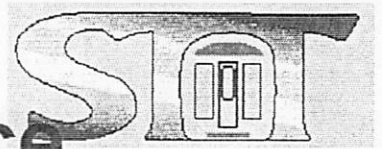
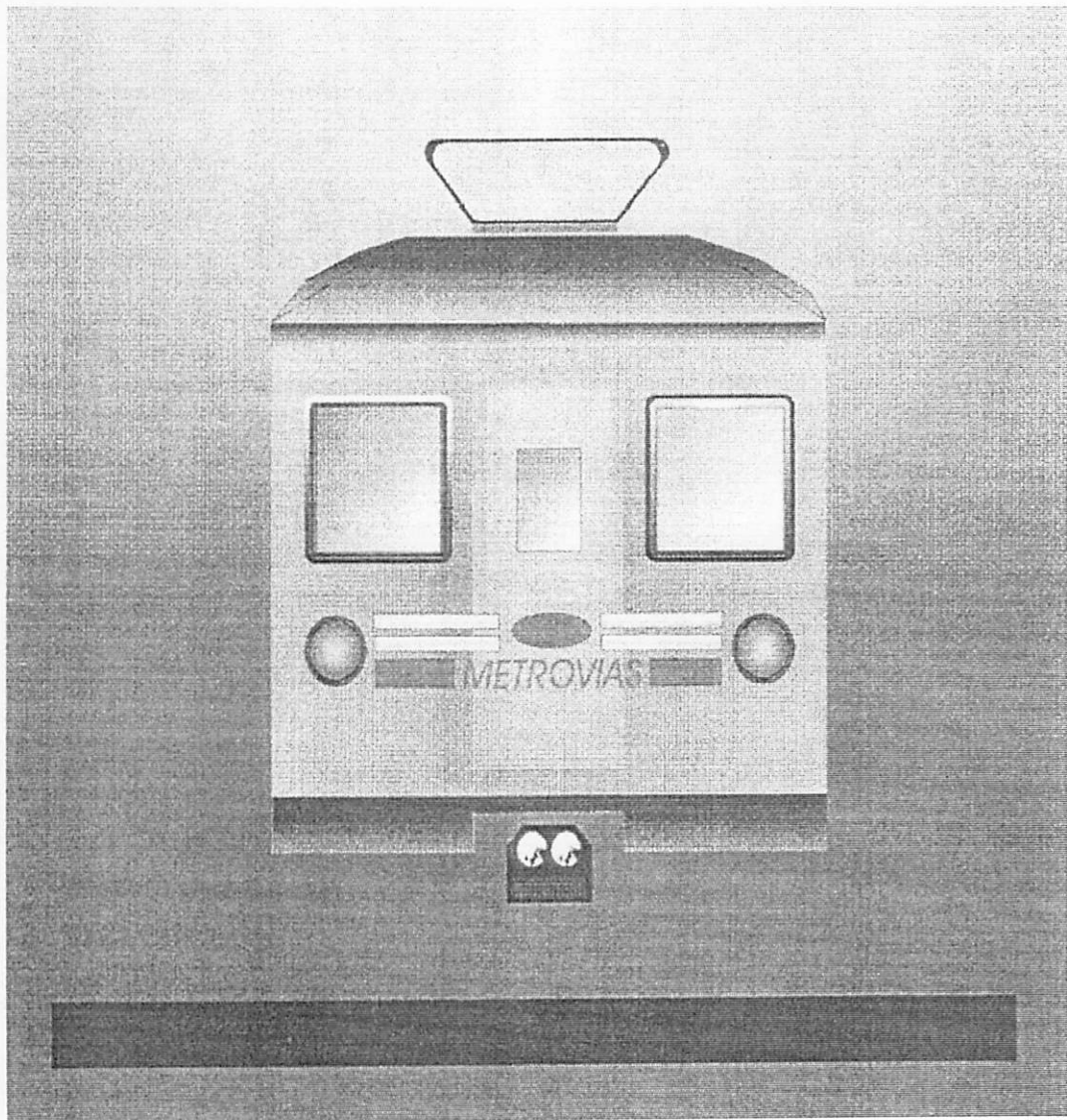


