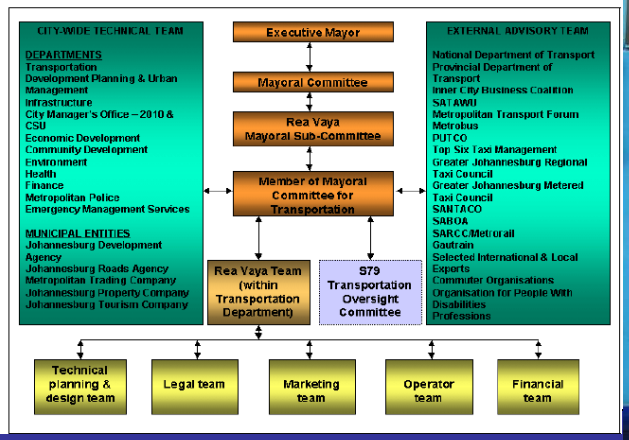
The Soft Side of BRT: Lessons from Developing Cities

Sam Zimmerman
Urban Transport Consultant

Figure 3-1: City of Johannesburg Rea Vaya Institutional Structure



J.Earnst, ITDP

THE HINDU

News » Cities » Delhi

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Trying to run Delhi's BRTS off the road

JULY 17, 2012 "The Vanguard," Lagos

Fashola 'arrests' Col, Sergeant on BRT lane

Governor Babatunde Fashola of Lagos State, yesterday, arrested two military officers who drove on the dedicated BRT lane.

World Bank Study of Five BRT (or busway) applications in Asia, Africa

- Emphasis on “soft” aspects
  - Political, Governance and Planning Context
  - PT System Integration
  - Operating Arrangements
  - Finance
  - Branding, communications

- A word on BRT and “Upgrading to Rail”

World Bank Study of BRT's Soft Side

- Most studies, presentations and discussions have been on "hard" elements of BRT;
  - Stations
  - Running ways
  - Vehicles
  - ITS, etc.

- **Soft aspects** of BRT less well covered; less interesting to most professionals
  - Hard to grasp, harder to fix and less fun
  - Critical to success

Five Applications

- Vary in geo-political settings
- Vary in quality, performance
- Cases
  - Lagos
  - Johannesburg
  - New Delhi
  - Ahmedabad
  - Jakarta

ITDP

- Case Studies
  - Delhi and Ahmedabad written by, Anal Baijal. former Chief Secretary (Director General) of Ministry of Urban Development, India
  - Lagos, Johanesburg and Jakarta Case Studies done by Colin Brader, et al of ITD
- Synthesis
  - Ajay Kumar, O.P Agarwal, World Bank urban transport staff and consultant SZ

	Lagos, BRT-Lite	Jhnsburg, Rea Vaya	Jakarta, TransJakarta
Total System Length	22 Km, 20+ km under construction	25.5 Km, 300+ Km planned	135.11 Km
Construction cost $US per Km	$1.2m+/Km.	$14.2m+/Km	$1.3m/Km+
Percent segregated	60%	100%	90-95%
No. existing stations	26	30	142
Vehicles	High Floor 11.7m	Medium Floor: 18m (trunk) 12m (feeder/ Cmplemntry.)	High Floor: 11.5m, Some 18 m

	Delhi HCBS Busway	Ahmedabad JanMarg
Total System Length	5.8 km, median transitway 8.7 km, curb lanes without enforcement	45Km 41 Km additional planned
Construction cost $US per Km	$5m/Km	$3m/Km
Percent segregated	NA (<40%)	100%
Number existing stations	29	67
Vehicles	DTC: Primarily low floor, 12m; Some A/C Others: Variety of types and sizes	High floor 12m; testing 18 m

