City Transit PLanning

As it Should be

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Vision & Mission

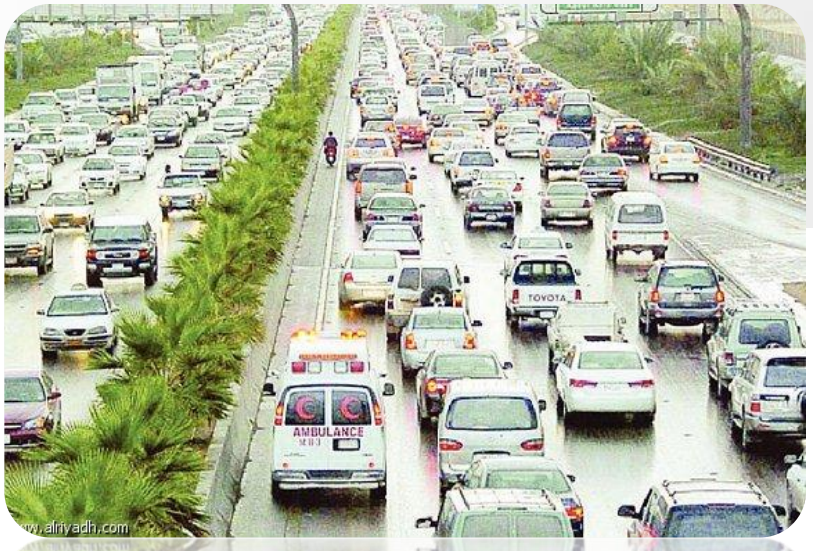
LEADERSHIP

Leadership is the essence of each Company's unrelenting good results.

GREEN & SAFE TRANSPORTS

Arising from the recognition that transport systems have been harmful to the local and global environment and to the overall health of society and individuals.

Green & Safe Transports also includes research aiming at developing vehicles and transport systems that have the potential to improve the environment — locally and globally — as well as reducing negative health impacts and raise safety standards.

