CHAPTER 9 Urban Transport System Development Program (1) for Promotion of Public Transport Use

The urban transport system development program (1) consists of the projects for the urban transport policy 1: ***Promotion of Public Transport Use.***

9.1 Monorail Systems

Based on the corridor analysis, the Malabe corridor has 60,000 vehicles entering the city and this is the highest compared to the other six corridors. Besides, the Malabe corridor, Low level road corridor and Horana corridor are the only major corridors without rail-based public transport. Fort-Malabe corridor has been identified as the corridor which requires a rail-based transport system urgently. To make the most use of a monorail system on the Malabe corridor, which serves east-west direction travel in the metropolitan area, a north south monorail line should be added to serve other major destinations in the city.

9.1.1 Multi-Modal Transport Hub and Multi-Modal Centre

Each mode of public transport should be interconnected to function as a network. Public transport modes, including railways, inter-provincial buses, intra-province buses and new transit modes such as bus rapid transit (BRT) and monorail should be integrated. Railway, Monorail, and BRT as well as inter-provincial and city buses come to Fort station and Pettah terminal. However the present station and three bus terminals are located separately and this is not convenient for passengers. Interchange facilities should be integrated and located at one place. The Multimodal Transport Hub shall function as an interchange facility for railway passengers, monorail passengers, and BRT passengers as well as ordinary bus passengers. The estimated number of passengers at the Multi-modal Transport Hub is listed in Table 9.1.1. This indicates that a significant number of passengers would utilise the multi-modal transport hub. This means that the potential for urban development is also high. The urban development further increases the number of users of the hub.

Table 9.1.1 Estimated Passenger Demand at Multi-modal Transport Hub in 2035

	Passenger Demand (day ,both ways)	Peak Ratio (both ways)	Peak Demand (one way)
Railway	145,000 person/day	20%	14,500 person/h
Monorail	42,000 person/day	18%	3,800 person/h
BRT	5,000 person/day	10%	250 person/h
Total	184,000 person/day	—	18,550 person/h

Source: CoMTrans Study Team

Passenger demand on the monorail system by section is illustrated in Figure 9.1.1.

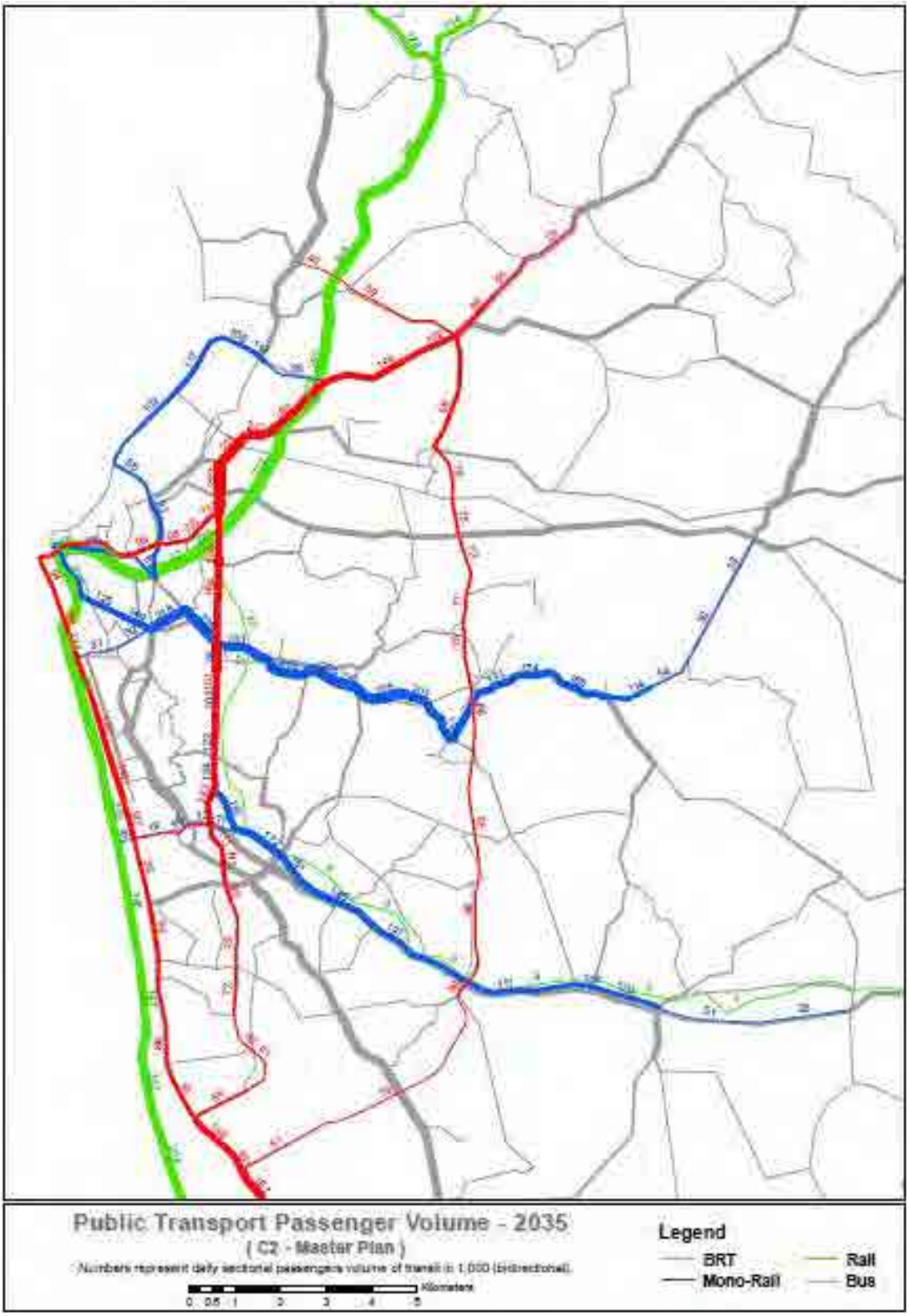


Figure 9.1.1 Passenger Demand on Public Transport Systems in 2035

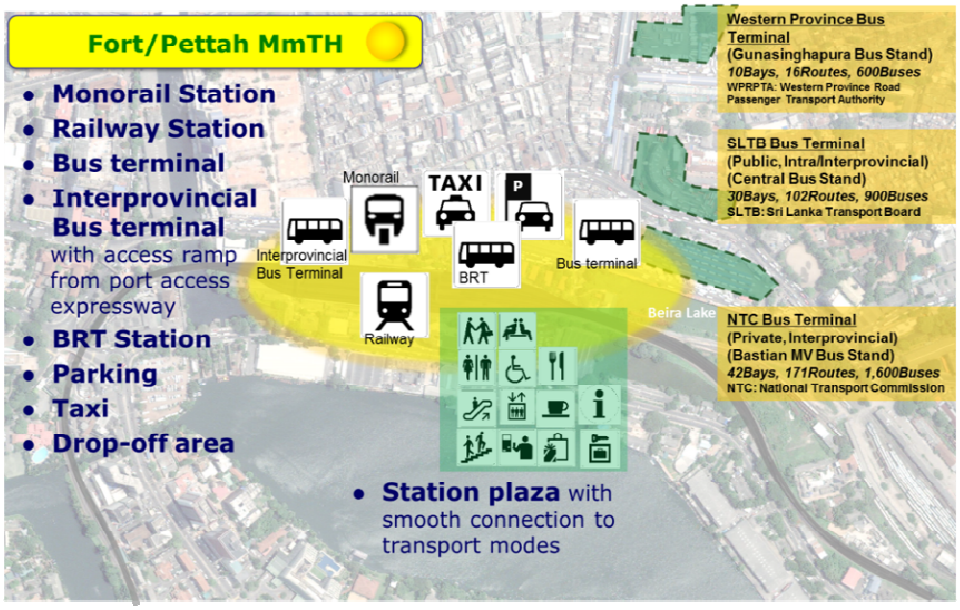


Figure 9.1.2 Concept of Multi-modal Transport Hub

9.1.2 Multi-modal Centre (MMC) and Park & Ride (P&R)

While a multi-modal transport hub will be a key component to connect all major public transport modes, concentration of all bus transport in a limited area might cause congestion in the surrounding area. Therefore, the "Multi-Modal Centre" is proposed to divert a part of the transport hub function to the suburbs of the Colombo Metropolitan Area. Four multi-modal centres on major corridors are proposed to serve passengers by corridor.

In order to promote public transport use, integrated transit facilities for the different modes of transport are planned along the planned monorail corridors.

The Multi-modal centres (MMC) function as the transit facilities for passengers from feeder buses and inter-provincial buses at the edge of the urban area to the city centre by monorail and commuter railway. It should have enough space for kiss & ride and drop-off. CoMTrans proposes the following four MMCs that will be located on four major corridors;

- MMC near Kelaniya in a New railway station, CKE interchange, Monorail and Bus terminals
- MMC at Malabe with Monorail
- MMC at Makumbura with Monorail, Bus terminal and OCH/Southern Expressway
- MMC at Moratuwa with Coast railway line and BRT

Park & Ride (P&R) is the facility which encourages transfer from private mode to public mode. Basically it provides car and motorcycle parking and smooth connection with public transport, e.g. monorail. Feeder buses will be connected at this P&R to transfer to higher capacity public transport modes. Possibility of P&R along the Malabe monorail line will be examined in a

Feasibility Study.

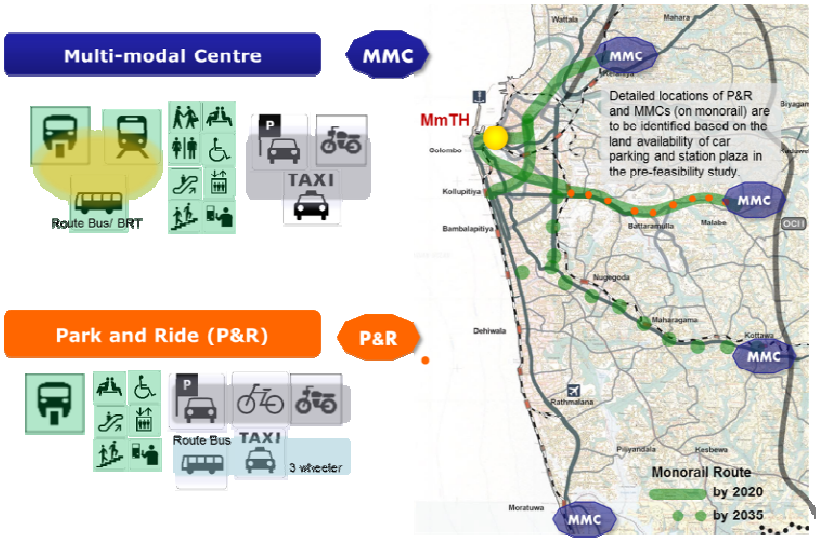


Figure 9.1.3 Concept of Multi-modal Centre and Park & Ride

9.1.3 Provision of Direct Access to Multi-modal Transport Hubs for Inter-city Bus Services

Further extension from the Port Access Road to the MmTH is recommended in order to provide direct access for intercity bus services. Currently, 10,800 buses for both intercity and intra-city bus services are concentrated in Pettah bus terminals and they cause traffic congestion in the surrounding area. If intercity buses can be taken off of the arterial roads in the area, traffic congestion would be reduced. This access road should be developed together with MmTH development. Coordination of the two projects is required.

9.1.4 Park & Ride and Station Plaza Development

To enhance modal shift from private modes of transport to public transport, park & ride and kiss & ride (drop-off and pick-up) at monorail stations are essential options. Park & ride will allow car, private three-wheeler and motorcycle users to go by a private mode to the station and park to ride the monorail. While transit oriented development is becoming a universal concept to achieve economically and environmentally sustainable cities and transport systems, it takes time to change urban structure. In the early stage of development of a public transport system, park & ride enhances modal shift to a public transport mode.

