



June 30, 1988

Mr. Elinson Acosta
Director, Planning Division
ODECO
Municipality of Mayaguez
Mayaguez, Puerto Rico

ATT: Ms. Nitza Soto

Re: "Study and Evaluation of Public Transportation Service and Improvement Plan for the Mayaguez Metropolitan Area, PR-90-X019, Task #275."

Pursuant to the specifications of the referenced project, we hereby submit this Progress Report #1 for your review and information. This report presents a general review of the work realized up to May 31, 1988.

TASK 1: DATA COLLECTION

This task has included the following:

A. Route Inventory

Table 1 presents a general inventory of the existing publico-car routes serving the Mayaguez (municipal) areas. The information shown in Table 1 presents two values for the number of vehicles authorized for the routes. The PSC column indicates the number of operators authorized by the Public Service Commission; whereas, the second column (field) is the number of vehicles operated on the route as specified by the operators themselves. In many cases, these values do not match. This is due to one of two basic reasons. First, some of the PSC data sources are several years in arrears and thus may not reflect the actual values. Second, the field values may be affected due to internal route problems and/or unauthorized inclusion of operators and/or additional vehicles.



The inventory information included information such as number and types of vehicles, fares by sectors, operating periods, internal route operations, terminal location, etc. Appendix A presents a sample of the inventory form.

There are an estimated 865 publico-cars in 26 routes serving Mayaguez at the present time (1988). The Mayaguez Urbano route accounts for about 45% of the total vehicles.

B. Route Volumes Surveys

These surveys consisted of a series of field work that included publico-car vehicle and passenger counts at various selected points, route vehicle travel time and passenger interviews.

1. Publico-car counts

This work involved a series of 12 hour continuous counts at selected points within the general study area. Because of the magnitude of the area, the counts were made along two cordon lines. At these points/streets (where the majority of the publico-cars travelled), information was gathered concerning each publico-car with respect to time, number of passengers, direction of travel, and route.

Table 2 presents the summary of counts at the seven (7) peripheral stations. These corresponded to the main urban limits of the Municipality of Mayaguez. The total number of passengers and vehicles entering and leaving Mayaguez was 4,915 and 2,432, respectively, with an average occupancy of 2.02.

Table 3 presents the summary of counts at stations surrounding the main CBD sector. As shown in the table, the total number of publicos and passengers entering and leaving the central area was 7,266 and 12,663, respectively.

In terms of publico-car vehicles, between the peripheral and inner CBD stations there was a difference of 4,834 vehicles. In terms of passengers, however, the difference proved to be around 7,748.

A special count on PR-2 near the Medical Center yield a total publico volume of 813 vehicles and 1,996 passenger (an occupancy of 2.45).



It is estimated that about 10% to 12% of the publico-cars recorded at the peripheral stations along PR-2 are actually through routes or unrelated service (off-duty). Taking this into account we can estimate that approximately 400 vehicles (publicos) pass daily through Mayaguez or are not on duty at the time.

2. Route Surveys

An additional service related survey conducted in Mayaguez was a special limited on-board survey. In this case, selected routes were sampled and the number of passengers boarding or leaving the vehicle during a run were recorded. For example, the Miradero route was sampled wherein each passenger boarding or leaving was recorded and the travel time of the vehicle between typical stops or other points of delays were observed. The preliminary results yield an estimated load factor of 8.8 passengers per trip (round-trip).

3. User Survey

Another survey dealt with the publico-car users. Utilizing a special questionnaire, almost 200 users were surveyed in various points of the Study Area, including the CBD, Medical Center, UPR, etc. Table B-1 through B-7 in Appendix B presents a partial preliminary summary of the results (limited number of questions represented).

4. Other

The field work also included some limited traffic counts at selected segments of the CBD streets. Although, the data reduction is still being made, preliminary results indicate that the publicos make up between 5% and 15% of the total traffic.

TASK 2 - EVALUATION OF DATA AND IDENTIFICATION OF PROBLEMS

This task has been initiated and it deals with the evaluation of the data obtained in Task 1. The nature of the field surveys permitted the obtainment of data by route. The following is an example of the information derived from the data.



