



# TREN URBANO

## A LIVABLE COMMUNITY PLANNING AGENDA FOR TREN URBANO

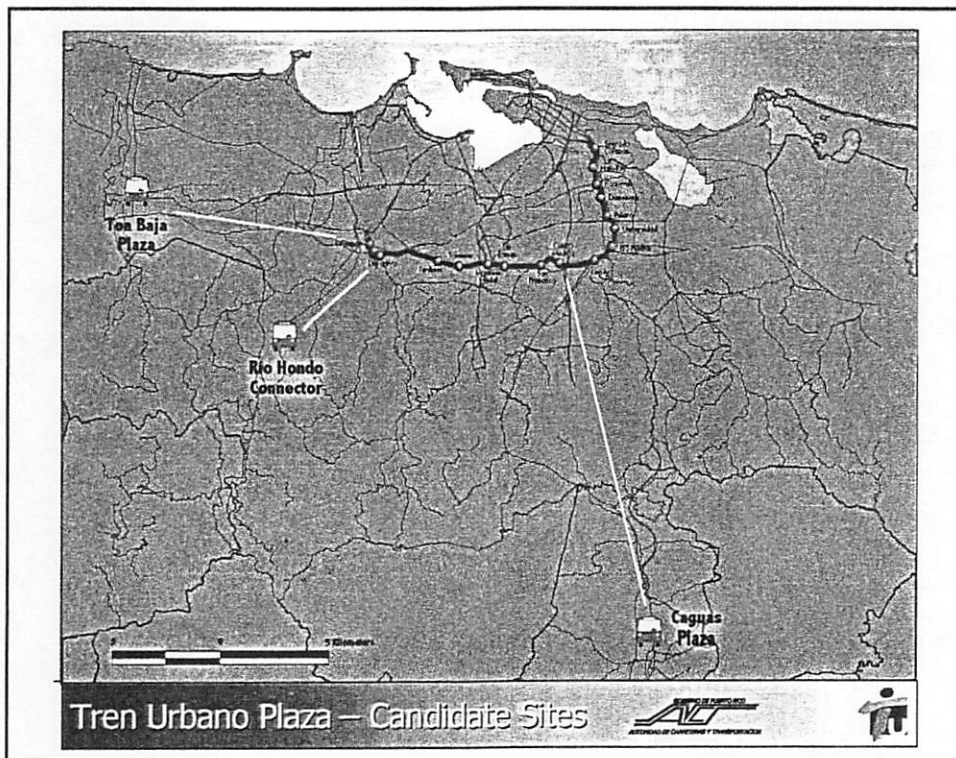
Presented to:  
 The UPR-MIT Professional Development Program  
 By:  
 Jeffrey F. Squires, Director of Planning and Design  
 Tren Urbano  
 January 18, 2000