	Lagos, BRT-Lite	Johannesburg Rea Vaya	Jakarta, TransJakarta
Average daily ridership on system (Approx.)	200,000	45,000	280,000
Max. Ld. Pt., Pk. Direction, Pk. Hr. Vol. (Approx.)	10,000/Hr.	3,500/Hr.	10,000/Hr.
Former mode of BRT passengers	Car (6%), PT (90%)	Not known	Car (14%) Motorcycle (6%) Public Transport (69%)
Av. Rev. Spd. (Km/Hr)	20 for local service		
Travel time savings from previous	29% over length of corridor		40-50% over length of each corridor

	Delhi HCBS	Ahmedabad JanMarg
Average daily ridership on system (Approx.)	85,000	135,000
Max. Load Point, Pk Direction, Pk Hr. Volume (Approx.)	10,000/Hr.	2,000//Hr.
Former mode of BRT passengers	Not known	Bus (40%) Auto Rickshaw (35%) Taxi, Auto (13%)
Av. Revenue Speed (Km/Hr)	18 on median transitway	25
Travel time savings from previous	30% over length of median transitway	20-30% over length of each corridor

New Delhi

- Initiated by Municipal Corporation
- Busway, not BRT: No other BRT elements
- Little change made to PT network service plan
- Substantial NMT improvements
- Traffic engineering difficulties
- Champion, communications, ownership issues
- Court intervention to open busway to car owners at behest of well-placed car commuters
  - Could be result of weak communications as well as substantive technical issues
- Busway currently open to general traffic despite carrying 66% of person trips on 33% of lanes


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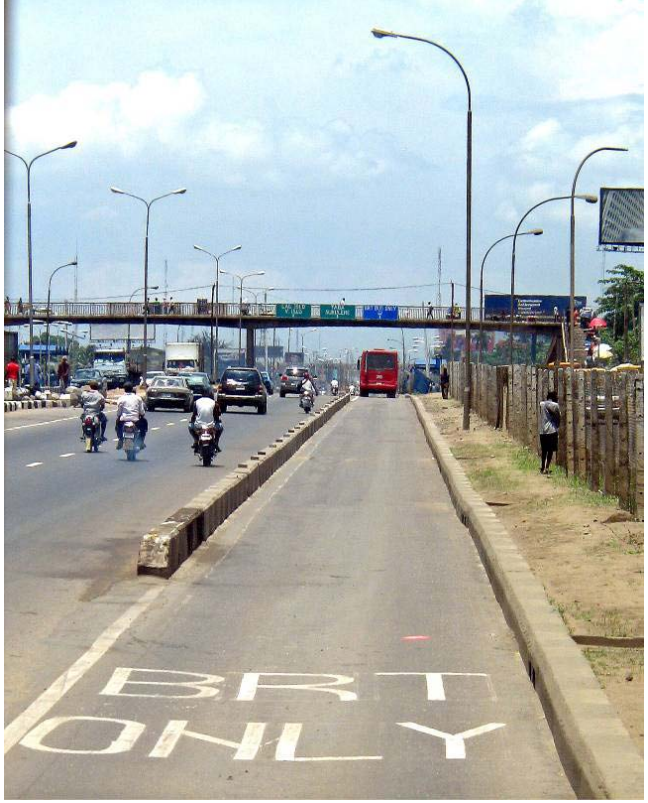
Jakarta

- Was not on anyone's radar, but strong support from Governor
  - Initial line built in less than one year
- Early design issues, later fixed
- Little change to rest of PT network
- Substantial, multi-line network today, but crowding and subsidy issues
- Lack of feeders and integration with rest of PT system cited as reasons for relatively low ridership density

Images courtesy of ITDP, Wikpedia

Lagos

- BRT “lite”
- Product of one of few multi-modal metropolitan transport authorities in any developing city – dedicated funding source, strong technical staff, ongoing political support through two state governor administrations
- Profitably run by union of mini—bus owner/operators
- Extension under construction, additional lines being prepared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LANE
MERGE
AHEAD
BUS STOP

Ahmedabad Janmarg
"People's Way"

