

# Meeting on Implementation of MRTS projects

## Kozhikode & Thiruvananthapuram Monorail Projects

02<sup>nd</sup> Sep 2013  
Kerala Monorail Corporation Limited



# Structure of the Presentation

- Project Background
- Salient Features of the Project
- Progress Achieved
- Way Forward

# **PROJECT BACKGROUND**

# Project Background

Kozhikode and Thiruvananthapuram cities are among the fastest emerging cities of the state.

The recent trends in trade & employment made these cities the hotspots of the state, resulting in exponential growth of the cities and traffic.

In order to ease out the traffic congestions the Government have decided to implement a Mass Rapid Transit System in these cities.

In June 2009, M/s. Wilbur Smith Associates carried out the feasibility study for implementing a MRTS system in Kozhikode city.

M/s. Wilbur Smith Associates submitted the final feasibility report in December 2010. They proposed a Monorail system for the city.

# Project Background – Feasibility & DPR

M/s. DMRC was given the task of preparing DPR for the first phase of Kozhikode Monorail project.

M/s DMRC submitted the final DPR in June 2012.

M/s NATPAC carried out a feasibility study for implementing a suitable MRTS in Thiruvananthapuram.

M/s NATPAC in their feasibility report submitted on February 2012 proposed a Monorail System for Thiruvananthapuram.

Subsequently M/s DMRC was given the mandate to prepare DPR for Phase I of the Thiruvananthapuram Monorail project.

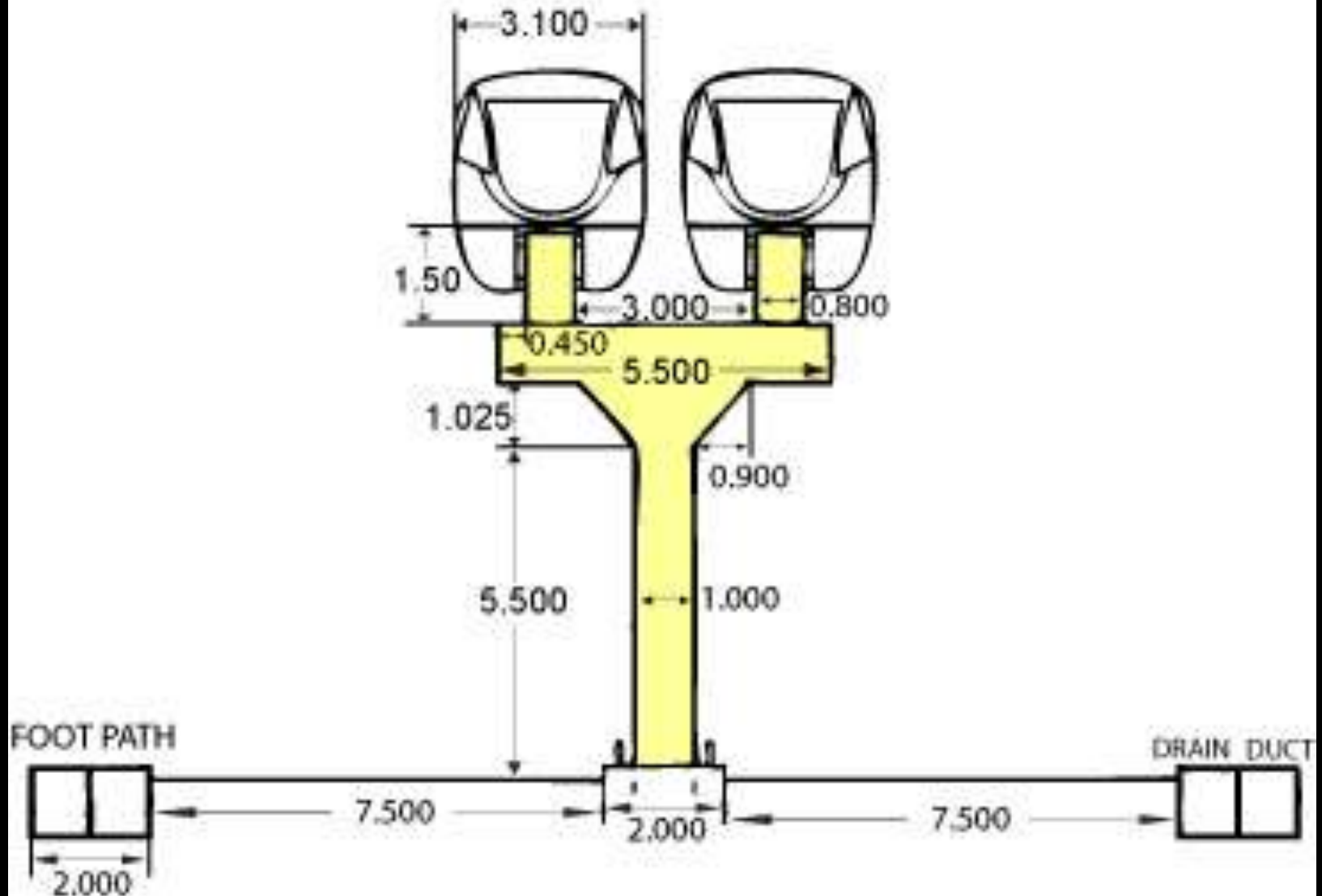
M/s DMRC submitted the DPR for Thiruvananthapuram Monorail Project in December 2012.