A station plaza with station square, bus bay, taxi bay, sidewalks and commercial developments in front of or above a monorail station is also a key to attract passengers from adjacent areas. The station plaza can function as a symbol of the area and provide space for gathering in case of natural disaster.

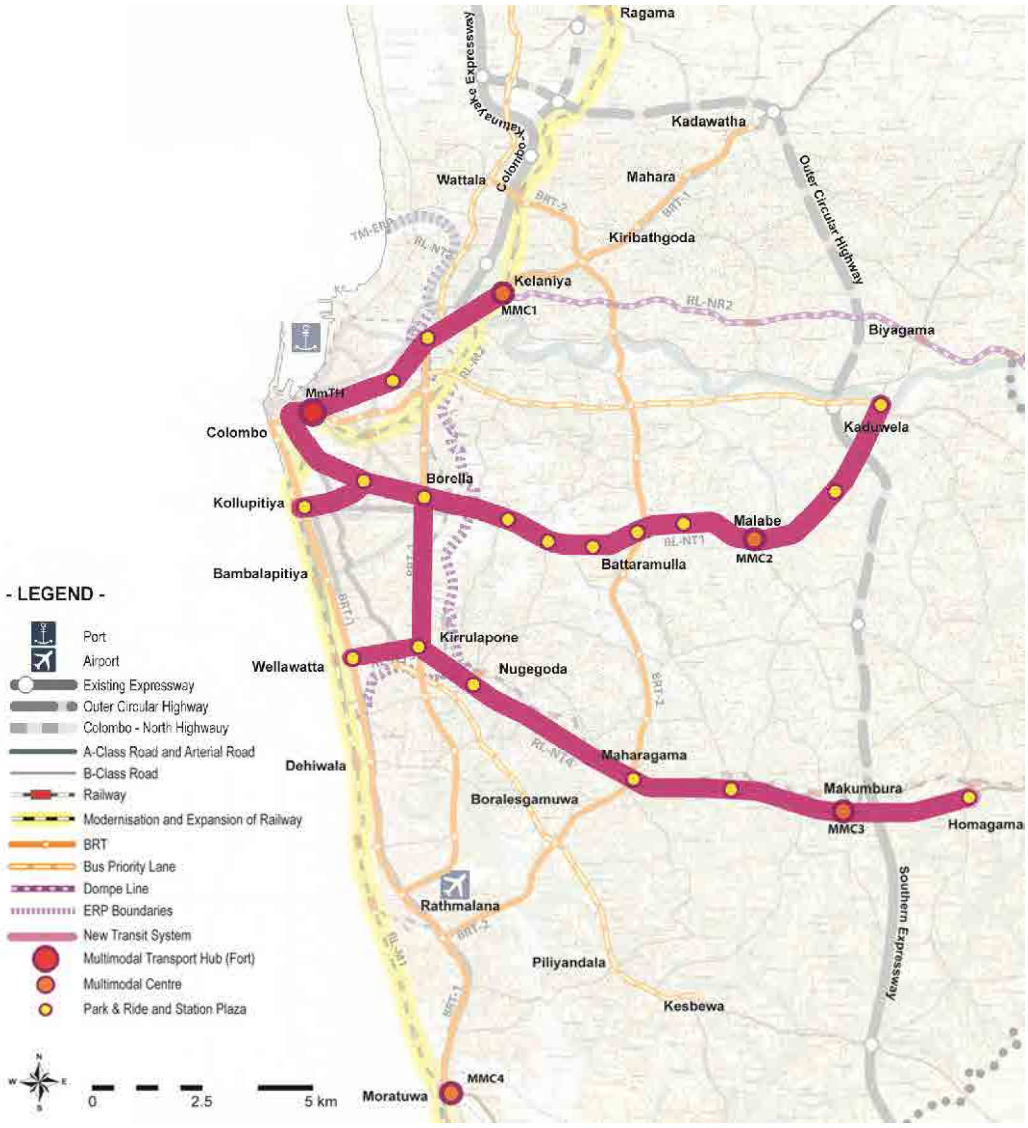


Figure 9.1.4 Monorail System with MmTH, MMC and P&R

9.2 Modernisation of Existing Railway System

9.2.1 Passenger Demand on Railway

It is estimated that total railway passengers would increase to 1,715,000 passengers per day in 2035 if the proposed improvements of the railway were undertaken. Passenger demand on railway together with other major public transport modes is illustrated in Figure 6.1.3.

9.2.2 Electrification of Railway Line

To deal with increasing passenger demand, electrification is recommended to improve operation

and for better environmental performance.

The advantages of electrification are as follows:

- No emission of polluting gas or carbon dioxide.
- Less noise and vibration.
- Operation efficiency is higher.
- Energy cost reduction.

However to maintain the rolling stock in an electrified railway, different facilities are required. This includes construction of substations, a depot and workshop and installation of overhead contact wire systems for the electric trains.

9.2.3 Renewal of Rolling Stock

There are two types of rolling stock for electrified lines. One is an electric locomotive with passenger coaches and the other is Electric Multiple Units (EMU). EMU is recommended to maximise the merits of electrification.

The advantages of EMU compared to electric locomotives are as follows.

- Trains can easily turn back at the terminals without shunting the locomotives.
- Higher acceleration and deceleration are expected.
- Air conditioning is easier because the cars easily get auxiliary power supply.
- Power consumption can be minimised by a regenerative brake system.

Currently trains are running with the doors open to cool down the inside with the air from outside. This is very dangerous, therefore, air conditioning is required not only for passengers' comfort but also as a safety issue. A power source for the air conditioning system will be required on the train. When the line is not electrified it is necessary to install an engine and generator set on each car and this makes another source of noise, vibration and air pollution. In an electrified railway an inverter is installed as the auxiliary power supply for air conditioning and lighting and also for other electric power needs.

9.2.4 Improvement of Track

Track rehabilitation is essential for improving the speed and frequency of the trains. Irregularity of alignment is seen in the current tracks and it causes vibration in the train when running. Fastenings along the Coast line are damaged by the salty air. Urgent rehabilitation is required.

Track rehabilitation includes renewal of rails, fasteners, ballast and sleepers and to improve both vertical and horizontal alignments.

9.2.5 Renewal of Signalling Systems

Various types of signalling systems are installed in the current railway and those are all obsolete. Systems shall be upgraded and standardised to secure safety. Also it is essential for increasing the speed and line capacity.

Automatic Train Protection is required at the same time as renewal of the Signalling System. Basic function of ATP is as follows.

- Allowable speed is indicated on the panel in the driver's cab depending on signal aspect and track condition.
- When speed of the train exceeds allowable speed an alarm is activated.
- If the driver does not apply the brakes when the alarm is activated, the emergency brakes will be applied.

In the ATP system, on-board equipment is installed in the driver's cab on the train. Therefore, not only the installation of wayside systems but also the modification of existing rolling stock to equip on-board ATP systems is required.

9.2.6 Renewal of Telecommunication System

The current telecommunication system is already obsolete and sometimes malfunctions. The telecommunication system is essential for smooth train operation and to secure safety, especially in emergencies. To renew the telecommunication system, a world standard system shall be selected so that spare parts can be easily obtained.

9.2.7 Improvement of Train Operation

Through operation is recommended in the Fort and Maradana sections. Currently, most of the trains going north start from Colombo Fort station and trains going south start from Maradana station. This makes the Fort and Maradana sections very congested and trains stay a long time at Fort and Maradana stations because those are terminal stations.

By not terminating the commuter trains at Colombo Fort and Maradana stations, the number of trains can be reduced in these sections and platform occupying time can be reduced. It will relax the congested condition drastically.

9.2.8 Construction of Airport Connection Line

According to the Air Passenger OD Interview survey, total number of air passengers leaving the airport amounted to 8185 persons by 64 flights on the survey day. The largest share of access modes to the international airport is private vehicles (car, jeep, passenger van and pickup) which represent 38% of the total followed by taxi at 32%. The share of public modes of transport is small. Bus carries 16% of the air passengers while railway transport only one percent of the passengers. This implies that public modes of transport should be improved for airport access.

Puttalam line runs very close to Bandaranaike Airport. The railway track branches from Katunayake South towards the airport but it does not reach the passenger terminal of the airport. Currently, only a freight train is operated once a day. Only a few km extension can connect the line to the passenger terminal and it can then provide passenger service from the city centre to the airport without being affected by road congestion. Electrification is also required for rapid and comfortable service.

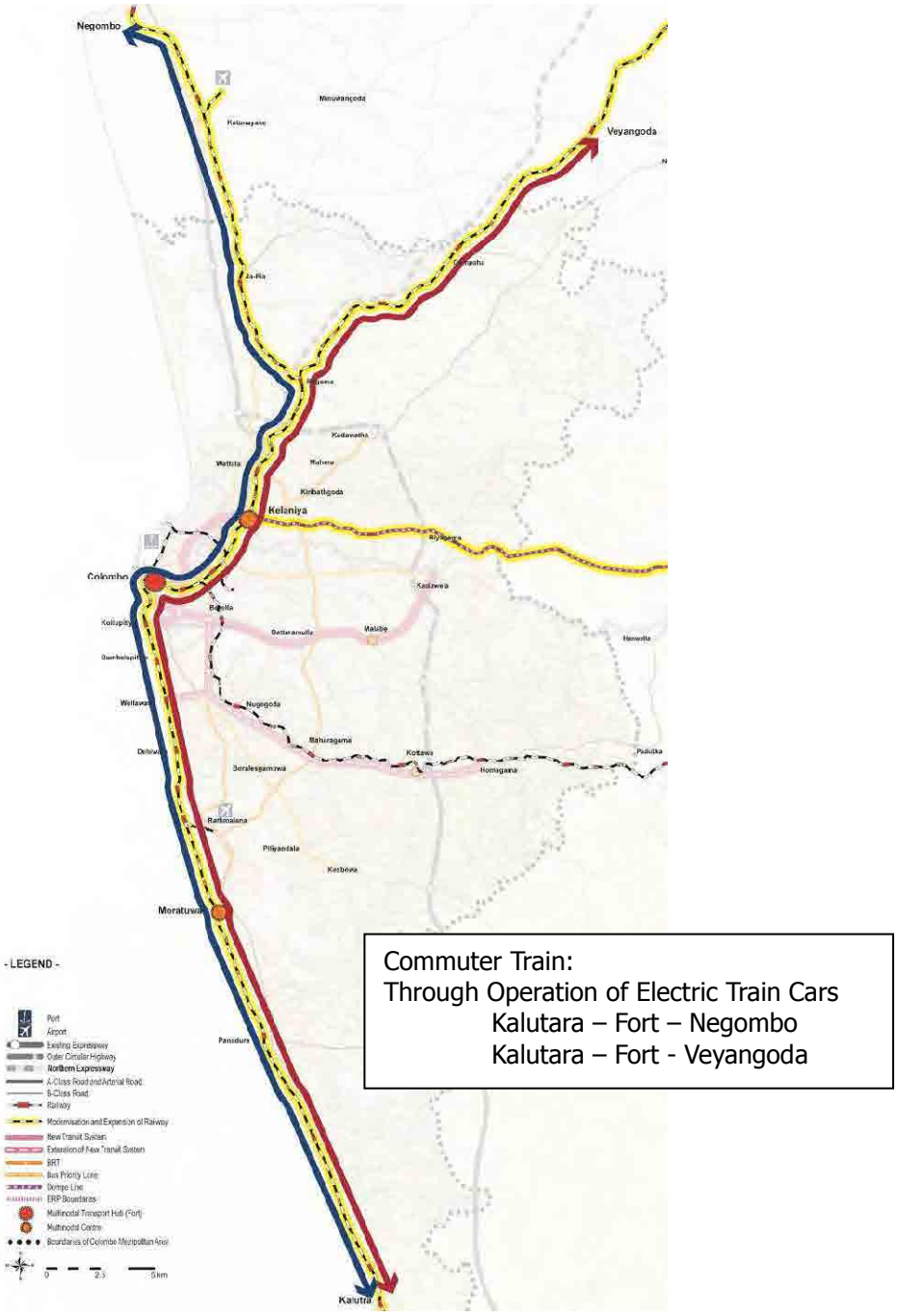


Figure 9.2.1 Commuter Train Operation

9.3 Development of Access Roads to Stations of the Railways and the New Transit System

At present, railway service areas are limited due to lack of access roads to the railway stations, in particular in suburban areas. Railway system improvement and development would not attract a great many passengers to use the railway service if good access roads to railway stations are not provided. Therefore, it is strongly recommended to improve and to develop access roads to the stations at the same time as the railway and new transit system development. If sufficient width of access roads is not provided, it will be difficult to operate feeder bus services for railway passengers. Coordination between mass transit systems and the road network is of great importance for promotion of public transport.

