window

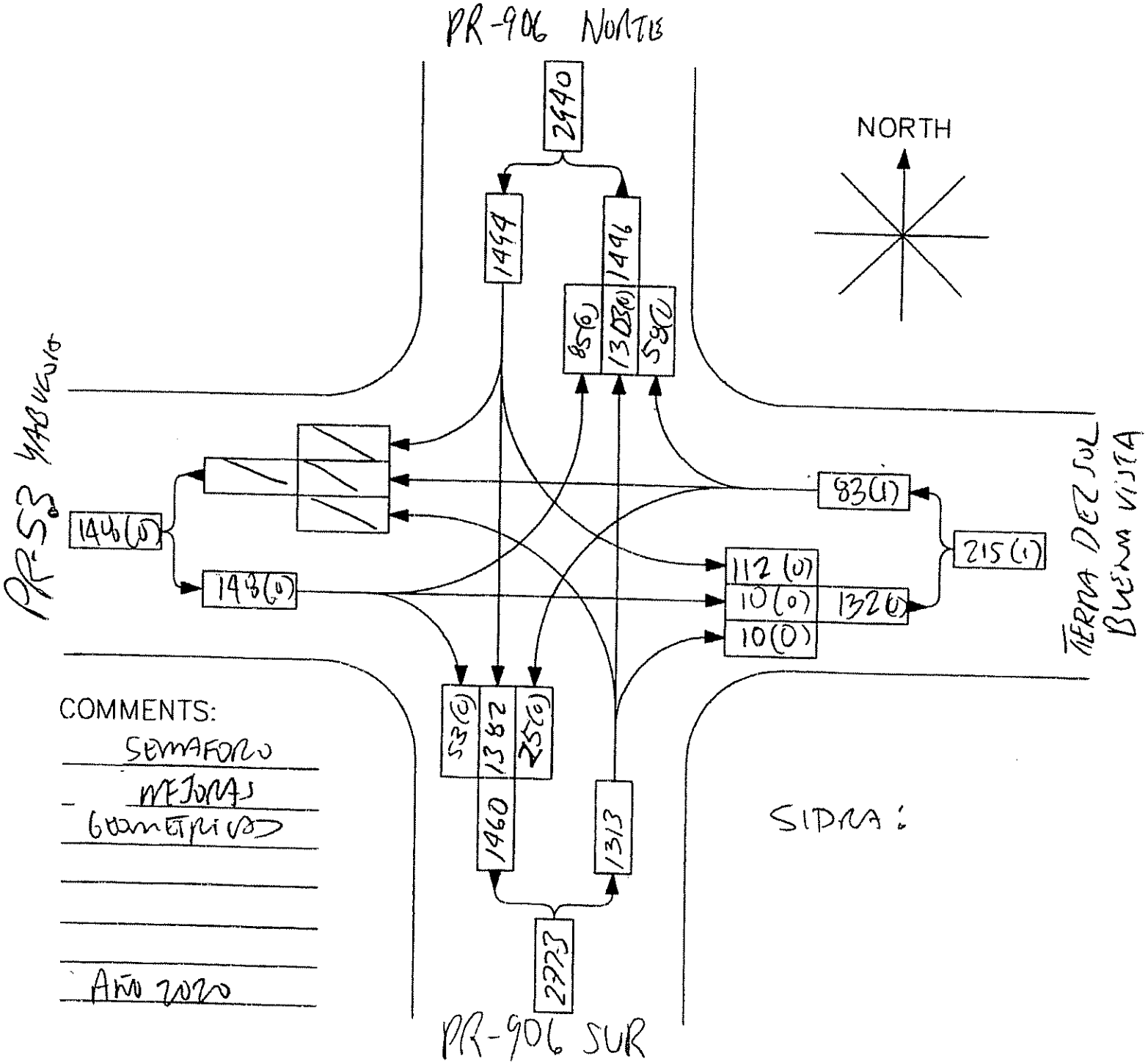
TRAFFIC ANALYSIS

GRAPHIC SUMMARY OF TRAFFIC FLOW

DATE _____ DAY _____ WEATHER _____ PERIOD 3PM TO 6PM

MUNICIPALITY Humacao URBAN ZONE ☐ RURAL ☐ SUB-URBAN ☐

INTERSECTION OF PR-906 WITH Rampa PR-53 / Tierra del S



COMMENTS:

SEMAFORO

MEJORAS

GEOMETRICAS

AÑO 2020

SIDRA:

ARRB Transport Research Ltd - SIDRA 5.02a

CMA ARCHITECTS & ENGINEERS
CIVIL Registered User No. M0138
Time and Date of Analysis 17:10:13 12/19/00

C to de Mercadeo - Palmas del Mar * Y906TDS *
I. rsecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3

SIDRA US Highway Capacity Manual (1994) Version
Cycle Time = 60

RUN INFORMATION

* Basic Parameters:
  Intersection Type: Signalised - Pretimed
  Driving on the right-hand side of the road
  SIDRA US Highway Capacity Manual (1994) Version
  Input data specified in Metric units
  Default Values File No. 11
  Peak flow period (for performance): 15 minutes
  Unit time (for volumes): 60 minutes (Total Flow Period)
  Delay definition: Overall delay,
  Geometric delay included
  Delay formula: Highway Capacity Manual
  Level of Service based on: Delay (HCM)
  Queue definition: Back of queue, 95th Percentile
  Progression (platooned arrival) Factors or Actuated Control Factors
  apply for some or all movements.
  See Table D.5 for the factors used.

* . of Main (Timing-Capacity) Iterations = 2
  mparison of last two iterations:
  Difference in intersection degree of satn = 0.0 %
  Difference in total vehicle capacity = 0.0 %
  Largest difference in eff. green times = 0 secs
  (max. value for stopping = 0 secs)

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3

PARAMETERS

Default values for some of the important general parameters:
(Default Values File: DEF11.SDF)

1. Basic saturation flow: 1900 tcu/h

   This value applies to signalised intersections and priority and continuous movements at roundabouts and unsignalised intersections. Saturation flows (capacities) for all opposed movements at roundabouts and sign-controlled intersections are estimated from a gap-acceptance based model.

2. Through car equivalents for signalised intersections

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

3. Opposed turn parameters (Signalised intersection)

	Crit. Gap	Fol.up Hdway	Deps at End	% Exit Flow Opposing
Left turns :	4.0	2.57	2.0	0
Right turns:	4.0	2.57	2.5	0

4. Cruise speed= 40 km/h, Approach Distance= 1500 m

. Queue space per vehicle in metres
Light vehicles: 0.3 Heavy vehicles: 0.4

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left LV	Left HV	Through LV	Through HV	Right LV	Right HV	Flow Scale	Peak Flow Factor
West: Rampa desde PR-53 Yabucoa								
12	94	4	11	0	0	0	1.00	0.90
13	0	0	0	0	59	1	1.00	0.90
South: Desde PR-923 y Palmas Mar								
31	0	0	1448	18	0	0	1.00	0.90
33	0	0	0	0	11	1	1.00	0.90
East: Desde Tierra del Sol								
22	28	1	0	0	0	0	1.00	0.90
23	0	0	0	0	64	2	1.00	0.90
N. .h: Desde PR-906(PR-53,PR-3)								
42	124	1	0	0	0	0	1.00	0.90
41	0	0	1536	13	0	0	1.00	0.90

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

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov No.	Mov Typ	PHASE MATRIX First Green Fr	To	Op	Pr	Second Green Fr	To	Op	Pr	Lost Tim 1st Grn	Lost Tim 2nd Grn	Req.Mov.Time 1st Grn	Req.Mov.Time 2nd Grn	Eff. Grn 1st Grn	Eff. Grn 2nd Grn
West: Rampa desde PR-53 Yabucoa															
12	LT	C	A							2		9.9		8	
13	R (Un1)	A	C	R		*C	A			7	2	47.7	10.0	43	8
South: Desde PR-923 y Palmas Mar															
31	T	*B	C							2		38.7		39	
	R (Un2)	B	C			C	B	R		2	6	38.5	18.0Min	39	13
East: Desde Tierra del Sol															
22	L	C	A	L						2		9.0Min		8	
23	R (Un1)	A	C	R		C	A	R		2	5	18.0Min	9.0Min	48	5

North: Desde PR-906(PR-53,PR-3)

42	L	*A	B	2	9.0Min	7
41	T	A	C	2	43.1	48

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

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table S.2 - MOVEMENT CAPACITY PARAMETERS

Mov No.	Arv Flow (veh /h)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
West: Rampa desde PR-53 Yabucoa										
12 LT	109	922		0.118		123	0.90	2	100	0.887*
13 R	60	31	341	0.610	0.120	68	0.90	2	100	0.886
South: Desde PR-923 y Palmas Mar										
31 T	1466	2665		0.550		1732	0.90	6	100	0.846
33 R	12	15	21	0.548	0.180	14	0.90	7	100	0.839
East: Desde Tierra del Sol										
22 L	29	1631		0.018		217	0.90	575	100	0.133
23 R	66	1106	960	0.060	0.000	965	0.90	1216	51	0.068
North: Desde PR-906(PR-53,PR-3)										
L	125	1391		0.090		162	0.90	17	100	0.770
T	1549	2513		0.616		2010	0.90	17	100	0.770

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table S.3 - INTERSECTION PARAMETERS

Crit Mov No.	App. & Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
42	N_L		A	B	9	-	-	9.0Min
31	S_T		B	C	2	0.550	0.611	38.7
13	W_R	2nd	C	A	2	0.120	0.134	10.0
				Total:	13	0.671	0.745	57.7

\- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
27	180	51	60

Degree of Saturation (Highest) = 0.887
Practical Spare Capacity (Lowest) = 2 %
Total Vehicle Flow = 3416
Total Vehicle Capacity (all lanes) = 5292

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table S.4 - PHASE INFORMATION

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	3	6	9	0.150
B	9	12	38	41	0.683
C	50	53	7	10	0.167

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

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue 95% (vehs)	Back (m)	Perf. Index	Aver. Speed (km/h)
West: Rampa desde PR-53 Yabucoa								
2 LT	1.83	60.5	1.00	0.93	8.0	9	5.44	16.7
3 R	1.01	60.5	1.00	0.93	8.0	9	2.99	16.5
South: Desde PR-923 y Palmas Mar								
31 T	3.62	8.9	0.51	0.52	16.0	17	31.35	44.4
33 R	0.03	8.7	0.49	0.85	15.1	16	0.27	33.9
East: Desde Tierra del Sol								
22 L	0.24	29.8	0.91	0.71	1.2	1	0.95	18.2
23 R	0.14	7.4	0.13	0.63	0.3	0	0.75	34.7
North: Desde PR-906(PR-53,PR-3)								
42 L	1.71	49.2	0.91	0.83	6.9	7	5.69	27.6
41 T	1.34	3.1	0.08	0.09	6.9	7	21.63	61.1

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
West: Rampa desde PR-53 Yabucoa						
169	2.84	60.5	1.000	0.93	8.43	16.6
South: Desde PR-923 y Palmas Mar						
1478	3.64	8.9	0.516	0.52	31.62	44.2

```
      Desde Tierra del Sol
    5       0.38   14.3  0.370  0.65     1.70    27.1
    ----------------------------------------------------
    n: Desde PR-906(PR-53,PR-3)
    4       3.05    6.6  0.150  0.15    27.32    55.9
    ----------------------------------------------------
    SECTION:
   .6       9.91   10.4  0.357  0.36    69.07    46.4
    ----------------------------------------------------

  ntro de Mercadeo - Palmas del Mar                                  * Y906TDS *
  tersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
  tersection No.:     3
                  Cycle Time =  60


Table S.7 - LANE PERFORMANCE
-------------------------------------------------------------------------------
                Effective Red and   Arv                              Q u e u e
                Green Times (sec)  Flow  Cap  Deg.  Aver.  Eff.   95% Back   Shrt
 Lane   Mov    ----------------    (veh (veh  Satn  Delay  Stop  ----------- Lane
 No.    No.    R1  G1   R2  G2      /h)  /h)   x    (sec)  Rate  (vehs) (m)  (m)
-------------------------------------------------------------------------------
 West: Rampa desde PR-53 Yabucoa
 1 LTR   12,    7  13   32   8     169  191 0.887   60.5 0.93    8.0    9
         13
-------------------------------------------------------------------------------
 South: Desde PR-923 y Palmas Mar
 1 T     31    21  39    0   0     738  872 0.846    9.1 0.54   16.0   17
 2 TR    31,   14  39    6   1     740  875 0.846    8.7 0.85   15.1   16
         33
-------------------------------------------------------------------------------
 East: Desde Tierra del Sol
         22,   52   8    0   0      29  217 0.133   29.8 0.00    1.2    1
         23
 2 R     23     2  48    5   5      66  964 0.068    7.4 0.63    0.3    0
-------------------------------------------------------------------------------
 North: Desde PR-906(PR-53,PR-3)
 1 L     42    53   7    0   0     112  145 0.770   54.6 0.84    5.1    5   60
 2 LT    42,   17  43    0   0     733  951 0.770    4.0 0.19    6.9    7
         41
 3 T     41    12  48    0   0     830 1077 0.770    2.4 0.00    2.1    2
-------------------------------------------------------------------------------

Centro de Mercadeo - Palmas del Mar                                  * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.:     3
                  Cycle Time =  60


Table S.8 - LANE FLOW AND CAPACITY INFORMATION
-------------------------------------------------------------------------------
 West: Rampa desde PR-53 Yabucoa
                                                Saturation Flow  End  Tot
 Effective                 Arv Flow (veh/h)    ---------------  Cap  Cap  Deg.  Lane
 Lane Use        Mov      ------------------   Basic Aver(veh)  (veh (veh  Satn  Util
                 No.      Lef Thru  Rig  Tot   (tcu) 1st   2nd   /h)  /h)   x     %
      *
     ***
      *  *
*?   * ****      12,      98   11   60  169  1364  130  1218   60* 191 0.887  100
      *  *       13
     ***
      *
-------------------------------------------------------------------------------
 South: Desde PR-923 y Palmas Mar
                                                Saturation Flow  End  Tot
```

Effective Lane Use	Mov No.	Arv Flow (veh/h) Lef	Thru	Rig	Tot	Saturation Flow Basic (tcu)	Aver(veh) 1st	2nd	Cap (veh /h)	Cap (veh /h)	Deg. Satn x	Lane Util %
* ********** *	31	0	738	0	738	1357	1341	0	0	872	0.846	100
* ****** **** * * *** *	31, 33	0	728	12	740	1357	1336	389	60	875	0.846	100

