

# EST PLENARY SESSION 5

## Funding Resilient Transport Infrastructure and Services

Responses to Questions

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**GOVERNMENT OF SINDH, KARACHI**

**PAKISTAN**

# Funding Resilient Transport Infrastructure and Services

## Discussion points

1. While the frequency and magnitude of natural disasters (flood, earthquake, cyclones, landslides, etc.) are on the rise across Asia. To what extent have the developing countries and cities of Asia made “resiliency” an important strategy and component of their national budgeting or financing for transport infrastructure and services development?

## Responses

Barring some countries, developing economies in Asia simply have not been making the kinds of investments in transport infrastructure that are sufficiently resilient to natural disasters. As far as China is concerned, infrastructure development is regarded as important component in national budget and stands at 9% of GDP. Whilst, its significance in South Asian and South East Asian countries’ budgets is on low side, less than 0.10% and 1% of GDP, respectively, and can be judged from the state of existing infrastructure and current budget allocation.

2. Many developing economies of the region have considerable infrastructure deficit at the current level of urbanization. What are the scopes of financing (both at national and international level) options for developing countries of Asia to leverage their limited budget towards building resilient transport infrastructure and services?

World Bank estimate indicates that the annual investment, operations and maintenance requirements for infrastructure would equal 6.5-7.7% of GDP, across all developing countries indicating that there is a large financing gap between actual and required investment for infrastructure. Due to limited budget and dire need of infrastructure development and services, the scope of unconventional financing warrants great potential. The options could include IFIs, bilateral donors, private sectors (PPP modalities), etc.

3. A resilient city makes itself an attractive destination for investment and business development. To what extent does the local and city governments of the region direct financing towards resilient transport infrastructure and services?

In the face of limited budgetary resources, policy makers favor investments that generate immediate, tangible outcomes for political gains. Consequently, investment in resilient transport infrastructure and services remains tepid. Moreover local and city governments direct financing is very low due to their limited financial capability with the exception of few countries, which requires the need for strong revenue base at city government level and dedicated funds available for funding resilient transport infrastructure and services.

4. To what extent do Asian countries evaluate the performance of major transport projects or investments in terms of resiliency?

This criterion is not regarded across the region in evaluation process. Analysis of the effects of disasters on recent social and economic performance as part of the evaluation preparation process can provide a starting point in integrating strengthened resilience goals into planning.

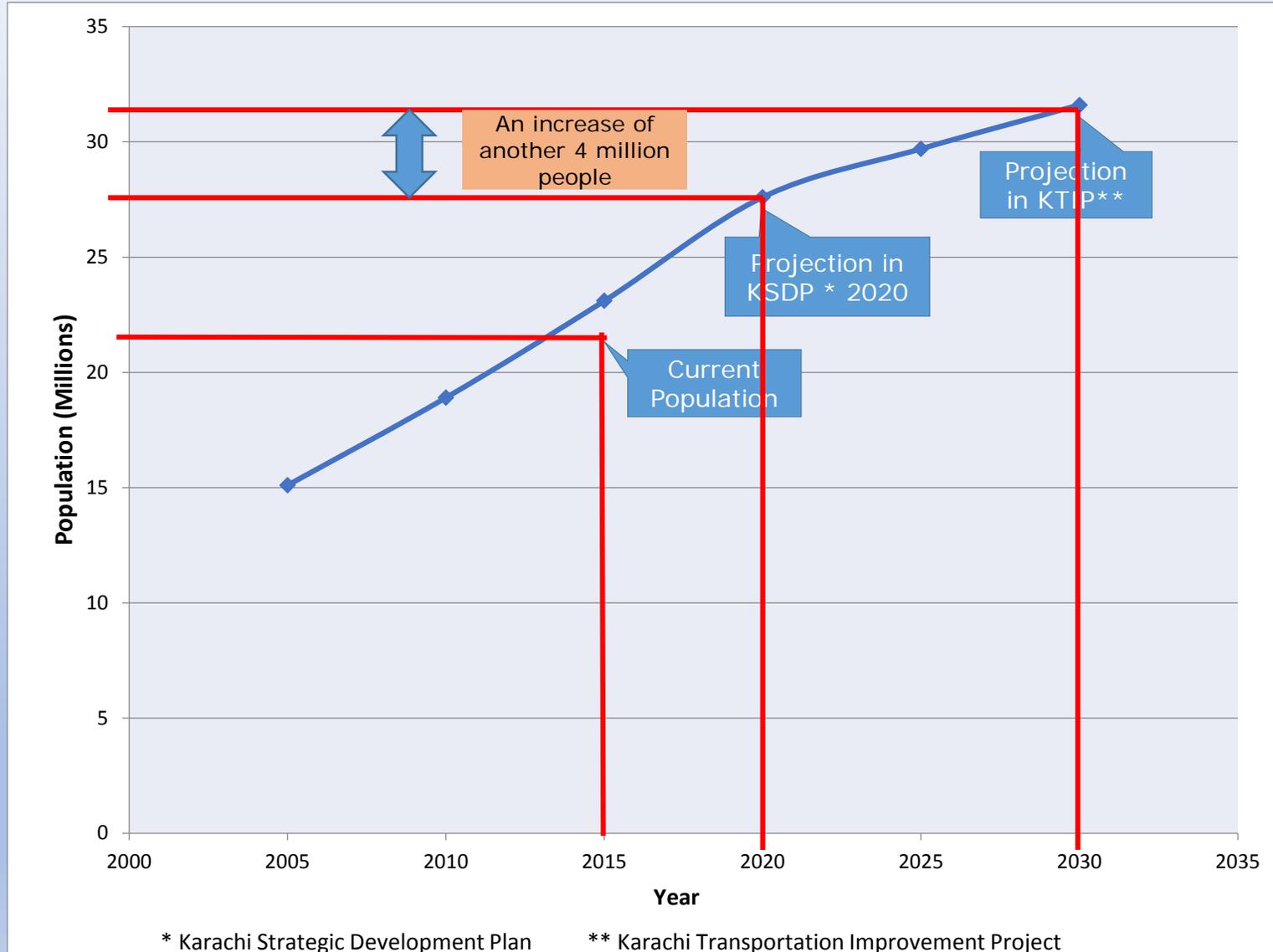
5. Private sector are known to be major custodian of both funds and technologies. What potential opportunities do they offer in building next generation transport infrastructures towards the path of resiliency? To this regard, how well established are local and national government policies in promoting PPPs towards development of resilient transport infrastructure and services?