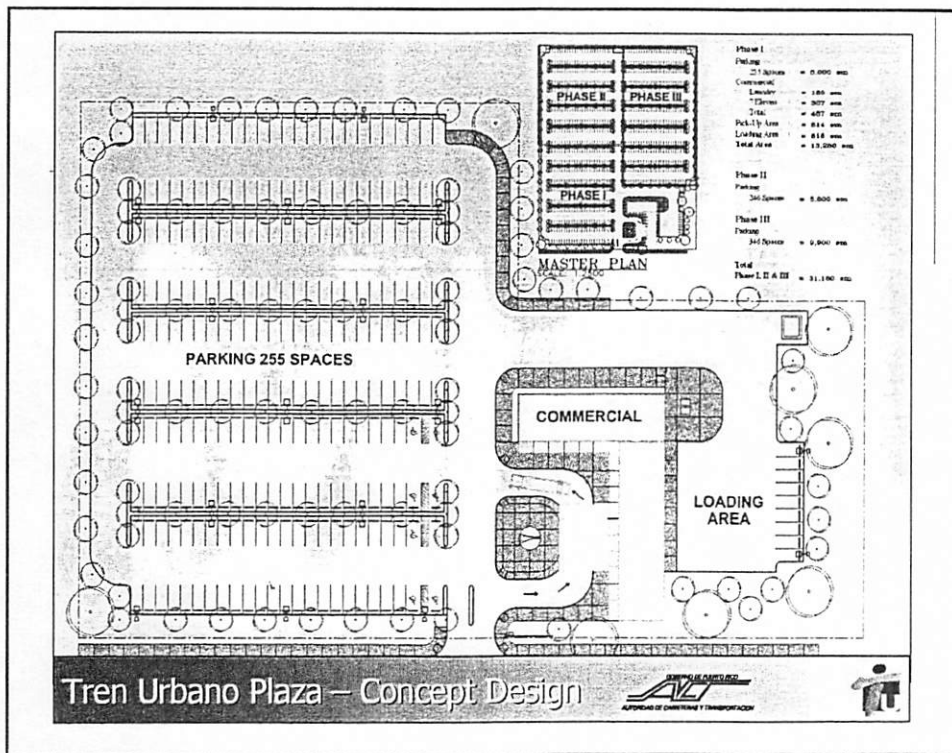
### Livability Matrix

		Tren Urbano Planning Agenda						
Q U A L I T Y  M E A S U R E S		Plaza/Park & Ride Expansion	Station Area Improvements	Station Area Development	Feeder System Integration	Public Policy Assessment	Fare Structure	System Expansion/Future Corridors
	IMPROVED ACCESS	●	●	●	●			●
	LOWER COST OF TRANSPORT	●		●	●		●	●
	REDUCED TIME DEVOTED TO TRAVEL	●		●	●			●
	IMPROVED ENVIRONMENTAL QUALITY	●	●	●	●	●		●
	ENHANCED MOBILITY	●	●		●	●		●
	SUSTAINABILITY	●		●	●	●	●	●
	ALTERNATIVE TO SPRAWL		●	●				●
	INCREASE SOCIAL INTERACTION	●	●	●	●	●	●	●
	FREEDOM FOR TRANSIT DEPENDENT POPULATION	●	●	●	●	●	●	●
COMMUNITY REINVESTMENT	●	●	●		●		●	
ENHANCED/EXPANDED PUBLIC DOMAIN	●	●	●		●		●	
ECONOMIC REVITALIZATION	●	●	●		●		●	

## **Plazas/Park & Ride Expansion**

- Extend the reach of Tren Urbano.
- Integrate autos with buses and publicos in the feeder system.
- Reserve land for future transit oriented development.





## Station Area Improvements

### 1. Improve access to the stations:

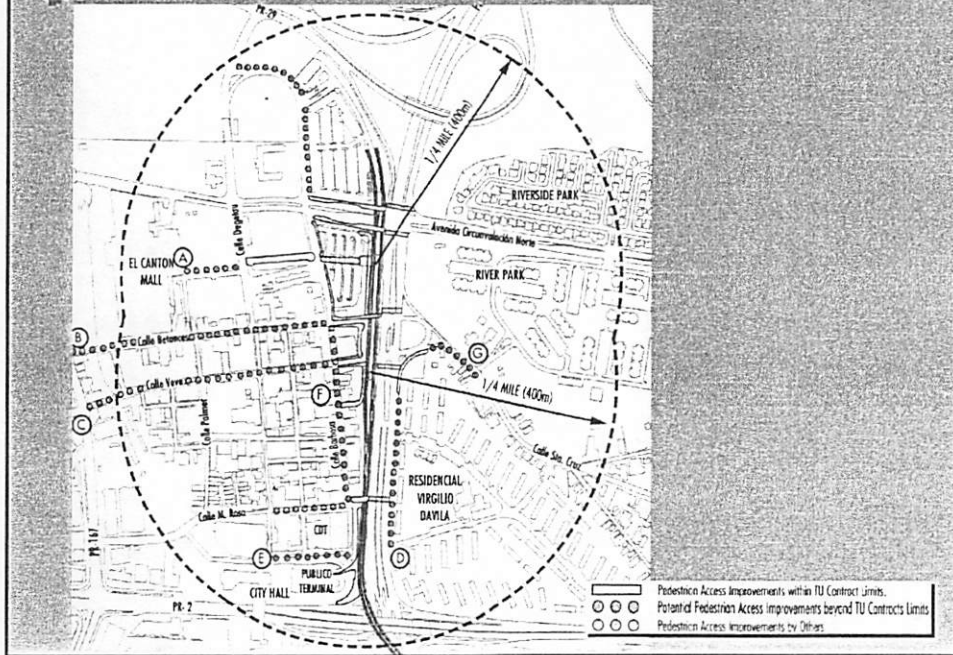
- Pedestrian
- Bicycles
- Transit
- Private vehicle