East: Desde Tierra del Sol

Effective Lane Use	Mov No.	Arv Flow (veh/h) Lef	Thru	Rig	Tot	Saturation Flow Basic (tcu)	Aver(veh) 1st	2nd	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
* *** * ******	22, 23	29	0	0	29	1388	1631	0	240*	217	0.133	100
****** * *** *	23	0	0	66	66	1389	1106	960	120	964	0.068	51 Prog

North: Desde PR-906(PR-53,PR-3)

Effective e Use	Mov No.	Arv Flow (veh/h) Lef	Thru	Rig	Tot	Saturation Flow Basic (tcu)	Aver(veh) 1st	2nd	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
* *** * ******	42	112	0	0	112	1317	1242	0	0	145	0.770	100
* *** * * ****** **** *	42, 41	13	719	0	733	1357	1327	0	0	951	0.770	100
* ********** *	41	0	830	0	830	1357	1346	0	0	1077	0.770	100

* Large end capacity has resulted in a saturation flow which is larger than the full unopposed saturation flow

Prog Lane under-utilisation found by the "Program"

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

T ¦ S.9 - SIGNAL TIMING DIAGRAM

Displayed (Phase) Green Times

Phase A Phase B Phase C

```
0        9                                                  50          60
I--------I--------------------------------------------------I-----------I
....GGGGG.....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.....GGGGGGG.
   3          12                                              53
```

E.. .ctive (Movement) Green Times

West: Rampa desde PR-53 Yabucoa

```
Mov.   12 (LT)
I        I                                                  I           I
GGG.....................................................GGGGGG
   3                                                        55

Mov.   13 (R)
I        I                                                  I           I
GGGG.......GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG..GGGGGGG
   3      10                                            53 55
```

South: Desde PR-923 y Palmas Mar

```
Mov.   31 (T)
I        I                                                  I           I
...............GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.........
              14                                        53

Mov.   33 (R)
I        I                                                  I           I
GGGGGGGGGGGGGG..GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.......GG
              12 14                                       53      59
```

East: Desde Tierra del Sol

```
Mov.   22 (L)
I        I                                                  I           I
GGG.....................................................GGGGGG
   3                                                        55

Mov.   23 (R)
I        I                                                  I           I
GGGG..GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG......GGG
   3 5                                                  53     58
```

North: Desde PR-906(PR-53,PR-3)

```
Mov.   42 (L)
I        I                                                  I           I
.....GGGGGGG.......................................................
     5       12

Mov.   41 (T)
I        I                                                  I           I
.....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG.........
     5                                                  53
```

```
I-----I------I------I------I------I------I------I------I------I------I---->
0     6      12     18     24     30     36     42     48     54     60
```

T I M E (s)

Centro de Mercadeo - Palmas del Mar * Y906TDS *

Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total $/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
West: Rampa desde PR-53 Yabucoa							
12 LT	18.4	54.49	0.057	3.40	0.115	45.9	0.00000
13 R	9.8	29.87	0.031	1.78	0.059	24.4	0.00000
	28.2	84.36	0.089	5.17	0.174	70.3	0.00000
South: Desde PR-923 y Palmas Mar							
31 T	140.8	258.08	0.338	25.73	0.858	351.6	0.00000
33 R	1.3	2.94	0.005	0.29	0.007	3.2	0.00000
	142.1	261.02	0.343	26.02	0.864	354.8	0.00000
East: Desde Tierra del Sol							
22 L	3.5	7.89	0.011	0.81	0.026	8.7	0.00000
23 R	7.4	13.21	0.020	1.72	0.055	18.3	0.00000
	10.8	21.09	0.031	2.53	0.082	27.0	0.00000
North: Desde PR-906(PR-53,PR-3)							
42 L	22.3	58.45	0.063	3.36	0.104	55.8	0.00000
41 T	218.9	409.39	0.284	18.00	0.946	546.8	0.00000
	241.2	467.83	0.347	21.35	1.049	602.7	0.00000
INTERSECTION:	422.3	834.31	0.809	55.07	2.169	1054.2	0.00000

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table S.12B - FUEL CONSUMPTION, EMISSIONS AND COST - RATE

Mov No.	Fuel Rate mL/km	Cost Rate c/km	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km	Lead Rate g/km
West: Rampa desde PR-53 Yabucoa							
12 LT	354.5	104.99	1.108	65.50	2.208	883.7	0.00000
13 R	342.4	104.68	1.094	62.21	2.071	854.9	0.00000
	350.2	104.88	1.103	64.33	2.159	873.5	0.00000
South: Desde PR-923 y Palmas Mar							
31 T	269.6	49.43	0.647	49.28	1.642	673.4	0.00000
33 R	284.5	65.17	1.054	63.78	1.449	706.5	0.00000
	269.8	49.56	0.651	49.40	1.641	673.7	0.00000
East: Desde Tierra del Sol							
22 L	519.7	117.77	1.570	120.99	3.937	1295.8	0.00000
23 R	487.9	87.65	1.329	113.85	3.670	1216.8	0.00000
	497.7	96.91	1.403	116.04	3.752	1241.1	0.00000

North: Desde PR-906(PR-53,PR-3)							
42 L	263.5	68.91	0.745	39.59	1.224	658.4	0.00000
41 T	215.3	40.28	0.279	17.71	0.930	538.0	0.00000
	219.0	42.48	0.315	19.39	0.953	547.3	0.00000
INTERSECTION:	244.1	48.22	0.467	31.83	1.254	609.3	0.00000

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Ratio (g/C) 1st grn	Green Ratio (g/C) 2nd grn	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Rampa desde PR-53 Yabucoa								
12 LT		0.133		109	123	0.887*	60.5	D
13 R	(Un1)	0.717	0.133*	60	68	0.886	60.5	D
				169	191	0.887	60.5	D
South: Desde PR-923 y Palmas Mar								
31 T		0.650*		1466	1732	0.846	8.9	B
33 R	(Un2)	0.650	0.217	12	14	0.839	8.7	B
				1478	1747	0.846	8.9	B
East: Desde Tierra del Sol								
22 L		0.133		29	217	0.133	29.8	C
23 R	(Un1)	0.800	0.083	66	965	0.068	7.4	A
				95	1182	0.133	14.3	B
North: Desde PR-906(PR-53,PR-3)								
42 L		0.117*		125	162	0.770	49.2	D
41 T		0.800		1549	2010	0.770	3.1	A
				1674	2173	0.770	6.6	A
ALL VEHICLES:				3416	5292	0.887	10.4	B
INTERSECTION:				3416	5292	0.887	10.4	B

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

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table D.0 - GEOMETRIC DELAY DATA

From Approach	To Approach	Negn Radius (m)	Negn Speed (km/h)	Negn Distance (m)

West: Rampa desde PR-53 Yabucoa			
South	10	18	16
East	S	64	26
North	13	20	20
:h: Desde PR-923 y Palmas Mar			
East	10	18	16
North	S	64	15
East: Desde Tierra del Sol			
South	12	20	19
North	10	18	16
North: Desde PR-906(PR-53,PR-3)			
South	S	64	15
East	13	20	20

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table D.1 - LANE DELAYS

Lane No.	Mov No.	Deg. Satn x	Delay (seconds/veh) Analytical 1st dm1	2nd dm2	Model Total dm	Acc. Dec. dn	Queu -ing dq	Ratio dm/ di	Stopd (Idle) di	Geom dg	Overall d
West: Rampa desde PR-53 Yabucoa											
:R	12, 13	0.887	18.5	32.3	50.8	5.2	61.9	0.86	59.4	9.3 10.3	60.5
South: Desde PR-923 y Palmas Mar											
1 T	31	0.846	3.6	5.5	9.1	5.8	3.3	4.11	2.2	0.0	9.1
2 TR	31, 33	0.846	3.0	5.5	8.5	5.2	3.4	3.71	2.3	0.0 11.0	8.7
East: Desde Tierra del Sol											
1 L	22, 23	0.133	22.9	0.0	23.0	4.5	18.5	1.24	18.5	6.8 0.0	29.8
2 R	23	0.068	0.3	0.0	0.3	0.6	0.1	2.84	0.1	7.2	7.4
North: Desde PR-906(PR-53,PR-3)											
1 L	42	0.770	25.7	18.9	44.6	4.9	39.7	1.16	38.5	10.0	54.6
2 LT	42, 41	0.770	1.1	2.7	3.8	2.0	1.7	2.80	1.3	10.0 0.0	4.0
3 T	41	0.770	0.0	2.4	2.4	0.0	0.0	0.00	0.0	0.0	2.4

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

:entro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

:a /D.2 - LANE STOPS

Lane No.	Mov No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hg	Overall h	Prop. Queued pq	Queue Move-up Rate hqm

t: Rampa desde PR-53 Yabucoa								
TR	12, 13	0.887	0.83	0.10	0.00	0.93	1.000	0.84
th: Desde PR-923 y Palmas Mar								
	31	0.846	0.50	0.05	0.00	0.54	0.541	0.15
TR	31, 33	0.846	0.45	0.05	0.01	0.51	0.491	0.26
ast: Desde Tierra del Sol								
L	22, 23	0.133	0.66	0.00	0.05	0.71	0.914	0.00
R	23	0.068	0.10	0.00	0.53	0.63	0.131	0.00
North: Desde PR-906(PR-53,PR-3)								
1 L	42	0.770	0.79	0.05	0.00	0.84	1.000	0.37
2 LT	42, 41	0.770	0.18	0.02	0.01	0.20	0.191	0.06
3 T	41	0.770	0.00	0.00	0.00	0.00	0.000	0.00

hqm is average queue move-up rate for all vehicles queued and unqueued

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table D.3 - LANE QUEUES

	Mov No.	Deg. Satn x	Ovrfl. Queue No	Average Nb1	Average Nb2	Average Nb	Percentile 90%	Percentile 95%	Percentile 98%	Queue Stor. Ratio
West: Rampa desde PR-53 Yabucoa										
1 LTR	12, 13	0.887	0.9	2.7	1.1	3.9	6.7	8.0	9.3	0.03
South: Desde PR-923 y Palmas Mar										
1 T	31	0.846	1.5	6.8	2.3	9.1	14.4	16.0	17.7	0.09
2 TR	31, 33	0.846	1.5	6.1	2.4	8.5	13.5	15.1	16.8	0.08
East: Desde Tierra del Sol										
1 L	22, 23	0.133	0.0	0.5	0.0	0.5	1.0	1.2	1.5	0.03
2 R	23	0.068	0.0	0.1	0.0	0.1	0.2	0.3	0.4	0.01
North: Desde PR-906(PR-53,PR-3)										
1 L	42	0.770	0.1	2.2	0.1	2.3	4.2	5.1	6.1	0.09
2 LT	42, 41	0.770	0.5	2.4	0.9	3.2	5.7	6.9	8.1	0.01
3 T	41	0.770	0.5	0.0	0.8	0.8	1.6	2.1	2.5	0.00

Values printed in this table are back of queue.

Centro de Mercadeo - Palmas del Mar * Y906TDS *
I rsecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
I rsection No.: 3
Cycle Time = 60

Table D.4 - MOVEMENT SPEEDS (km/h)

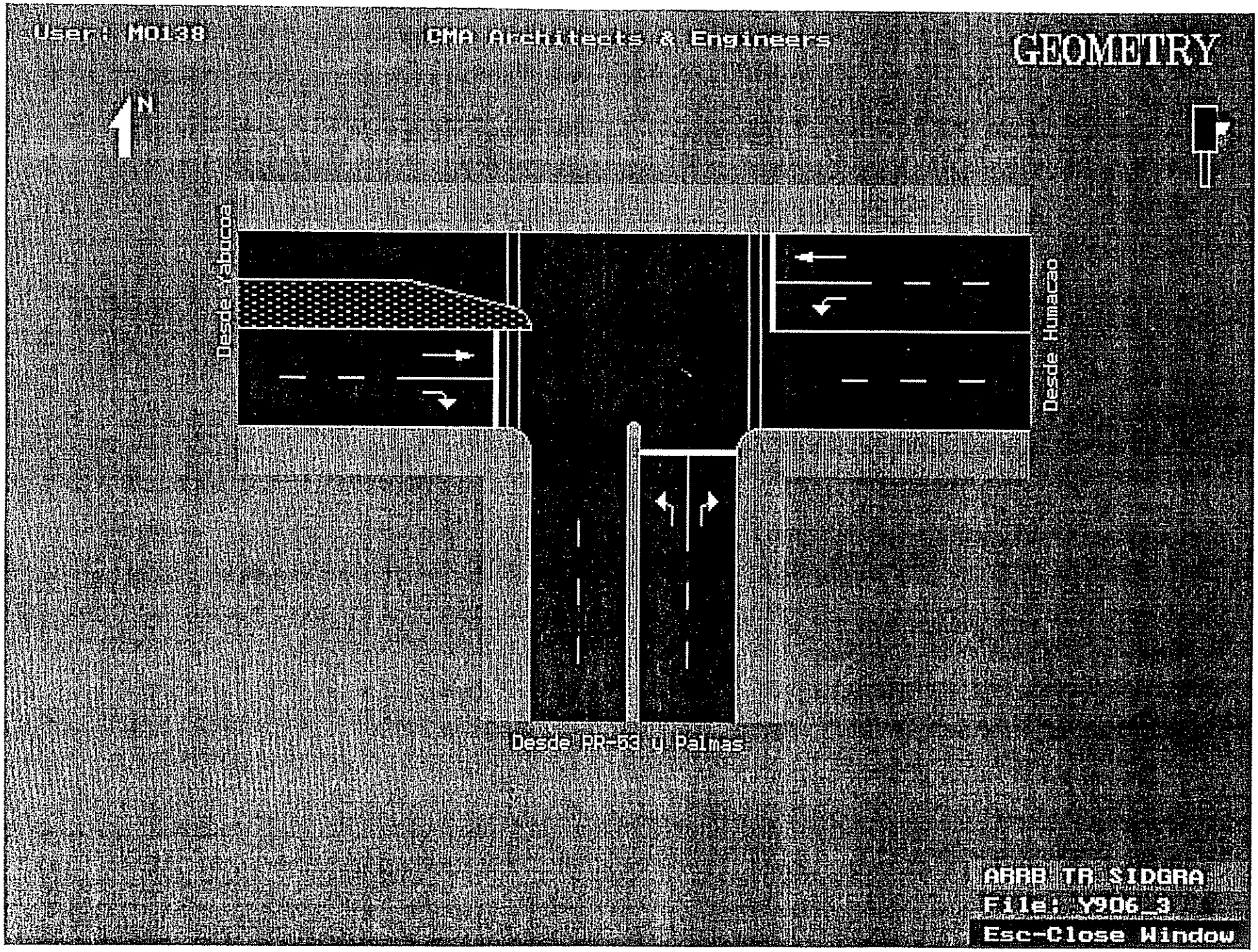
Mov No.	App. Speeds Cruise	App. Speeds Negn	Exit Speeds Negn	Exit Speeds Cruise	Queue Move-up 1st Grn	Queue Move-up 2nd Grn	Av. Section Spd Running	Av. Section Spd Overall
West: Rampa desde PR-53 Yabucoa								
2	64.0	24.4	24.4	64.0	2.8		21.4	16.7
3	64.0	18.0	18.0	64.0	2.8	6.8	39.0	16.5
South: Desde PR-923 y Palmas Mar								
31	64.0	64.0	64.0	64.0	15.2		48.0	44.4
33	64.0	18.0	18.0	64.0	15.2	1.3	39.1	33.9
East: Desde Tierra del Sol								
22	40.0	20.0	20.0	64.0			30.5	18.2
23	40.0	18.0	18.0	64.0			34.8	34.7
North: Desde PR-906(PR-53,PR-3)								
42	64.0	20.0	20.0	64.0	7.2		45.5	27.6
41	64.0	64.0	64.0	64.0	16.3		62.1	61.1