The private sector can play an important role in securing investment in resilience, not only bringing in funding but also an understanding of the transport infrastructure industry, operating efficiencies, and products and services that will sustain the latest technology and innovative, flexible capacity. There are a wide range of potential commercial opportunities, including infrastructure development, service provision, financial services, and information and communication technology. In this regard, government policies in the region to promote PPPs are in growing stage. Governments can encourage participation of private partners by establishing an attractive investment climate, including suitable legislative and regulatory frameworks and fiscal incentive.

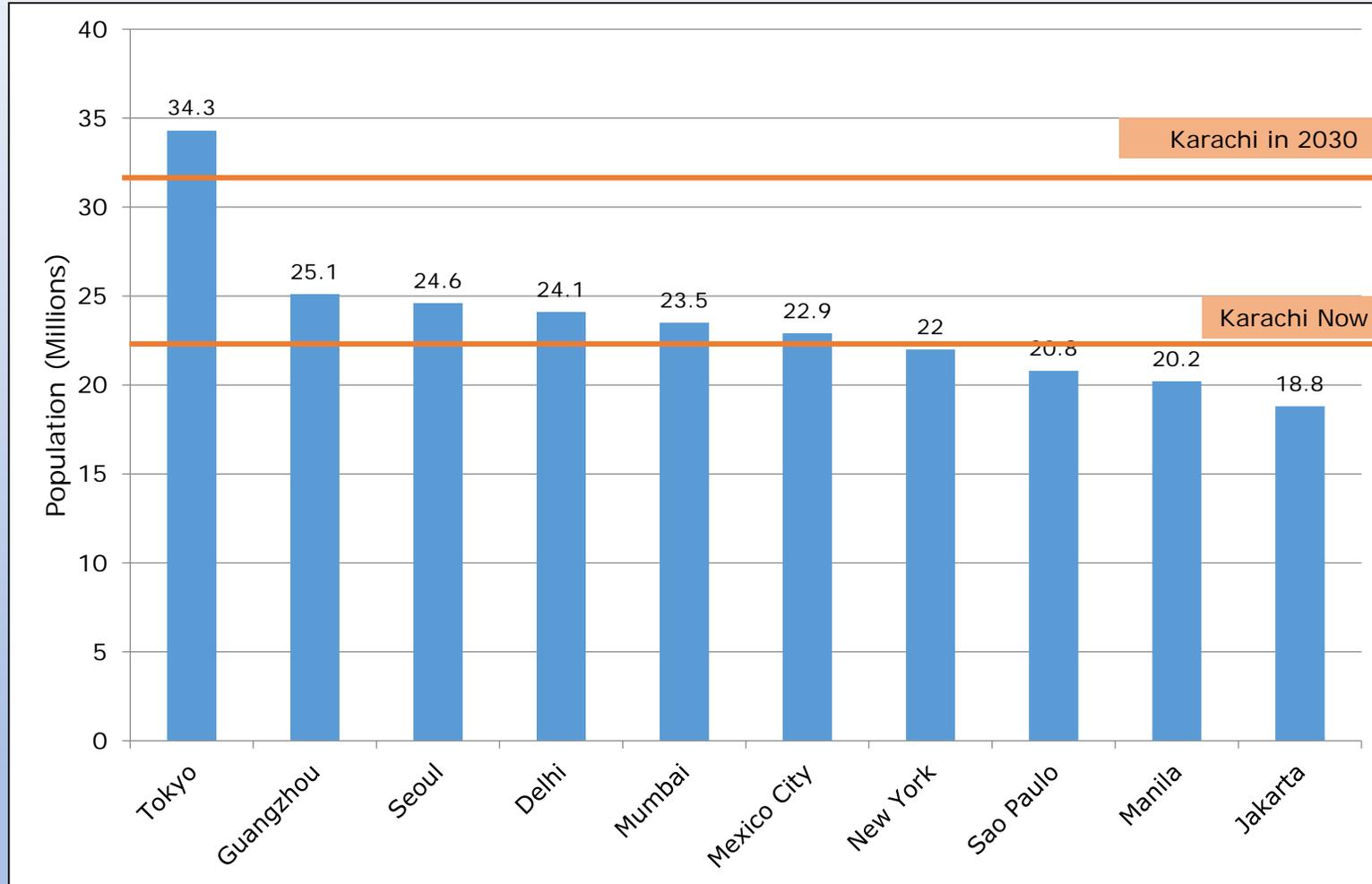
6. What are the new areas or scopes of sustainable business opportunities on resilient transport system? What are the technology dimensions of sustainable business opportunities in areas of transport sector resiliency? Should Asian countries promote triangular cooperation between government, private, and scientific and research organizations in the areas of transport sector resiliency?

With a little lateral thinking and consideration of indirect rather than direct opportunities to increase resilience in transport system, there is considerable potential for public–private partnerships. Risk reduction and revenue-generating investments can also be combined in a single infrastructure development. Financial markets can provide additional private financing for investment with advanced financial structuring of the transactions. Research and scientific organizations could be welcomed to promote advanced technology in transport infrastructure and services. Scientific modeling capabilities and well researched data would improve and enable better estimation and thus better management of disaster risk.

