UNESCAP Regional Expert Meeting
&
2nd Asia BRTS Conference

Ahmedabad Janmarg

Presentation by
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Executive Director, Ahmedabad Janmarg Ltd.

Technical Support:
Centre of Excellence in Urban Transport (CoE), CEPT University, Ahmedabad
Ahmedabad Today

- Area of 466 sq kms
- Population of 6 million
- 2.7 million vehicles
- 2 wheelers-73 %
- Bus trips 0.9 million per day
- Average trip length 6.4 kms
Janmarg Network connects major Origin-Destinations, Transit nodes, Landmarks, Public spaces, Activity generators, developing areas, low and middle income housing areas of Ahmedabad.
Status – Phase 01 & 02

• Civil Works:
• Network Development
  – 82 km implemented and operations
  – 7 km under construction
  – 127 BRTS station operational

• Infrastructure Development
  – 2-River bridges implemented to complete network and city mobility – operational
  – BRTS Depot cum Workshop at Chandola implemented and operational
  – BRTS Depot cum workshop at Odhav – Under Construction
  – BRTS Depot cum workshop at Ranip – Operation
  – BRTS Depot cum workshop at Chandkheda – Plot to be allotted
Glimpses – Phase 01 & 02

Median bus lanes, median bus stations
Glimpses – Phase 01 & 02

Innovative junction design  
2 phase signal cycle
Glimpses – Phase 01 & 02

Landscaping along the corridor
Glimpses – Phase 01 & 02

BRTS infrastructure complementing urban scape
Glimpses – Phase 01 & 02

Multi level BRT Interchange
Glimpses – Phase 01 & 02

ITS equipped and modern bus shelters
Glimpses – Phase 01 & 02

Creating community spaces along the corridor
Glimpses – Phase 01 & 02

Workshop & depot for bus parking and maintenance
Land reforms examples

CHANDRANAGAR - PIRANA:
New river bridge connecting to Maninagar and eastern parts

Precursors to BRT Planning and implementation:
Restructuring road network as part of Master Plan
Implementing Master plan
Land reforms: DHANPITH – ASTODIA

RoW widened upto 30 m, construction of BRTS lane on completion.
### Ahmedabad BRTS (Janmarg)

#### Network Length
- Operational corridor: 82 Kms

#### Operational Details
- **Number of Stations**: 127
- **Operational Timings**: 6:00 AM to 11:00 PM
- **Peak Hours**: 8:00 AM – 10:45 PM; 5:00 PM – 9:00 PM
- **Bus operated during Peak**: 160 (50 AC buses) (Weekday), 135 (Sunday/Holiday)
- **Average Daily Ridership**: 1,35,000 (0.13 Million)

#### Legend
- RTO to PiranaChandranagar – 12.5
- Extension to Kankaria – 18
- Extension to Maninagar/ Narol – 27
- Extension to Jashodanagar – 31.4
- Extension to Soni ni chali – 35.5
- Extension to Naroda – 39.5
- Extension to Delhi darwaja – 43
- Extension to Iskon – 45.5
- Extension to Odhav S.P.Ring road – 49
- Extension to Sola/ Visat – 58
- Town hall to Kalupur railway stn – 64
- Extension to Bopal Approach – 67.5
- Extension to Chandkheda & Ajitmil Kalupur – 75
- Extension to Naherunagar – University – Town hall – 80
- Extension to Memco & Naroda – 82

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<table>
<thead>
<tr>
<th>Network Length operational corridor</th>
<th>82 Kms</th>
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</table>
Average Daily Passenger Trips and Revenue Collection

- Extension of corridor to Kankaria (18 KM)
- Extension of corridor to Narola (25 KM)
- Extension of corridor to Soni ni Chali (29.5 KM)
- Extension of corridor to Maninagar & Narol (34 KM)
- Extension of corridor to Delhi Darwaja (39 KM)
- Fare revision (45 KM)
- Extension of corridor to Shivranjani ISCKON (51.5 KM)
- Extension of corridor to Odhav and ISCKON (61 KM)
- Extension of corridor to Visat and Science City (61 KM)

Average of Passengers
Average of Income

No. of passengers

Income in INR

Average Daily Passenger Trips and Revenue Collection
Institutional Structure

Responsibilities of Janmarg
- Policy-making and setting standards for the corridors.
- Planning and design.
- Project implementation.
- Contracting.
- Operational management.
- Financial management.
- Administration.
- Marketing.
Fare revision formula – Once a year