- First integrated BRT system in India
- Product of progressive municipal commissioner; help from technical staff at university
- Circumferential corridor with few ROW, and other problems selected as first priority
- Success generated support for larger system
- Planning, implementation, oversight by special purpose vehicle within municipality
- Breaking even out of fares, including vehicles
- TOD starting


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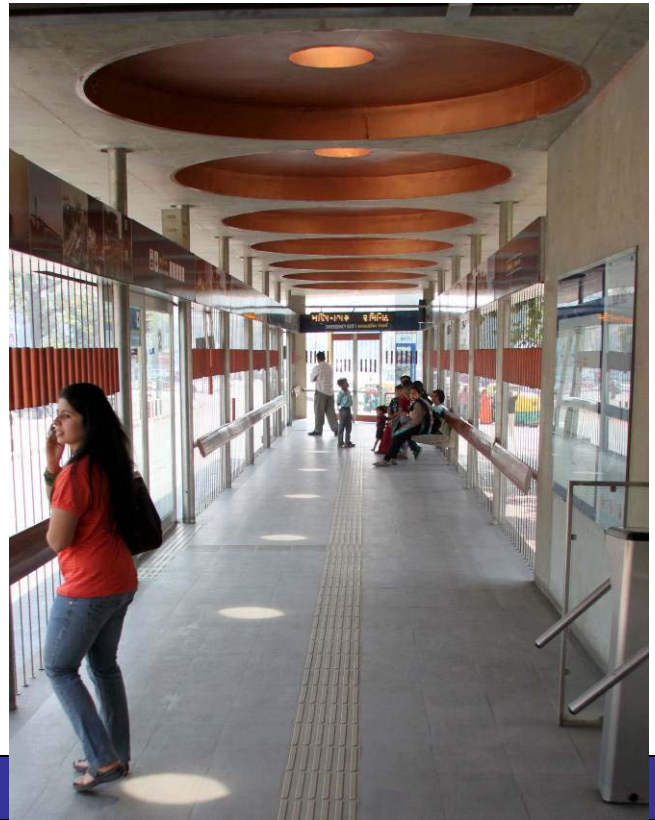

Unique BRT Design, Operations Issues

Johanesberg ReaVaya "We are Moving"

- Initiated by National, City governments
- Mini bus (taxi) operators tough stakeholders
  - Significant opposition
  - BRT initially operated by competitively procured contractor, now by company formed of taxi operators
- Planning, oversight by special purpose vehicle within municipality
- Very high quality and costs relative to other systems in developing cities
- Relatively low ridership because of mini-bus competition and nature of initial corridor

Images from Neya Raya, ITDP

What Did We Learn?

Political, Governance

- Weak institutions, poor governance a particular problem for BRT
  - Only transport entity may be public works/highway agency with no PT policy, planning, oversight expertise or authority
  - "Competing" institutions (e.g., distinct metro agency) not helpful
  - Where there is one, existing PT operator may not have ability to plan, implement, operate BRT
  - At minimum, may need to strengthen structure and institutions during planning, preparation; more likely to change structure and establish new, hopefully multi-modal authority

Political, Governance

- Strong opposition by informal PT operators because of legitimate fear about impact on livelihoods
- Need multiple champions, not champion; Nurture ongoing support through successive administrations (e.g., as in Lagos)

Communications and Branding

- Governance and political problems can only be overcome through strong communications process
  - Key to initial ***and ongoing*** success
    - Continuing lack of information about BRT and its benefits can hurt case, e.g. Delhi

Communications and Branding

- Two-way communications needed
- Brand identity for entire system helps communications process succeed
- Multi-media approach to dialogue works best
- Defining and managing stakeholders crucial
  - Related institutions (e.g., traffic police), PT operators, regulators may need special focus