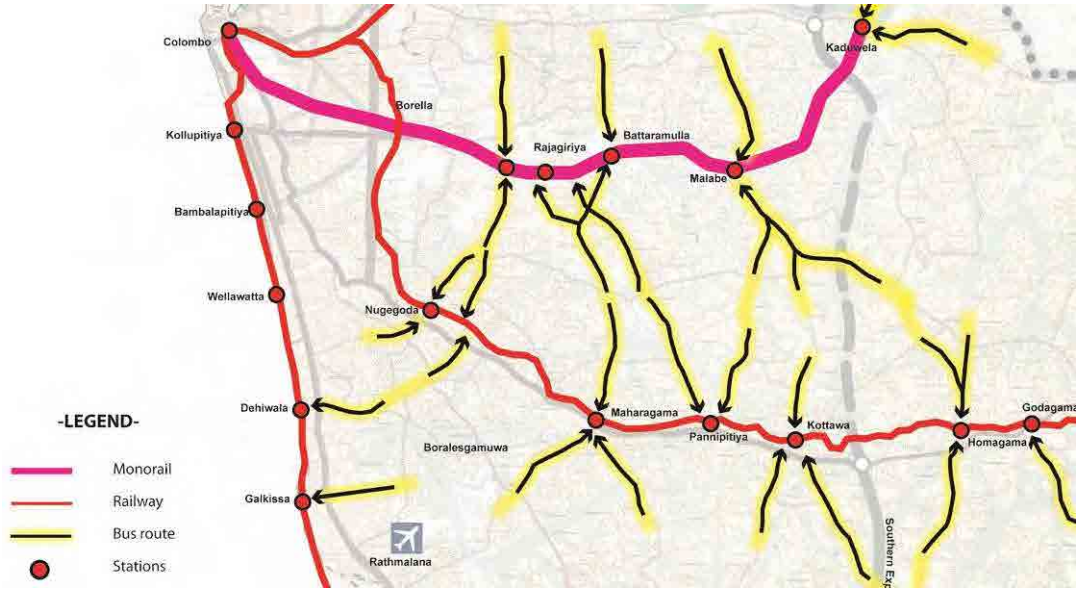


Figure 9.3.1 Development of Access Roads to Stations of the Railways and the New Transit System

9.4 Introduction of Bus Rapid Transit (BRT)

9.4.1 Definition

Bus Rapid Transit (BRT) can be described as a bus-based mass transit in which speed and service quality of buses are improved by incorporating the following design concept:

- High speed operation with an exclusive lane;
- High frequency, reliable and convenient services;
- Efficient transit with level boarding platforms and pre-boarding fare collection system;
- Central control of services to ensure a quick response to any service disruptions;

- Branding and market identification to attract various users including private car users, tourists etc.

In addition to congestion-free service with the dedicated lane, BRT is not expensive compared to rail-based transport system because it usually utilises existing road facilities. It is therefore regarded as an economical option although it requires roads with three lanes per direction so as not to significantly disturb the ordinary traffic flows.

9.4.2 Worldwide BRT Example

Approximately one hundred cities around the world have implemented the BRT system nowadays. A few examples of BRT systems are illustrated in Table 9.4.1 below.

Table 9.4.1 Examples of BRT in other Countries

	Jakarta	Ahmedabad	Guadalajara	Brisbane	Nantes
Name of BRT	TransJakarta	Janmarg	Macrobus	Translink Busway	Nantes BRT
					
Busway(Dedicated)	148km (134km)	39km (38km)	16km	23km(23km)	6.6 (6.2km)
No of Routes	12	4	1	4	1
No of Stations	210	57	27	22	15
Ave. distance b/w sta	700m	700m	600m	1100m	500m
Pax per day	350,000	115,000	130,000	70,000	26,500
Peak pax (pphpd)	4,000	1,200	3,000	6,500	2,100
Platform height	High floor(1.1m)	High floor(0.9m)	High floor	Low floor	Low floor(0.3-0.4m)
Bus doorways	Both sides: Single 1, Articulated 3doors	Both sides (High & Low)	One side	One side	One side
Fleet type	Single 12m, Articulated 18m	Single, Articulated	Single, Articulated	Single, Articulated	Articulated
Fare system	Flat (USD 0.35)	Flat (USD 0.34)	Flat (USD 0.3)	Zonal	Flat (USD 0.3)
Operating hour	5am-11pm	6am-11pm	5am-9pm	5am-11pm	5am-12pm
Commercial speed	18kph	25kph	21kph	29kph	21kph
Capital cost	USD 1.2 mil/km	USD 2.4 mil/km	USD 3.8 mil/km	USD 28 mil/km	USD 10 mil/km

9.4.3 Main Features of BRT

(1) Exclusive Lane

BRT should be operated on an exclusive median lane to avoid typical curb side delay. The surface of the lane should be constructed with concrete at least around stations for the durability.

Physically separated from mixed traffic is a key factor to improve the operating speed. Traffic

segregation such as raised separators, rumble strips, road marking, coloured surface etc. can be used depending on the traffic condition.

Examples of different types of exclusive lanes are given in Figure 9.4.1.

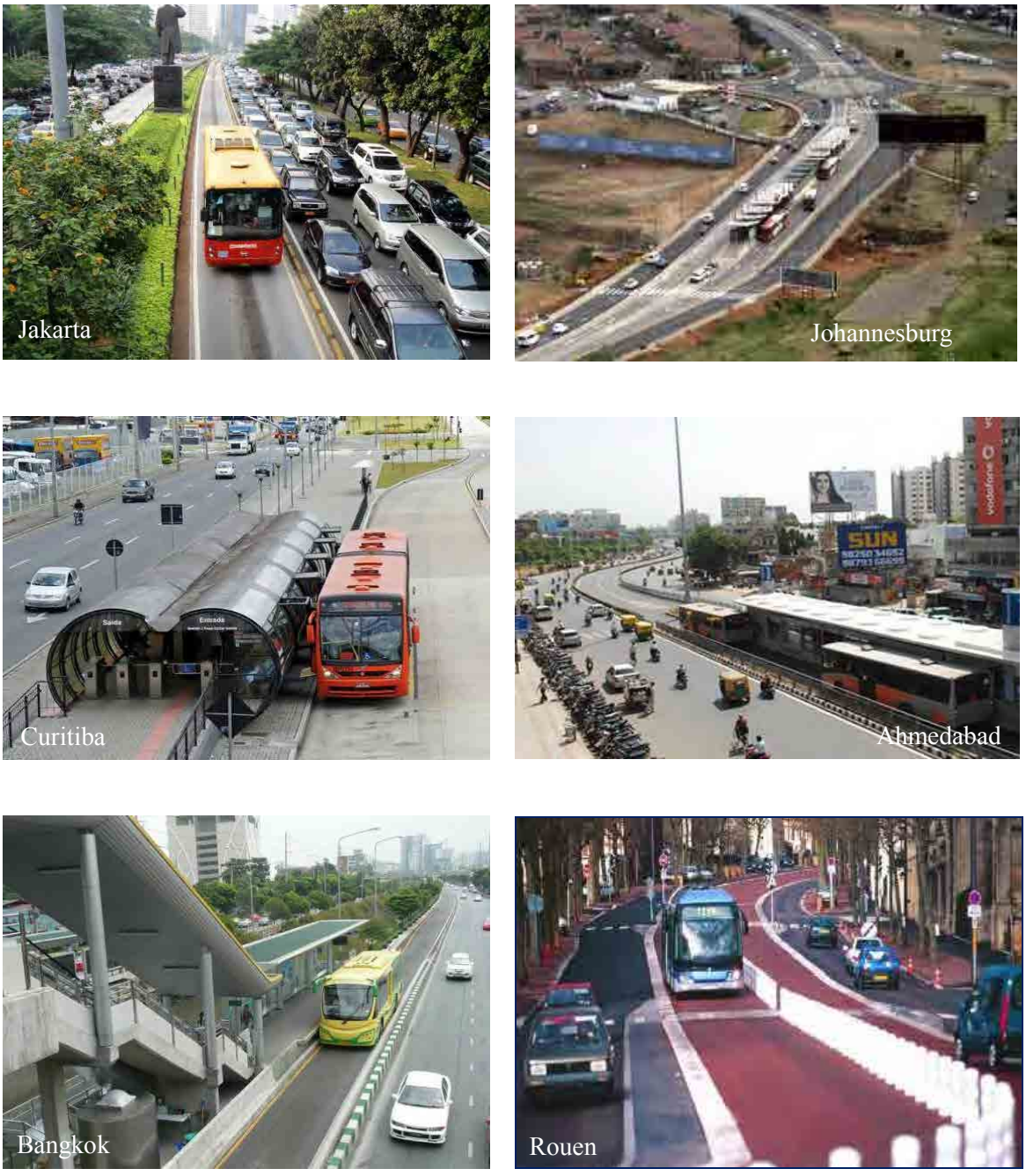


Figure 9.4.1 Different BRT Exclusive Lanes in Different Cities

(2) BRT Station

Distance between BRT stations should be between 600m to 1000m; equivalent to 4-7 minutes walking. When locating BRT stations, it is necessary to consider several factors such as attraction on weekdays and weekends, avoid locations adjacent to intersections, and connectivity to other modes of transport.

Station design should include level boarding platforms, multiple door access, high level of passenger convenience and safety, complement with urban landscape, barrier free for easy access for disabled people, ticket office etc.

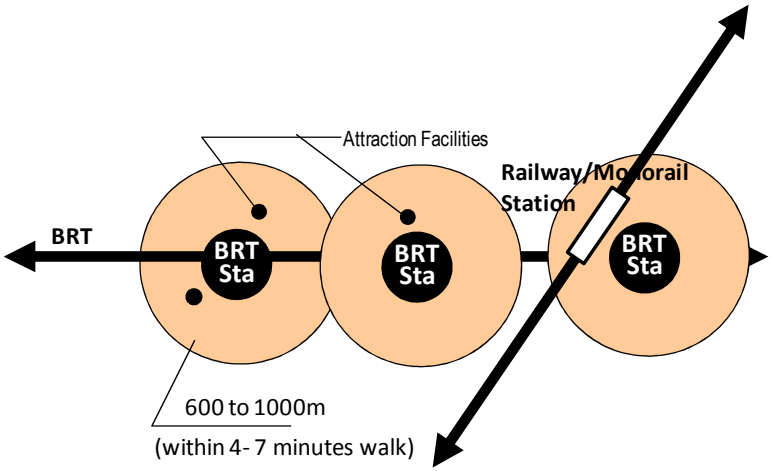


Figure 9.4.2 Basic Concepts for Selection of Station Location

(3) Fleet Design

Depending on the demand, high capacity vehicles such as articulated buses, which carry 150 passengers per vehicle, may be used. With a 2-minute headway, the system is literally capable to carry 4,500 pphpd.