Fuel Charges: 50%

Changes linked to fuel price change in same proportion (effected monthly)

Other Costs: 50%

Changes linked to changes in Wholesale Price Index (effected annually)

1.2 Lag Effect – on Both Components

Revised Fare = Base Fare + 1.2*((Base Fare*0.5*change in fuel price)+ (Base Fare* 0.5 * Change in Whole Sale Price Index))

RF=6.02 + 1.2 x ((6.02 x 0.5 x (46.15-35.4)/35.4) + (6.02 x 0.5 x (154.9-127.3)/127.3))

Ratio of Fuel and Other Cost payments as of September 2012 is 48:52
### PPP Arrangements

There are a total of **nine PPP arrangements** which Ahmedabad Janmarg has entered into to ensure efficient operations of Janmarg BRTS.

<table>
<thead>
<tr>
<th>Component</th>
<th>Solution/Design</th>
<th>Construction /Supply</th>
<th>Operations</th>
<th>Management</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Stations / Corridor / Flyovers</td>
<td>AJL/CEPT</td>
<td>Fixed Time/ Fixed Rate Contractor</td>
<td>-</td>
<td>-</td>
<td>Presently under Defect Liability Period</td>
</tr>
<tr>
<td>Buses</td>
<td>AJL/CEPT</td>
<td>Buses hired for 7 years from Operator</td>
<td>Bus Operator</td>
<td>Janmarg/Operator</td>
<td>Bus Operator</td>
</tr>
<tr>
<td>Control Room Management, IT Systems, Ticketing,</td>
<td>AJL/CEPT</td>
<td>Service Provider</td>
<td>Service Provider through annuity</td>
<td>Service Provider through annuity</td>
<td>Service Provider through annuity</td>
</tr>
<tr>
<td>Sky Walks</td>
<td>Conceptual Design by CEPT/ Detailed Design by Concessionaire</td>
<td>Concessionaire</td>
<td>Concessionaire</td>
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<td>Concessionaire</td>
</tr>
<tr>
<td>Parking</td>
<td>AJL/CEPT</td>
<td>Parking constructed as part of corridor</td>
<td>Pay and Park Operator by Janmarg</td>
<td>Pay and Park Operator</td>
<td>Pay and Park Operator</td>
</tr>
<tr>
<td>Hardware elements (Sliding doors/ turnstiles)</td>
<td>AJL/CEPT</td>
<td>Supplier</td>
<td>Janmarg / Service Provider</td>
<td>Janmarg / Service Provider</td>
<td>Supplier through AMC</td>
</tr>
<tr>
<td>Advertisement Rights</td>
<td>AJL/CEPT</td>
<td>Licensee</td>
<td>Licensee</td>
<td>Janmarg</td>
<td>Licensee</td>
</tr>
<tr>
<td>House Keeping</td>
<td>AJL/CEPT</td>
<td>-</td>
<td>Janmarg</td>
<td>Service Provider</td>
<td></td>
</tr>
<tr>
<td>Landscaping</td>
<td>AJL/CEPT</td>
<td>Licensee</td>
<td>-</td>
<td>Janmarg</td>
<td>Licensee</td>
</tr>
</tbody>
</table>
Ahmedabad BRTS Capital cost expenditure till date

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<tr>
<th>Element</th>
<th>Qty</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway construction (including bus lanes)</td>
<td>61 km operational corridor</td>
<td>6100 Million INR (112 Million USD)</td>
</tr>
<tr>
<td>Bus shelters</td>
<td>93 operational bus shelter</td>
<td>418.5 Million INR (77 Million USD)</td>
</tr>
<tr>
<td>Workshop/depot</td>
<td>1</td>
<td>150 Million INR (27.6 Million USD)</td>
</tr>
<tr>
<td>Total capital cost expenditure for BRTS</td>
<td></td>
<td>6668.5 Million INR (1227 Million USD)</td>
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Note: includes infrastructure cost for 61km operational corridors, cost of 28km under construction corridors have not been added here.
Selected Corridors for Phase 03

- Network identified for BRTS phase 03: **26.8km**
- Total coverage of BRTS after phase 03 network: **135 sqkm**
- BRTS Stations proposed in phase 03: **52 stations**
Design Elements for Phase 03

Proposed BRTS Depot Infrastructure
- Acher (70)
- Ambli (70)
- Naroda (70)

Benefits
- Bus dispatch management
- Quick response to incidence management
- Reducing dead kms
Design innovations for Phase 03

Elevated Turn-around facility
- Anjali
- Danilimda
- Viratnagar

Benefits
- Operational flexibility
- Reduce Junction delays

Example: Topakapi, Istanbul
Innovations to manage constraints
BRTS Interchange at Soni ni chali integrated with flyover

BRTS Bus station (route 1 at elevated level)

BRTS Bus station (route 2 at ground level)

Safe, Easy and Direct Passenger transfer Station between BRTS routes at Soni ni Chali
Innovations to manage constraints

One-way BRTS at Maninagar
Why do we need Branding?