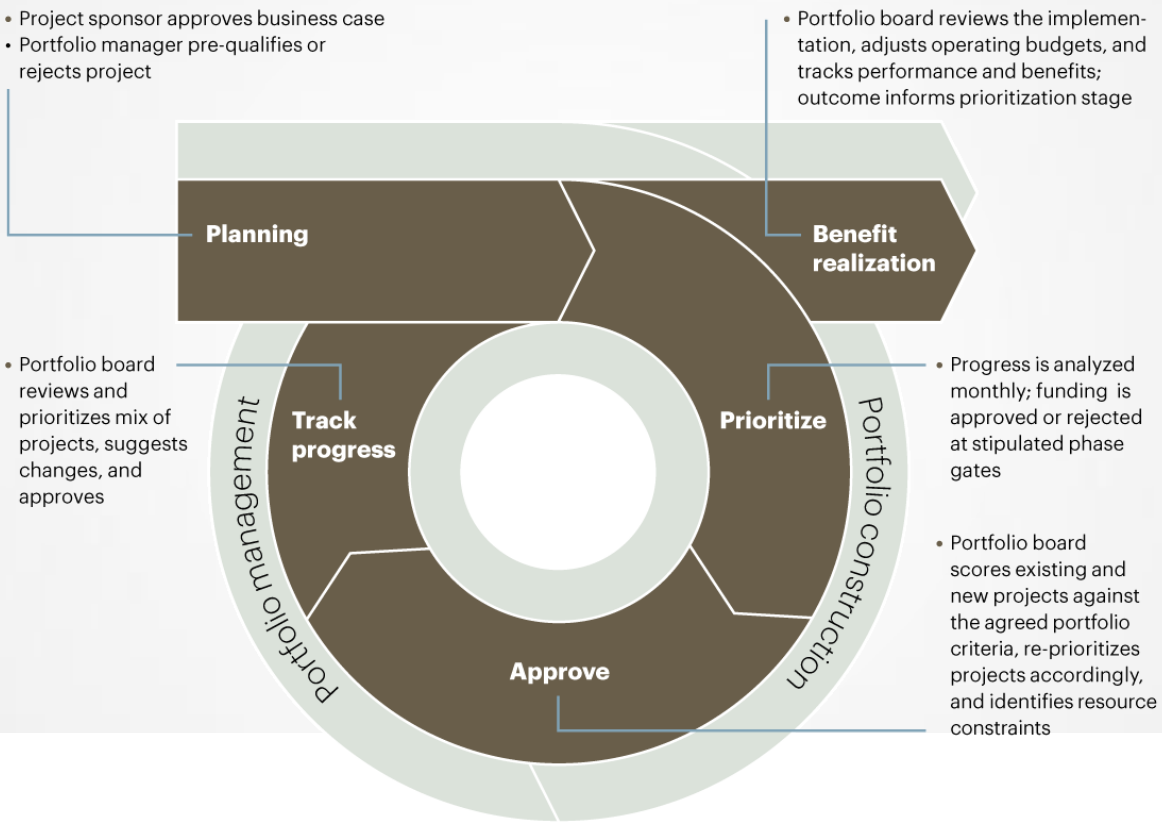


POPULATION FORECASTS

- Birth rates
- Death rates
- Migration rates
- Ages
- Often use forecasts from other agencies

TRANSPORT PLANNING & GOVERNANCE SYSTEMS

Best practice capital governance structure means effective steering by senior management at all stages



POLICY APPROACHES TO URBAN MOBILITY

Business and technology strategy fit

- Projects classified into one of five categories:
  - Mandatory
  - Infrastructure "refresh"
  - High (directly deliver on strategic objective)
  - Medium (support or enable strategic objective)
  - Low (not related to strategic objective)
- Projects fit in with stated and agreed architectural direction
- Solution conforms to agreed and approved technical standards
- All align with asset plans

Opportunity window

- Project urgency classified into one of two categories:
  - Benefits can be realized only if implemented within 12 months
  - Benefits can be realized any time within three years

Value-delivery prerequisites

- Agreed standard measure of economic value-add for the project (such as NPV or IRR measure)
- Standard methodology:
  - Standard spreadsheet based tool
  - Common guidelines for benefit and cost measurement
  - Business case experts team to ensure consistency

Project risk

- Risk score based on:
  - Project duration
  - Dependency on other projects
  - Technical difficulty
  - Breadth of implementation
  - Senior management buy-in
  - Project size (FTEs)
  - Local buy-in
  - Level of change required (organizational and processes)