Level boarding and multiple wide doors are necessary to shorten the dwell time thus enhance the capacity efficiently.

	Ashok Leyland Vestibule Bus - BS3	Volvo B12M Articulated	Volvo 7800 Articulated	Mercedes-Benz Citaro G
				
Fleet Size	16m x 2.55m	18m X 2.5m	18m X 2.5m	18m X 2.5m
No of Axle	3 axle	3 axle	3 axle	3 axle
Vehicle Weight (Max Load)	22ton ( )		(28ton)	(29 ton)
Passenger Capacity (max)	150 pax		150 pax	160 pax
Floor Height	860mm		320/340mm	320/340mm
No of doors	2 to 4 doors		2 to 4 doors	3 to 4 doors
Example City		Curitiba	Transantiago (Chile)	Nantes(France)

Figure 9.4.3 Example of Articulated Bus Fleet

9.4.4 BRT Plan for Colombo Metropolitan Area

(1) BRT Corridors

When selecting the BRT corridors, some major factors such as corridor congestion, possibility to develop a strong corridor presence, coordination with land use and economic developments, and availability of road space to accommodate the BRT system should be considered.

Figure 6 illustrates the corridors for which BRT is proposed in two phases, phase 1 is 45.7 km and phase 2 is 38.8 km, 84.5 km in total.

Phase 1

Section	From	To	Road Name	km Busway
1	Fort	Kollupitiya	Lotus Rd, Galle Rd	3.9
2	Kollupitiya	Bambalapitiya	Galle Rd	1.9
3	Bambarapitiya	Dehiwala	Galle Rd	5.0
4	Dehiwala	Ratmalana	Galle Rd	3.7
5	Ratmalana	Moratuwa	Galle Rd	5.8
6	Fort	Maligawatha	Olcott Mw	3.4
7	Maligawatha	Kelaniya	Base Line, Kandy Rd	3.6
8	Kelaniya	Kiribathagoda	Kandy Rd	4.5
9	Kiribathagoda	Kadawatha	Kandy Rd	5.0
10	Maligawatha	Pamankada Est	Base Line	7.1
11	Pamankada Est	Galle Rd	Pamankada Rd	1.8
	TOTAL (Phase 1)			**45.7**

Phase 2

Section	From	To	Road Name	Km Busway
12	Pamankada Est	Maliban Junction	New Road (Attidiya Rd)	7.5
13	Wattala	Kilibathagoda	New Hunupitiya Rd	5.4
14	Kilibathagoda	Battaramulla	New Road, Hospital Rd	10.0
15	Battaramulla	Maharagama	New Road, Pamunwa Rd	8.1
16	Maharagama	Rathmalana	New Road , Borupana Rd	7.8
	TOTAL (Phase 2)			**38.8**

Total BRT Corridor Length: 84.5km

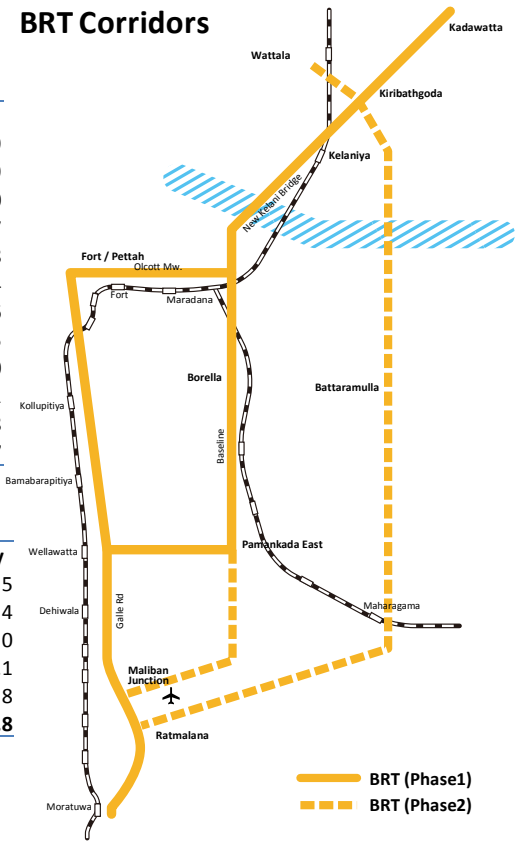


Figure 9.4.4 Proposed BRT Corridors

(2) BRT Routes

Taking into consideration the connectivity with other modes of transport (e.g. railway, ordinary buses) and the route length for operational convenience, the BRT routes for phase 1 and phase 2 are proposed and depicted in the table and figure below.

Table 9.4.2 List of Proposed BRT Routes

Phase	Route	Terminals / Connection Points
Phase 1	Route-1	MmTH – Moratuwa MMC4
	Route-2A	Kelaniya MMC1 – MmTH – Kelaniya MMC1
	Route-2B	Kelaniya MMC1 – Kadawatha
Phase 1	Route-3	Kelaniya MMC1 – Moratuwa MMC4
	Route-4	Wattala – Battaramulla – Moratuwa MMC4
Total Operating Bus Kilometre = 135.8 Km		

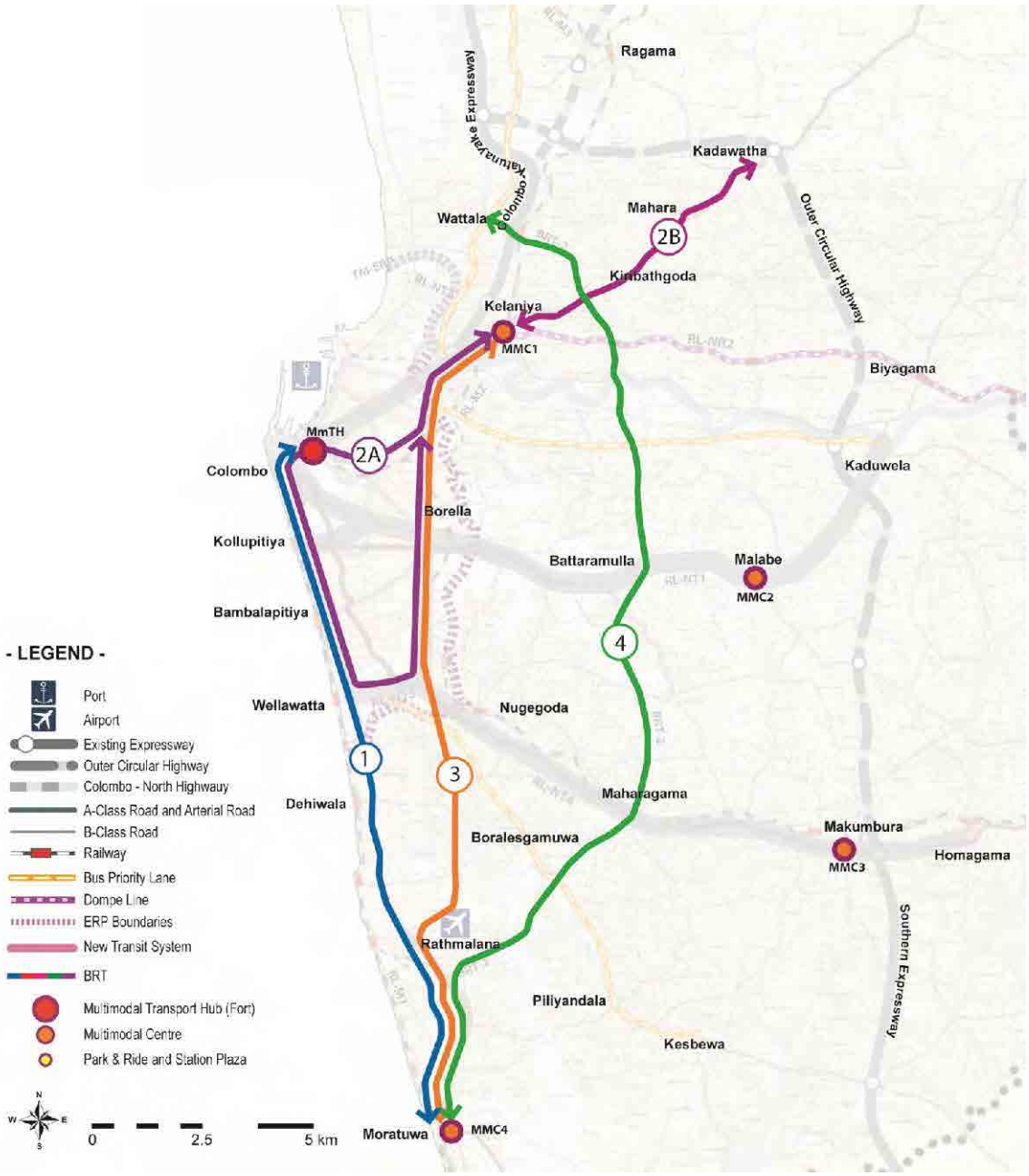


Figure 9.4.5 Proposed BRT Route Map

To examine the possible roads to accommodate a BRT system, the JICA Study team investigated the sites to understand present conditions of the roads where BRT is proposed. Some relevant photos indicating number of lanes and road width are shown in the figure below.

Figure 9.4.6 Current Road Conditions

9.4.5 Operation Plan

(1) Galle Road

Two alternative operation plans are proposed for the one-way section of Galle Road. The descriptions of the two alternatives are summarised below:

Alternative 1:

For BRT: median two-way busway to Galle road.

For general traffic: Convert Galle road from one-way to two-way; and on the contrary, convert Marine Drive from two-way to one-way north bound.

Alternative 2:

For BRT: one-way busway, i.e. Galle road for north bound and Duplication road for south bound.

For general traffic: no change is required for the existing road.