Planning Context

- Usually a transport master plan; may be out of date and not well prepared; Plan most often a list of projects and BRT may not be one of them
- Despite evidence that BRT can influence development and thus be used as development tool (Curitiba, Brisbane, Bogota, Boston, Ottawa, Pittsburgh, Cleveland, now Ahmedabad…): Little attention given to land use/transport interaction during planning

PT System Integration

- PT system integration an issue everywhere
  - Few initial changes were made to rest of public transport network to integrate with BRT in terms of fares and service
    - Politically challenging where mini-buses
  - After successful initiation, easier to move to integrate with rest of system in terms of connections, fare integration, etc., e.g., Ahmedabad)
- First/last Km connectivity an issue
  - Poor walking environments
    - Other than Delhi, Ahmedabad, little done on NMT connections
  - Missing formal bike, motorcycle parking at stations

Internal BRT System Integration

- Planning starting point often individual hard elements rather than service and system
- Designs of BRT elements often inconsistent with markets and service and to each other, e.g.,
  - All stops local only on transitway when expresses extending beyond needed
  - Missing passing lanes at critical points
  - Lack of level, no-gap boarding
  - Limited vehicle capacity, less than ideal internal layout, door width and placement

Operating Arrangements

- Most success with independent public “special purpose vehicle“ authority implementing and then managing competitively procured operation contractors as in Latin America
- Only Johannesburg authority for both BRT and complimentary and “feeder” services
- Lagos, later Johannesburg and Jakarta (some corridors) used companies formed from existing mini-bus operators

Finance

- Infrastructure always financed by public sector
- Bus most often operated by competitively procured contractor paid on a gross cost (per/Km or Hr. of service provided) with revenue accruing to “special purpose vehicle”
  - Operations and buses usually financed out of fares and owned by operators
- Ongoing operating/maintenance subsidies seen as a problem

A Word on “Upgrading” To Rail

- Cities with BRT success stories proceeding with rail projects
  - Quito
  - Curitiba
  - Xiamen
  - Ottawa
  - Bogota

- Complex reasons, usually political (e.g., “former mayor’s project, not ‚mine”), not necessarily substantive
  - “capacity, declining quality often sited in developing cities
  - “wall of buses, ” O/M costs in developed cities

Is BRT Capacity the Main Issue??

New York Times

May 5, 2011

Colombia's Resurgent Capital Backslides Amid Crime and Congestion

By SIMON ROMERO

BOGOTÁ, Colombia — This city emerged as a mecca for urban planners over the past decade. Freethinking mayors brought about a remarkable renaissance by trying everything from creating an innovative low-emission rapid transit system to sending hundreds of mimes to intersections to mock and humiliate traffic violators.

But the hard-won accomplishments that earned Bogotá plaudits around the world are now being eclipsed by outrage. So many ambitious construction projects have been put in motion simultaneously that the city has endured months of traffic chaos. And a long simmering corruption scandal has resulted this week in the suspension of Bogotá's mayor, Samuel Moreno.