The Metrovías Experience



UPR/MIT Encuentro III Jan. 14, 1997



Ron MacKAY

Siemens Transit Team

THE METROVIAS EXPERIENCE



- The First Privatization of a Subway System in South America
- The Original Operating Consortium:
 - Roggio S.A.
 - Cometrans S.A.
 - Burlington Northern RR
 - Morrison Knudson
- Controlling Entities:
 - Application Authority (Federal)
 - SBASE (City)

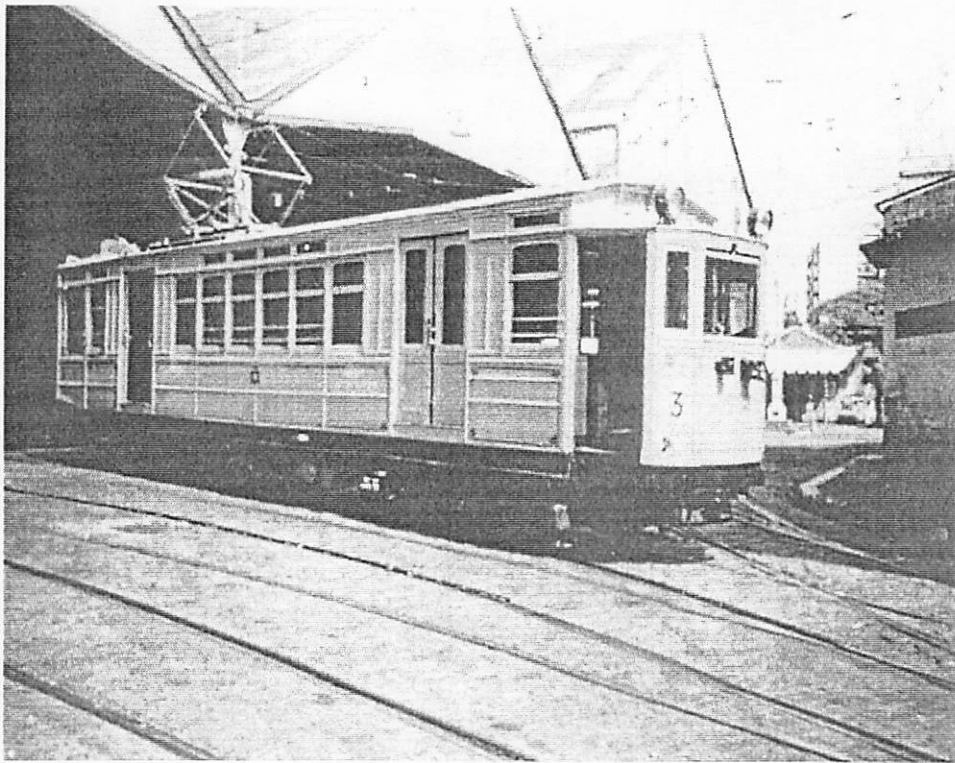
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System Characteristics



- 6 Subway Lines & 1 Commuter Line (Approx.. 70 Kms)
- Over 500 Vehicle Fleet
- 5 Line Maintenance Facilities & 1 Main Back Shop
- Average Frequencies:
 - Pre-Takeover - Over 5 Minutes
 - Post-Takeover - Less Than 3 Minutes
- Ridership:
 - Pre -Takeover 145 Million/ Yr..
 - Post-Takeover 190 Million/ Yr..
- 20 Year Contract Term

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Pre-Takeover Activities



- Formulate Budget
- Establish Policies and Procedures
- Negotiate Union Contract
- Interview Personnel
- Conduct Medical / Psychological Exams
- Conduct Inventory
- Plan Material Purchases
- Negotiate Contracted Services

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Takeover Activities



- Hire / Train All Personnel
- Initiate Material Processing
- Institute Token Change
- Finalize Administrative Procedures
- Train Operating Personnel

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Day One - Who's got the Keys?