Centro de Mercadeo - Palmas del Mar * Y906TDS *
Intersecci¢n Semaforizada PR-906 y Tierra del Sol-Comunidades Buena Vista
Intersection No.: 3
Cycle Time = 60

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
t: Rampa desde PR-53 Yabucoa									
12	PT	No	3	1.000	1.000	6	NA		
13	PT	No	3	1.000	1.000	6	NA	6	NA
South: Desde PR-923 y Palmas Mar									
31	PT	Yes	4	0.411	0.615	6	NA		
33	PT	Yes	4	0.383	0.586	6	NA	6	NA
East: Desde Tierra del Sol									
22	PT	No	3	1.000	1.000	6	NA		
23	PT	No	3	1.000	1.000	6	NA	6	NA
North: Desde PR-906(PR-53,PR-3)									
42	PT	No	3	1.000	1.000	6	NA		
41	PT	Yes	4	0.084	0.124	6	NA		

--- End of SIDRA Output ---


User: MO138
CMA Architects & Engineers
GEOMETRY
N
Desde Yabucoa
Desde Humacao
Desde PR-53 y Palmas
ABRB TR SIDGRA
File: Y906_3
Esc-Close Window

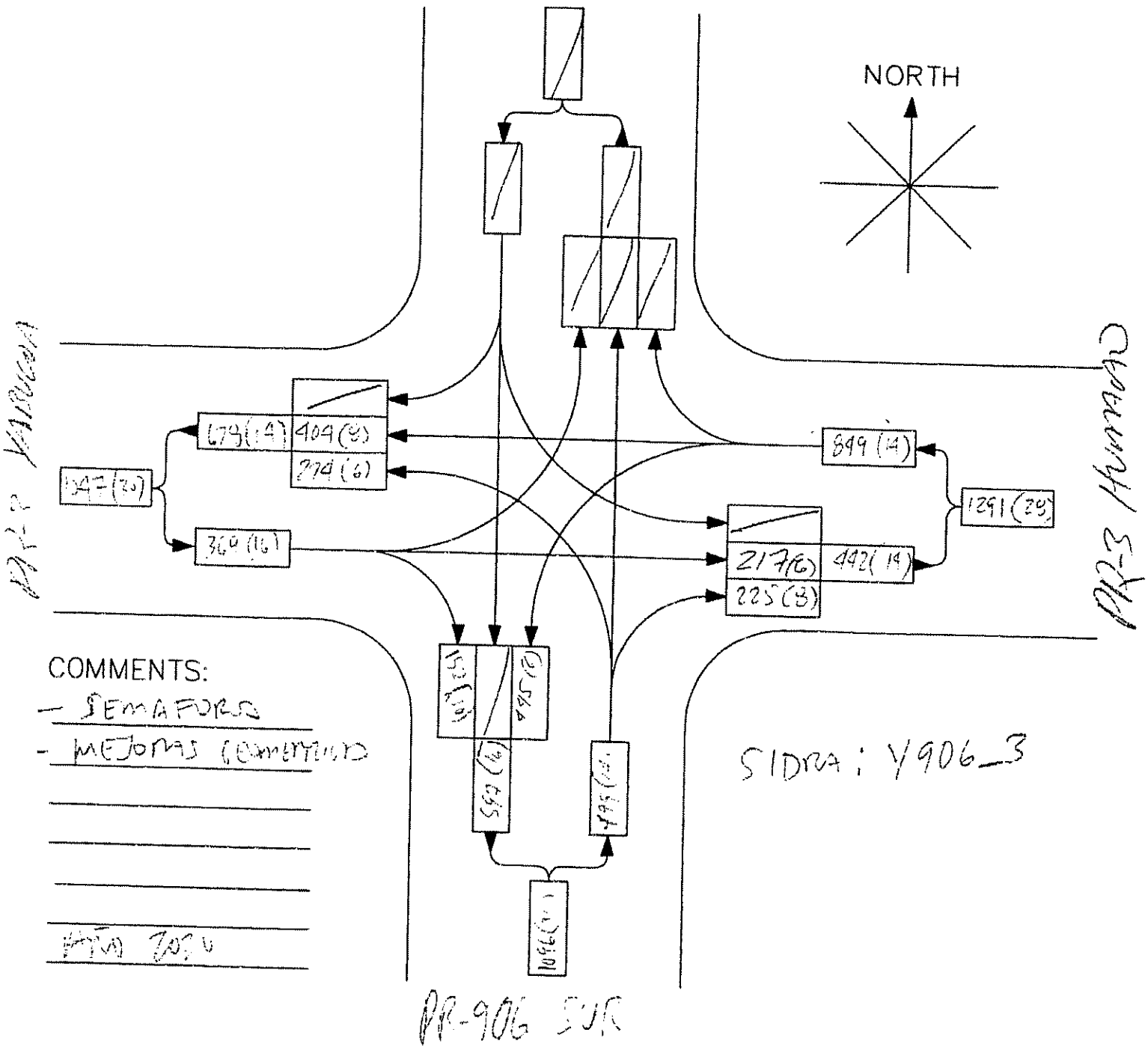
TRAFFIC ANALYSIS

GRAPHIC SUMMARY OF TRAFFIC FLOW

DATE _____ DAY _____ WEATHER _____ PERIOD 3PM TO 6PM

MUNICIPALITY Humacao URBAN ZONE ☐ RURAL ☐ SUB-URBAN ☐

INTERSECTION OF PR-3 WITH PR-906



COMMENTS:

- SEMAFORO
- MEJORAS RECOMENDADAS

ARRB Transport Research Ltd - SIDRA 5.02a

CMA ARCHITECTS & ENGINEERS
CIVIL Registered User No. M0138
Time and Date of Analysis 07:14:12 12/20/00

Centro de Mercadeo - Palmas del Mar * Y906_3 *
rseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4

SIDRA US Highway Capacity Manual (1994) Version
Cycle Time = 50

RUN INFORMATION

* Basic Parameters:
Intersection Type: Signalised - Pretimed
Driving on the right-hand side of the road
SIDRA US Highway Capacity Manual (1994) Version
Input data specified in Metric units
Default Values File No. 11
Peak flow period (for performance): 15 minutes
Unit time (for volumes): 60 minutes (Total Flow Period)
Delay definition: Overall delay,
Geometric delay included
Delay formula: Highway Capacity Manual
Level of Service based on: Delay (HCM)
Queue definition: Back of queue, 95th Percentile
Progression (platooned arrival) Factors or Actuated Control Factors
apply for some or all movements.
See Table D.5 for the factors used.

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

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4

PARAMETERS

Default values for some of the important general parameters:
(Default Values File: DEF11.SDF)

1. Basic saturation flow: 1900 tcu/h

This value applies to signalised intersections and priority and continuous movements at roundabouts and unsignalised intersections. Saturation flows (capacities) for all opposed movements at roundabouts and sign-controlled intersections are estimated from a gap-acceptance based model.

2. Through car equivalents for signalised intersections

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

3. Opposed turn parameters (Signalised intersection)

	Crit. Gap	Fol.up Hdway	Deps at End	% Exit Flow Opposing
Left turns :	4.0	2.57	2.0	0
Right turns:	4.0	2.57	2.5	0

4. Cruise speed= 40 km/h, Approach Distance= 1500 m

Queue space per vehicle in metres
Light vehicles: 0.3 Heavy vehicles: 0.4

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table S.0 - TRAFFIC FLOW DATA (Flows in veh/hour as used by the program)

Mov No.	Left LV	Left HV	Through LV	Through HV	Right LV	Right HV	Flow Scale	Peak Flow Factor
West: Desde Yabucoa								
12	0	0	241	7	0	0	1.00	0.90
13	0	0	0	0	169	11	1.00	0.90
South: Desde PR-53 y Palmas								
32	304	7	0	0	0	0	1.00	0.90
33	0	0	0	0	250	9	1.00	0.90
East: Desde Humacao								
22	494	7	449	9	0	0	1.00	0.90
P STRIANS	Flow (ped/hour)							
14		11					1.00	0.90
24		11					1.00	0.90

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

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table S.1 - MOVEMENT PHASE AND TIMING PARAMETERS

Mov No.	Mov Typ	PHASE MATRIX First Green Fr	To	Op	Pr	Second Green Fr	To	Op	Pr	Lost Tim 1st Grn	Lost Tim 2nd Grn	Req.Mov.Time 1st Grn	Req.Mov.Time 2nd Grn	Eff. Grn 1st Grn	Eff. Grn 2nd Grn
West: Desde Yabucoa															
12	T	*C	A		H					3		13.3		11	
13	R	A	C			C	A			3	3	23.0Min	10.0Min	33	11
South: Desde PR-53 y Palmas															
32	L	*A	B							3		16.5		13	
33	R	(Un2) A	B			B	A	R		3	11	13.0Min	20.0Min	13	23
E: Desde Humacao															
22	LT	*B	C		H	C	A	L	H	3	3	19.4	13.3	17	11
Pedestrians															
14		(Ped) A	B							4		13.0Min		12	
24		(Ped) A	B							4		13.0Min		12	

rrent Phase Sequence No.: 1
put phase sequence: A B C
tput phase sequence: A B C

ro de Mercadeo - Palmas del Mar * Y906_3 *
rseccion semaforizada PR-3 y PR-906 - 2020
rsection No.: 4
Cycle Time = 50

ble S.2 - MOVEMENT CAPACITY PARAMETERS

ov o.	Arv Flow (veh /h)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
West: Desde Yabucoa										
12 T	248	1334		0.186		293	0.90	7	100	0.845
13 R	180	1118	1118	0.121	0.040	984	0.90	392	100	0.183
South: Desde PR-53 y Palmas										
32 L	311	1277		0.244		332	0.90	-4	100	0.937*
33 R	259	1138	1200	0.057	0.162	848	0.90	195	100	0.305
East: Desde Humacao										
22 LT	959	2236	1604	0.296	0.186	1113	0.90	4	71	0.862
Pedestrians										
14	11	20000		0.001		4800	0.90		100	0.002
24	11	20000		0.001		4800	0.90		100	0.002

(ro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table S.3 - INTERSECTION PARAMETERS

Crit Mov No.	App. & Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
32	S_L		A	B	3	0.244	0.271	16.5
22	E_LT	1st	B	C	3	0.296	0.328	19.4
12	W_T		C	A	3	0.186	0.207	13.3
				Total:	9	0.725	0.806	49.3

Cycle Time:

Minimum	Maximum	Practical	Chosen
33	180	46	50

Degree of Saturation (Highest) = 0.937
Practical Spare Capacity (Lowest) = -4 %
Total Vehicle Flow = 1957
Total Vehicle Capacity (all lanes) = 3791

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Phase No.	Change Time	Green Start	Displayed Green	Grn+Intgrn Secs	Prop.
A	0	4	12	16	0.320
B	16	20	16	20	0.400
C	36	40	10	14	0.280

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

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table S.5 - MOVEMENT PERFORMANCE

Mov No.	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest 95% Queue (vehs)	Back (m)	Perf. Index	Aver. Speed (km/h)
West: Desde Yabucoa								
12 T	2.25	32.7	0.99	0.88	8.7	6	9.69	33.9
13 R	0.54	10.8	0.00	0.69	0.0	0	2.79	50.6
South: Desde PR-53 y Palmas								
32 L	5.15	59.6	1.00	0.96	12.7	8	15.12	20.0
33 R	0.88	12.2	0.38	0.75	2.7	2	4.48	42.7
East: Desde Humacao								
22 LT	4.92	18.5	0.84	0.75	12.8	7	27.99	42.1
Pedestrians								
14	0.04	14.4	0.68	0.68	0.1	0	0.08	17.9
24	0.04	14.4	0.76	0.76	0.1	0	1.72	1.9

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Total Delay (veh-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Perf. Index	Aver. Speed (km/h)
West: Desde Yabucoa						
428	2.79	23.5	0.576	0.80	12.48	39.5
South: Desde PR-53 y Palmas						
570	6.02	38.0	0.719	0.87	19.60	26.3
East: Desde Humacao						
959	4.92	18.5	0.841	0.75	27.99	42.1
Pedestrians						
24	0.09	14.4	0.720	0.72	1.80	2.5
ALL VEHICLES:						
1957	13.73	25.3	0.747	0.79	60.07	36.5

INTERSECTION:
1979 13.82 25.1 0.747 0.79 61.87 34.8

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Effective Green Times (sec) R1	G1	R2	G2	Arv Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	Queue 95% Back (m)	Shrt Lane (m)
West: Desde Yabucoa													
1 T	12	39	11	0	0	248	293	0.845	32.7	0.88	8.7	6	
2 R	13	3	33	3	11	180	984	0.183	10.8	0.69	0.0	0	
South: Desde PR-53 y Palmas													
1 L	32	37	13	0	0	311	332	0.937	59.6	0.96	12.7	8	
2 R	33	3	13	11	23	259	848	0.305	12.2	0.75	2.7	2	
East: Desde Humacao													
1 L	22	19	17	11	3	501	581	0.862	29.0	0.91	12.8	7	
2 T	22	19	17	3	11	458	753	0.608	7.0	0.57	8.5	5	