### 2. Improve customer comfort and safety:

- Enhanced lighting
- Streetscapes/landscapes
- Signage

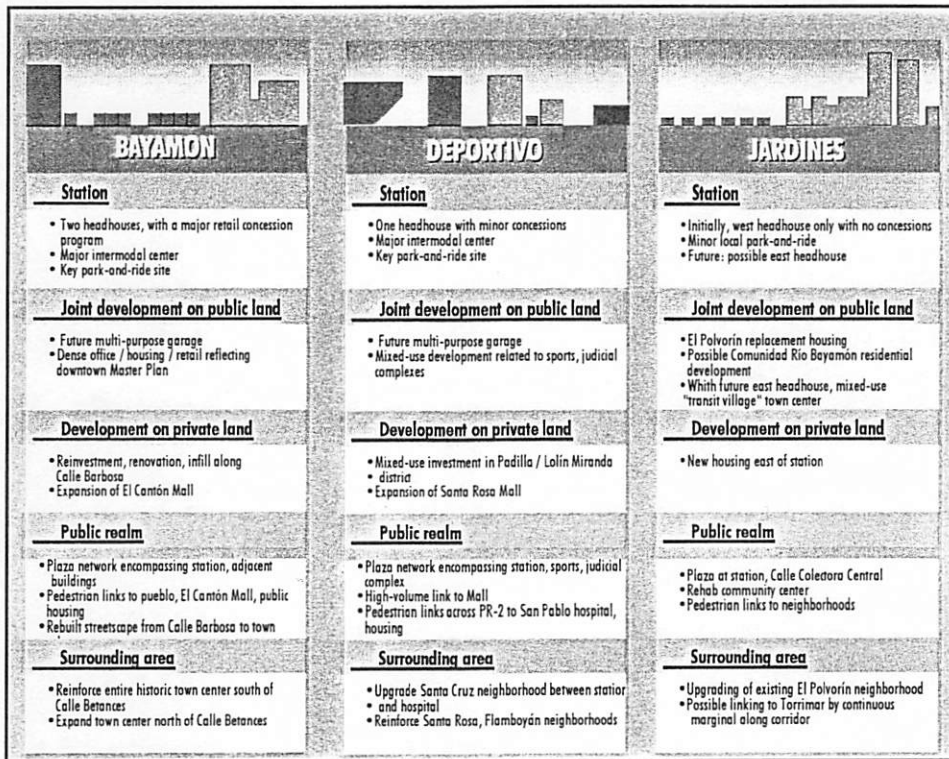
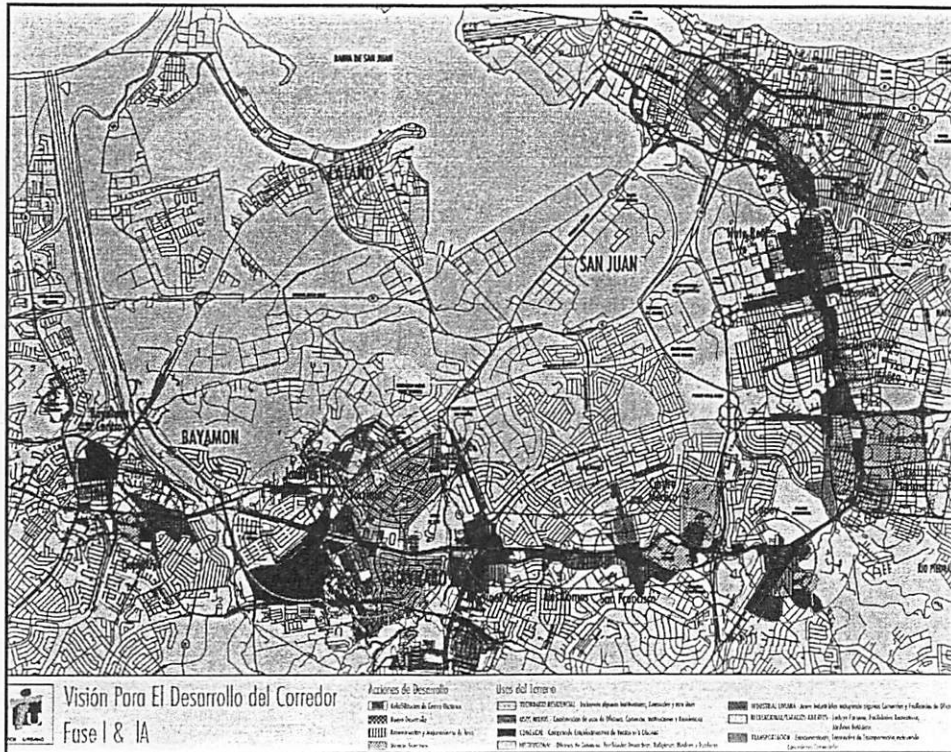