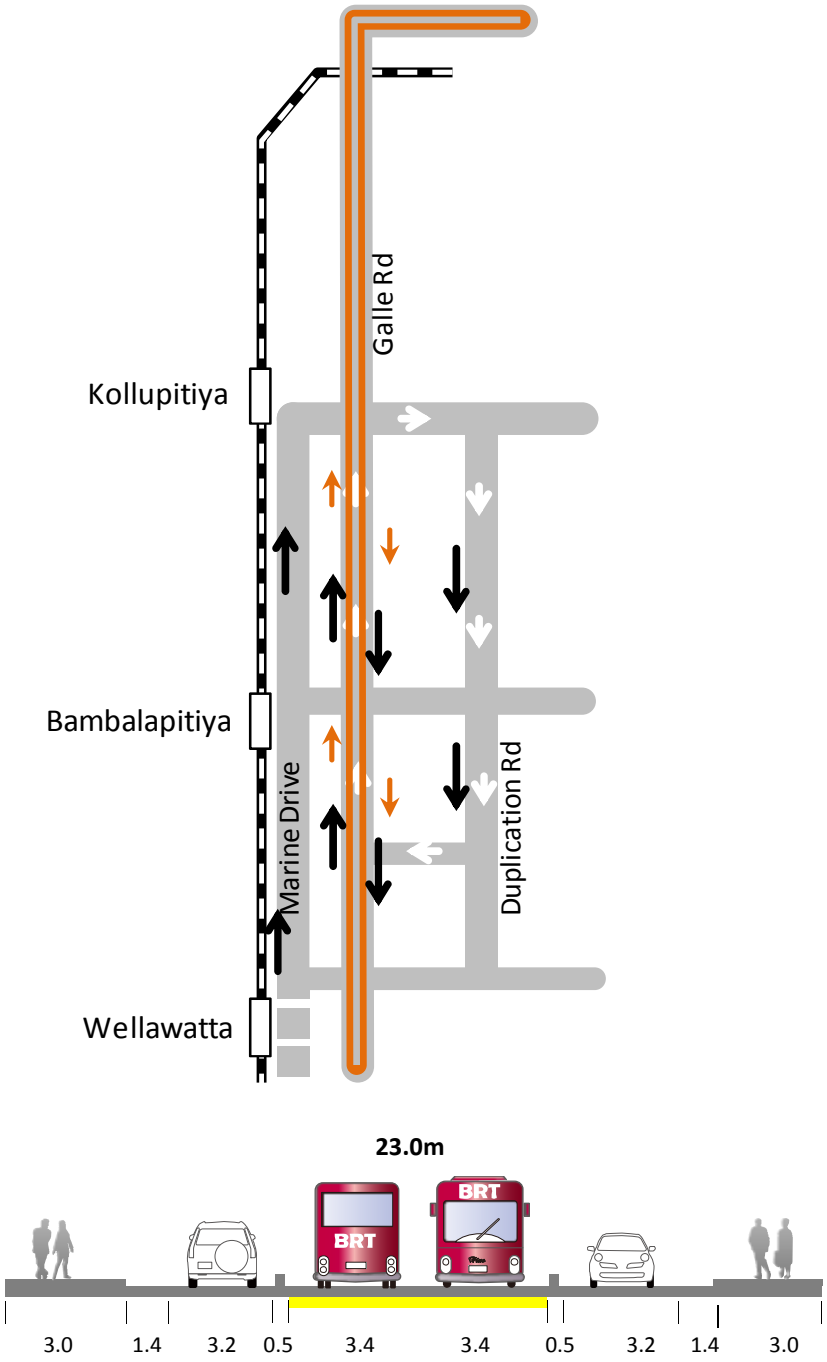


Figure 9.4.7 Proposed Operation Plan for BRT along Galle Road: Alternative-1

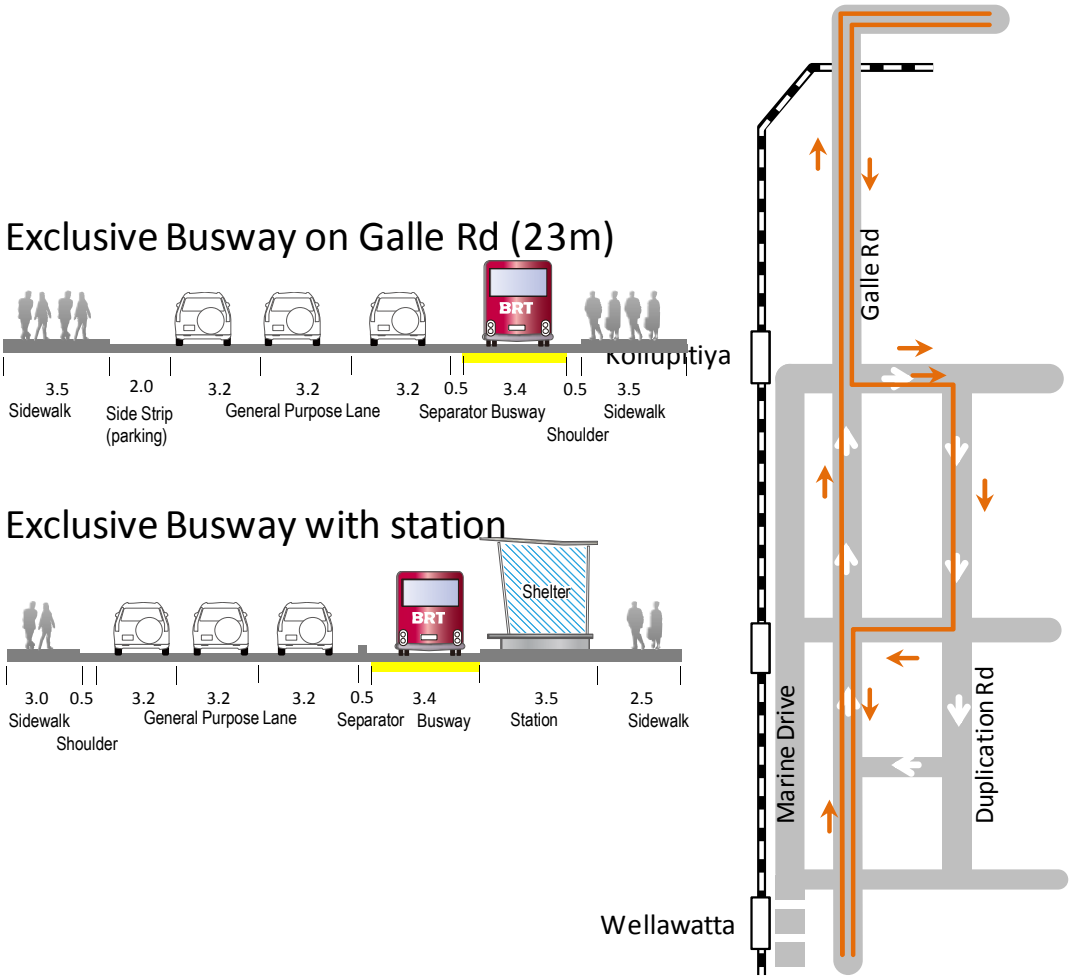


Figure 9.4.8 Proposed Operation Plan for BRT along Galle Road: Alternative-2

(2) Kandy Road

One problem pertaining to Kandy road is that the road width is currently not sufficient to accommodate dedicated lanes because the minimum width at some road sections drops to 21.0 meters. There are two alternatives that enable BRT operations.

Alternative 1: Road widening to provide space for dedicated lanes

Widening the road to achieve three lanes per direction is the best way. However, Kandy road has been widened to two lanes per direction recently; therefore, getting permission from potentially affected residents for road widening remains a challenge.

Alternative 2: Bus priority lane

With introduction of a bus priority lane, road widening can be avoided. However, capacity and speed of the BRT system will be reduced

Alternative 3: Reversible dedicated lane

An available option recommended for this corridor is to introduce the reversible busway. Arrangements of the reversible busway, accompanied by the example of reversible busway in Eugene, USA, are shown in the figures below.

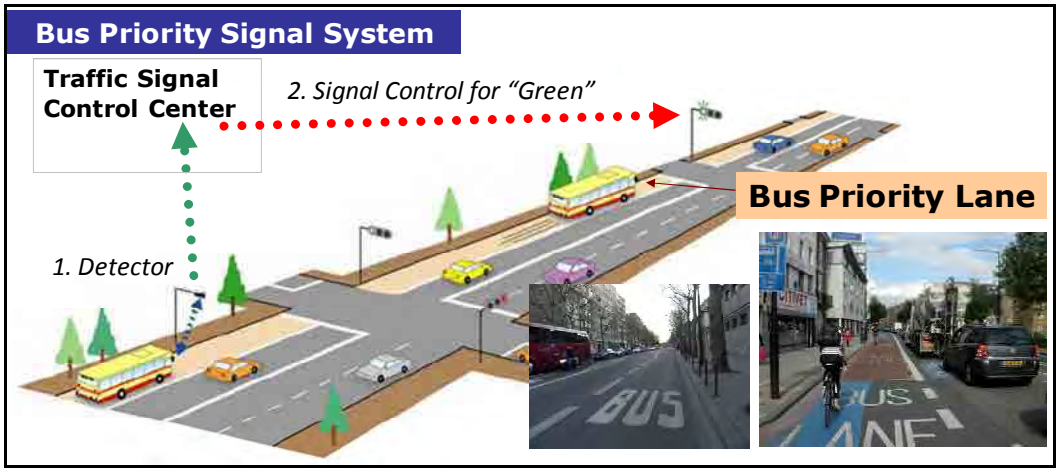


Figure 9.4.9 Bus Priority Lane and Priority Signal System

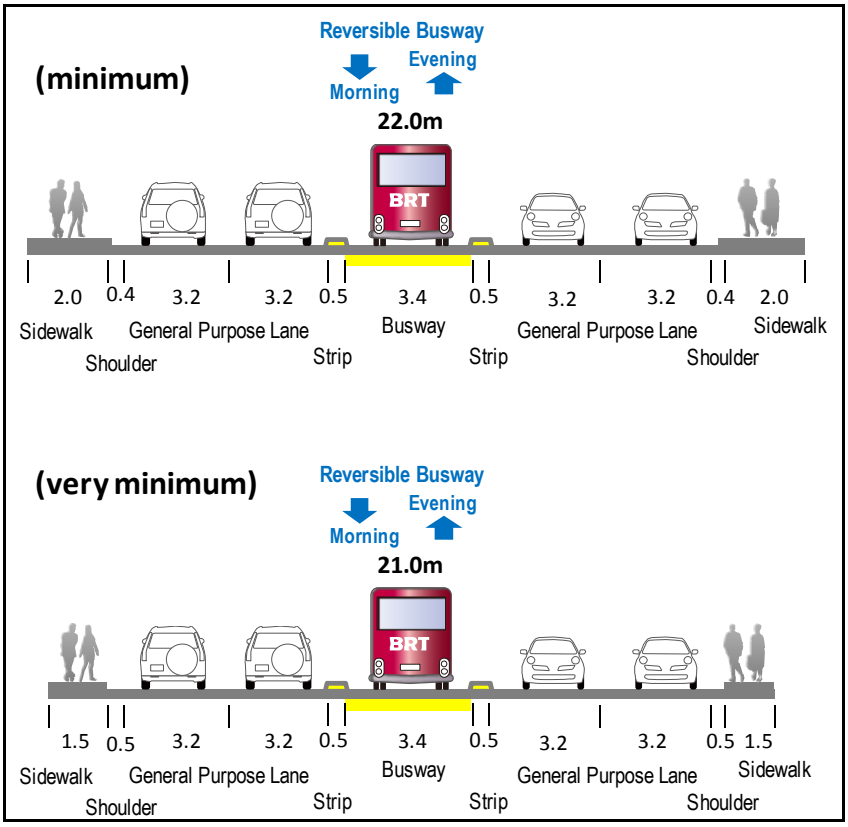


Figure 9.4.10 Proposed Reversible Lane for Kandy Road

Figure 9.4.11 Example of Reversible Lane BRT (Eugene, Ore. USA)

(3) Baseline Road

Baseline has large road width; it is therefore less complicated comparing to previous cases to introduce the BRT system. The arrangement of road space to allocate BRT is presented in Figure 9.4.12 below.