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table S.8 - LANE FLOW AND CAPACITY INFORMATION

West: Desde Yabucoa

Effective Lane Use	Mov No.	Arv Flow (veh/h) Lef	Thru	Rig	Tot	Saturation Flow Basic (tcu)	Aver(veh) 1st	2nd	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
* ********** *	12	0	248	0	248	1371	1334	0	0	293	0.845	100
****** * *** *	13	0	0	180	180	1371	1118	1118	0	984	0.183	100

South: Desde PR-53 y Palmas

Effective Lane Use	Mov No.	Arv Flow (veh/h) Lef	Thru	Rig	Tot	Saturation Flow Basic (tcu)	Aver(veh) 1st	2nd	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
* *** * ** *	32	311	0	0	311	1371	1277	0	0	332	0.937	100
****** *	33	0	0	259	259	1371	1138	1200	72*	848	0.305	100

```
      ***
       *
--------------------------------------------------------------------------------
 East: Desde Humacao
                                            Saturation Flow  End  Tot
 Effective              Arv Flow  (veh/h)   ---------------  Cap  Cap   Deg.   Lane
 ~ ne Use        Mov   -----------------  Basic Aver(veh)  (veh  (veh   Satn   Util
                 No.   Lef Thru  Rig  Tot (tcu) 1st    2nd   /h)   /h)    x      %

       *
      ***
       *
******           22   501    0    0  501 1371 1286   2400  144*  581 0.862   100


          *
***********      22     0  458    0  458 1371 1345   1345    0   753 0.608    71
          *                                                                  Prog
--------------------------------------------------------------------------------
   *  Large end capacity has resulted in a saturation flow which is
      larger than the full unopposed saturation flow
  Prog  Lane under-utilisation found by the "Program"
```

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Intersection semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table S.9 - SIGNAL TIMING DIAGRAM

D' layed (Phase) Green Times

```
       Phase A                Phase B                Phase C

0                    16                         36                    50
I--------------------I--------------------------I--------------------I
......GGGGGGGGGGGGGGG.......GGGGGGGGGGGGGGGGGGGGG.......GGGGGGGGGGGGG.
     4                     20                          40
```

Effective (Movement) Green Times

West: Desde Yabucoa

```
Mov.   12 (T)
I                    I                          I                    I
GGG...................................................GGGGGGGGGGG
   3                                                    42

Mov.   13 (R)
I                    I                          I                    I
GGGG....GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG....GGGGGGGGGGGG
   3   6                                            39    42
```

South: Desde PR-53 y Palmas

```
Mc    32 (L)
I                    I                          I                    I
.......GGGGGGGGGGGGGGGGGG.........................................
       6                 19

Mov.   33 (R)
```

```
I                    I                           I                    I
GGGG....GGGGGGGGGGGGGGGGGG...............GGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
   3   6                 19             30


 East: Desde Humacao

M      22 (LT)
I                    I                           I                    I
GGGG.........................GGGGGGGGGGGGGGGGGGGGGGGG....GGGGGGGGGGGG
   3                          22                      39   42


 Pedestrian Movements

Mov.   14
I                    I                           I                    I
.......GGGGGGGGGGGGGGGGG.................................................
      5                17

Mov.   24
I                    I                           I                    I
.......GGGGGGGGGGGGGGGGG.................................................
      5                17


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

                                T I M E  (s)

Centro de Mercadeo - Palmas del Mar                                  * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Ir' tsection No.:     4
                 Cycle Time =  50
```

Table S.12A - FUEL CONSUMPTION, EMISSIONS AND COST - TOTAL

Mov No.	Fuel Total L/h	Cost Total $/h	HC Total kg/h	CO Total kg/h	NOX Total kg/h	CO2 Total kg/h	Lead Total kg/h
West: Desde Yabucoa							
12 T	44.0	96.60	0.125	7.68	0.224	109.7	0.00000
13 R	32.9	64.82	0.078	5.14	0.165	81.9	0.00000
	76.9	161.41	0.203	12.81	0.390	191.6	0.00000
South: Desde PR-53 y Palmas							
32 L	44.9	131.00	0.149	8.29	0.250	112.0	0.00000
33 R	36.0	72.60	0.097	6.70	0.203	89.8	0.00000
	80.9	203.60	0.246	14.99	0.453	201.8	0.00000
East: Desde Humacao							
22 LT	159.1	335.44	0.400	24.03	0.737	397.1	0.00000
	159.1	335.44	0.400	24.03	0.737	397.1	0.00000
Pedestrians							
		0.52					
24		14.23					
		14.75					
ALL VEHICLES:	316.9	700.45	0.849	51.83	1.580	790.1	0.00000

INTERSECTION:	316.9	715.19	0.849	51.83	1.580	790.1	0.00000

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table S.12B - FUEL CONSUMPTION, EMISSIONS AND COST - RATE

Mov No.	Fuel Rate mL/km	Cost Rate c/km	HC Rate g/km	CO Rate g/km	NOX Rate g/km	CO2 Rate g/km	Lead Rate g/km
West: Desde Yabucoa							
12 T	270.4	59.36	0.768	47.16	1.378	674.4	0.00000
13 R	270.7	53.30	0.640	42.26	1.360	673.4	0.00000
	270.5	56.77	0.713	45.07	1.371	674.0	0.00000
South: Desde PR-53 y Palmas							
32 L	301.6	88.03	0.998	55.70	1.679	752.6	0.00000
33 R	292.3	58.94	0.788	54.37	1.646	728.8	0.00000
	297.4	74.86	0.903	55.10	1.664	741.8	0.00000
East: Desde Humacao							
22 LT	248.3	52.37	0.625	37.51	1.151	620.0	0.00000
	248.3	52.37	0.625	37.51	1.151	620.0	0.00000
estrians							
4		46.82					
24		431.23					
		335.13					
ALL VEHICLES:	264.8	58.53	0.709	43.30	1.320	660.2	0.00000
INTERSECTION:	264.8	59.54	0.709	43.30	1.320	660.2	0.00000

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Green Ratio 1st grn	Time (g/C) 2nd grn	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Desde Yabucoa								
12 T		0.220*		248	293	0.845	32.7	D
R		0.660	0.220	180	984	0.183	10.8	A
				428	1277	0.845	23.5	B
South: Desde PR-53 y Palmas								
32 L		0.260*		311	332	0.937*	59.6	D
33 R	(Un2)	0.260	0.460	259	848	0.305	12.2	A

			570	1180	0.937	38.0	C
: Desde Humacao							
LT		0.340* 0.220	959	1113	0.862	18.5	B
			959	1113	0.862	18.5	B
:destrians							
14	(Ped)	0.240	11	4800	0.002	14.4	B
24	(Ped)	0.240	11	4800	0.002	14.4	B
			22	9600	0.002	14.4	B
ALL VEHICLES:			1957	3791	0.937	25.3	B
INTERSECTION:			1979	3791	0.937	25.1	B

Level of Service calculations are based on delay (HCM criteria).
Intersection capacity is calculated considering vehicle movements only.
* Maximum v/c ratio, or critical green periods

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table D.0 - GEOMETRIC DELAY DATA

From Approach	To Approach	Negn Radius (m)	Negn Speed (km/h)	Negn Distance (m)
West: Desde Yabucoa				
	South	10	18	16
	East	S	64	23
South: Desde PR-53 y Palmas				
	West	13	20	20
	East	10	18	16
East: Desde Humacao				
	West	S	64	23
	South	13	20	20

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table D.1 - LANE DELAYS

Lane No.	Mov No.	Deg. Satn x	Delay (seconds/veh) Analytical Model 1st dm1	2nd dm2	Total dm	Acc. Dec. dn	Queu -ing dq	Ratio dm/di	Stopd (Idle) di	Geom dg	Overall d
: Desde Yabucoa											
1 R	12	0.845	18.7	14.0	32.7	10.6	22.1	1.57	20.8	0.0	32.7
2 R	13	0.183	0.0	0.0	0.0	0.0	0.0	0.00	0.0	10.8	10.8
South: Desde PR-53 y Palmas											
1 L	32	0.937	18.1	31.3	49.4	4.9	44.5	1.18	41.9	10.1	59.6

2 R	33	0.305	1.7	0.1	1.7	1.7	1.6	1.11	1.6	10.5	12.2
East: Desde Humacao											
1 L	22	0.862	7.4	11.5	18.9	4.7	15.8	1.30	14.5	10.1	29.0
2 T	22	0.608	5.6	1.3	7.0	7.6	0.2	38.89	0.2	0.0	7.0

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

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table D.2 - LANE STOPS

Lane No.	Mov No.	Deg. Satn x	-- Effective Stop Rate -- he1	he2	Geom. hg	Overall h	Prop. Queued pq	Queue Move-up Rate hqm
West: Desde Yabucoa								
1 T	12	0.845	0.83	0.05	0.00	0.88	0.994	0.36
2 R	13	0.183	0.00	0.00	0.69	0.69	0.000	0.00
South: Desde PR-53 y Palmas								
1 L	32	0.937	0.85	0.11	0.00	0.96	1.000	0.74
2 R	33	0.305	0.32	0.00	0.43	0.75	0.381	0.00
East: Desde Humacao								
1 L	22	0.862	0.83	0.05	0.03	0.91	0.959	0.36
2 T	22	0.608	0.57	0.00	0.00	0.57	0.712	0.00

is average queue move-up rate for all vehicles queued and unqueued

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table D.3 - LANE QUEUES

Lane No.	Mov No.	Deg. Satn x	Ovrfl. Queue No	Average Nb1	Nb2	Nb	Percentile 90%	95%	98%	Queue Stor. Ratio
West: Desde Yabucoa										
1 T	12	0.845	0.4	3.8	0.5	4.3	7.3	8.7	10.0	0.01
2 R	13	0.183	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
South: Desde PR-53 y Palmas										
1 L	32	0.937	1.5	4.9	1.9	6.8	11.1	12.7	14.2	0.03
2 R	33	0.305	0.0	1.1	0.0	1.1	2.2	2.7	3.3	0.01
East: Desde Humacao										
1 L	22	0.862	1.3	5.0	1.9	6.9	11.2	12.8	14.3	0.01
2 T	22	0.608	0.0	4.2	0.0	4.2	7.2	8.5	9.8	0.01

Values printed in this table are back of queue.

entro de Mercadeo - Palmas del Mar * Y906_3 *
nterseccion semaforizada PR-3 y PR-906 - 2020
ntersection No.: 4

Cycle Time = 50

Table D.4 - MOVEMENT SPEEDS (km/h)

Mov No.	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
West: Desde Yabucoa								
12	64.0	64.0	64.0	64.0	6.3		48.4	33.9
13	64.0	18.0	18.0	64.0			50.6	50.6
South: Desde PR-53 y Palmas								
32	64.0	20.0	20.0	64.0	6.6		38.8	20.0
33	64.0	18.0	18.0	64.0			44.4	42.7
East: Desde Humacao								
22	64.0	41.0	41.0	64.0	7.4	5.1	48.6	42.1

Centro de Mercadeo - Palmas del Mar * Y906_3 *
Interseccion semaforizada PR-3 y PR-906 - 2020
Intersection No.: 4
Cycle Time = 50

Table D.5 - PROGRESSION FACTORS & ACTUATED SIGNAL PARAMETERS

Mov No.	Control	Coord.	Arrival Type	Delay Prog. Factor	Queue Prog. Factor	Disp. Grn. Settings 1st Grn Gmin	1st Grn Gmax	2nd Grn Gmin	2nd Grn Gmax
West: Desde Yabucoa									
12	PT	Yes	4	1.000	0.981	6	NA		
13	PT	Yes	4	0.000	0.000	6	NA	6	NA
South: Desde PR-53 y Palmas									
32	PT	No	3	1.000	1.000	6	NA		
33	PT	No	3	1.000	1.000	6	NA	6	NA
East: Desde Humacao									
22	PT	No	3	1.000	1.000	6	NA	6	NA
Pedestrians									
14	PT	Yes	4	1.000	0.895				
24	PT	No	3	1.000	1.000				

--- End of SIDRA Output ---

ANEJO NUM. 10

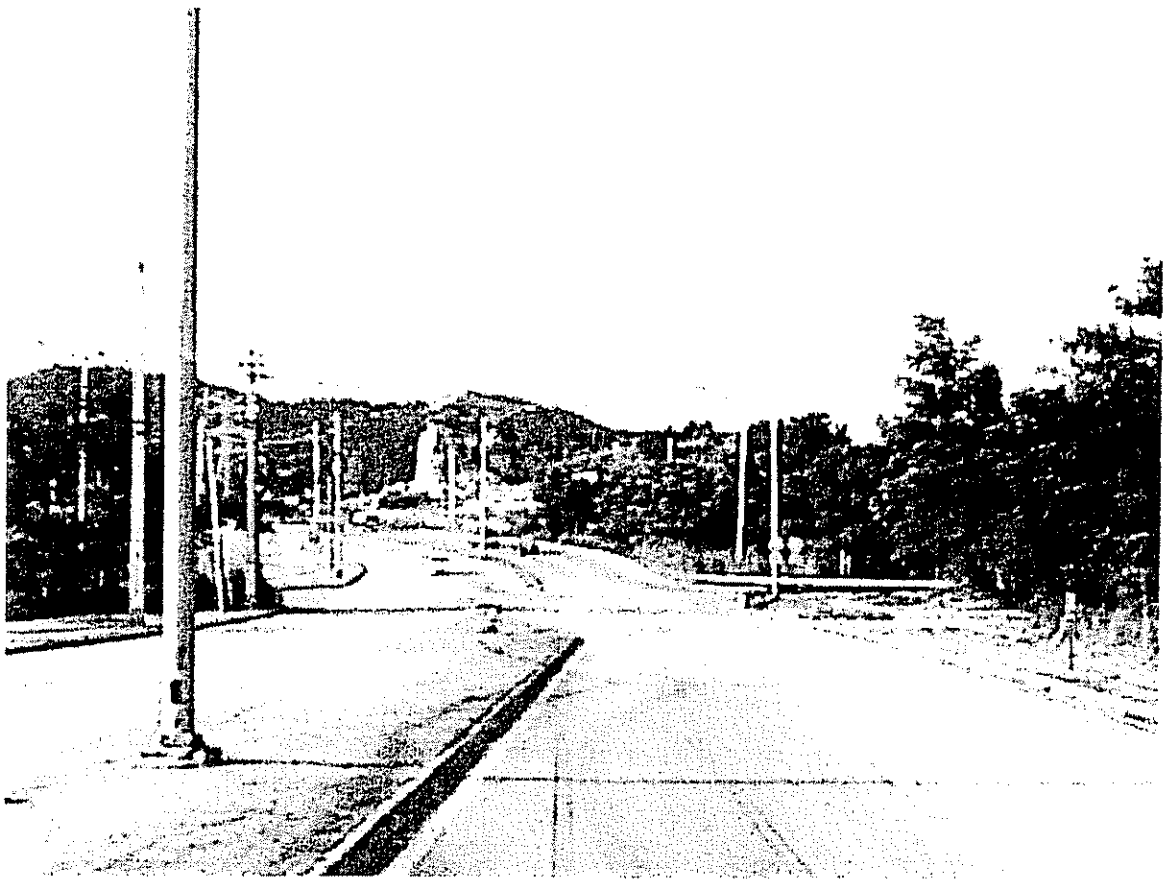


Foto Num. 1 – PR-906 en dirección norte antes de intersección con PR-923. Se muestra en la foto las facilidades del acceso existente que se propone para el centro comercial, entrada norte a la izquierda.