# Population Projection for Karachi



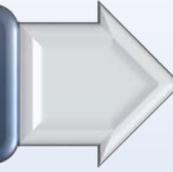
# World Metropolitan Population



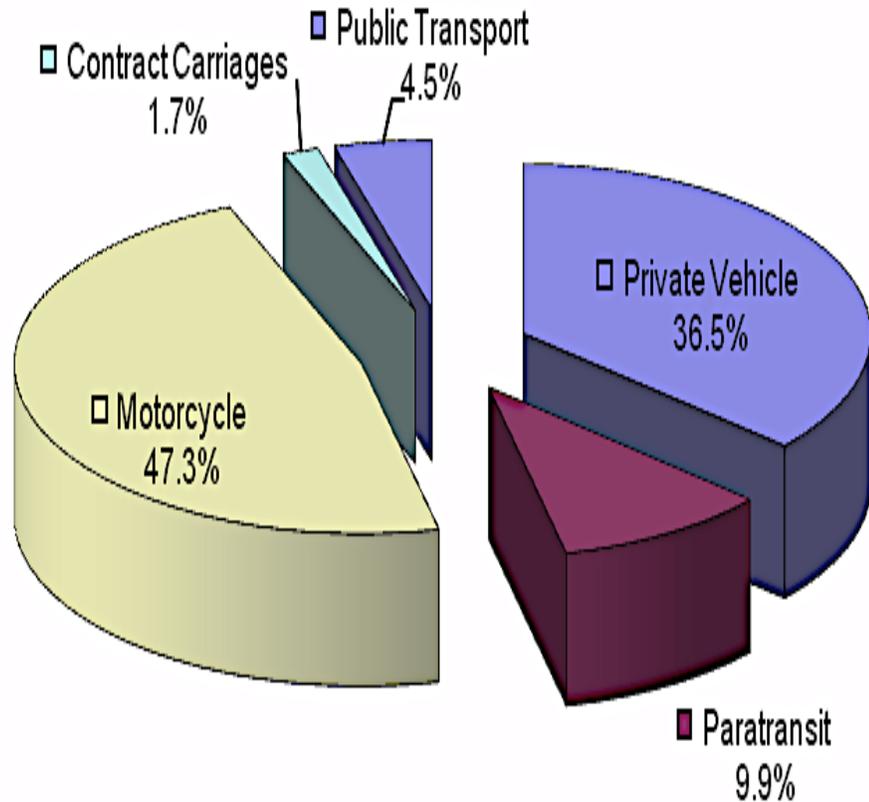
- ✓ All Metropolises of the world have a Mass Transit System except Karachi.
- ✓ So a high demand of good Mass Transit System can easily be understood.

# Status of Existing Public Transport

[Vehicle Count VS Occupancy Comparison]