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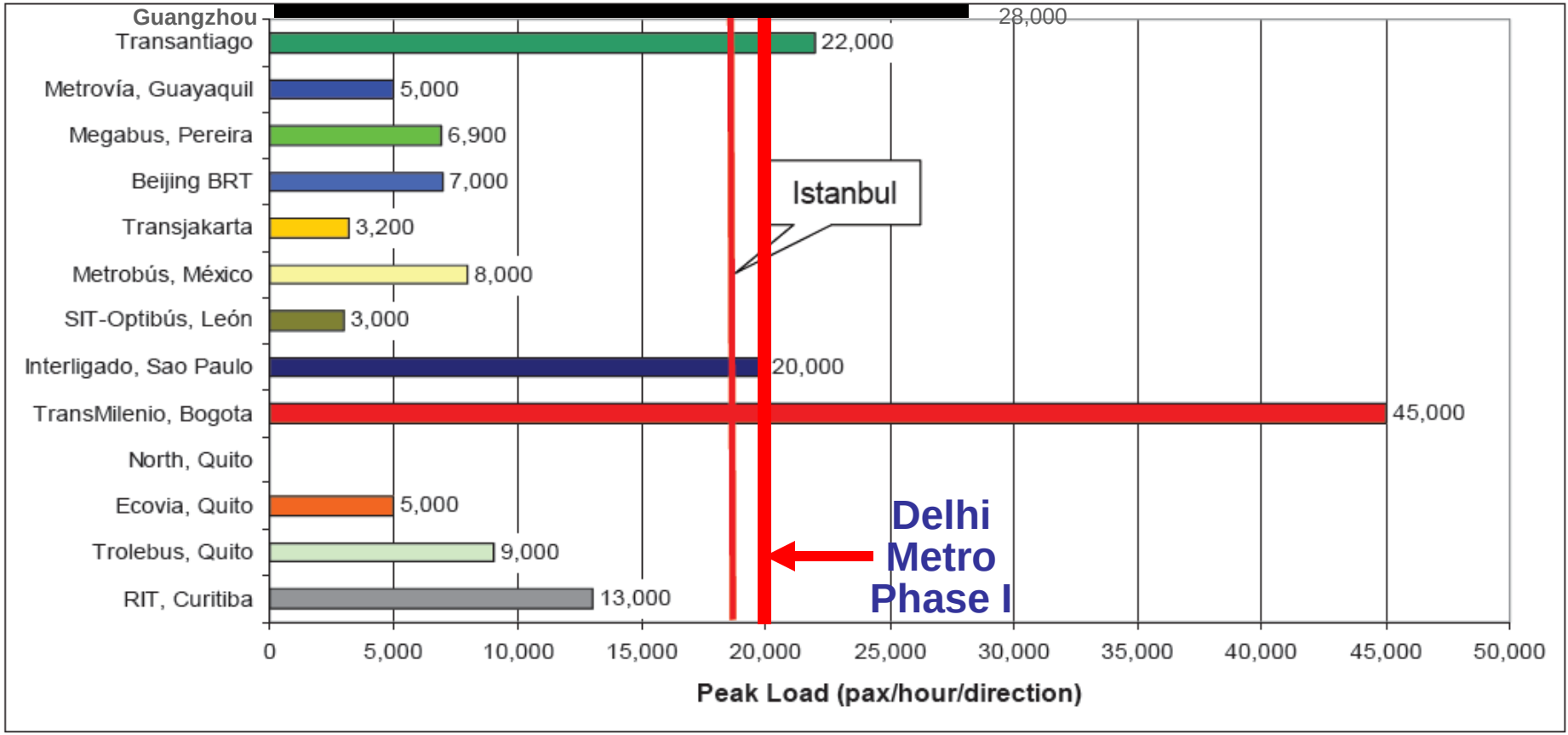
Quotes from Yogi Berra Not so Well Known Transport Planner (also Played Baseball)

- “You’ve got to be careful if you don’t know where you are going, because you might not get there.”
- "When you come to a fork in the road, take it."

"Nobody goes there anymore; it's too crowded."

Maximum Load Point, Peak Hour, Peak Direction Volumes*



*From presentation by Dario Hidalgo, WRI/EMBARQ

Bogota Crowding

- **Complex route structure**
- **Narrow station platforms**

Istanbul

- No passing at stations
- Inefficient boarding, alighting
- Inefficient vehicle interior
- Narrow station platforms

A fix??

Lessons from BRT to Rail Pressure

- Need commitment to continuing improvement by PT or BRT institution
  - Sustain system quality and operations efficiency
- Need for more capacity not a reflection of failure
  - BRT providing development and transport benefits while rail planning proceeds
- Less than ideal service planning, physical design and operation can limit BRT capacity, e.g.,
  - Low versus high floor vehicles, platform-vehicle interface
  - Docking
  - Stations without provision for expansion
  - Complex service plans causing bunching, bus on bus congestion
- Transparent, objective alternatives analysis should always precede major investment decisions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