



Bangalore Airport Rail Link Ltd

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Presentation on

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17 May 2010

Slide 1

Why A High Speed Rail Link?

- **Airport City** – Bangalore's subcity of future
- Airport/ SEZ/ Industry Parks/ IT/ BT/ AeroSpace/ DBP
- Over 1 Million to be employed
- NH-7 – 3 lane one way with 11 signals

Required

- Fast Transfer from Habitations
- Seamlessly Integrated with Metro & Mono
- Traffic Hubs at Hebbal & Yelahanka
- Check-in at CBD & Hebbal

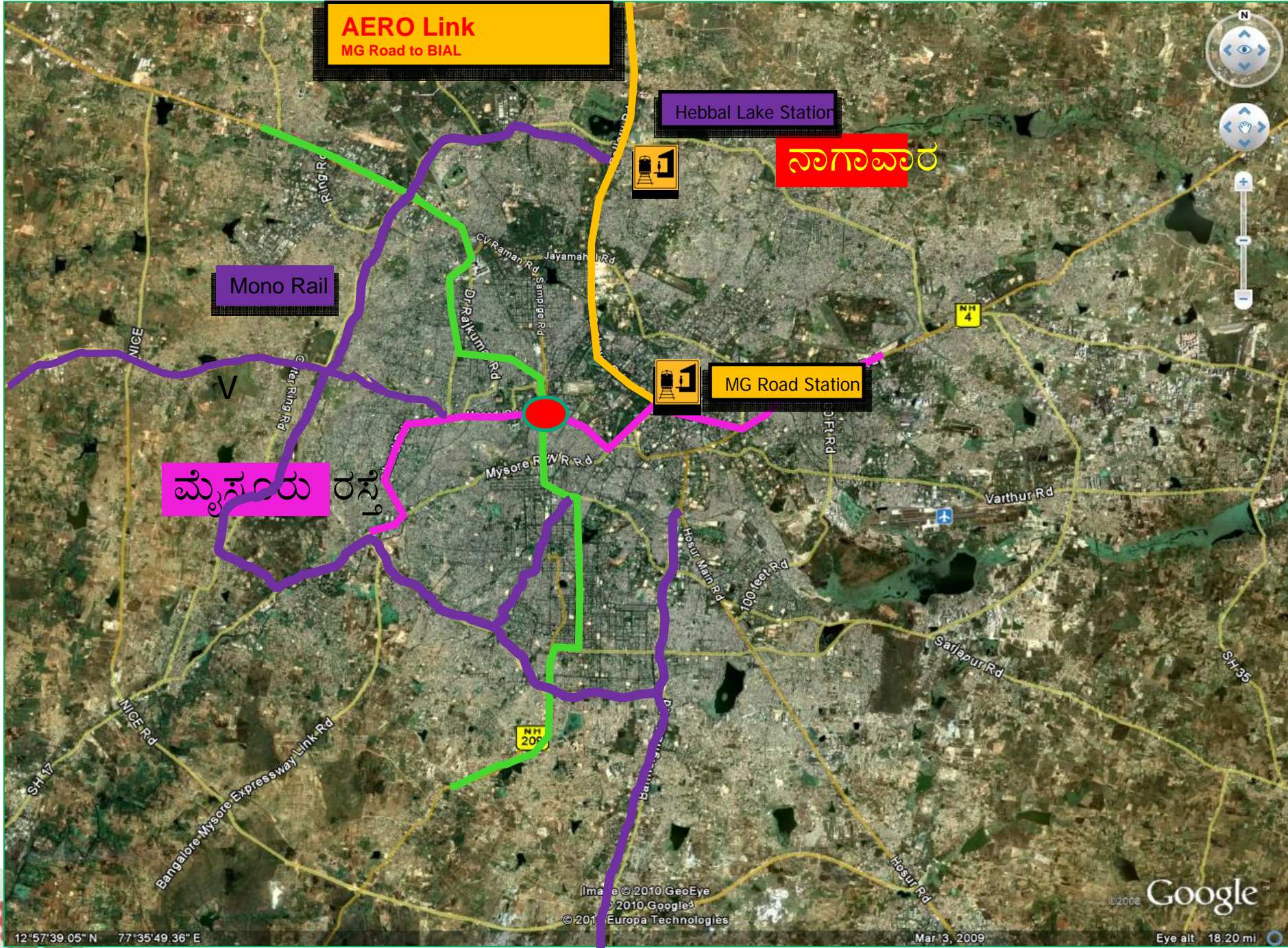




Why HSRL?