- Operations Transition (Labor Pains):
 - Suspended Operations First Weekend
 - » Change All Locks
 - » Turnstile Coin Mechanisms
 - » Fleet Inspection
 - » ROW Inspection
 - » Inspect Work/Passenger Areas
 - » System Test
 - » Employee Communications Meetings

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First Train



- **Urquiza Line**
 - Train #3008 Departs Fd. LaCroze On-time at 4:18 AM
- **Subways**
 - All Subway Service Begins On-time at 5:00 AM

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Service Problems



- **Day One (Giving Birth):**
 - Logistical Problems
 - » Opening Stations
 - » Moving People
 - » Providing Change
- **Early Days (Infancy):**
 - Extensive Lines at Token Booths
 - Insufficient Number of Coaches for Scheduled Service
 - Access to Service Areas for Cleaning
 - Covering Absences Quickly
 - "Turn Around Time" at Bank

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Service Problems



- **First Six Months (Growing Pains)**
 - Inexperience
 - » Maintenance
 - » Operating
 - » Support
 - Displaced Workers ("Beat the Drums Slowly")

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Unanticipated Crises



Materials Problems

Interrupted Cycle Prior to Takeover

Lead Times

Vendor Difficulties:

Vacation Schedule

Late Delivery

Poor Quality

Suppressed Demand

Intensive/Extensive Maintenance Programs

Reluctance to Invest in the Future

Cash Flow

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Unanticipated Crises



- Pre-Metro (Trolley Service)
 - Two of Twelve Cars Available for Service
- Power Cable Failure - Line A
- Compressor Failures - Line C
- Flood
- Derailments

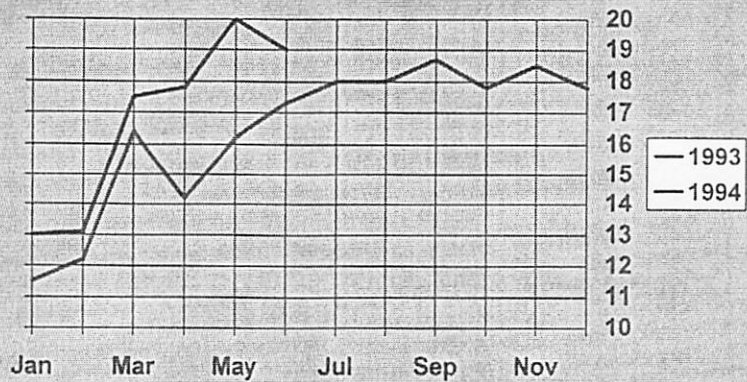


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First Six Months



Subway Ridership (in Millions)

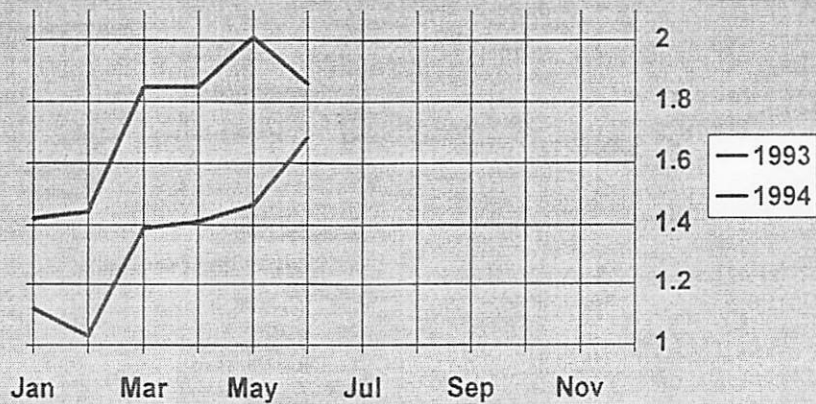


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First Six Months



Urquiza Line Ridership (in Millions)