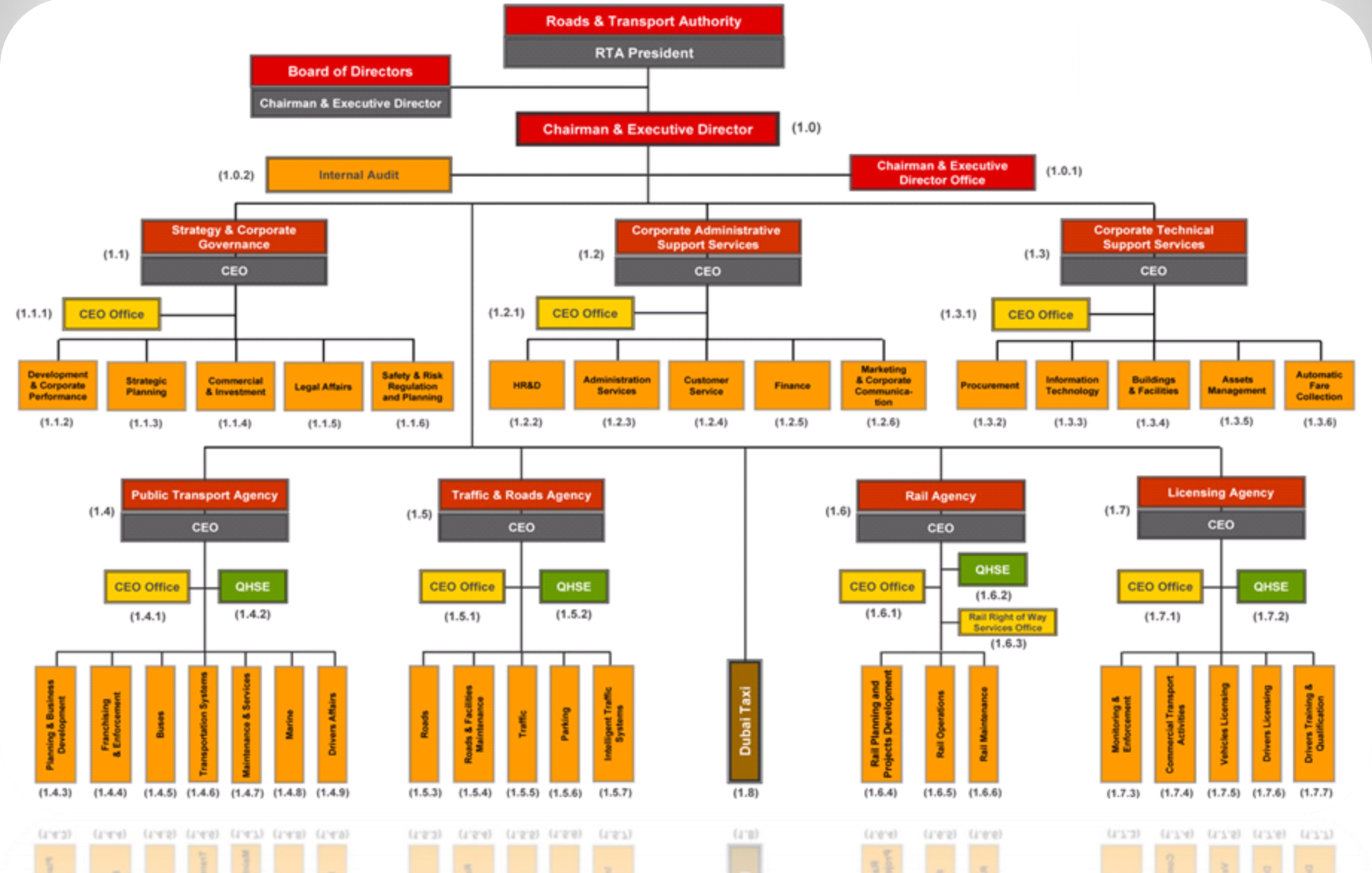
- **Projects are given an overall priority from 20 out of 20 to 6 out of 20 based on their scores for these criteria. Process can be automated to generate a scorecard for highest priority projects with the following characteristics:**
  - **High strategic fit**
  - **High technology fit**
  - **Opportunity window of less than 12 months**
  - **High IRR**
  - **Low risk**

Whom to Lead?

GETTING THE RIGHT PEOPLE INVOLVED

Whatever your approach, it is vital to get key representatives from transport and highways involved from the start. This may be done by:

ORGANIZATION CHART



Urbanization Concept

TRANSPORTATION SYSTEM

Establishing the Purpose & Need

Situation Definition

Problem Definition

Search for Solutions

Analysis of Performance

Evaluation of Alternatives

Choice of Projects

Design & Construct

Feedback

Existing conditions

Urban Advantage

Mixed-use development at sidewalk

Urban Advantage

Street trees; medians and pedestrian refuges; crosswalks

Urban Advantage

Live-work housing; mixed-use building

Urban Advantage

Bus lane

Urban Advantage

Rapid transit lane demarcated in red

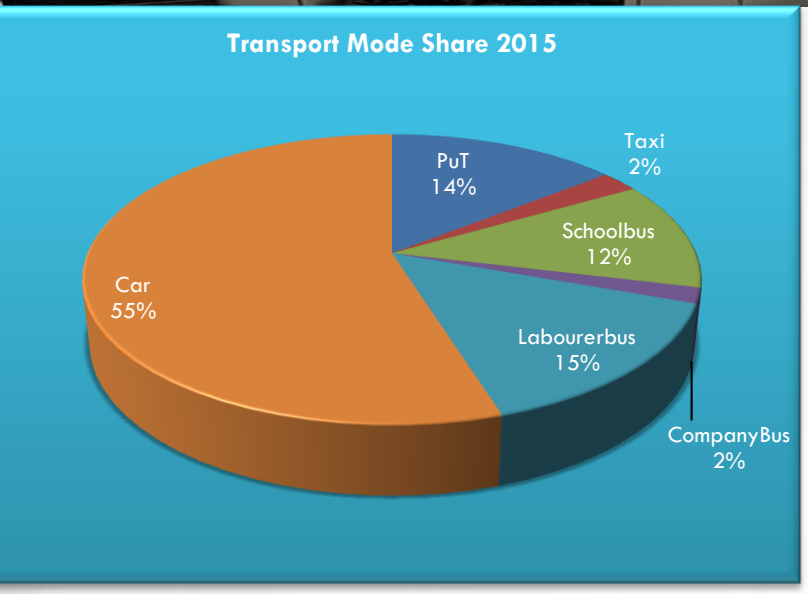
Urban Advantage

Transport Master Plans

MASTER PLANS

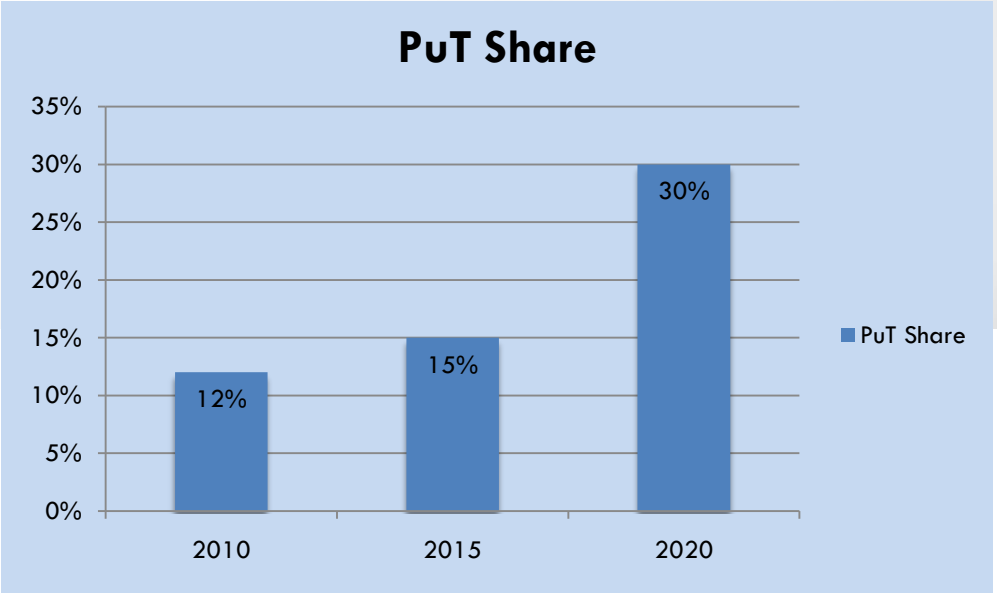
A long-term outline of a project or government function; "the zoning board adopted a master plan for the new development"

Aims of the Master Plans



Transport Mode Share is the percentages of each mode of transport among the overall transport systems available in each city.

Each city can setup its targeted percentages based on the vision and mission.



TYPES OF PUBLIC TRANSPORT

Rail and other fixed guide ways: heavy rail, light rail, commuter rail, automated guide way transit, inclined plane, cable car, monorail, aerial tramway

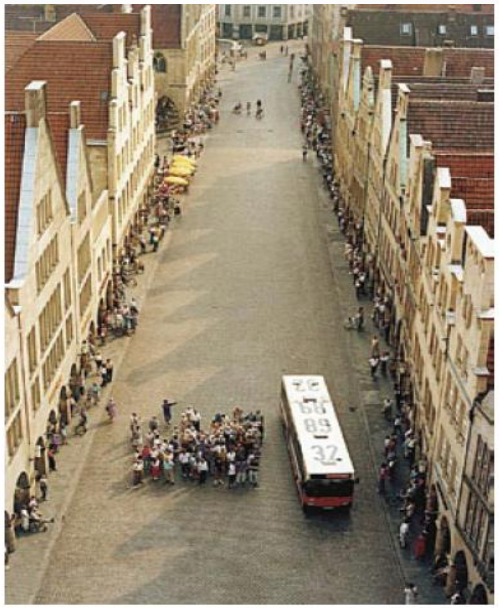
Road vehicles: bus, trolleybus, vanpool, par transit service

Water: passenger-only and vehicle ferries, water taxis

TRANSIT MASTER PLAN

Making travel by public transport attractive!