Ahmedabad Janmarg is a Successful Brand in Public Transit in India
Highly accepted and used by the people of Ahmedabad

- Educating people
- Creating awareness
- Creating Identity for the system
- Information Dissemination
- Public participation
- Different user groups (age, social..)
- Transferring ownership to people ..("Apnu amdavad..apno Janmarg"...)
- Project initiated as a Planning project needs to finally be accepted and owned by people..
Strong political will and support

Surprise visit by Hon. Ex. Chief Minister of Gujarat, and The Hon’ble Prime Minister of India, now.

Shri. Narendra Modi

On the bus ride, he discussed with the passengers, their response and feedback for the system.
Janmarg: Extensive Public Outreach

- Bus stop prototype and Free trial runs
  - Special BRT rides for school children, industrialists, doctors, religious leaders etc.
  - BRT trial runs till 1 am during Navratri festival

- Extensive public outreach and media coverage (during construction, trial runs, operations)

- Enhanced Accessibility for all (physically and visually challenged, senior citizens, women, children etc.)

- Special training programs for staff, Bus drivers for improved skills and public interaction

- Regular passenger feedback surveys and for performance monitoring
National / International Delegates visiting Janmarg

Dr. M. Ramachandran,
Ex. Secretary, Ministry of Urban Development, GOI, on his visit to Janmarg bus station

Visit to BRT by Dario Hidalgo

US Delegation on BRTS ride

Members of American Planning Association on their visit to Janmarg

Members of Lagos BRT, Nigeria on their visit to Janmarg

Former Secretary, Urban Development, GoI, Mr. Anil Baijal on a BRT ride
‘BRTS is a bus based high quality, high capacity rapid transit system that delivers fast, comfortable and cost effective urban mobility. In a BRT system, vehicles travel in exclusive lanes, thus avoiding congestion. The strategic location makes it perfect destination for Offices, showrooms, cafetaria, restaurants, hospitals & call centers.

Location
Located just of the 132' Ring Road which gives well connectivity with all the major areas of the Mega City. BRTS is a bus based high quality, high capacity rapid transit system that delivers fast, comfortable and cost effective urban mobility. In a BRT system, vehicles travel in exclusive lanes, thus avoiding congestion. The strategic location makes it the perfect destination for Offices, Showrooms, Cafeteria, Restaurants, Hospitals & Call centers.

All this makes shivalik-yash excellent value for money.

It's an address that makes good business sense.
Janmarg: A system for all..
Management of Transition to a new mode

- Formation of Separate Special Purpose Vehicle (SPV) named Ahmedabad Janmarg Limited (AJL) under the Companies ACT.
- Role of SPV
  - Operation and Maintenance
  - Route planning and rationalization
  - Integration with feeder
  - Quality Control
  - Undertake performance monitoring assessments
  - Fare regulation
  - Capacity Building
Sustainability

Major Modal shifts

- 17.5% Auto (shared) / 12% two wheelers / 6% walk / 5% cycle / 2.5% Car / 5.5% auto rickshaw

Improvement in air quality

- Reduction in PM2.5, NOx, SOx, CO
- PM2.5 levels: 122 – 170% lower than other modes on non-BRT corridors

Improvement in road safety

- Reduction in fatalities (Narol-Naroda sample survey)

Financial Sustainability

- Automatic fare adjustments (Fuel pricing, WPI)
- Proposed fare revision annually
- Additional sources of revenues (Advertisement rights, parking charges)
Where do we see Janmarg in future?

- Public transit to be made available within 500m for every citizen with last mile network
- Seamless travel through Public Transit Integration
- Achieving Service Level Benchmarks of PT
- 40% trips in Ahmedabad made on public transit
- Safe and high quality pedestrian and NMT infrastructure to support Janmarg last mile connectivity

Making Janmarg BRTS ‘a benchmark of excellence’
Thank you!

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Technical Support:
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