Istanbul METROBUS BRT

Adapted from Presentations by World Resources Institute/EMBARQ’s Sibel Koyluoglu and Dario Hidalgo
Historic Istanbul
Modern Istanbul
Istanbul

- Among World’s most historic and rapidly growing cities
  - 12.6 million population
  - Financial, cultural and commercial capital of Turkey, nation >70 million

- Significant water constraints

- Congestion cited by citizens as #1 issue
  - Peak hour hwy. speeds 8–10 km/hour
  - 23% of Istanbul commuters spend > 3 hours in traffic.
  - 22% of Istanbul commuters spend 2–3 hours
The First BRT Corridor

- Istanbul has developed along two narrow east–west peninsulas, Europe, Asia
- The D–100 national highway forms the main European axis for Istanbul
Four Phases
Before METROBUS: Long, Slow Bus and Minibus Routes Stuck in Traffic
Summary Statistics

4 Phases
- About 50 Km transitways, terminal to terminal
- 42 stations
- Station spacing, 360–3300 meters, average 1.2 Km
- 350 vehicles

Open by March 2009)
- 40.5 kilometers
- 31 stops
- Terminals
- total implementation cost, $366 million
Running Ways

- Freeway Median
- Fully Grade–Separated and Dedicated
- No Passing Lanes
SERVICE, OPERATIONS

- Average revenue speeds, 30–40 Km/Hr.
- Maximum frequency, >120/Hr.
- Single, all-stops local route alignment but with turnbacks
Operations
STATIONS
Stations

- Most platforms sized for two buses (three at some)
- Center platforms, requiring counterflow operation for regular buses
Stations

- 8 stations are currently accessible to physically challenged passengers
- Modernization of other stations continues
VEHICLES
PHILEAS (Advanced Public Transport System, Holland)

Length: 26.035 mm
Width: 2.540 mm
Maximum Height: 2.949 mm
Inside Height: 2.250 mm
Entrance Height: 340 mm

Seated: 52
Standing: 178
Total: 230
PHILEAS: Hybrid

20% to 30% fuel savings.
Decreased emissions.
More acceleration.
MERCEDES CAPACITY

Length  19.5 m
Inside Height  2.3 m
Door Width  1.2 m

43 seated
150 standing
193 Total Capacity

Manual ramp at the 2 door
Low floor: 320mm vehicle height
Kneeling
4 double doors
Euro V
Performance to Date
Phase One

- Opening date: 17.09.2007
- Length: 18.3 km
- Number of stations: 14
- 1246 Minibuses removed from corridor
- Revenue Operating Speed: ~40Km/Hr.
- Ridership: ~300,000 trips/day
Mini-Buses Removed from Traffic
Phase Two

- Opening date: 08.09.2008
- Length: 29 km
- Number of stations: 25
- Revenue Operating Speed: ~ 30Km/Hr.
- 1 hour/direction time savings
- Ridership: ~550,000 trips/day
Comparison to Mass Rail Transit: Metro, LRT, Suburban Rail

- >100Km of Mass Rail Transit operating
  - Ridership about 900,000 trips/day
- METROBUS: ~47 Km operating
  - Ridership about 850,000 trips/day
  - Maximum load point, peak hour, peak direction volume >19,000 passengers/Hr.
Passenger satisfaction

93% satisfaction
## Evaluation

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
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<tbody>
<tr>
<td>Pedestrian Access</td>
<td>X</td>
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<tr>
<td>Handicapped Accessibility</td>
<td>X</td>
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<tr>
<td>Bus Stop Design and Capacity</td>
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<tr>
<td>Bus Stop Comfort</td>
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<tr>
<td>Bus Stop Location</td>
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<tr>
<td>Bus Stop Information</td>
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<tr>
<td>Operations (Efficiency needs further study)</td>
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<tr>
<td>Trip generators</td>
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<td>Transfer Characteristics: Physical transfer</td>
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<tr>
<td>Electronic ticketing</td>
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<tr>
<td>Passenger Characteristics Characteristics</td>
<td>X</td>
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</tbody>
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“Metrobüs is not built to end congestion. It is built to solve the problem of access. Even if traffic is bad, if people have access to a system that provides speedy access and that means the problem of access has been addressed. Metrobus has solved my problem of access and if the system is expanded, Istanbul’s access problem will be solved soon.”

“I definitely don’t think metrobus solves the problem. They are narrowing lanes to build metrobus. Most of us still use our cars to go to work and we can no longer drive comfortably.
3\textsuperscript{rd} corridor crosses bridge to Asia, ending at Söğütlüçeşme, intercity train station with significant parking
Phase Three

11,2 km line Opened March 4, 2009
Upon completion of phase 4, the 50 km line will have 42 stations and 350 vehicles that will serve an estimated 865,000 passengers/day.
PLANNED CORRIDORS
Planned Corridors

9 corridors are planned. 3 corridors are high priority:

- **EDİRNEKAPI-VEZNECİLER**
- **BOSTANCI-SÖĞÜTLÜÇEŞME**
- **AKSARAY-MİLLİYET SİTESİ**
Expressway Median Pedestrian Access: Trade-off

**Pro:**
- No appropriation
- Little opposition to use of land

**Con:**
- Very difficult to access stations

**Lesson learned:**
- Use of overpasses and subways (at points with alignment on embankment) works well!
- Still need to address issue of access for disabled