Link areas	Faster journey times	Greater frequency	Developing the nodes	Guaranteeing quality and service
↓	↓	↓	↓	↓
From a radial to a network structure	PT priority and separate lanes	More frequent service along main corridors	PT becomes part of the city development	Customer satisfaction



Transit Oriented Development (TOD)

A transit-oriented development (TOD) is a mixed-use residential and commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership. A TOD neighborhood typically has a center with a transit station or stop (train station, metro station, tram stop, or bus stop), surrounded by relatively high-density development with progressively lower-density development spreading outward from the center

Concept plan for future transit-oriented development at Westbrook Station

Future Westbrook Station, currently under construction

Technology Selection -1

System		Capacity (PPHPD)	Length	Speed	Typical Applications
Heavy Rail / Heavy Metro		30,000 – 60,000	150 – 250m	Max. 160 km/h	▪ Intercity, Intra-city and suburban services ▪ Long station intervals
Light Rail / Medium Metro		9,000 – 30,000	35 – 100m	Max. 90 km/h	▪ Intra-city, suburban and metro services ▪ Medium station intervals
Monorail		3,000 – 20,000	20 – 90m	Max. 80 km/h Average 20 to 50 km/h	▪ Point to Point service ▪ Limited stations at short intervals ▪ Shuttle or circulator services
Tram		3,000 – 9,000	30 – 45m	Average 18 to 25 km/h in mixed traffic and 30 to 35 km/h in dedicated ROW	▪ Metro and Feeder service ▪ Short lengths ▪ Short station intervals

Technology Selection - 2

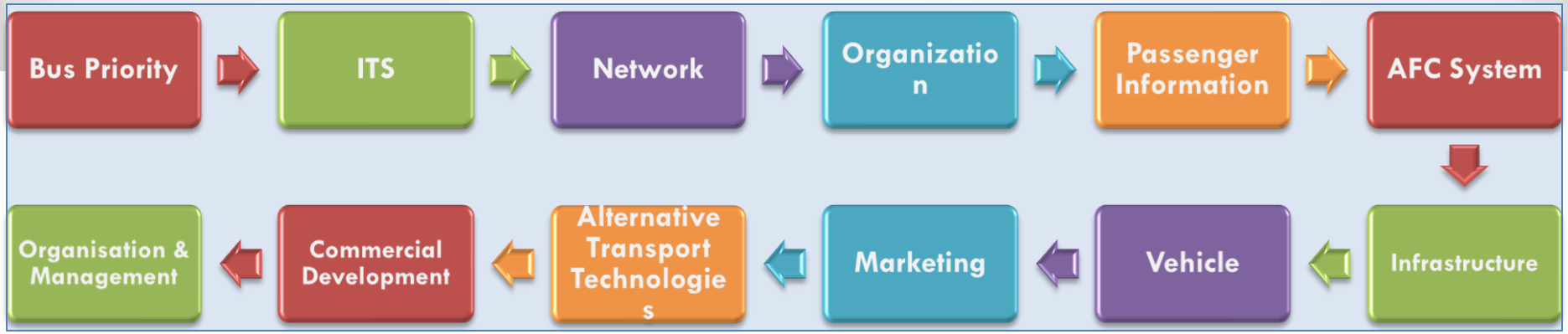
System		Capacity (PPHPD)	Length	Speed	Typical Applications
People Mover		3,000 – 20,000	18 – 65m	Max. 80 km/h	▪ Point to Point services ▪ Short distances, limited stations ▪ Typically a shuttle services at airports, theme parks and short links between major lines.
PRT		500 – 5,000	5m	Max 40 km/h	▪ Short distances, multiple stops ▪ Internal transit system
BRT		5,000 – 10,000	12 – 40m	Max. 80km/h	▪ Point to point service ▪ Intra-city and suburban ▪ Flexible commuter service
Bus		1,000 – 3,000	12 – 24m	Max. 80km/h	▪ Inter-city, intra-city, suburban and metro ▪ Flexible, multi-stop service ▪ Feeder system to rail network