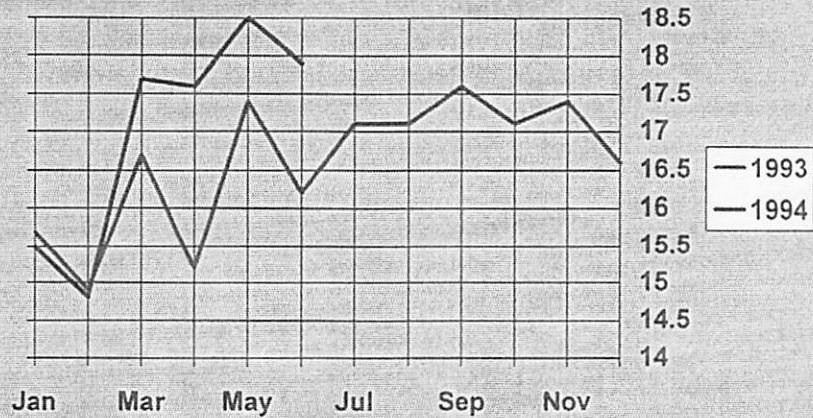


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First Six Months



Service Kilometers (in Thousands)

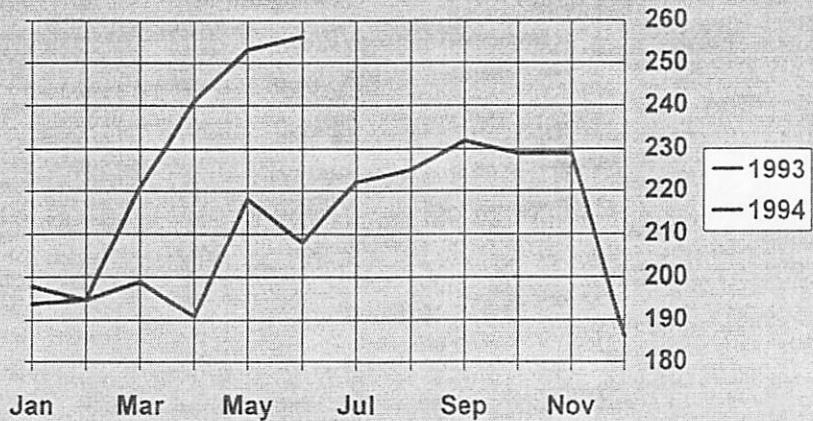


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First Six Months



Number of Coaches in Service (Peak Hour)



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Where Are They Now



- Improved and Improving

- Line A

- » Power Problems Partially Resolved

- Temporary Repairs to Cables

- Procurement of Replacement Substation (Portable)

- » Increased Availability from 49 to 80 Coaches

- » Running 3 Additional Trains Over Base Schedule

- Line B

- » Procured 113 Used Coach Replacement Fleet from Japan

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Where Are They Now



- Line C
 - » Fleetwide Compressor Replacement
 - » Increased Availability from 28 to 64 Coaches
 - » Modified Married Pairs to Operate as Single Units to Facilitate 5-Car Train Operation (25% Capacity Increase)
- Line D
 - » Resolved Electronic Problems
 - » Bogie Problems Controlled
 - » Increased Availability from 36 to 60 Coaches
 - » Purchased 8 New Married Pairs

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Where Are They Now



- Line E
 - » Increased Availability from 24 to 54 Coaches
- Per-Metro
 - » Resolved Electronic Problems
 - » Bogie Problems
 - » Increased Availability from 3 to 12 Coaches
- Urquiza Line
 - » Resolved Various Mechanical Problems
 - » Increased Availability from 87 to 94
 - » Track Renewal Program Instituted

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