- **No environmental pollution**
- ***Project Externality Rs 175 cr/ Km***
- **Assured journey to the airport in 25 minutes**
- **From Hebbal flyover- 18 minutes**





AERO Link
MG Road to BIAL

Hebbal Lake Station

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Mono Rail

MG Road Station

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12°57'39.05" N 77°35'49.36" E

Image © 2010 GeoEye
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Mar 3, 2009

Google

Eye alt 18.20 mi

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BIAL Station

AERO Line
MG Road to BIAL

Sonnapanahalli

Hesaraghatta

Yelahanka Station

Chikbanavara

Hebbal Lake Station

Doddaballapur Rd

Bagalur Main Rd

Yelahanka Rd

NH 4

Ring Rd

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Google

Imagery Date: Dec 8, 2009

13°06'57.2" N 77°36'43.75" E elev 3020 ft

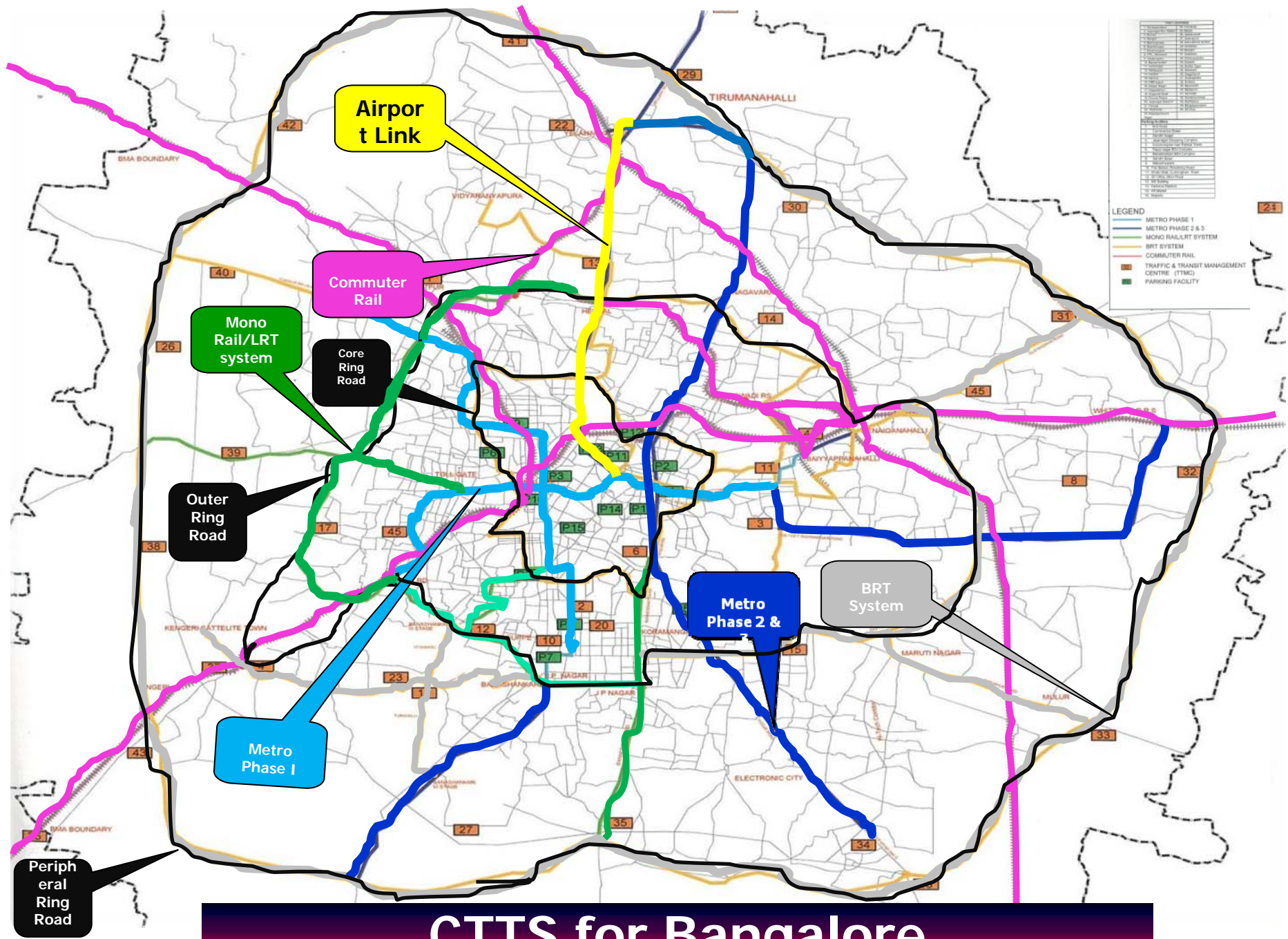
Eye alt 17.13 mi



HSRL Alignment

Map





CTTS for Bangalore

Externalities

SI No	Item	Costs/ Benefits
1	Socio Economic Impacts-	
	Savings in Travel Time Reduction of Accidents	Rs 11000/ car & Rs5 Lakh on fatal accidents
2	Environmental	
	Reduction in Fuel Consumption	50000 litres/ day
	Reduction in Pollution Load	16332 tons/ 2 m users
	Improvement in EIU	172 or 17.2%
3	Other	
	Pride in the City, more FDI, more Growth, Tax	
	Externalities	Rs 175 cr/ KM or Rs 5888 Cr

7th May 2009



Route Alignment

- Cubbon Road
- Raj Bhawan Road,
- Chowdiah Road,
- Railway over bridge near windsor manor,
- Bellary Road,
- Mekhri Circle
- Hebbal flyover (Elevated HSRL crosses over on the right side)
- After Hebbal, placed 22.5m on the RHS of NH-7.



Salient features of the Train

- Each train consists of 6 coaches
- Every coach will have space for accompanying baggage
- 80% passengers will travel seated, 20% standing.
- Air-conditioned with PA system & passenger information display.
- Maximum speed 160 kmph
- Maximum operating speed 145 Kmph
- Commercial speed will be 85 Kmph.
- Number of trains set proposed – 10 Nos. initially.
- Frequency will be 10 minutes; later reduced to 8 minutes, to 6 minutes and 3 minutes.



Technical Parameters (Contd.)

- Line fully elevated
- Generally on single column located on the median of road, carrying both the tracks
- Beyond Hebbal, on the right side of the main carriageway.
- Signalling
 - Automatic Train Protection,