TRANSIT MASTER PLAN

This Master Plan guides the authorities management through the up

coming years in coping with the challenges ahead. And aiming to:

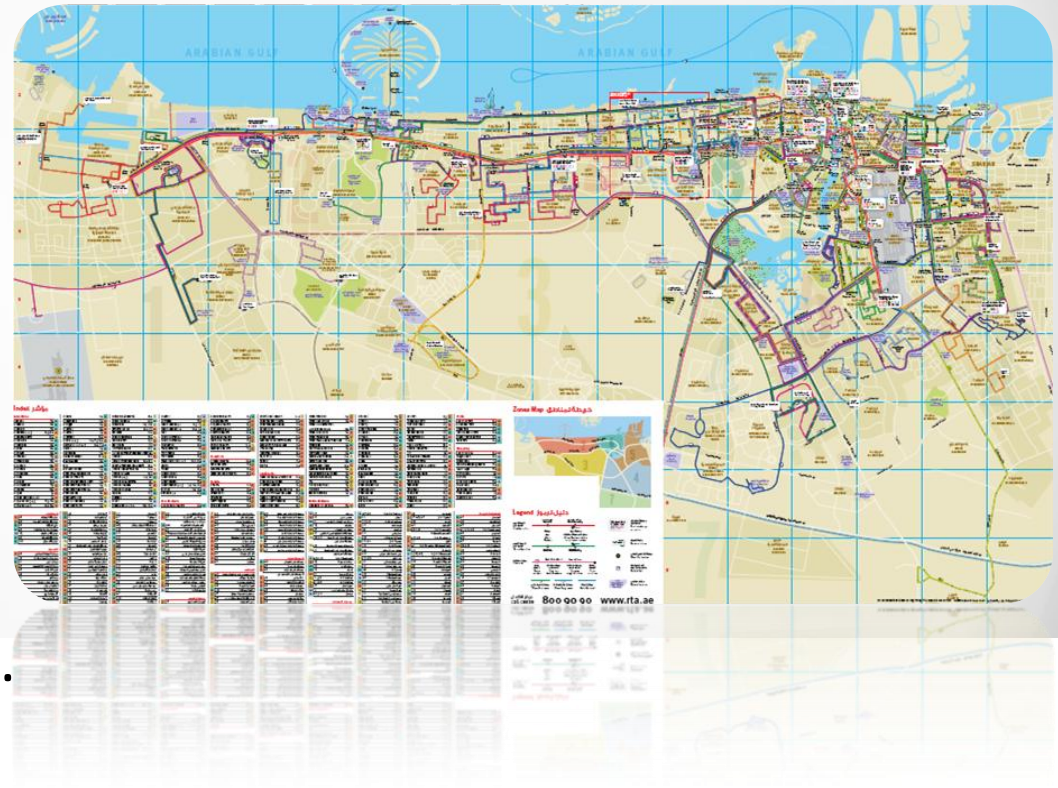
- creating demand and managing capacity
- reasonable cost coverage
- the quality and motivation of its workforce
- improving urban design related to public transportation
- cleanliness and noise reduction
- constantly implementing fresh and unique ideas
- its image resulting in citizens being proud of Dubai's Public Transport
- facilities.



TRANSIT MASTER PLAN

1. Bus Network Planning

- Situation Analysis .
- Planning Guidelines .
- Strategic Network .
- Bus Network Planning.
- Park-and-Ride .
- Network Planning Process.