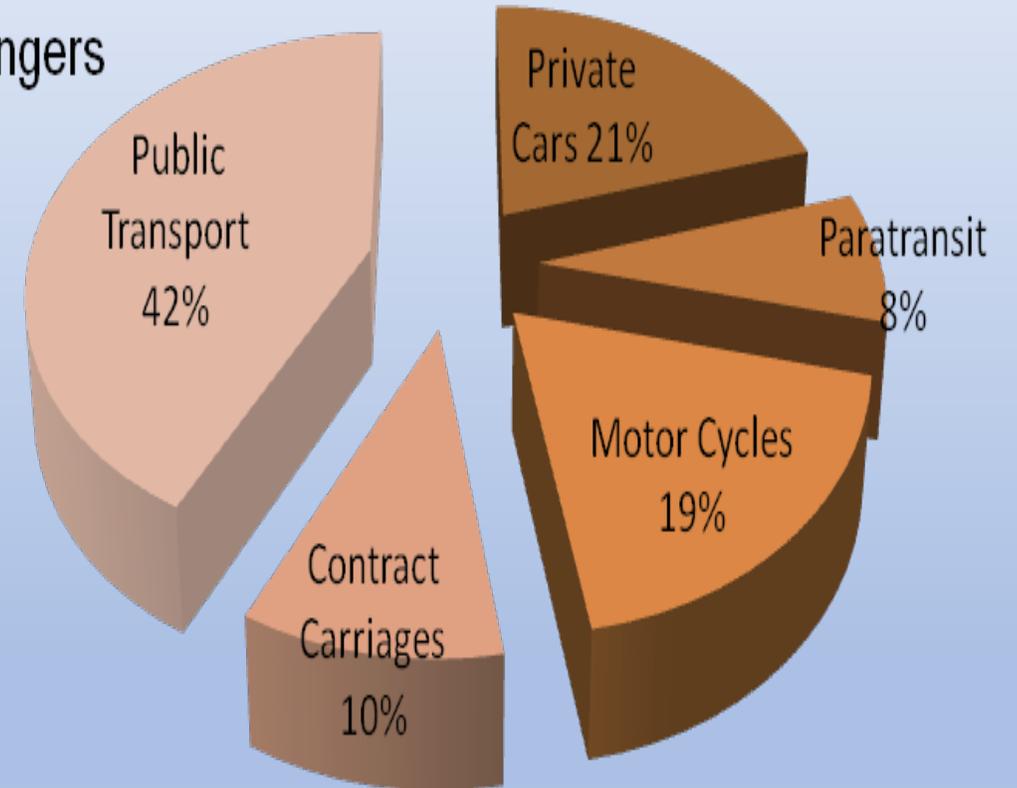


## Modal Distribution of Vehicles



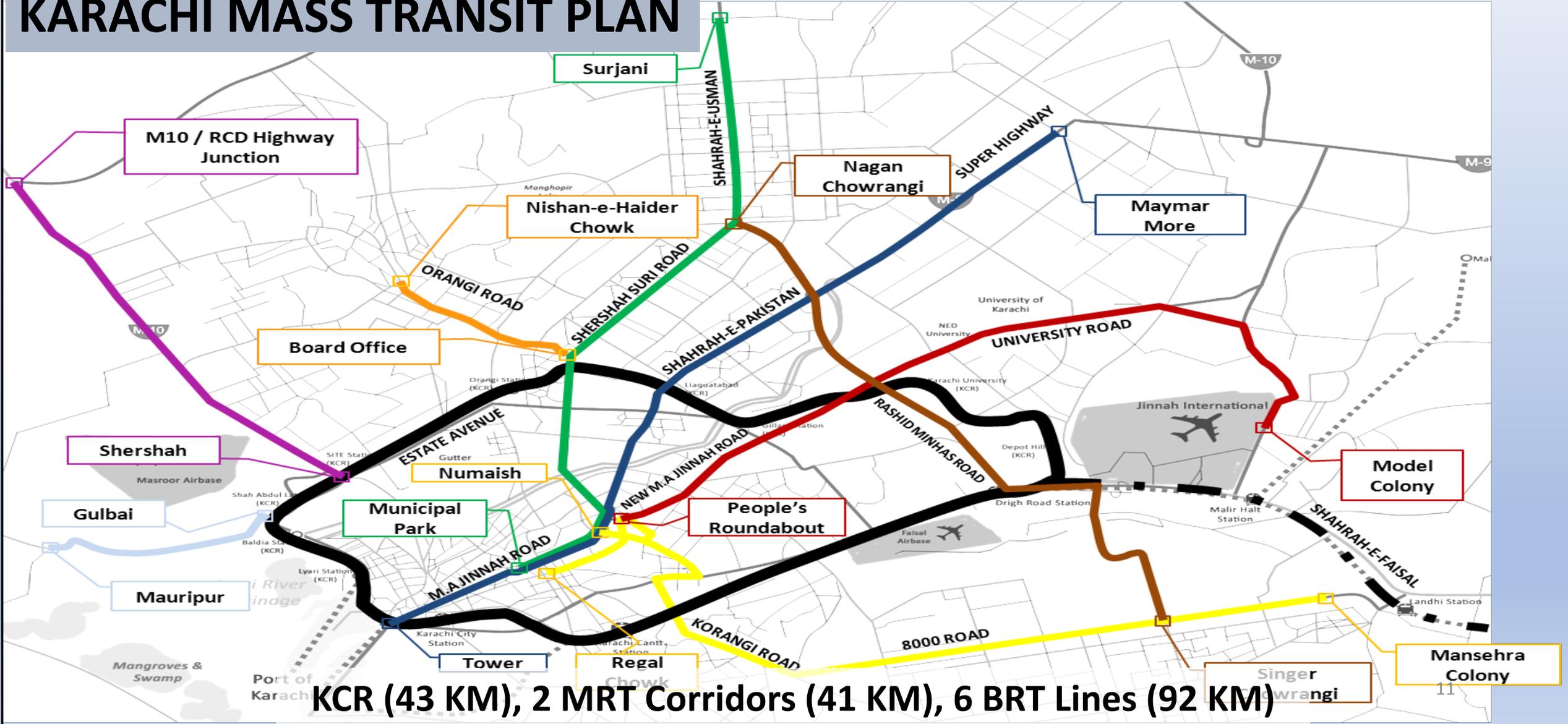
**(Total no. of Vehicles : 3.4 million)**

## Modal Distribution of Passengers



KARACHI CIRCULAR RAILWAY		YELLOW LINE CORRIDOR	
KARACHI CIRCULAR RAILWAY		ORANGE LINE CORRIDOR	
RED LINE CORRIDOR		AQUA LINE CORRIDOR	
BLUE LINE CORRIDOR		BROWN LINE CORRIDOR	
GREEN LINE CORRIDOR		PURPLE LINE CORRIDOR	