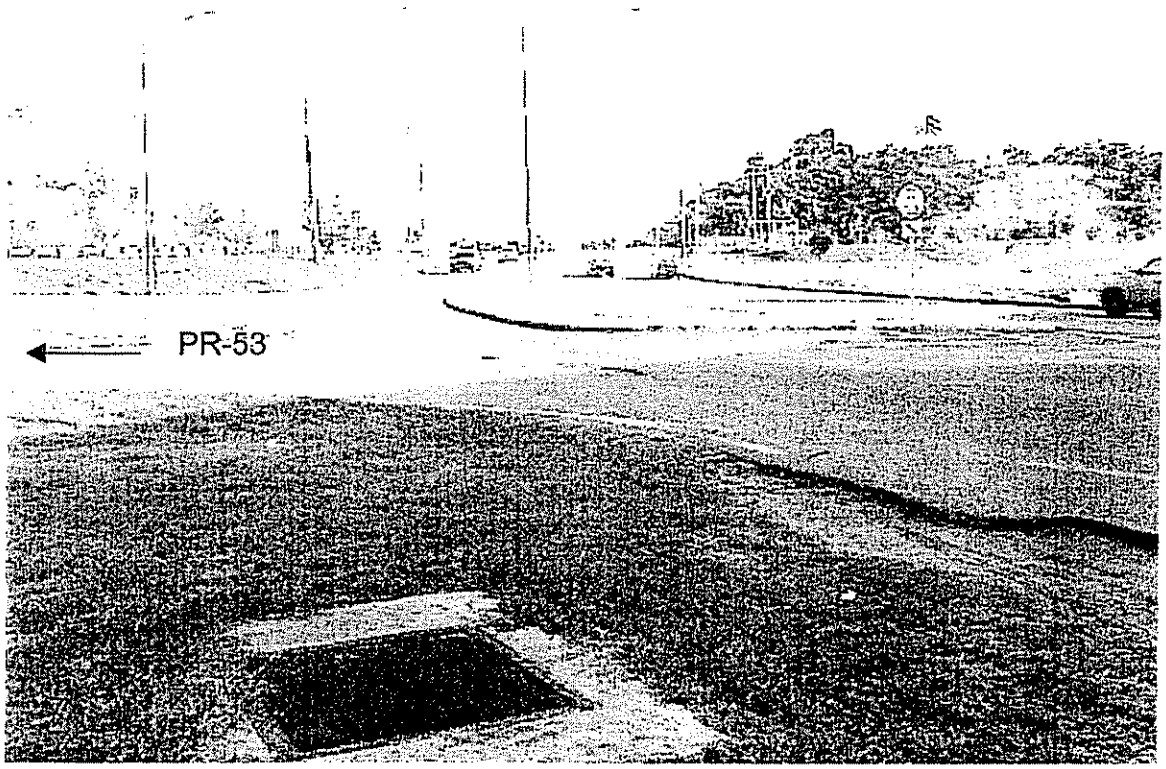


Foto Num. 2 – PR-906 en dirección sur, se muestra la entrada hacia la rampa de la PR-53 Humacao desde la PR-906. El ancho de la mediana en este tramo se ensancho para proveer protección a los vehículos de la PR-906 en dirección norte.

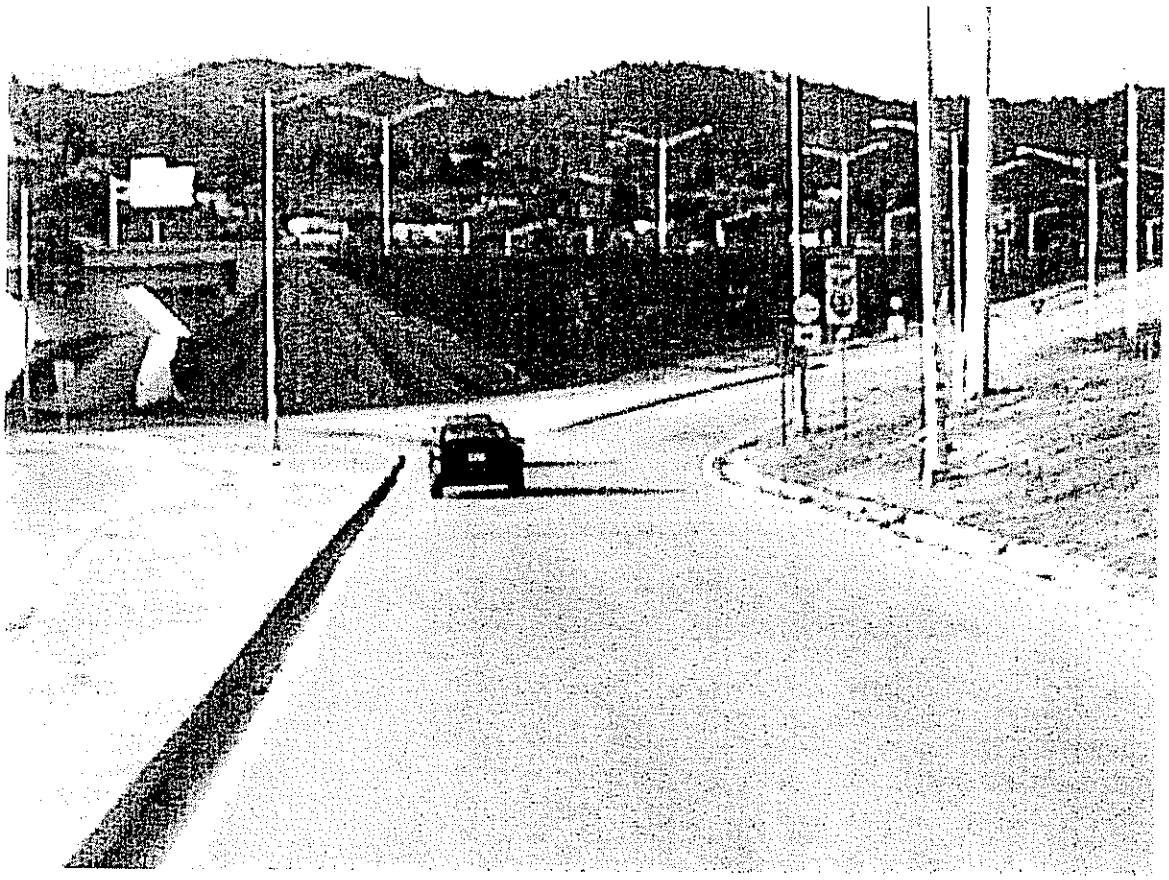


Foto Num. 3 – PR-906 en dirección norte, se muestran la entrada derecha hacia la rampa de la PR-53 Humacao desde la PR-906.

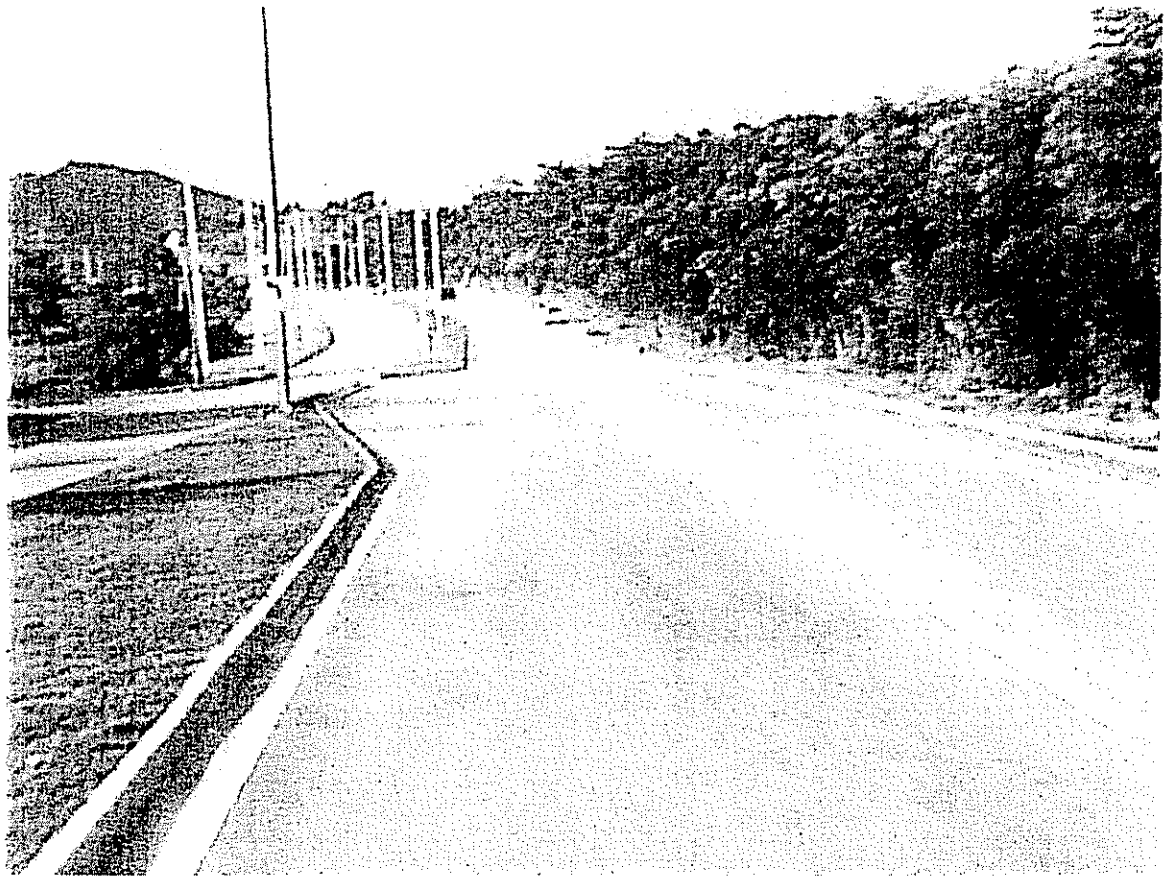


Foto Num. 4 – PR-906 en dirección norte antes de intersección con PR-923. Se muestra en la foto las facilidades del acceso existente que se propone para el centro comercial, entrada sur a la izquierda.

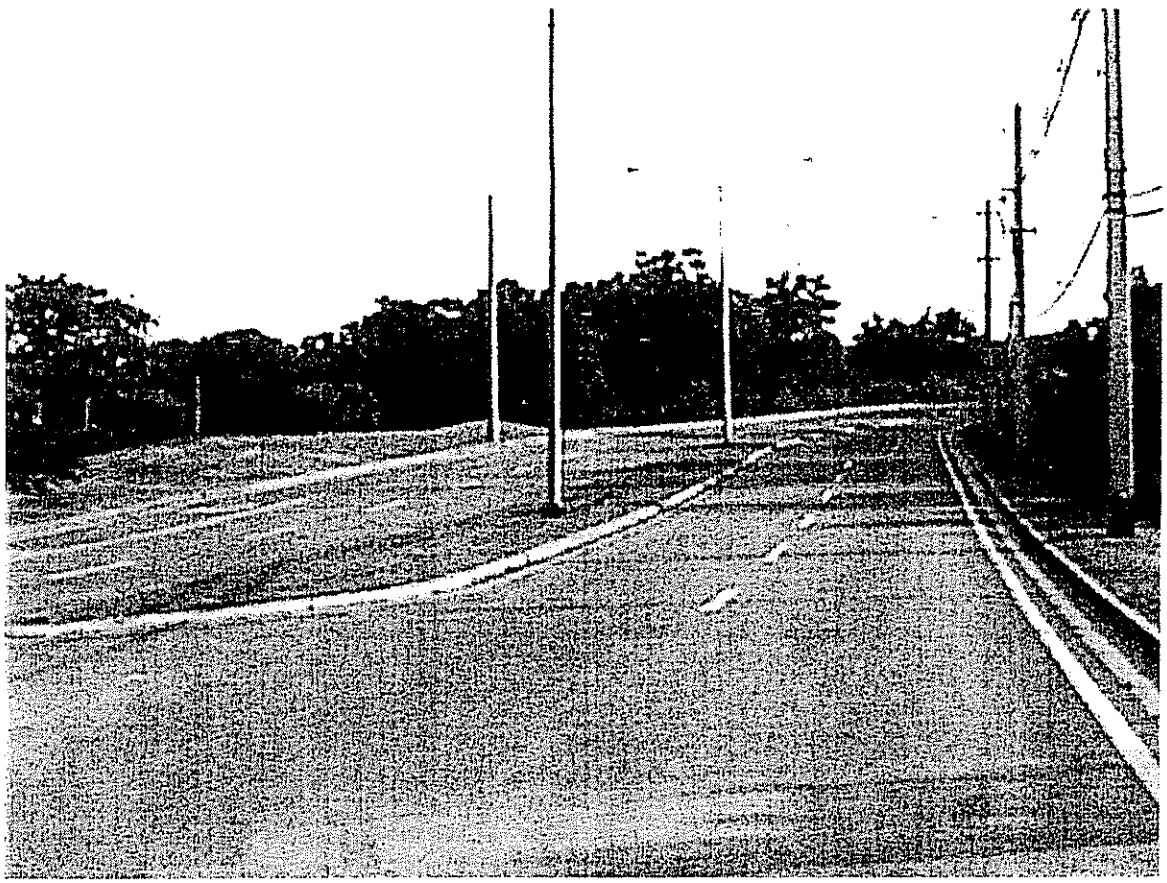


Foto Num. 5 – PR-906 en dirección sur hacia Barrio Candelero. La sección de cuatro carriles con mediana hace una transición a dos carriles en la curva.