# **SALIENT FEATURES OF THE PROJECT**

# CIVIL CONSTRUCTION

- Monorail will be fully elevated.
- The two track beams will be carried on Circular Pillars about 30m apart, along the median of the road.
- Platforms will be on top of road conveniently accessed from outside the ROW.
- All stations will have lifts & staircase.

# CROSS SECTION OF MONORAIL STRUCTURE





# TRAINS

- Consists of **3** cars with a carrying capacity of **525** persons.
- Cars with aluminum body, on rubber tyres, fully air-conditioned with wide vestibules.
- Can negotiate sharp curves up to **50** meter radius and gradients up to **6%**.

- Latest signaling system (CBTC) will allow trains to run safely (ATP) every 2 minutes to cater the traffic demand up to 2041. In the initial years trains will be run every 5.5 minutes during peak hours.

- Trains can run driverless, but Driver is proposed, but no guard.
- Traction voltage is **750V D.C.** Two receiving sub stations, one at the Depot and the other at Kesavadasapuram have been proposed.
- Every station will have a sub station to meet the power needs of the station. Total power needed is **12MVA in 2041.**

# Monorail Project – Salient features

## Coach Dimension

- Length 16m
- Width 3.15m
- Height 4.05m

## Carrying capacity per train

- 400 to 525 passengers

## Traction voltage

- 750V dc (375=375)

## System of signaling

- Communication based Train Control with Cab Signaling and ATO (CBTC)

## Fare collection

- Automatic fare collection system with combination of contactless smart cards.