# KARACHI MASS TRANSIT PLAN



**KCR (43 KM), 2 MRT Corridors (41 KM), 6 BRT Lines (92 KM)**

# PRESENT STATUS

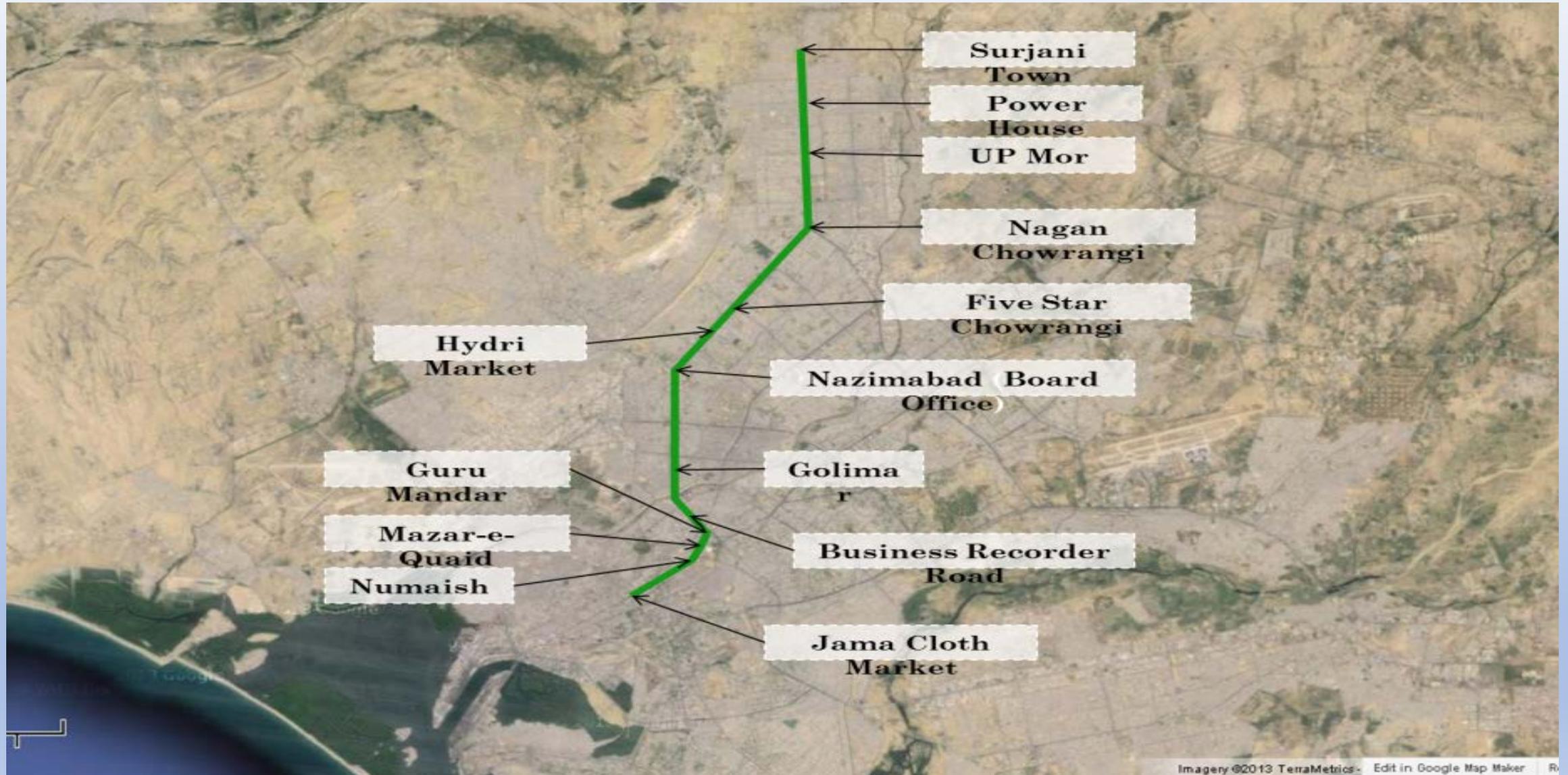
BRT “GREEN” Line

# SALIENT FEATURES FOR GREEN LINE

- Ridership: 400,000/day
- System Capacity: 23000 pphpd
- Length: 17 km
- Cost: 16 billion

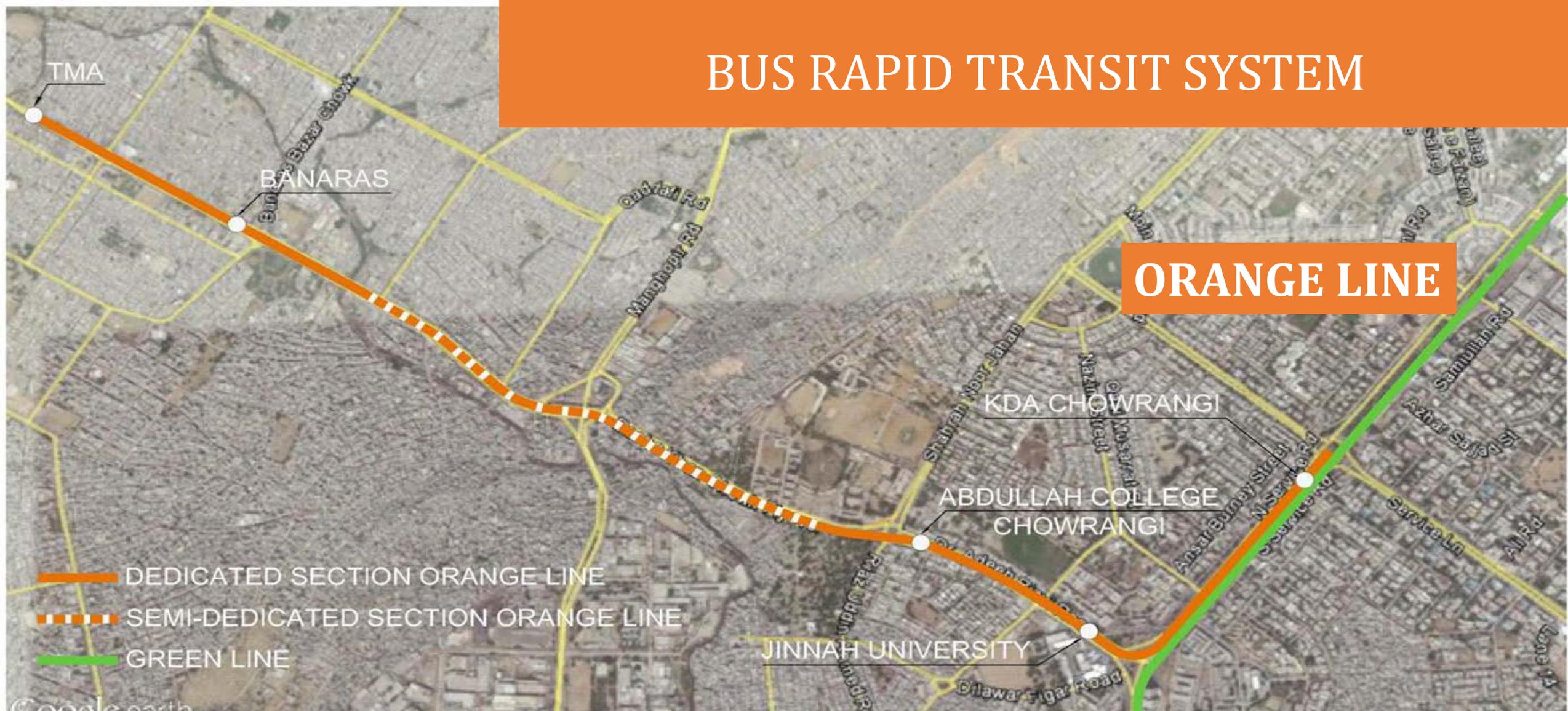
PROJECT FINANCING		
S #	BRT Component	Mode of Financing
1.	Infrastructure Development	Federal Government Financing
2.	ITS	Public Private Partnership Mode
3.	Bus Operations	Public Private Partnership Mode