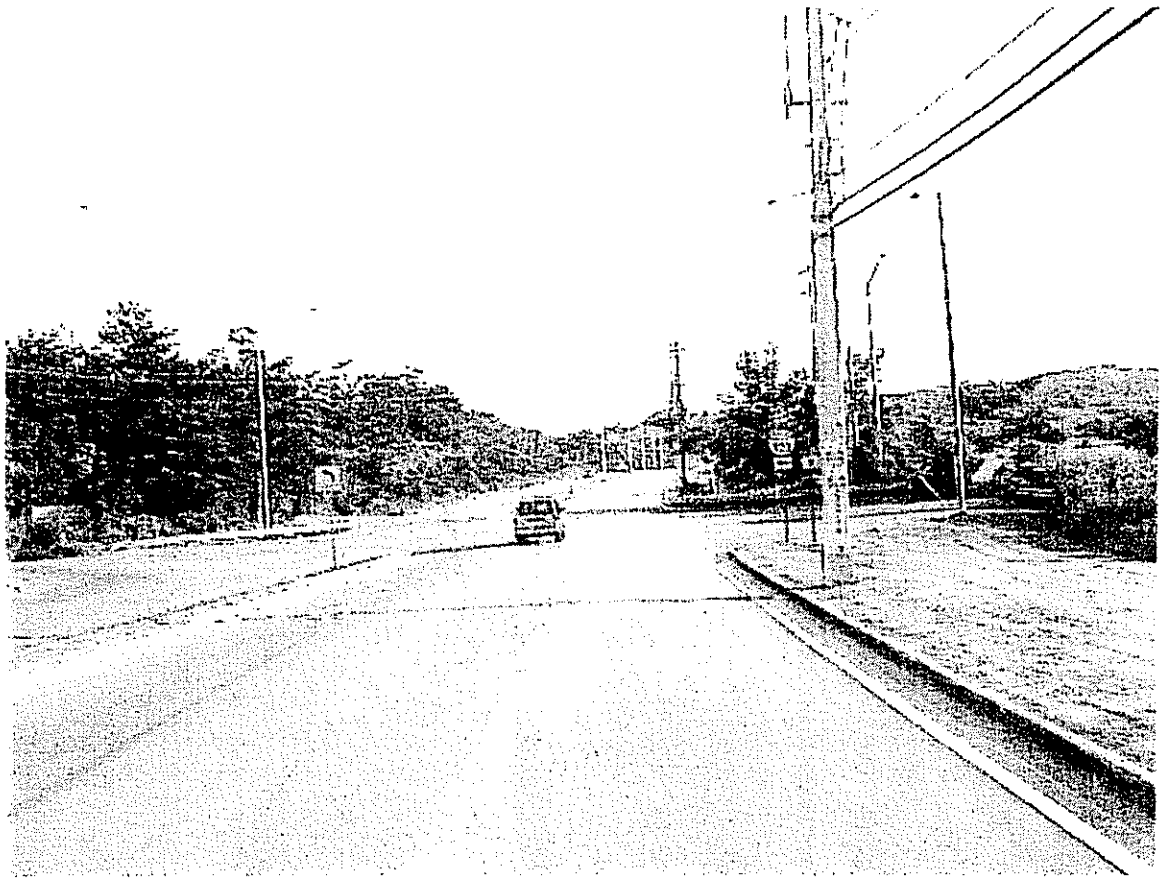


Foto Num. 6 – PR-906 en dirección sur antes de intersección con PR-923. Se muestran en las fotos las facilidades del acceso existente que se propone para el centro comercial, entrada norte hacia la derecha y el solo a la izquierda PR-923 Barrio Buena Vista .

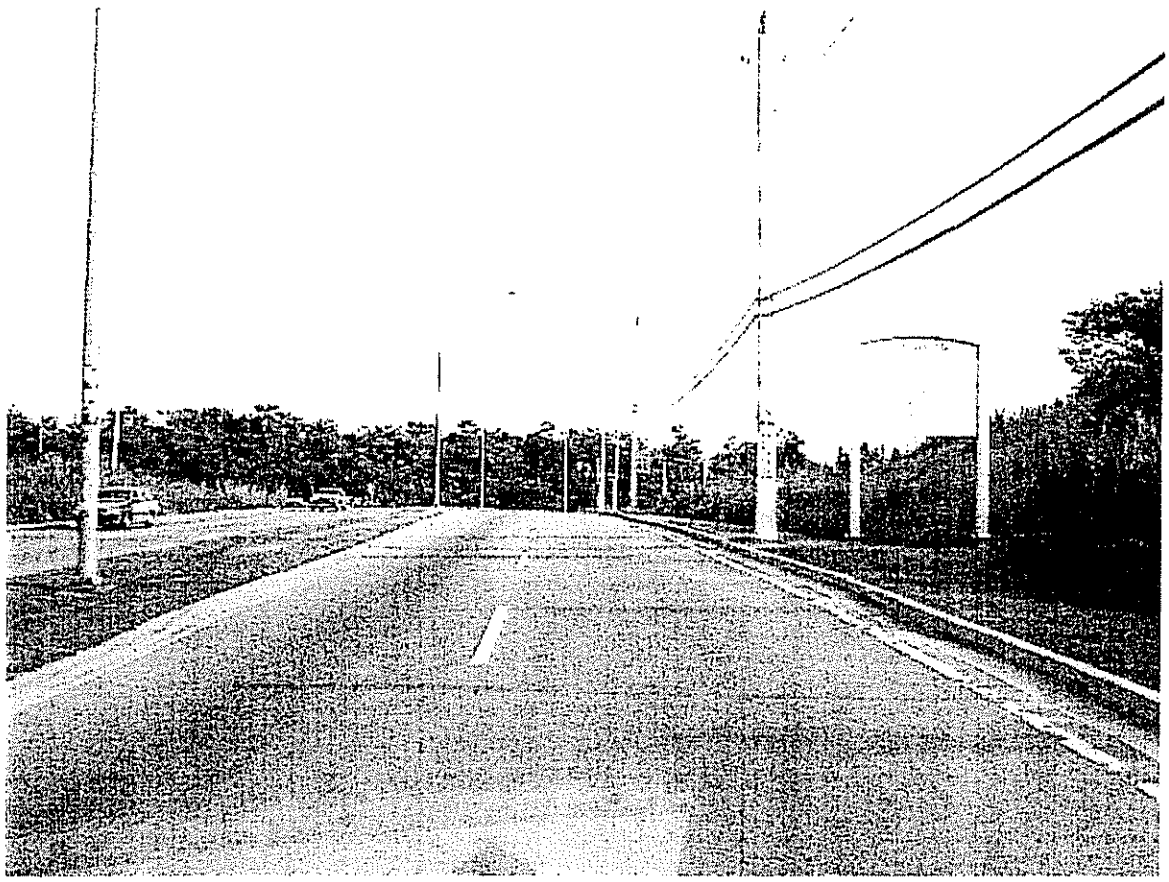


Foto Num. 7 – PR-906 en dirección sur antes de intersección con PR-923. A la izquierda se aprecian parte de los terrenos del futuro centro comercial.

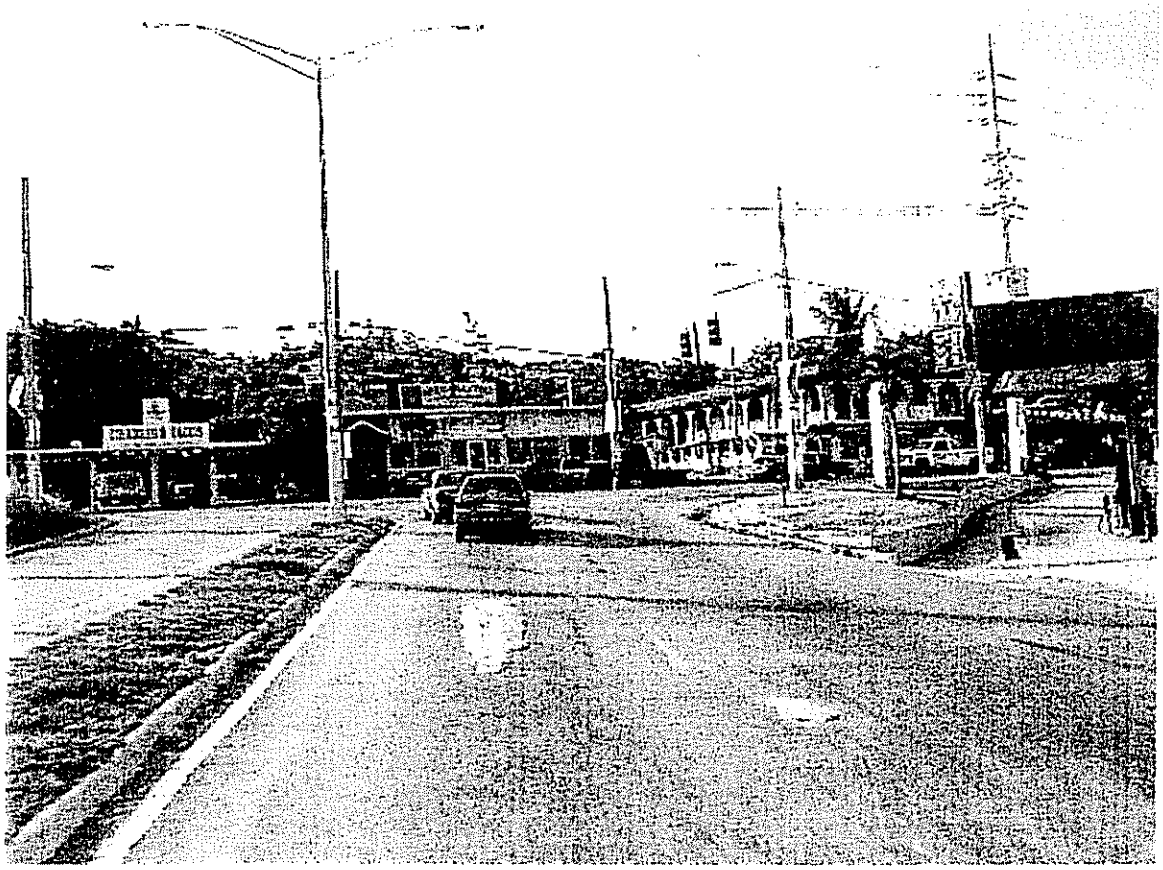


Foto Num. 8 – PR-906 en dirección norte antes de intersección con PR-3. Se muestran en las fotos las facilidades existentes de virajes a la izquierda y derecha y el semáforo.

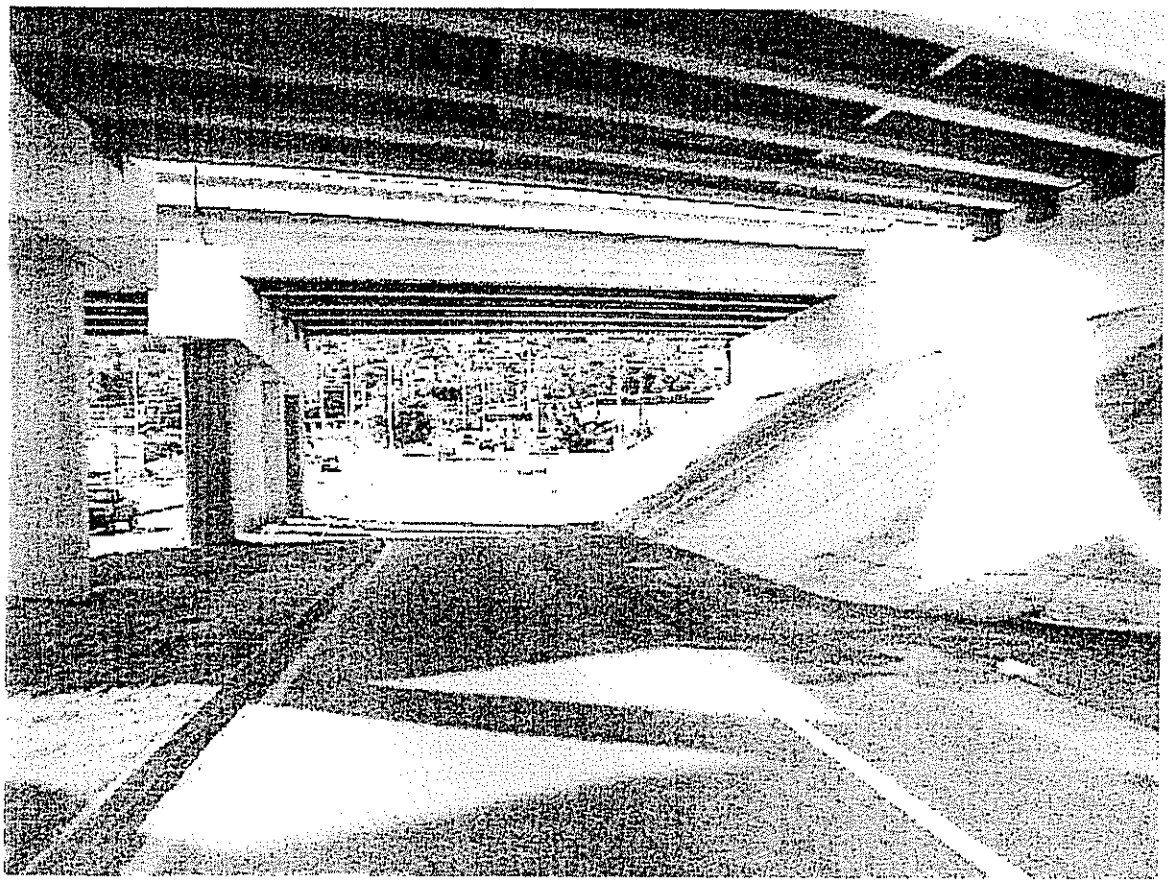


Foto Num. 9 – PR-906 en dirección norte antes de intersección con PR-3. Se muestran en las fotos las facilidades existentes con su paseo y viraje a la izquierda.