# Kozhikode Monorail Project – Salient features

<b>Route length</b>	<b>-</b>	<b>14.2 km</b>
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<b>Number of Stations</b>	<b>-</b>	<b>15 (All elevated)</b>
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<b>Expected daily traffic – 2021</b>	<b>-</b>	<b>1,76,663</b>
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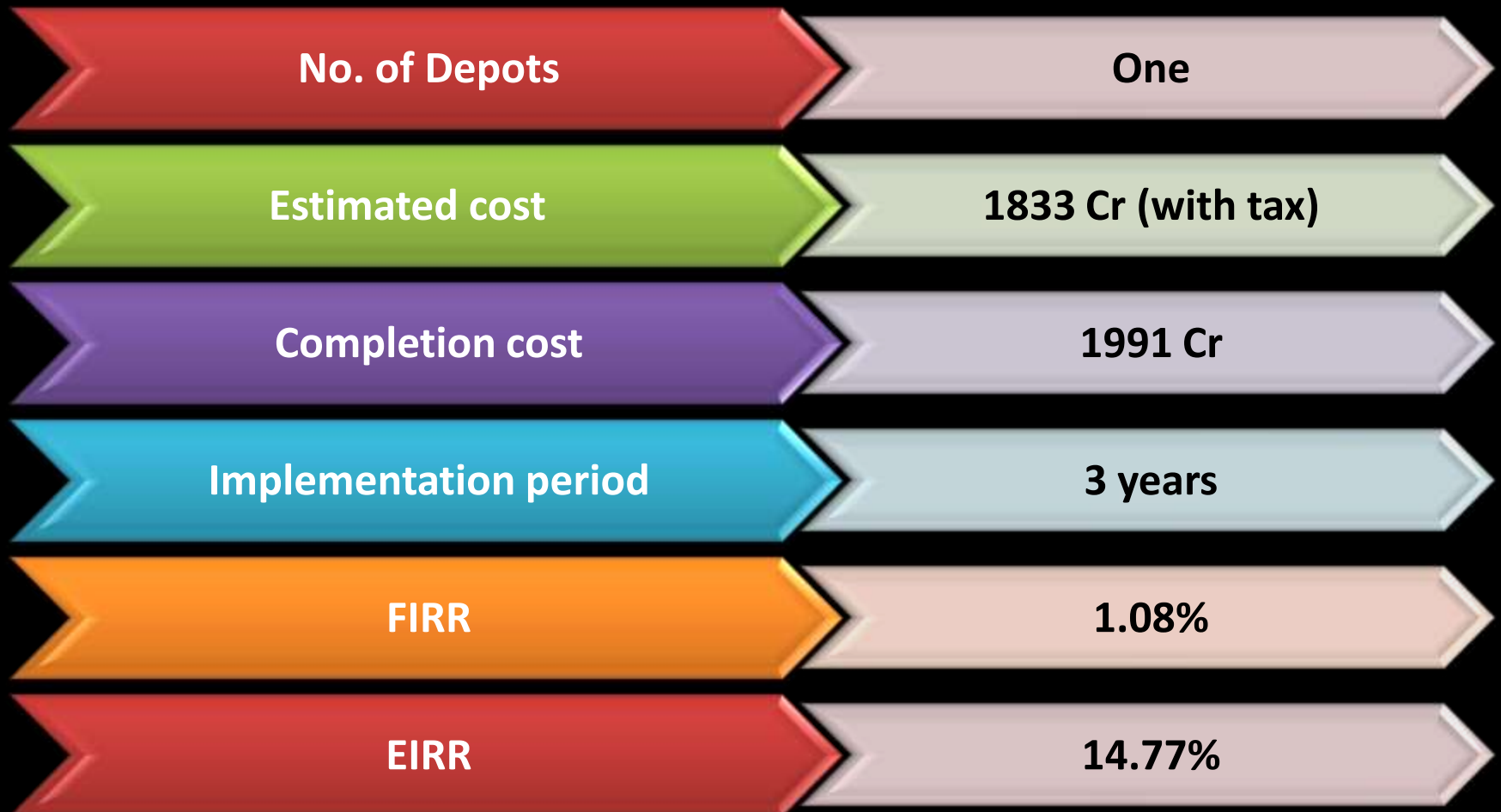
<b>No. of trains in 2018</b>	<b>-</b>	<b>12 Nos</b>
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<b>No. of coaches per train</b>	<b>-</b>	<b>3 coaches</b>
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# KOZHIKODE MONO RAIL PROJECT



# Kozhikode Monorail Project – Salient features



<b>No. of Depots</b>	<b>One</b>
<b>Estimated cost</b>	<b>1833 Cr (with tax)</b>
<b>Completion cost</b>	<b>1991 Cr</b>
<b>Implementation period</b>	<b>3 years</b>
<b>FIRR</b>	<b>1.08%</b>
<b>EIRR</b>	<b>14.77%</b>



# Thiruvananthapuram Monorail Project

## – Salient features

Route length	-	22.50 km
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Number of Stations	-	19 (All elevated)
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Expected daily traffic – 2021	-	2,67,465
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No. of trains in 2018	-	22 Nos
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No. of coaches per train	-	3 coaches
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Thiruvananthapuram

# Thiruvananthapuram Monorail Project

## – Salient features

No. of Depots	One
Estimated cost	3178Cr (with tax)
Completion cost	3590 Cr
Implementation period	5 years (Stage I in 40 months)
FIRR	2.08%
EIRR	15.92%

# Proposed Funding Pattern

## **Government of Kerala**

- 20% of the completion cost + land cost + 50% of the central taxes and duties to be borne by GoK.

## **Government of India**

- 20% of the completion cost + 50% of the central taxes and duties to be borne by Gol.