# BRT GREEN LINE ROUTE ALIGNMENT



BRT “ORANGE” Line

# BUS RAPID TRANSIT SYSTEM



**ORANGE LINE**

**(From TMA Orangi to KDA Chowrangi via Dr. Adeb Rizvi Road and Sher Shah Suri Road)**

Dated: August 26, 2015

# SALIENT FEATURES

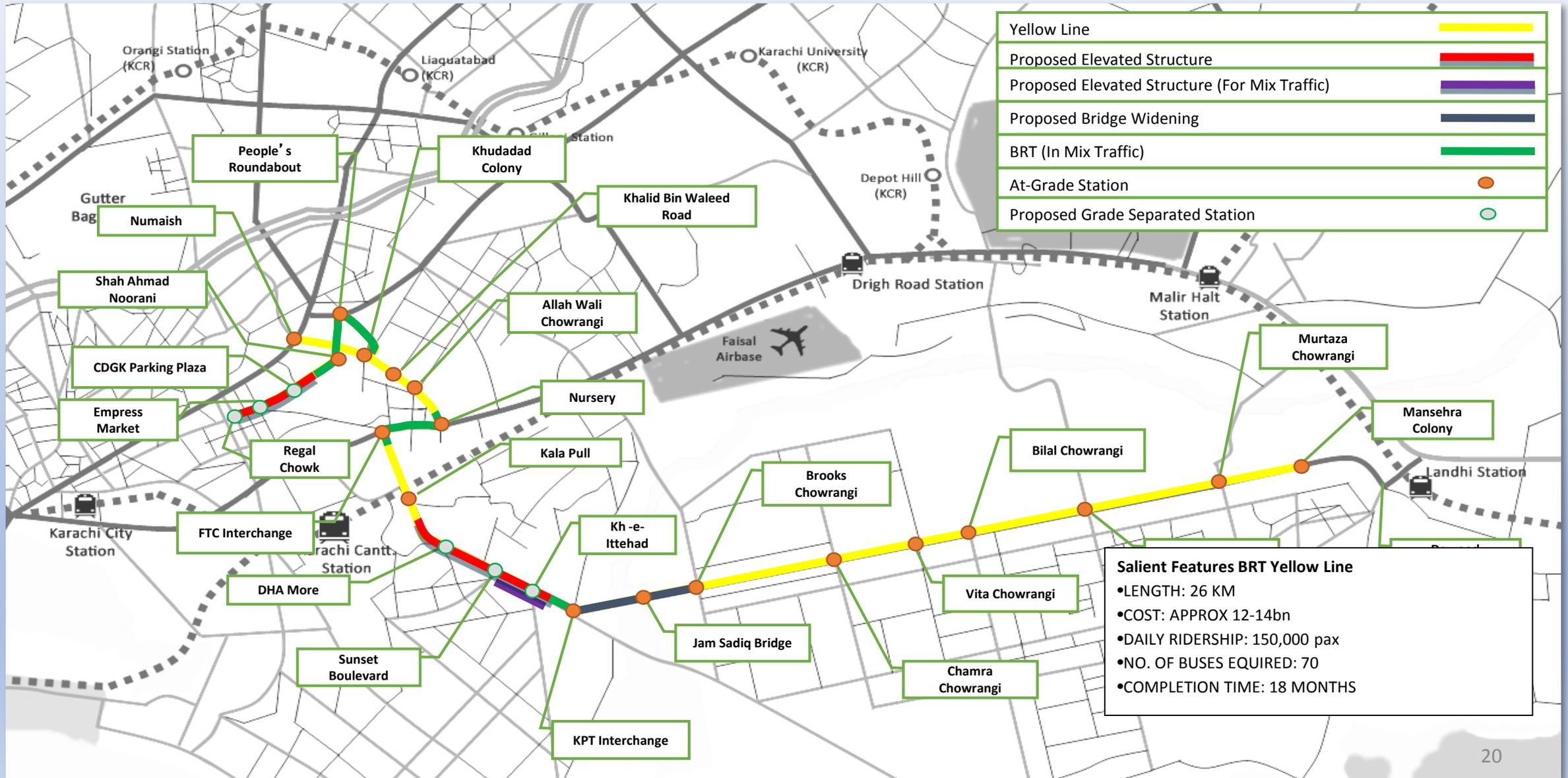
- Ridership: 50,000/day
- System Capacity: 10,000 pphpd
- Length: 04.7 km
- Cost: 2.364 billion

PROJECT FINANCING		
S #	BRT Component	Mode of Financing
1.	Infrastructure Development	Provincial Government
2.	ITS	Public Private Partnership Mode
3.	Bus Operations	Public Private Partnership Mode