 - Cab signalling.





Salient Features (DPR)

- (A) Route Length (between Dead ends) 33.65 km**
- a) Elevated 30.67 km
 - b) At-Grade 0.70 km
 - c) Underground 2.28km
- (B) Number of Stations 4**
- a) Cubbon Road (City Center Check-in Station) :
Chainage 0.095 km
 - b) Hebbal (Check-in Station) : Chainage 8.822 km
 - c) Yelahanka (Pick-up Station) : Chainage 15.073 km
 - d) BIA Terminal Station : Chainage 33.250 km





Salient Features (DPR)

Design Speed	160 kmph
Operational Speed	145 kmph
Average Speed	85 kmph

Time of Travel

Hebbal – BIA	18minutes
Cubbon Road – BIA Terminal (including halt at Hebbal & Yelahanka)	25 minutes



Salient Features (DPR)

Traction Power Supply

- | | |
|---------------------------------|----------|
| a) Voltage | 25 KV ac |
| b) Power Supply source | 66 KV ac |
| c) No. of receiving substations | 2 |
| d) SCADA system | Provided |

Rolling Stock

- | | |
|---|------------------|
| a) 2.88 m wide modern rolling stock with stainless steel body, Standard Gauge | |
| b) Axle load | - 15 T |
| c) Seating arrangement | - Transverse |
| d) Capacity of 6 Car unit | - 421 Passengers |
| e) Class of accommodation | - Single |





Salient Features (DPR)

Signalling, Telecommunication & Train Control

- a) **Type of Signalling Cab signaling and continuous automatic train control**
- b) **Telecommunications :**
 - i) **Integrated System with Fiber Optic Cable, SCADA, Train Radio, PA system etc.**
 - ii) **Train Information system, Control Telephones and Centralised Clock System**

Fare Collection : Automatic Fare Collection system, Smart Card etc.





Salient Features (DPR)

Construction Methodology :

- 1. Elevated Viaduct carried over pre-stressed concrete double 'U' shaped girders with Pile/Open foundations. Dipped in IAF / Yelahanka area across the runway approach.**
- 2. U/G Terminal Station at the airport & approach.**
- 3. Connection with BMRC (MRTS corridor) - Cubbon Road Station is adjacent to M G Road Station & Minsk Square station of BMRC.**
- 4. A future U/G Metro Station is planned adjoining CAT (City Airport Terminal) in Phase – II N-S line.**





LAND REQUIREMENT(hectares)

1. Government land:

- **BBMP land** : **0.96**
- **Other Govt. land** : **12.20**
- **NHAI lands** : **8.61**

2. Private land:

- **Other Private land** : **44.19**

Total Permanent Land : **65.96**



COSTS (1/2)(Rs in Cr)