## **Suppliers' credit/Debt**

- Remaining portion of the completion cost through debt from Bilateral Funding/ Multilateral Agencies or Suppliers' credit etc.

**PROGRESS ACHIEVED**

# Project Progress - A S, SPV

## Phase I of Kozhikode Monorail Project

- AS has been issued vide G.O (Ms) No. 72/2012/PWD dated 09.10.2012

## Formation of Special Purpose Vehicle for the projects

- AS has been issued vide G.O (Ms) No. 72/2012/PWD dated 09.10.2012 for incorporating a SPV namely 'Kerala Monorail Corporation Limited'.

## Phase I of Thiruvananthapuram Monorail Project

- AS has been issued vide G.O (Ms) No. 44/2013/PWD dated 30.05.2013

## Flagship Project Status

- Govt. has accorded flagship project status to Kozhikode & Thiruvananthapuram Monorail Projects and has earmarked funds in the budget.



# Project Progress – GCA, Packaging

## Appointment of DMRC as General Consultant

- Govt. engaged M/s DMRC as the General Consultant for Kozhikode & Thiruvananthapuram Monorail Project vide G.O (Ms) No. 50/2013/PWD dated 14.06.2013

## Signing of the General Consultancy Agreement (GCA)

- GCA has been signed between KMCL & DMRC on 19.06.2013

## Single Contract Package

- Approval given for single contract package including all civil works and systems including rolling stock for both Thiruvananthapuram and Kozhikode Monorail project

## Exclusive Developer Contractor

- KMCL initiated global tendering process to select an exclusive developer contractor for developing mono rail systems on EPC turnkey basis.

# Project Progress – Tender, MoUD

## EOI cum Prequalification

- M/s DMRC on behalf of KMCL has called for EOI from eligible national and international entities to design, construct, procure, part finance, install, operate, maintain for a specific period all systems, civil structures, rolling stock, signaling etc., for the operation of the mono rail in both the cities.

## Pre Bid Meeting

- Pre Bid Meeting scheduled on 2<sup>nd</sup> Sep 2013. Submission of EOI is on 1<sup>st</sup> Oct 2013.

## Support from MoUD

- Honourable Chief Minister, GoK has submitted a request to Hon'ble Minister (MoUD) vide D.O No. 10706/H1/2013/PWD dt 20.05.2013

## Formal Proposal to MoUD

- Proposal submitted to Secretary MoUD through Secy. (PWD), GOK vide D.O No. 10706/H1/2013/PWD dt 11.07.2013 seeking approval and funding.

# Project Progress – Land Acquisition

LA

- M/s KMCL has already initiated steps for Land Acquisition. Formal proposals already submitted to Dist Collector, Kozhikode for LA of the private land.
- Formal proposal to Dist. Collector Thiruvananthapuram will be submitted next week.
- DPR to widen the road in R2 of both the cities are in the final stage and formal proposals for LA will be submitted by state PWD.



**WAY FORWARD**

# Way Forward

**Opening of EOI – 1.10.2013**

**Technical and Financial Bids to be invited from the those pre qualified applicants of the Global EOI**

**Financial Structuring of the Project and Fund Syndication to be awarded to a financial consultant by Sep 2013.**

**Land Acquisition - separate LA teams constituted at Thiruvananthapuram & Kozhikode.**

# Way forward

Selection of pre qualified applicants

Issue of tender documents to pre qualified applicants

Evaluation of bids received

Issue of Letter of Intent

Execution of Agreement with the Developer Contractor



# Way forward

**Approvals and Funding from Govt.**

**Financial Closure of the project**

**First phase acquisition of land**

**Handing over of the site to the contractor**

**Commencement of the construction activities**





# **PHASING OF THE PROJECT**

- The civil works will be taken up in two phases:
- Section R-1 from Medical College to Mananchira 8 km where there are no serious LA problem.
- Section R-2 from Mananchira to Meenchanda 6 km where road widening for the entire stretch as per the Government approved Master Plan and Panniyankara R.O.B have to be completed before the civil works can start.

# FUNDING PATTERN

Government of Kerala –

29% of completion cost Rs.575 crores.

Government of India –

22% of completion cost Rs. 437 crores.

Through debt suppliers credit or green tax–

49% of completion cost Rs. 979 crores.

Total

Rs. 1991 crores