2. Bus Priority

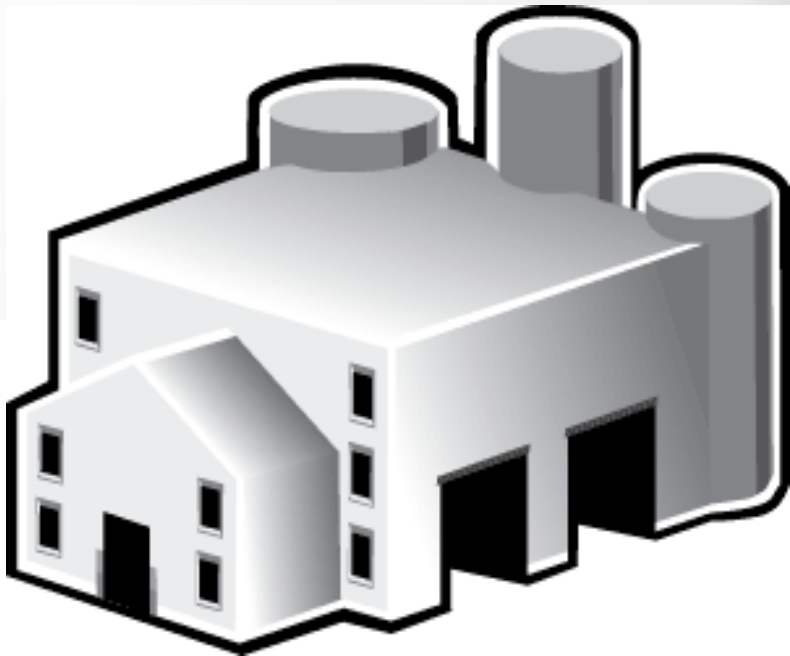
- Infrastructure-based Measures.
- Technology-based Measures .
- Traffic Management Based Measures .

3. Intelligent Transport Systems ITS

- Automated Vehicle Management System
- Automated Passenger Counting System
- Administration and Reporting System
- Real Time Passenger Information
- Journey Planning System

4. Operations

- Shortcomings of Current Operations Practices .
- International Best Practice Measures .
- Procedures, Workflows, Standards and Key Performance Indicators .



5. Vehicles

The elaboration of the different vehicle types for the future bus fleet in Dubai comprised the following bus services

- ►Express buses
- ► Feeder buses
- ► CBD buses serving the Central Business District
- ► Airport buses
- ► Buses for industrial services

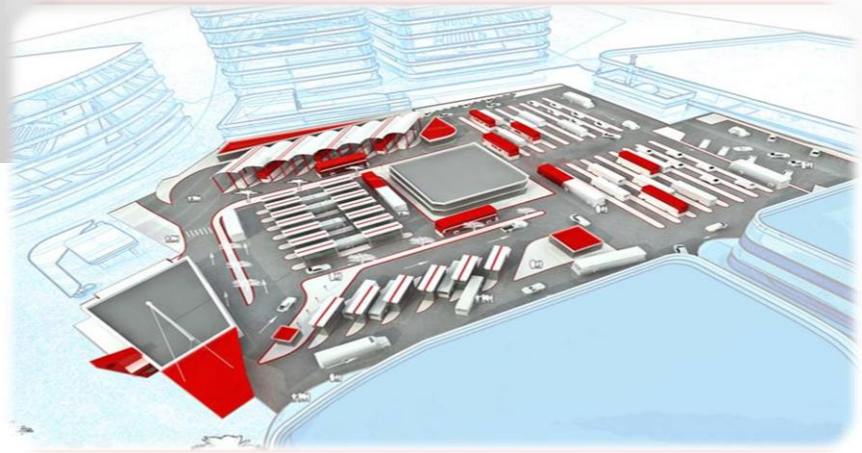
The following types were taken into consideration for the future bus fleet of Dubai:

- ► Regular buses
- ► Articulated buses
- ► Double-deck buses
- ► Mega Buses

Transit Master Plan

6. Infrastructures

- Bus Stops and Bus Stations.
- Depots .
- Implementation Plan .



TRANSIT MASTER PLAN

7. Fare

- Fare-Free Public Transport .
- Integrated Fare Solution .
- Recommended Fare Structure for Dubai .

8. Passenger Information

- Short-term passenger information improvements .
- Printed Passenger Information .
- Information at bus stops and bus stations .
- Information in Buses .
- Electronic Media .
- Call Center / Customer Service Center .
- Data Management .

9. Marketing

- Marketing campaign for existing public transport services .
- Creative core idea .
- Short-term awareness campaign.
- Long-term branding campaign.
- Cost estimation & campaign results .
- Design standards .