SI No.	Item	Case 1 – (Overall project cost)	Case 2 – Project Cost excluding land cost	Case 3 – Project Cost excluding land cost & BIAL Terminal
1	Land	532.00	-	-
2	Alignment & Formation	1023.07	1023.07	540.07
3	Station Building	533.68	533.68	533.68
4	Depot	211.53	211.53	211.53
5	P-way	332.65	332.65	332.65
6	Traction & Power Supply	336.08	336.08	336.08
7	Signaling & Telecom	634.77	634.77	634.77
8	R & R inc. Hutment etc	52.06	52.06	52.06
9	Miscellaneous Utilities, roadworks etc.	93.72	93.72	93.72



COSTS (2/2)

SI No.	Item	Case 1 – (Overall project cost)	Case 2 – Project Cost excluding land cost	Case 3 – Project Cost excluding land cost & BIAL Terminal
10	Rolling Stock (Phase – I)	612.17	612.17	612.17
11	Baggage Handling System Infrastructure	18.62	18.62	18.62
12	Construction Contingency @ 30%	115.45	115.45	100.96
13	Preliminary Expenses (5% of the Construction Cost)	198.19	198.19	173.32
14	Base Project cost (as on Jan 2010)	4693.99	4161.99	3639.63
15	IDC	927.95	764.90	668.90
16	DSRA (3 months)	284.80	253.87	222.01
17	Project Cost at Completion	6685.17	5959.19	5211.26





PROJECT COST*

Cost	Rs. in Crores
Current costs	4693.99
Completion Cost	6685.17
train_compil8.wmv	

* **Excluding cost of land (Rs. 5959 Cr).**



FINANCIALS

Key Parameters	Case 1 - (Overall Project Cost)	Case 2 - Project Cost excluding land cost	Case 3 - Project Cost excluding land cost and BIAL Terminal
Project IRR without grant	8.81%	9.82%	11.01%
Project NPV @ 12% without grant (Rs. crs)	-2426.64	-1505.22	-615.72
Project IRR with 20% VGF	10.62%	11.89%	13.10%
Project NPV @ 12% with 20% VGF (Rs. crs)	-908.57	-63.32	590.13

Case No. 1 Overall Project Cost – (including Land Cost & BIAL Terminal)

Case No. 2 Project Cost (excluding only Land Cost but includes BIAL Terminal)

Case No. 3 Project Cost (excluding only Land Cost and BIAL Terminal)



FINANCIAL VIABILITY

Fare Box Revenue

Sl. No.	Stations	Fare (In Rs.)
1.	From CAT to International Airport	200
2	From Hebbal to International Airport	150
3	From Yelahanka to International Airport	100



Events

Sl. No.	Activities	Date	Status
1	Issue of RFQ	2 nd March 2009	Completed
2	Shortlisting	23 rd Jan 2010	Completed
3	Issue of RFP/ CA/ MOSS/ DPR	17 th April 2010	Completed
4	Last date for Receiving Enquiries	21.06.2010	<u>HSRL Mainpc No TP Sch.mpp</u>
5	Pre-bid meeting-1	28.06.2010	
6	Authorities response to queries	30.06.2010	
7	Pre-bid Meeting -2	07.07.2010	



Calendar of Events as per RFP (contd.)

8	Bid due date	12.08.2010 (1600 Hours)	Status
9	Opening of Bids	12.08.2010 (1700 Hours)	
10	Letter of Award	17.09.2010	
11	Validity period of Bid	150 days from 12.08.2010	
12	Signing of Concession Agreement	Within 30 days form 17.09.2010	
13	GOI Approval for VGF	16/12/2010	
14	Commissioning	16/12/2013	





Short Listed Firms

- **M/s Pioneer Infratech Pvt. Ltd. & Siemens Project Ventures**
- **M/s Lanco Infrastech Ltd. & OHL Concesiones S.L.**
- **M/s L&T Transco Ltd.**
- **M/s Reliance Infrastructure Ltd. & CSR Nanjing Puzhen Rolling Stock Co. Ltd.**
- **M/s ITD-ITD Cem – SOMA Enterprises Joint Venture**





Way Forward

- **Acquire Land- KIADB**
- **NHAI Clearance**
- **IAF clearance**
- **BIAL Funding**
- **BBMP/ BDA Permissions**
- **BMRCL- Minsq Stn Alignment**
- **GOI- UD**
- **GOK to announce**



HIGH SPEED TRAIN



EXTERNAL VIEW OF C.A.T



Proposed City Air Terminal, New Saluting Grounds, Bangalore

Architects
Vishwanath Associates
Bangalore - Chennai





Namaskaragalu