# BRT “Yellow” Line

# BRT Yellow Line – Route

Quaidabad to Saddar and Mazar-quaid



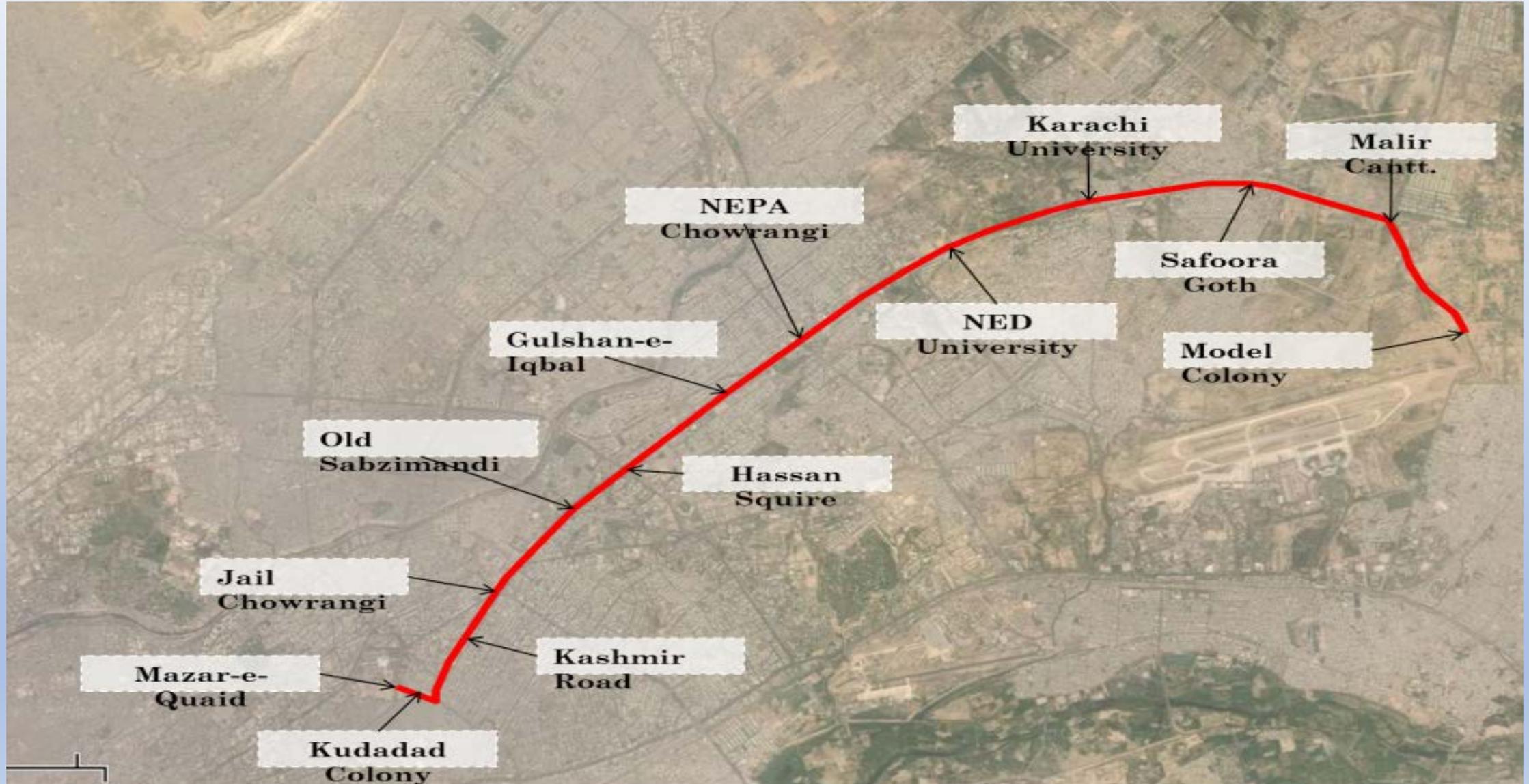
## SALIENT FEATURES BRT YELLOW LINE

- **LENGTH:** 26 KM
- **COST:** 16bn
- **DAILY RIDERSHIP:** 150,000 pax
- **NO. OF BUSES EQUIRED:** 70
- **COMPLETION TIME:** 18 MONTHS

PROJECT FINANCING		
S #	BRT Component	Mode of Financing
1.	Infrastructure Development	Public Private Partnership Mode
2.	ITS	Public Private Partnership Mode
3.	Bus Operations	Public Private Partnership Mode

# BRT “RED” Line Project

# BRT RED LINE ROUTE ALIGNMENT



## SALIENT FEATURES:

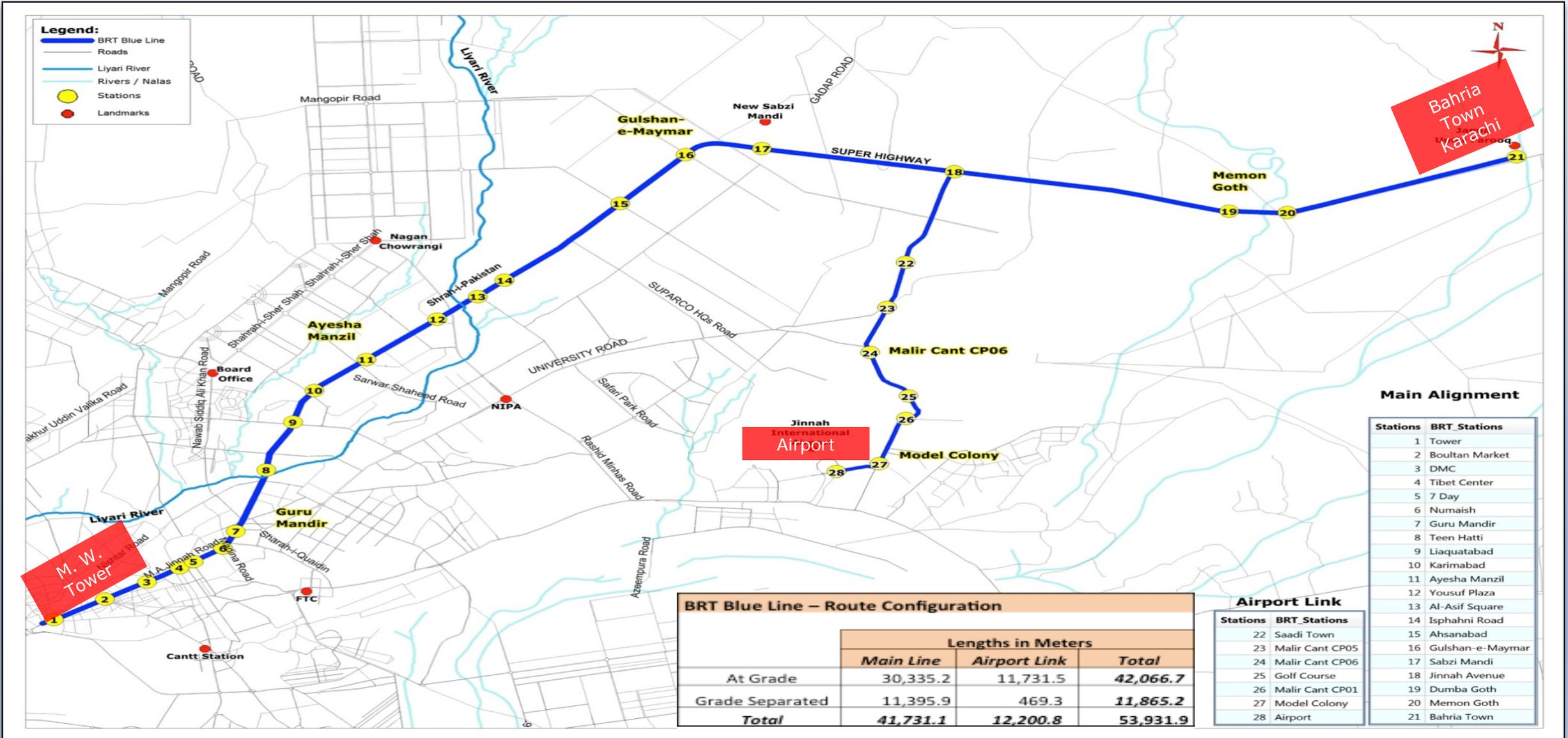
- Ridership: 350,000/day
- System Capacity: 13000 pphpd
- Length: 21.5 km
- Cost: 12-15billion