## Bayamón: Accesos Peatonales Principales



## Station Area Development

1. Identify land with potential for transit oriented development.
2. Provide legal authority for TOD
  - Property acquisition and disposal
  - Proper zoning standards and procedures
3. Solicit joint development proposals.



## Feeder System Integration

1. Design the bus feeder system
2. Expand the bus fleet
3. Reconfigure routes and schedules
4. Identify needs not met by buses:
  - Publico services
  - Shuttles
  - Taxis

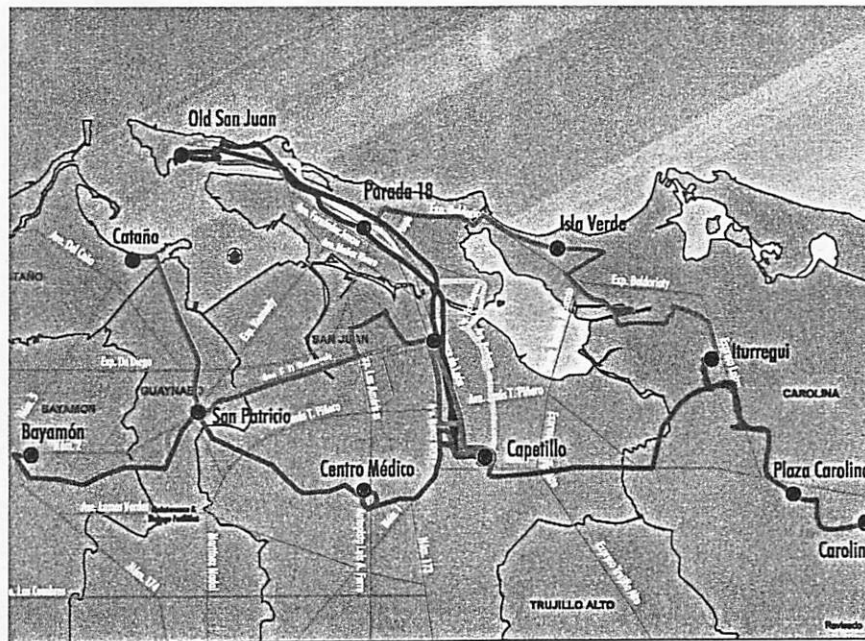


Figure  
1



## Metropolitan Bus Authority Fleet Replacement Schedule

PURCHASE YEAR	MANUFACT. BUS	FY 1998-1999	FY 1999-2000	FY 2000-2001	FY 2001-2002	FY 2002-2003	FY 2003-2004
1988	FLX	39	0	0	0	0	0
1990	FLX	4	0	0	0	0	0
1991	FLX	12	12	12	12	12	0
1992	TMC	36	36	36	36	36	36
1995	FLX	23	23	23	23	23	23
1997	NOV	82	82	82	82	82	82
1998	NOV	18	18	18	18	18	18
1999	NOV	30	30	30	30	30	30
2000	40'		72	72	72	72	72
2001	40'						
2002	40'						
2003	40'						
TOTAL FLEET		244	273	273	273	273	261
TOTAL PEAK VEHICLES		159	188	202	210	218	218
ACTUAL SPARE RATIO		54%	45%	35%	30%	25%	20%
TOTAL DISPOSAL BUSES		30	43	0	0	0	12



## Public Policy Assessment

### 1. Parking Policies

- Fees
- Enforcement

### 2. Land Use Policies

- TOD
- Review Standards



**PRIVATE PARKING FACILITIES AROUND TREN URBANO STATIONS  
(BAYAMON, CENTRO MEDICO, RIO PIEDRAS, ROOSEVELT AND HATO REY)**