Foto Num. 11 – PR-906 en dirección sur antes de intersección con rampas de PR-53 hacia Yabucoa.

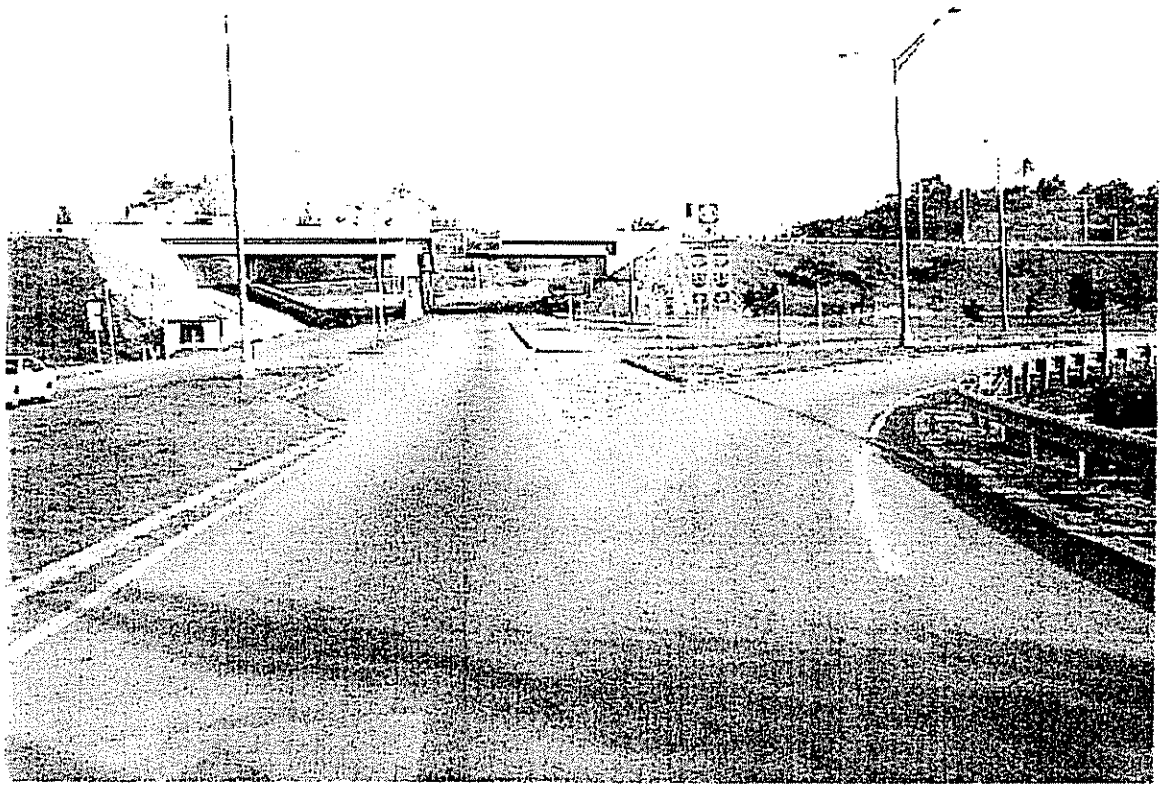


Foto Num. 12 – PR-906 en dirección sur antes de intersección con PR-53 y sus rampas.

Foto Num. 13 – PR-906 en dirección sur en su intersección con la PR-53.

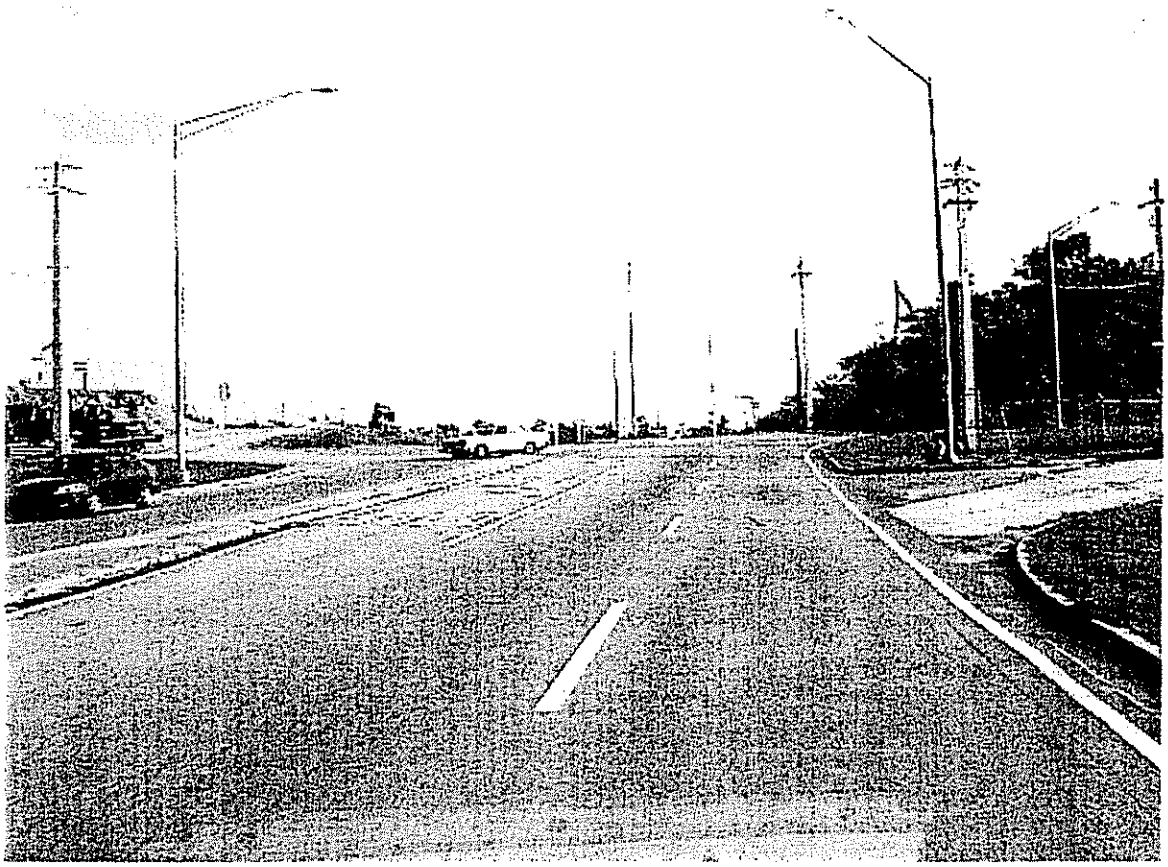


Foto Num. 14 – PR-906 en dirección norte antes de intersección con la rampa de la PR-53 y la entrada futura de Tierra del Sol, a la izquierda. Se muestra en las fotos las facilidades existentes de viraje a la izquierda.

CMA

ARCHITECTS &
ENGINEERS LLP

CERTIFICACION

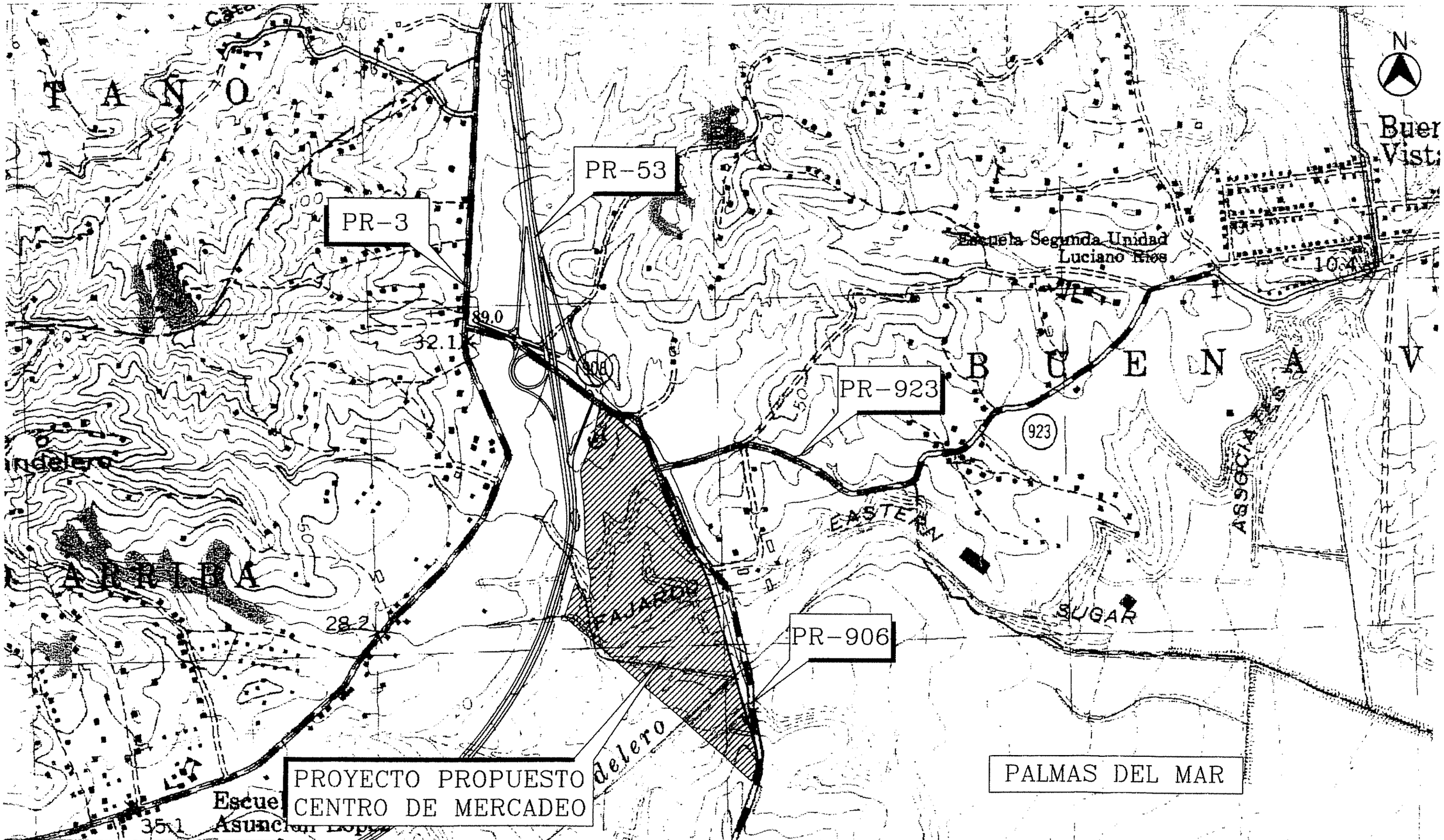
Yo, Jordi Bofill, ingeniero, licencia número 8325, certifico que bajo mi supervisión se ha preparado el *Estudio de Tránsito, Centro de Mercadeo PR-906,* fechado Diciembre 2000, para el proyecto objeto de la Consulta Número 2000-51-0876-JPU.

Con relación al proyecto objeto de la consulta antes indicada y su correspondiente estudio certifico que:

1. Toda la información vertida en el documento es cierta, correcta y completa a mi mayor saber y entender.
2. Afirmo y reconozco las consecuencias de incluir y someter información incompleta, inconclusa o falsa en dicho documento.

Y para que así conste, firmo la presente certificación en San Juan, Puerto Rico, hoy 28 de febrero de 2001.

JORDI BOFILL
INGENIERO
LICENCIADO
LIC. #08325
Jordi Bofill
12 AGO 2003
PUERTO RICO



CMA
ARCHITECTS & ENGINEERS LLP
1509 F D Roosevelt Ave.
San Juan Puerto Rico 00968
787-792-1509
Fax 787-782-0687
E-mail: cma@sjpr.com