Feasibility Study Completed.

PROJECT FINANCING		
S #	BRT Component	Mode of Financing
1.	Infrastructure Development	Asian Development Bank Funding
2.	ITS	Public Private Partnership Mode
3.	Bus Operations	Public Private Partnership Mode

# Bus Rapid Transit (BRT) “BLUE” Line Project

# BRT Blue Line Route Alignment



# Salient Features:

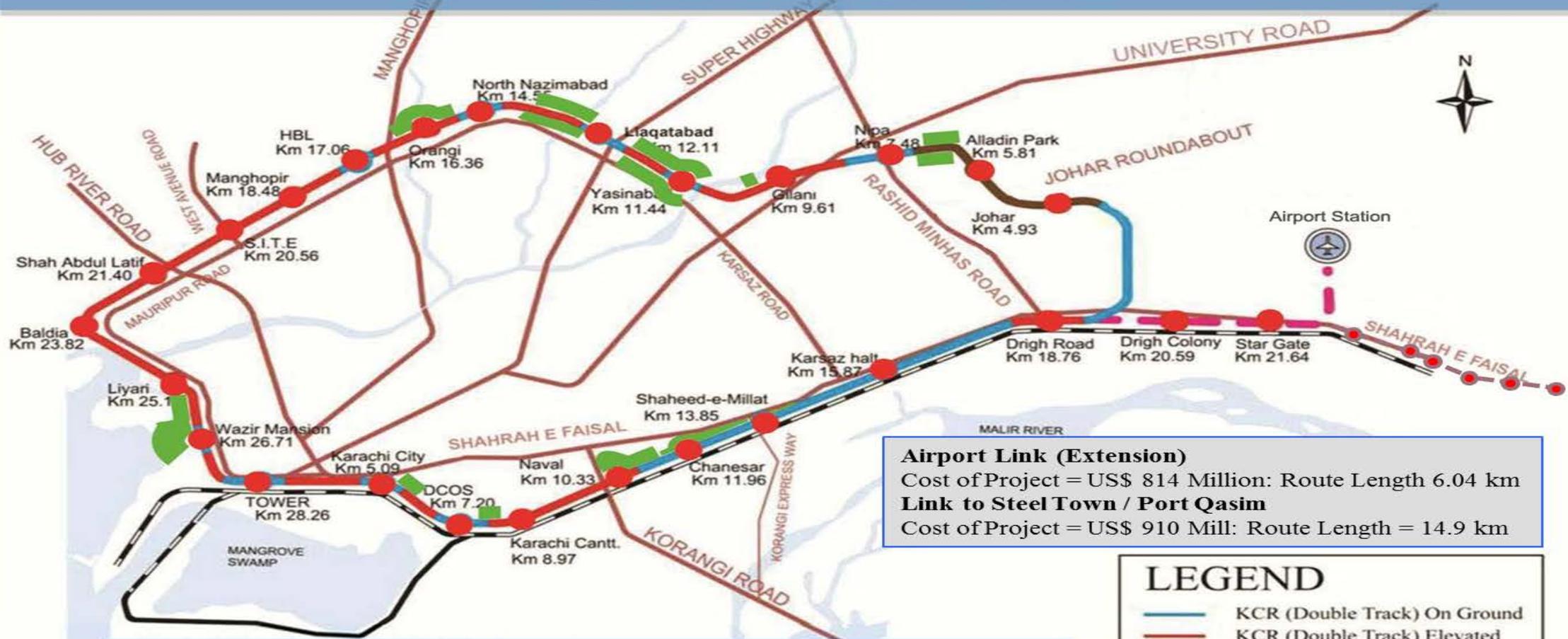
- Ridership: 357,000/day
- Length: 54km
- The project is being implemented in Public Private Mode as a BRT project convertible to MRT in future.

PROJECT FINANCING		
S #	BRT Component	Mode of Financing
1.	Infrastructure Development	Public Private Partnership Mode
2.	ITS	Public Private Partnership Mode
3.	Bus Operations	Public Private Partnership Mode

# KARACHI CIRCULAR RAILWAY (KCR) PROJECT

# Karachi Circular Railway

## KCR ROUTE ALIGNMENT



**Airport Link (Extension)**  
 Cost of Project = US\$ 814 Million: Route Length 6.04 km  
**Link to Steel Town / Port Qasim**  
 Cost of Project = US\$ 910 Mill: Route Length = 14.9 km

### LEGEND

- KCR (Double Track) On Ground
- KCR (Double Track) Elevated
- KCR (Double Track) Tunnel
- - - Future Connection to Airport
- Main Road Network
- Proposed Stations
- PR Main Line (Double)
- Encroachments



# Salient Features of KCR

Civil & Station	Route Length (total)	43.24 km
	On-ground	15.68 km
	Elevated	23.86 km
	Trench	2.28 km
	Bridge	1.42 km
	Number of Stations	24
	On-ground	10
	Elevated	12
	Trench	2
	Locomotive	Electro Mechanical Unit

THANK YOU