ROUTE	NUMBER OF VEHICLE TRIPS	PASSENGERS	OCCUPANCY	FREQUENCY (MINUTES)	MAXIMUM ACCUMULATION
ROSARIO	162	624	3.85	8.5	12
LIMON Y MONTOSO	24	82	3.41	48.18	5
NARANJALES	20	83	4.15	64.44	5
HORMIGUEROS	72	236	3.27	22.07	9

The preceding is being determined for all of the routes serving Mayaguez. This information, combined with that obtained from the inventory survey, is being used to determine other factors such as route passenger volumes and operating costs.

Some of the basic problems that have been identified include:

1. The under-utilization of the existing terminal facility.
2. The possible need of small terminals in the Buena Vista and Balboa/Cuevas sectors.
3. Traffic congestion especially in the CBD and along Post Street from PR-114 in the south to the Yaguez River.
4. The very acute problem of the Mayaguez Urbano Route which operates more like a taxi service. This route accounts for 45% of Mayaguez publicos but yet has no fixed routes. This leads to uncoordinated and confusing service and often conflicting with other routes with fixed routes. The Public Service Commission is currently trying to establish fixed routes to reorganize this route.



5. Some routes are not well serviced due to emphasis on providing short distance service to areas such as the canneries in Bo. Mani, the Medical Center, and Mayaguez Mall to the detriment of residents in more distant areas.
6. Lack of adequate control of non-authorized publico operators.

TASK 3 EXISTING POLICY

Work in this task was initiated with a review of the existing policies affecting public transit service in the area. On the upper governmental level (state and federal), there is presently much emphasis being placed upon private enterprise in the public transit sector. In this case, the publico operators fill the definition to the letter. These operators are not subsidized by the government except indirectly by the provision of publico-car terminal buildings. This, however, has its drawbacks with respect to service (operating periods and frequencies) since the operators will serve only those sectors and during those times considered profitable. As previously mentioned, the Urbano route is currently being reorganized, albeit slowly, to establish separate routes and thus remedy a critical operational situation.

On the municipal level, efforts are being made to provide adequate terminal facilities not only to benefit the operators but also the users. This also includes bus/passenger shelters in the area. However, a reconsideration of the manner for the assignation of routes to the main terminal and improvements to curbside terminals should be reviewed.

If there are any questions concerning this progress report and/or invoice, please do not hesitate to contact us.

Cordially

José L. Rodríguez
Transportation Engineer



TABLE 1
GENERAL INVENTORY OF
MAYAGUEZ PUBLICO-CAR ROUTES

<u>Route</u>	<u>PSC</u>	<u>Field</u>
Aguada	4	4
Aguadilla	30	32
Añasco	N/A	32
Barrio Quemao	9	10
Cabo Rojo	7	36
Hormigueros	26	41
Lajas	30	32
Las Marías	18	20
Las Mesas	33	33
Limón y Montoso	4	16
Maní	22	22
Maricao	N/A	15
Maricao, Bo. Bartolo	1	1
Mayaguez Mall	26	26
Miradero y Leguisamo	18	15
Naranjales	3	5
Parcelas Castillos		
Ponce	9	24
Quebrada Grande	29	16
Rincón	18	18
Río Cañas	3	5
Río Piedras	12	12
Rosario	16	21
Sabana Grande	29	16
San Juan	24	18
Tres Hermanos	4	5
Urbano	N/A	390
Total (minimum)		865



TABLE 2
SUMMARY OF PERIPHERAL
COUNT STATIONS

STATION	PUBLICOS	PASSENGERS	OCCUPANCY
P-1-IN PR-2 ALTURAS DE MAYAGUEZ	219	652	2.97
P-1-OUT	180	611	3.39
P-2-IN PR-2 MAYAGUEZ MALL	562	838	1.49
P-2-OUT	262	519	1.98
P-3-IN PR-108 MIRADERO	76	199	2.61
P-3-OUT	60	178	2.96
P-4-IN PR-102 JOYUDA	92	105	1.14
P-4-OUT	95	63	0.66
P-5-IN PR-348 ROSARIO	141	366	2.59
P-5 OUT	162	482	2.97
P-6-IN PR-105 MARICAO	88	82	0.93
P-6-OUT	89	130	1.46
P-7-IN PR-106 LAS MARIAS	177	268	1.51
P-7-OUT	229	422	1.84
TOTALS INBOUND	1,355	2,510	1.85
TOTALS OUTBOUND	<u>1,077</u>	<u>2,405</u>	<u>2.23</u>
	2,432	4,915	2.02