PALMAS DEL MAR

GJ
GARCIA JOGLAR
ARTURO J. GARCIA, AIA
JOSE C. JOGLAR NUARES, AIA
IVAN H. DIAZ, AIA

ESTUDIO DE TRANSITO PR-906
PALMAS DEL MAR

HUMACAO PUERTO RICO

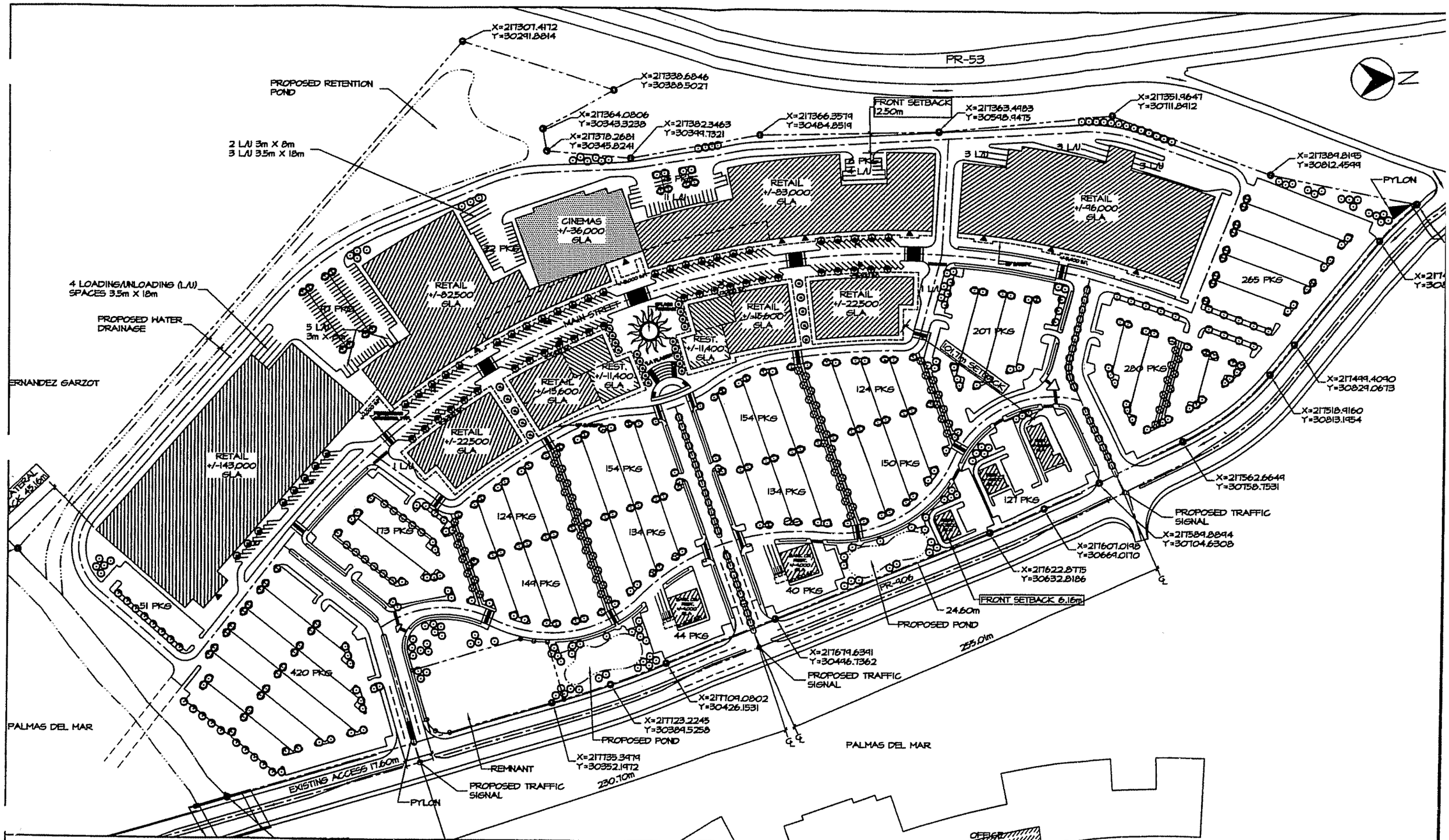
CMA No. 00237

DATE: 14-16 NOV 2000

SCALE: 1:10,000

MAPA DE LOCALIZACION
PROYECTO PROPUESTO

FIGURA 1



CMA ARCHITECTS & ENGINEERS LLP
1509 F.D. Roosevelt Ave.
San Juan Puerto Rico 00968
787-792-1509
Fax 787-782-0687
E-mail: cma@sjpr.com

PALMAS DEL MAR

GJ GARCIA JOGLAR ARCHITECTS PSC
ARTURO J. GARCIA, AIA
JOSE C. JOGLAR, NCARB, AIA
IVAN H. DIAZ, AIA

ESTUDIO DE TRANSITO PR-906
PALMAS DEL MAR

HUMACAO PUERTO RICO

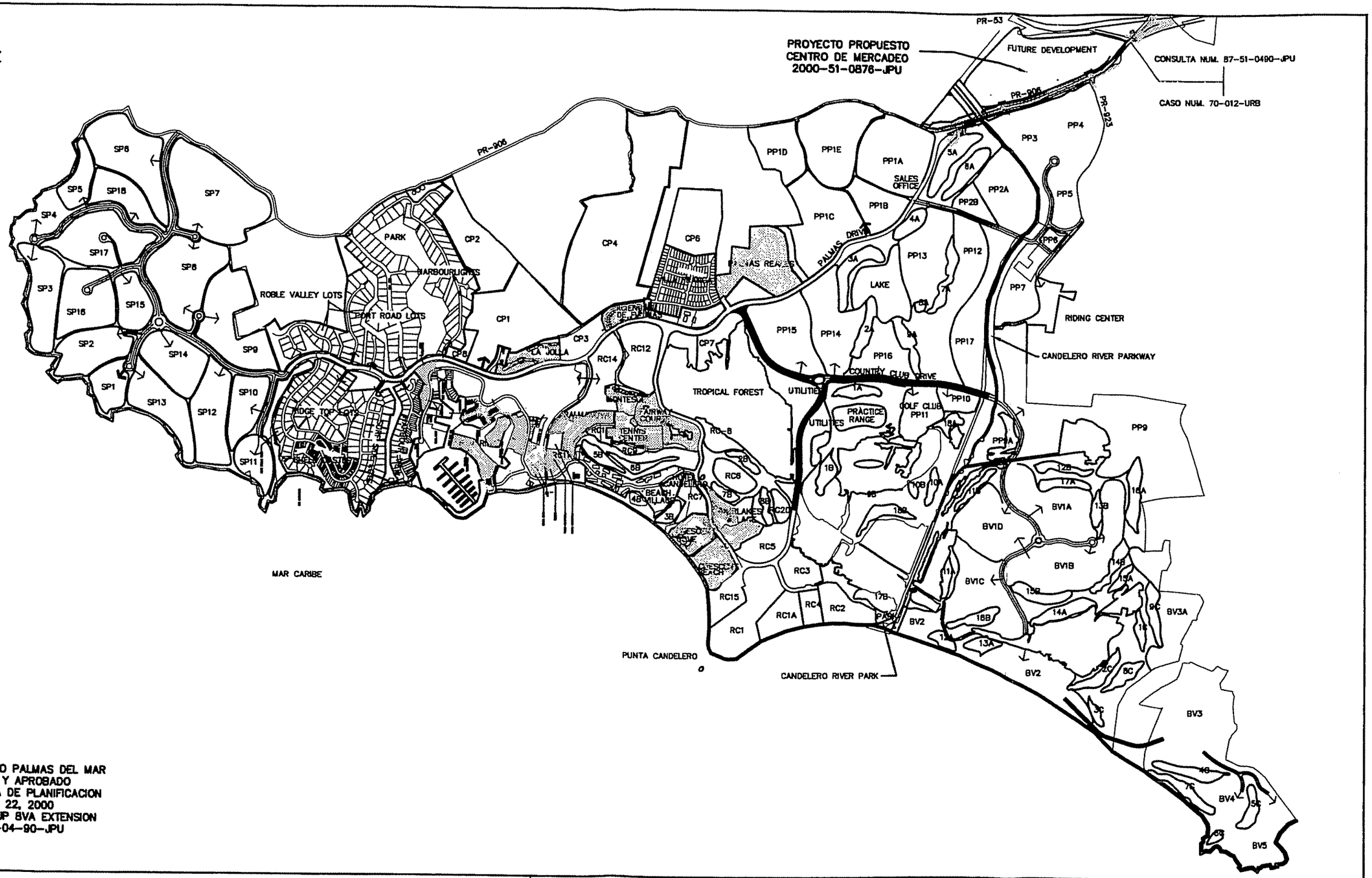
CMA No. 00237

DATE: 14-16 NOV 2000

SCALE: NOT TO SCALE

PROYECTO PROPUESTO CENTRO DE MERCADEO

FIGURA 2



PLANO MAESTRO PALMAS DEL MAR
REVISADO Y APROBADO
POR LA JUNTA DE PLANIFICACION
MAYO 22, 2000
RESOLUCION JP 8VA EXTENSION
87-51-04-90-JPU

CMA ARCHITECTS & ENGINEERS LLP
1509 F.D. Roosevelt Ave.
San Juan Puerto Rico 00968
787-792-1509
Fax 787-782-0687
E-mail: cma@sjpr.com

PALMAS DEL MAR

GJ GARCIA JOGLAR ARCHITECTS PSC
ARTURO J. GARCIA, AIA
JOSE C. JOGLAR, NCARB, AIA
IVAN H. DIAZ, AIA

ESTUDIO DE TRANSITO PR-906
PALMAS DEL MAR

HUMACAO PUERTO RICO

CMA No. 00237
DATE: 14-16 NOV 2000
SCALE: NOT TO SCALE

PLAN MAESTRO
PALMAS DEL MAR

FIGURA 3

PR-906 HACIA BARRIO CANDELERO ABAJO

SEGMENTO NUM. 1

LINEA DE PAREO

A

A

COMIENZA ESTUDIO

INTERSECCION PR-906 & PDM

ACCESO EXISTENTE

ENTRADA PRINCIPAL PALMAS DEL MAR

PUENTE PR-906 RIO CANDELERO

LIMITE DE ESTUDIO

EDIFICIO DE SEGURIDAD

PROPIEDAD DE PALMAS DEL MAR

PALMAS DRIVE

RAMPA PR-53 DESDE YABUCOA

HACIA YABUCOA

HACIA YABUCOA

LIMITE DE ESTUDIO

LINEA DE PAREO

A

ACCESO EXISTENTE

AUTOPISTA PR-53

LIMITE DE ESTUDIO

INTERSECCION PR-906 & PR-3 (SEMAFORO)

SEGMENTO NUM. 5

TERMINA ESTUDIO

SEGMENTO NUM. 2

SEGMENTO NUM. 4

SEGMENTO NUM. 3

LIMITE DE ESTUDIO

A

PR-3

PR-923

INTERSECCION PR-906 & PR-923

LIMITE DE ESTUDIO

INTERSECCION RAMPA PR-53 TIERRA DEL SOL

LIMITE DE ESTUDIO

LIMITE DE ESTUDIO

HACIA HUMACAO

PR-923 HACIA BUENA VISTA ENTRADA SECUNDARIA DE PDM

DESARROLLO RESIDENCIAL TIERRA DEL SOL (EN CONSTRUCCION)

CARRETERA HACIA BUENA VISTA

HACIA HUMACAO

RAMPA PR-53 DESDE HUMACAO

CMA ARCHITECTS & ENGINEERS LLP

1509 F.D. Roosevelt Ave.
San Juan Puerto Rico 00968
787-792-1509
Fax 787-782-0687
E-mail: cma@sjpr.com

PALMAS DEL MAR

GJ GARCIA JOGLAR ARCHITECTS PSC

ARTURO J. GARCIA, AIA
JOSE G. JOGLAR, RICARD, AIA
IVAN H. DIAZ, AIA

ESTUDIO DE TRANSITO PR-906 PALMAS DEL MAR

HUMACAO PUERTO RICO

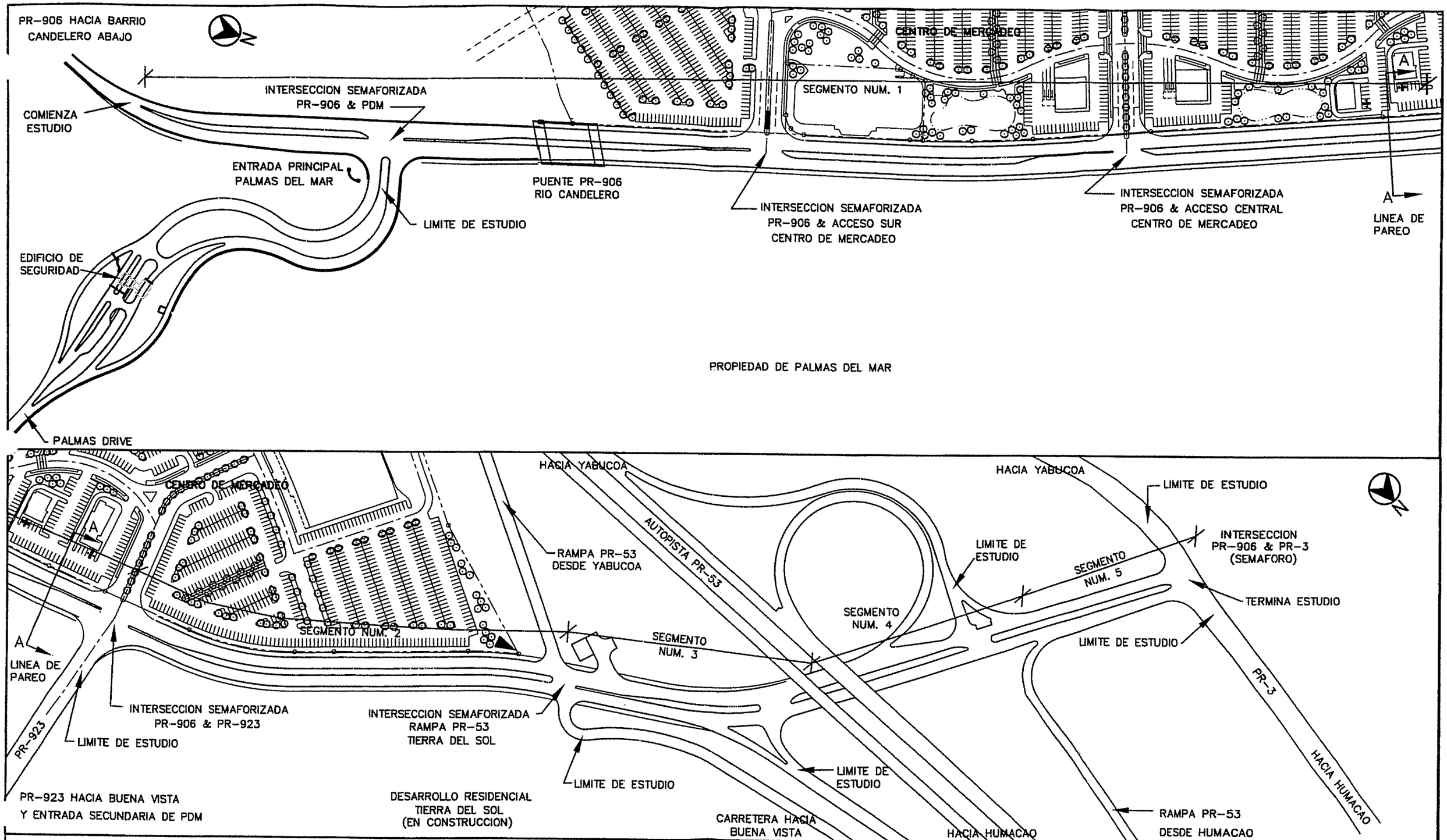
CMA No. 00237

DATE: 14-16 NOV 2000

SCALE: NOT TO SCALE

CONDICIONES EXISTENTES(2000) PR-906 (DESDE PDM - PR-3)

FIGURA 4



CMA ARCHITECTS & ENGINEERS LLP
1509 F.D. Roosevelt Ave.
San Juan Puerto Rico 00968
787-792-1509
Fax 787-782-0687
E-mail: cma@sjpr.com

PALMAS DEL MAR

GJ GARCIA JOGLAR ARCHITECTS PSC
ARTURO J. GARCIA, AIA
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IVAN H. DIAZ, AIA

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DATE: 14-16 NOV 2000

SCALE: NOT TO SCALE

CONDICIONES FUTURAS (2000) PR-906 (DESDE PDM - PR-3)

FIGURA 5