NAME	LOCATION	TYPE	NO. OF SPACES	FARE 1 <sup>st</sup> HOUR	FARE ADDITIONAL HOUR	DAILY FARE	MONTHLY FARE
<b>BAYAMON STATION</b>							
Joaquin Montasinos	Isabel and Degustau St.	Garage	580	\$1.00	\$0.50	\$6.00	N/A
Plaza del Mercado	PR-167	Lot	114	\$0.70	\$0.40	\$4.70	N/A
Dr. Veve Parking	Dr. Veve Street	Lot	162	\$0.90	\$0.40	\$4.90	N/A
Hermanos Méndez Hospital	Marginal PR-2	Lot	650	\$0.55	\$0.15	\$3.05	N/A
<b>CENTRO MEDICO STATION</b>							
Parking Management Co.	Centro Médico (North Side)	Lot	180	\$0.75	\$0.60	\$7.95	N/A
Parking Management Co.	Centro Médico (West Side)	Garage	770	\$0.90	\$0.60	\$10.50	N/A
Parking Management Co.	Centro Médico (South Side)	Lot	350	\$0.75	\$0.60	\$7.95	N/A
Cardiovascular Center	Centro Médico (East Side)	Garage	686	\$0.95	\$0.65	\$11.35	N/A
<b>RIO PIEDRAS STATION</b>							
Convalecencia Plaza	Arzaga and Georgetti St.	Basement	690	\$0.75	\$0.40	\$3.55	\$40.00
Rodríguez Parking	González St.	Lot	90	\$0.60	\$0.15	\$1.65	N/A
Plaza del Mercado	Robles St.	Basement	224	\$0.95	\$0.55	\$4.80	N/A
Unknown	Vallejo & Arzaga St.	Lot	150	\$1.25	\$1.75	\$13.50	N/A
Municipal Dispensary	Piñero St.	Lot					
Estacionamiento Ligero	215 De Diego St.	Lot	60	\$0.85	\$0.55	\$4.70	N/A
Unknown	210 De Diego St.	Lot	72	\$0.75	\$0.60	\$4.95	N/A
Unknown	Georgetti St.	Lot	30	\$1.50	\$1.00	\$8.50	N/A
Estacionamiento Ferrocarril	Robles & Ferrocarril Street	Lot	46	\$0.80	\$0.40	\$3.60	N/A