TABLE 3

SUMMARY OF OUTER CORDON STATIONS
PUBLICO PASSENGERS AND VEHICLES

<u>Station</u>	<u>Location Description and Direction</u>	<u>Total publicos</u>	<u>Total Passengers</u>	<u>Average Occupancy</u>
1	Post Street, North Inbound	380	552	1.45
2	Dr. Basora, North Outbound	451	1230	2.73
3	PR-108, Luna Street Inbound	129	147	1.14
4	PR-108, Luna Street Outbound	140	269	1.92
5	Sector Balboa, Inbound	517	726	1.40
6	Sector Balboa, Outbound	494	870	1.76
7	San Rafael and Oriente Streets, Inbound	307	382	1.24
8	San Rafael and Oriente Streets, Outbound	337	457	1.36
9	San Rafael and Liceo Streets, Inbound	104	127	1.22
10	San Rafael and Liceo Streets, Outbound	97	59	0.61
11	Post Street, South Inbound	815	1769	2.17
12	Post Street, South Outbound	810	2090	2.58
13	Casals and San Vicente Streets, Outbound	911	1257	1.38
14	McKinley Street, Inbound	978	1435	1.47
15	Mendez Vigo Street, Outbound	796	1293	1.62
Total all stations, Inbound		3230	5138	1.59
Total all stations, Outbound		4036	7525	1.86
		<u>7,266</u>	<u>12,663</u>	<u>1.74</u>

APPENDIX A
SAMPLE INVENTORY FORM

APPENDIX B

**PRELIMINARY SAMPLE RESULTS
USER SURVEY**

TABLE B-1
 TRIP PURPOSE
 (N=100)

PURPOSE	PERCENT (%)
WORK	10
SHOP	28
SCHOOL	16
GOVERNMENT AGENCIES	5
MEDICAL	12
OTHER	29

TABLE B-2
 TYPICAL WALK TIME TO
 PUBLICO STOP/TERMINAL

	PERCENT (%)
LESS THAN 10 MINUTES	55
11 - 20 MINUTES	25
21 - 30 MINUTES	3
MORE THAN 30 MINUTES	3
DO NOT WALK TO STOP	14

TABLE B-3
TYPICAL WAIT TIME AT
STOP/TERMINAL

	PERCENT (%)
LESS THAN 5 MINUTES	8
6 - 10 MINUTES	3
11 - 15 MINUTES	12
16 - 20 MINUTES	16
21 - 30 MINUTES	25
30 - 60 MINUTES	21
MORE THAN ONE HOUR	15

TABLE B-4
TYPICAL WALK TIME
TO FINAL DESTINATION

	PERCENT (%)
WALK LESS THAN 10 MINUTES	52
11 - 20 MINUTES	20
21 - 30 MINUTES	4
MORE THAN 30 MINUTES	1
OTHER	23

TABLE B-5
REASONS FOR USING PUBLIC TRANSIT

	PERCENT (%)
DO NOT HAVE AUTO	63
NO LICENSE	34
MORE ECONOMICAL	3

TABLE B-6
OPINION CONCERNING
PUBLIC TRANSPORTATION SERVICE
IN MAYAGUEZ

	PERCENT (%)
EXCELLENT	6
GOOD	48
ACCEPTABLE	24
DEFICIENT	13
BAD/POOR	19

TABLE B-7

OPINIONS ABOUT GENERAL ACTIONS
FOR IMPROVING PUBLIC TRANSIT

	PERCENT (%)
IMPROVE SERVICE AND ROUTES	27
IMPROVE VEHICLES, MORE CAPACITY	22
INCREASE NUMBER OF VEHICLES	4
PROVIDE MORE OF AND/ OR IMPROVED TERMINALS	10
OTHER	13
NO RESPONSE	24