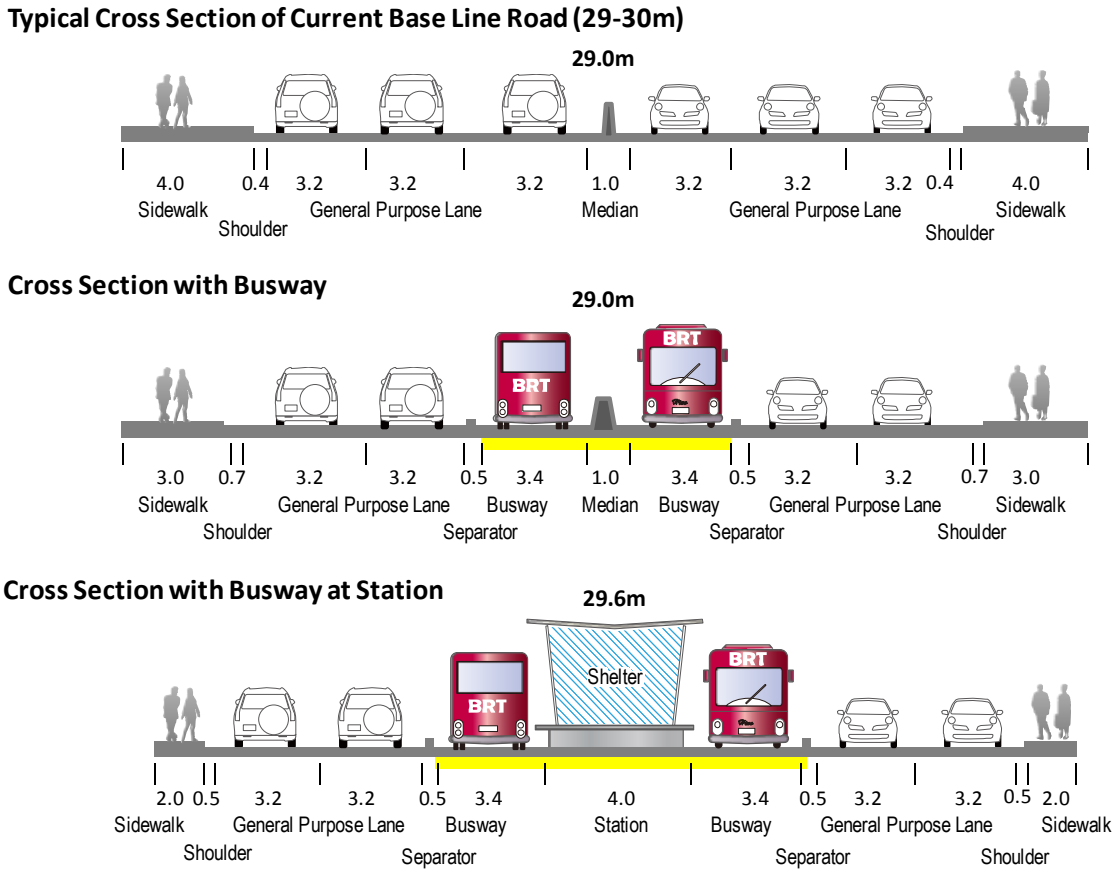


Figure 9.4.12 Proposed BRT Exclusive Lane on Baseline Road

9.4.6 BRT Passenger Demand Forecast

(1) Assumptions

Fare level setting

The fare setting for BRT was assumed to be distance proportionate. The component of the fare is described below:

- Entry fee = Rs. 10.0
- Distance proportional fee = Rs. 1.5 per kilometre

Maximum loading capacity

Capacity of BRT was set at 15,000 passengers per direction per hour.

Operation Speed

The speed varies from the minimum of 5 km/h to 40 km/h.

(2) Passenger Loading

A series of traffic simulations were carried out to estimate the BRT passenger loading for each planning year. The results are shown in Figure 9.4.13, Figure 9.4.14, and Figure 9.4.15 for the forecast years 2020, 2025, and 2035 respectively.

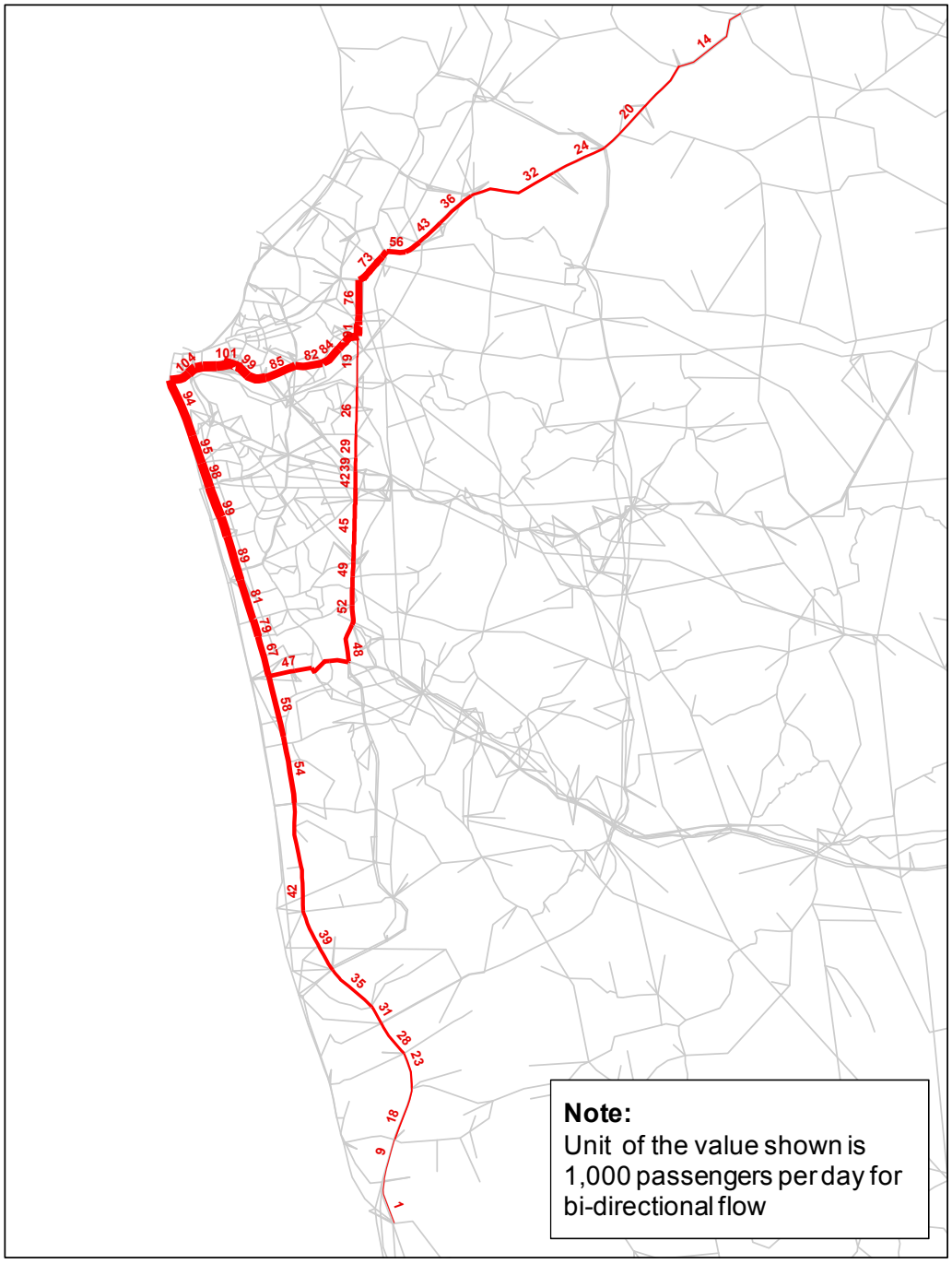


Figure 9.4.13 Forecast Passenger Loading of BRT (2020)

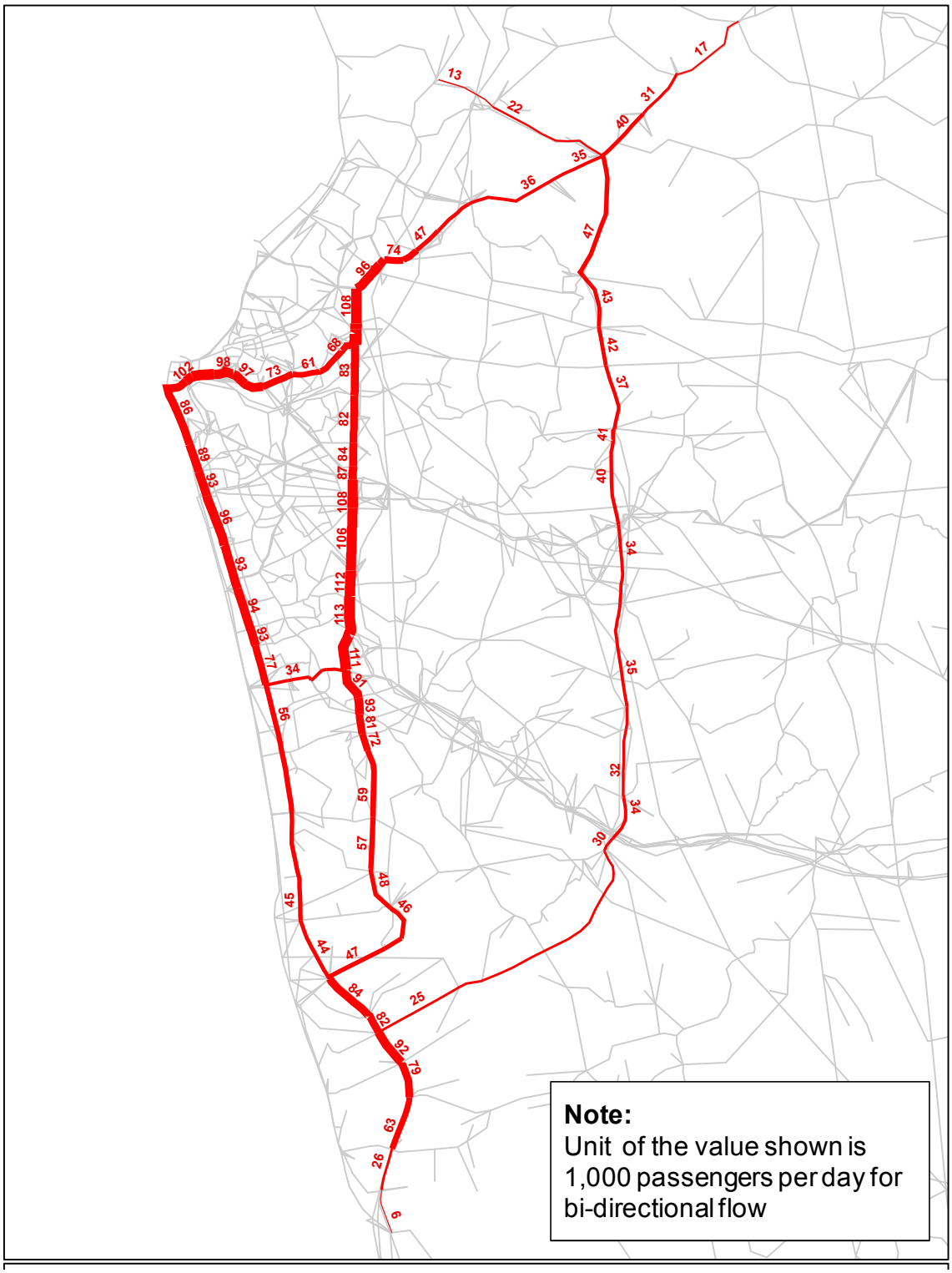


Figure 9.4.14 Forecast Passenger Loading of BRT (2025)