**Fare Structure**

1. Identify Fare Policy Issues
2. Establish Working Group
3. Enact Tren Urbano Fare Structure

Fare Policy Issues				
FARE ITEM & POLICY GOALS	ISSUES	ACI RECOMMENDATIONS	ACTIONS	POTENTIAL OUTCOMES
<ul style="list-style-type: none"> <li>Fare for single ride</li> <li>Revenue</li> <li>Ridership</li> <li>Ability to pay/equity</li> </ul>	None	<ul style="list-style-type: none"> <li>\$1.00 from TU card, or single ride ticket</li> </ul>	<ul style="list-style-type: none"> <li>Confirm fare prior to opening day</li> </ul>	<ul style="list-style-type: none"> <li>Level of base fare will determine revenue, affect ridership</li> </ul>
<ul style="list-style-type: none"> <li>Transfers</li> <li>Revenue</li> <li>Ridership</li> <li>Ability to pay/equity</li> <li>Ease of use</li> <li>Complexity</li> <li>Fare abuse and evasion</li> <li>Revenue control</li> <li>Fare collection costs</li> <li>Operations</li> <li>Data collection</li> <li>Modal integration</li> </ul>	<ul style="list-style-type: none"> <li>Fare</li> <li>Total</li> <li>By mode</li> <li>Restrictions on use</li> <li>Shared riding on one pass</li> <li>Documentation by operators</li> <li>Intermodal revenue sharing</li> <li>Cash handling/reimbursement</li> <li>Equipment required for other modes</li> </ul>		<ul style="list-style-type: none"> <li>Project use with different scenarios</li> <li>Recommend fares</li> <li>Recommend restrictions</li> <li>Develop equipment requirements</li> <li>Negotiate agreements among transportation providers (AMA, Metrobus, publicos)</li> <li>Develop procedures</li> </ul>	<ul style="list-style-type: none"> <li>Could impact revenue of different operators.</li> <li>Will require investment in equipment and training for non-TU operators.</li> <li>Many transit properties have found it very difficult to negotiate interoperator agreements. The situation will be more difficult in Puerto Rico due to the complexity of public issues.</li> <li>Cash handling and allocation procedures will be complex and will require good documentation on the part of all operators. Some transit operators have placed this responsibility with an "impartial" non-operating agency.</li> </ul>
<ul style="list-style-type: none"> <li>Parking</li> <li>Revenue</li> <li>Ridership</li> <li>Ability to pay/equity</li> <li>Ease of use</li> <li>Complexity</li> <li>Fare collection costs</li> <li>Modal integration</li> </ul>	<ul style="list-style-type: none"> <li>Fare</li> <li>Collection approach</li> </ul>		<ul style="list-style-type: none"> <li>Recommend fare</li> <li>Develop collection procedures</li> </ul>	<ul style="list-style-type: none"> <li>Fare needs to be equitable compared to the transit/transfer fare, but not so low as to compete with AMA.</li> <li>Collection procedure needs to be tied to parking access/egress to control use of parking by non-TU drivers.</li> <li>Needs to use TU fare media.</li> </ul>



## System Expansion/Future Corridors

1. Implement Minillas Extension
2. Evaluate Phase II Options
3. Incorporate Bus Rapid Transit As An Interim Measure



**Tren Urbano Corridor Studies Summary Table**

	Sagrado Corazon to Miramar (Ponce de Leon alignment)	Miramar to Old San Juan (Ponce de Leon alignment — underground)	Minillas to the Airport (rail spur to the Airport terminal)	Rio Piedras to Carolina
Length	3.2 k	3.7 k	9.5 k	12 k
Stations	4	4	8	9
Daily Ridership	28,100	14,100	23,600	85,700
Capital Cost	\$688 m	\$866.9 m	\$1,249.6 m	\$1,465.7 m
Operating Cost	\$6.9 m	\$6.4 m	\$18.5 m	\$27.9 m
Yard & Shop Requirements	None required, use Las Lomas	Las Lomas with 5 min. headways	At Iruregui	At Victoria Industrial site and Berwind
Property Impact	22 res; 11 comm.	8 comm.	269 res, 87 comm	38 res, 63 comm/ind/inst
Phasing Options	Phase IA to Minillas	To San Antonio	none	To Berwind
Fleet Requirements	12	16	42	98