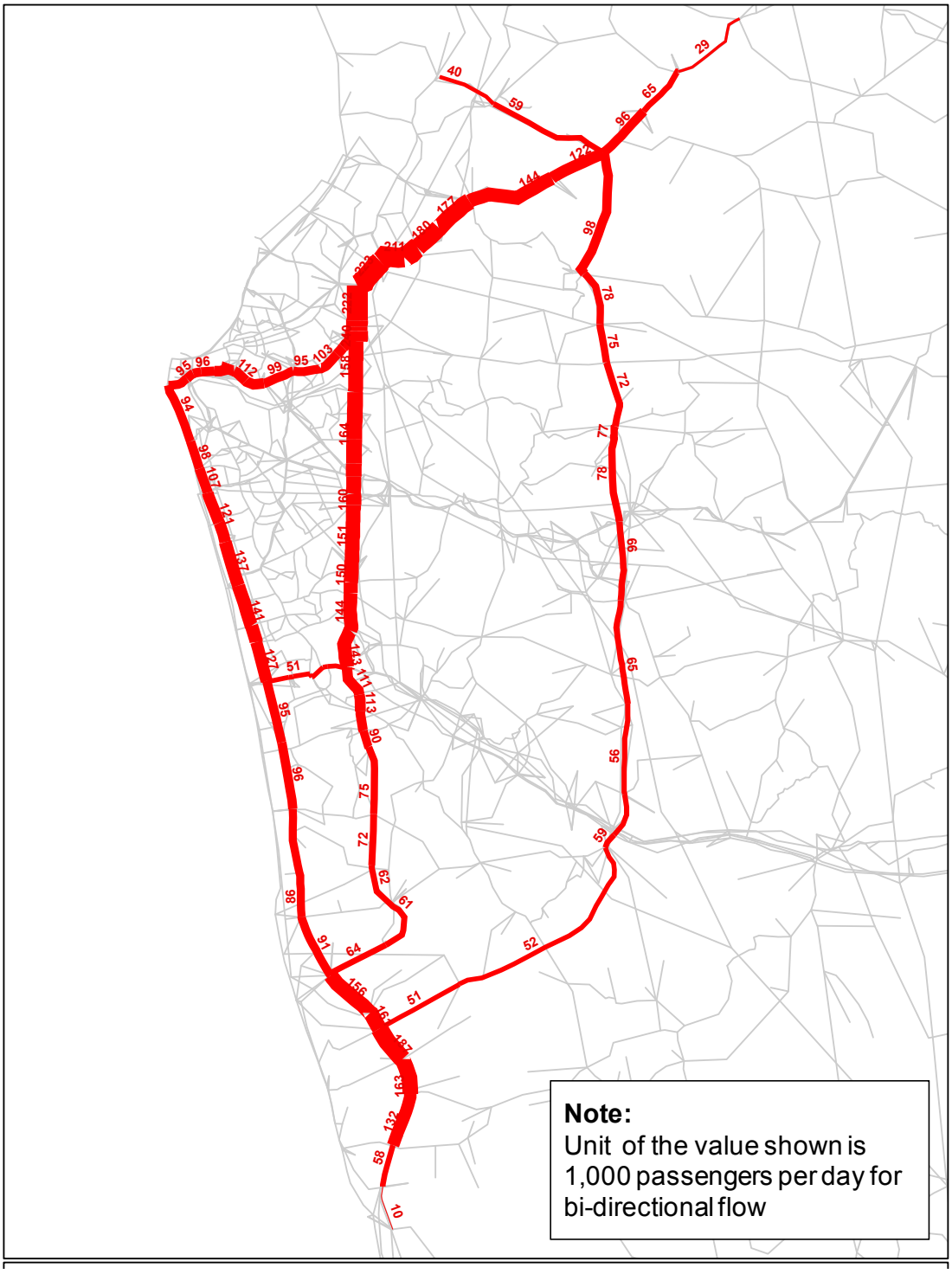


Figure 9.4.15 Forecast Passenger Loading of BRT (2035)

9.4.7 Preliminary Cost Estimate

(1) Preconditions

Table 9.4.3 Estimation of Fleet Requirements

BRT Fleet Requiremnts

		Phase1				Phase2			TOTAL
	Unit	Route1	Route2	Route3	Route4	Route5	Route6	Route7	
Km Busway	km	20.6	9.9	16.5	17	17.7	23.5	20.1	125.3
Commercial Speed	kph	21	21	21	21	21	25	25	155
Time Distance	min.	58.9	28.3	47.1	48.6	50.6	56.4	48.2	-
Layover Time	min.	15	15	15	15	15	15	15	-
Round trip Time	min.	132.7	71.6	109.3	112.1	116.1	127.8	111.5	-
Headway	min.	4	4	4	4	4	6	6	-
Fleets Needed	vehicle	34	18	28	29	30	22	19	180
Spare Fleets	10%	4	2	3	3	3	3	2	20
Total (Required Fleet)	**vehicle**	**38**	**20**	**31**	**32**	**33**	**25**	**21**	**200**

		Phase1	Phase1	Total
Fleets Needed	unit	109	71	180
Spare Fleets	10%	12	8	20
Total (Required Fleet)	**vehicle**	**121**	**79**	**200**

Table 9.4.4 Peak Hour BRT Capacity

Peak Hour BRT Capacity (Articulated bus)

	Unit	Route1	Route2	Route3	Route4	Route5	Route6	Route7	TOTAL
Fleet Capacity (articulated)	pax.	150	150	150	150	150	150	150	-
Frequency	times/hr	15	15	15	15	15	10	10	95
Route Capacity	**pphpd**	**2,250**	**2,250**	**2,250**	**2,250**	**2,250**	**1,500**	**1,500**	**14,250**

Note: passenger per hour per direction (pphpd)

Peak Hour BRT Capacity (Single bus)

	Unit	Route1	Route2	Route3	Route4	Route5	Route6	Route7	TOTAL
Fleet Capacity (articulated)	pax.	85	85	85	85	85	85	85	-
No of Fleets	vehicle	15	15	15	15	15	10	10	95
Route Capacity	**pphpd**	**1,275**	**1,275**	**1,275**	**1,275**	**1,275**	**850**	**850**	**8,075**

Note: passenger per hour per direction (pphpd)

(2) Assumptions

Table 9.4.5 Basic Assumptions

Basic Assumptions (BRT Plan and Operation)

No	Basic Assumption of Calculation	Unit	Phase 1	Phase 2	Total	Remarks
1	BRT Corridor Length	km	45.7	38.8	84.5	
2	BRT Route Length (7 routes total)	km	64.3	60.6	124.9	Phase1: Route1 to 4, Phase2; 5 to7
3	Number of Bus Fleet	vehicle	121	78	199	
4	Vehicle Type of BRT Fleet	type	Articulated	Articulated	-	
5	Fleet Capacity (Maximum)	passenger	150	150	-	
6	Average Speed	kph	21.0	25.0	-	
7	Plan of Headway	minutes	4.0	6.0	-	Route1-4(4min),Route5-7(6min)
8	Travel Distance per bus	km/day	260	260.0	260.0	
9	Operating Day	day/year	325	325.0	325.0	
10	Operating Travel Distance	km/year	10,224,500	6,591,000	16,815,500	
11	Operating Hours	hours/day	18	18	18	5:30 -23:30

Basic Assumptions (Unit Price)

No	Basic Assumption of Calculation	Unit	Discription	
1	Price of Articulated Bus	USD	300,000	Depend on the demands
2	O-M Cost per Operating Km	USD/km	1.28	Data from TransJakarta Korridor 1 renewal

(3) Estimated Cost

Table 9.4.6 Initial Investment Cost

Item	Unit	Phase1	Phase2	Total
Infrastructure Cost	mil. USD	**54.8**	**46.6**	**101.4**
BRT Corridor Km	Km	45.7	38.8	84.5
Unit Cost per Km	mil. USD	1.2	1.2	
Fleet Cost	mil. USD	**36.3**	**23.7**	**60.0**
New Fleet Required	vehicle	121	79	200
Unit Cost per Bus	mil. USD	0.3	0.3	
Equipment Cost	mil. USD	**2.8**	**0.7**	**3.5**
Bus Location System	mil. USD	2.8	0.7	
TOTAL	**mil. USD**	**93.9**	**71.0**	**164.9**

Table 9.4.7 Recurrent O&M Cost

Item	Unit	Phase1	Phase2	Total
Bus Km per year	km/year	10,224,500	6,591,000	16,815,500
Cost per Bus Km	USD/km	1.28	1.28	-
Total O&M Cost	**mil USD/year**	**13.1**	**8.4**	**21.5**

9.5 Road Development for Introducing BRT

It is proposed to introduce Bus Rapid Transit (BRT) to form an efficient public transport network together with the existing railway network and a new transit system.

In the short-term, wide roads with 3 lanes per direction are to be utilised to accommodate dedicated bus lanes. This category of road includes Base Line Road, Sri Saddhmma Mawatha, Pradeera Mawatha, Sri Sangaraja Mawatha and Olcott Mawatha.

(1) Base Line Road Extension/ Marine Drive Extension

Extension of Base Line Road as well as extension of Marine Drive enables introduction of dedicated bus lanes in the middle of Galle road since these road extensions would provide additional road capacity for private modes of transport and give space for BRT.

(2) Kandy Road

Kandy road is another candidate for BRT, however, the road does not have sufficient road space to accommodate dedicated bus lanes. Kandy road has been widened to two lanes per direction recently, therefore, it seems that it would be difficult to get acceptance from the residents along the road who will be affected by further land acquisition for road widening.

(3) Middle Ring Road

BRT system development on the Middle Ring Road, which is a part of the ring road network as mentioned below, is a strategic way for public transport development. At present, large passenger demand does not exist there, consequently, it is not necessary to develop BRT for now. However, if it is possible to secure space in the median for future development of BRT, it would be easier to develop the BRT system in the intermediate or long term. To promote BRT system development, transit oriented development (TOD) at major intersections with major arterial roads is also recommended. By allowing higher floor ratio, it would guide high-density land use to the areas surrounding BRT stations.

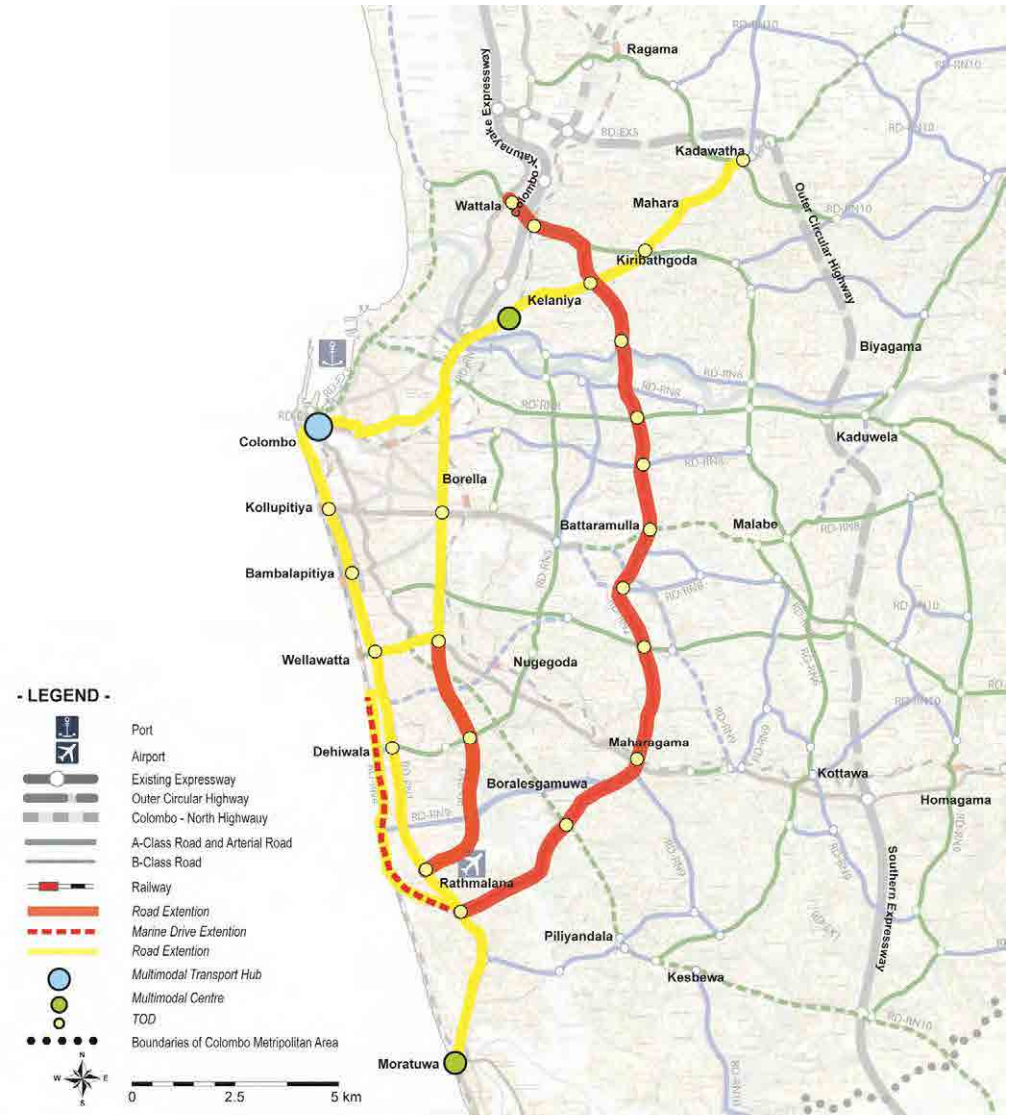


Figure 9.5.1 Road Development for BRT Operation

9.6 Bus Priority System and Bus Location System for BRT

It is proposed to introduce both a Bus Priority System and a Bus Location System for BRT. It includes

- Mounting an RFID tag to each BRT bus,
- Installation of RFID receiving equipment,
- Development of a system for collection of the traveling status information,
- Development of a system to adjust the phasing time of the signals, and
- Development of a system for providing traffic information on the web.

(1) Bus Priority System

Improvement of convenience for the users of BRT by improvement of the travel environment of the BRT (Stabilization of travel speed). A Bus Priority Signalling System and queue jump layout could significantly reduce the delays to buses at intersections.

(2) Bus Location System

Real time bus location information by ITS is also one of the important features of the BRT. For instance, real time bus location information would increase the level of service and convenience for the passengers. At the same time the system can be utilised for controlling BRT operation.

Figure 9.6.1 Bus Location System

9.7 Bus Location System and IC Ticket for Public Buses

It is proposed to introduce a Bus Location System for public buses. The system includes Global Positioning System (GPS) for transmitting locational information of each bus. This will provide real time bus location thus it is very useful for a bus company to control bus operation. Bus passengers are able to get the information of the bus operation on the specific bus route thus they can estimate waiting time for the next bus at bus stops.

At the same time it is also recommended to introduce IC Ticketing for bus services. Recently the introduction of the IC Card has been started on some buses in which the bus conductor has a communication device to report usage of the card to the centre. With the ticketing system, the bus companies can monitor the ticket sales. This enables them to record the number of passengers with discount tickets and makes it possible to provide subsidy for private bus companies if the government would like to do so.

With application of this new technology, the bus operation regime could be reformed to provide better services to passengers.

9.8 Improvement of Bus Stops and Bus Terminals

9.8.1 Bus Stops

Most bus stops in the 7 corridors don't have suitable facilities such as bus bays for the safety of passengers and vehicles in the same lane or bus shelters for passenger's comfort. Installation of these amenities in the 7 corridors and other major arterial roads should be carried out while considering the impact to the pedestrians on the sidewalks.

9.8.2 Bus Terminals

Existing bus terminals and railway stations are not properly connected in the Pettah area as mentioned in Sub-section 3.4.11. This has caused many passengers to cross arterial roads and troublesome access between terminals and stations. Therefore, multi modal transport hubs which secure direct access to other terminals and transport modes should be developed as shown in the proposed plans for integrated transport systems with a new transit system. On the other hand, in the suburbs around CMC the expansion of existing terminals should be carried out depending on each future demand to avoid interrupting traffic flows on existing roads.

9.9 Regulatory Scheme for Road-Based Public Transport Modes

A regulatory scheme for proper restrictions on road-based public transport modes should be established taking into account road safety, congestion of roads, transparent service for customers and the employment of drivers and owners.

9.9.1 Capacity Development for Bus Operation Improvement

Capacity development for bus operations is not only about conventional approaches, such as institutional, administrative, and knowledge and skills, but also it should encompass disciplinary, moral and behavioural aspects, considering the nature of delivering services to the passengers. In that sense, the capacity building for general bus services is perceived in three tiers, i.e. the regulator, operator and employees. Considering the functional responsibilities of each tier, the focus of capacity building will be varied.

Regulator (Inter-Provincial bus services: National Transport Commission, Intra-Provincial bus services: Western Province Road and Passenger Transport Authority)

Institutional capacity development to build a strong regulatory body and law enforcement shall be the main focus for the regulator. Continuing management on passenger needs assessment for existing routes and updating the bus route network is one of the core capacities, among others, to maintain effective and passenger-centred bus services, along with law enforcement for the safety and security of passengers.

Operator (Public bus services: Sri Lanka Transport Board, Private bus services: Private bus operators)

As a direct service provider, the operator needs to implement institutional and individual capacity enhancement to be a more passenger-centred service provider. Reinforcing a supervising function for bus operation services, i.e. bus fleet conditions, driving skills and driver's performance, compliance with traffic safety practices and timely operation according to the time table, are areas in institutional capacity building, along with inspectors' knowledge enhancement for bus operation control as individual capacity development.

Bus Drivers and Conductors

Reckless driving behaviour of bus drivers shows an indisputable necessity to re-educate drivers to focus more on traffic and passenger safety. Disciplinary and moral education to value safety and reliability of public transport service is also one of the capacity building measures that should be undertaken by the operator to enhance the employees' capacity.

Table 9.9.2 Projects in Program (1) for Promotion of Public Transport Use

Sector	Projects			Outline of the Project	Length (km)	Phase		
	ID	Name				Short-	Intermediate	Long-
Rail-way	RL-M1	Modernization of Existing Railway	Coastal Line Colombo Fort - Karutara South Modernization of Existing Railway Construction of New Railway Line	Replacing signalling system (new interlocking and train protection systems)	42.5	✔		
				Electrification (double track)	42.5		✔	
				Procurement of new train	42.5		✔	
				Construction third line and track layout improvement	42.5			✔
	RL-M2		Main Line Colombo Fort – Veyangoda Modernization of Existing Railway	Replacing signalling system (New interlocking and train protection systems), Upgrade existing track (double track)	37.6	✔		
				Electrification (double track)	37.6		✔	
				Procurement of new train	37.6		✔	
	RL-M3		Puttalam Line Modernization of Existing Railway Ragama - Negombo	Replacing signalling system (New interlocking and train protection systems) Electrification Track layout improvement Procurement of new train	23.3		✔	
	RL-M5		Main Line Modernization of Existing Railway (Colombo Fort – Maradana)	Improvement of train operation	4.0	✔		
	RL-NR1	New Railway Line	Airport Connection Construction of New Railway Line Katunayaka South - Airport Terminal	Extension of existing track to airport terminal Replacing signalling system Rehabilitation of existing single track Electrification	2.2		✔	
	RL-NT1	New Transit System	Monorail [Phase 1]	Malabe – Kotahena Town Hall - Kollupitiya	23.0	✔		
	RL-NT2		Monorail [Phase 2-1]	Kotahena – Kelaniya Malabe - Kaduwela	11.9		✔	
	RL-NT3		Monorail [Phase 2-2]	Additional New rolling stock				✔
	RL-NT4		Monorail [High Level Road]	Borella - Homagama	19.7		✔	
	RL-NT5		Connecting line of Monorail [HL] and Coastal Line	Siebel - Wellawatta	3.4			✔
	RL-SF1	Station Facility Improvement		Major Station: Fort, Maradana, Main Station: Negombo, Gampaha, Ragama, Kottawa, Moratuwa, Sub-stations: Main Line (Demadagoda, Kelaniya, Genemulla), Coastal Line (Secretariat, Kollupitiya, Bumbalapitiya, Dehiwala, Rathmalana), Puttalam Line (Kandana, Ja-Ela, Seeduwa, Katunayaka South), KV-Line (Baseline, Narahenpita, Nugegoda, Maharagama, Mlapalla)		✔		
	RL-SP1	Spare Parts, Coach Renewals				✔	✔	✔

Table 9.9.2 Projects in Program (1) for Promotion of Public Transport Use - continued

Sector	Projects			Outline of the Project	Length (km)	Phase		
						Short-	Intermediate	Long-
Road	RD-RN1	Provision of Road Space for introducing BRT	Galle Road Widening for BRT Corridor	Widening of Galle Road to secure road space for future development of BRT	14.8		✔	
	RD-RN2	Securing Space for Future Development of BRT	Development of Middle Ring Road for BRT Corridor	Development of Middle Ring Road to secure road space for future development of BRT and connect between the suburb areas around CMC	30.2		✔	
	RD-RN3	Provision of Alternate Road for introducing BRT	Baseline Road Extension	Extension of Baseline Road to provide alternate road for private passenger cars and to utilise Galle road for BRT	6.2		✔	
	RD-RN4		Marine Drive Extension	Extension of Marine Drive to provide alternate road for private passenger cars and utilise Galle road for BRT	5.3	✔		
	RD-RN9	Support on feeder services for railway and monorail	Access Roads to Railway/Monorail Station	Development of the connection between each station and arterial roads	89.1		✔	✔
Bus/ BRT	BRT-1	BRT Instalment	Phase-1	Route-1: Fort - Moratuwa (20.6km) Route-2 : Fort - Siebel Avenue (9.9km) Route-3: Fort - Kadawatha (16.5km) Route-4 Kiribathgoda-Wellawatta (17.0km)	45.7	✔		
	BRT-2		Phase-2	Route-5 Borella-Moratuwa (17.7km) Route-6 Wattala-Maharagama (23.5km) Route-7 Battaramulla Moratuwa (20.1km)	38.8		✔	✔
	BT-1	Improvement of Bus Terminals				✔		
	BT-2					✔		
	B-ST1	Improvement of Bus Stop				✔		
	B-CD1	Capacity Development				✔		
Traffic Management	TM-BL1	Bus Location System for BRT + PTPS	BRT Section/Phase1	Introduction section of BRT(Phase1)		✔		
	TM-BL2		BRT Section/Phase2	Introduction section of BRT(Phase2)			✔	
	TM-BL3	Bus Location System for Buses		whole of the Colombo Metropolitan Area				✔
Transport Interchange Facility	MmTH	Multi-modal Transport Hub	Fort/Pettah MmTH	Monorail, Rail, Bus, BRT terminals with Station Plaza		✔		
	MMC1	Multi-modal Centre	Kelaniya MMC			✔		
	MMC2		Malabe MMC			✔		
	MMC3		Makumbra MMC			✔		
	MMC4		Moratuwa MMC			✔		
	MMC5	Park & Ride Facility				✔		

CHAPTER 10 Urban Transport System Development Program (2) for Alleviation of Traffic Congestion

The urban transport system development program consists of the projects for the urban transport policy (2): ***Alleviation of Traffic Congestion***.

10.1 Ring Road Network

At present, due to lack of circumferential roads, cars cannot avoid traffic congestion in the Centre of Colombo. If ring roads are developed, they will provide detour routes for traffic of which the destinations are not in the Centre of Colombo.

Three ring roads are proposed which will enhance the accessibility between the suburbs and the Centre of Colombo and distribute the heavy traffic volume especially on major arterial roads in the CMC. These ring roads are basically developed with the existing roads such as B class and other minor arterial roads managed by RDA and WPRDA.

Future traffic demands of these ring roads are indicated in Figure 10.1.2. The estimated traffic demand on the Middle Ring Road is about 50,000 pcu per day for both directions. In some sections, the traffic volume would reach about 60,000 pcu. Those for the Western Ring Road and Eastern Ring Road would amount to around 40,000 pcu per day for both directions.

Figure 10.1.1 Ring Road Network Development

Source: CoMTrans Estimate

Figure 10.1.2 Estimated Traffic Volumes on Ring Roads and East-West Arterial Road Network Development in Eastern Suburban Area 2035

10.2 East – West Arterial Road Development in Eastern Part of Suburban Area

The road network in the suburban areas is very limited, thus traffic flows are concentrated on the major arterial roads and chronic traffic congestion has been brought about. To accommodate the traffic demand, it is proposed to develop east-west arterial roads in suburban areas. The east-west roads would be a part of the access roads to monorail stations. The traffic demand on these east-west arterial roads was estimated in the range between 50,000 and 60,000 pcu per day for both direction as illustrated in Figure 10.1.2. Traffic volume of Malabe-Battramulla road in the Battaramulla area would exceed 100,000 pcu per day for both directions.

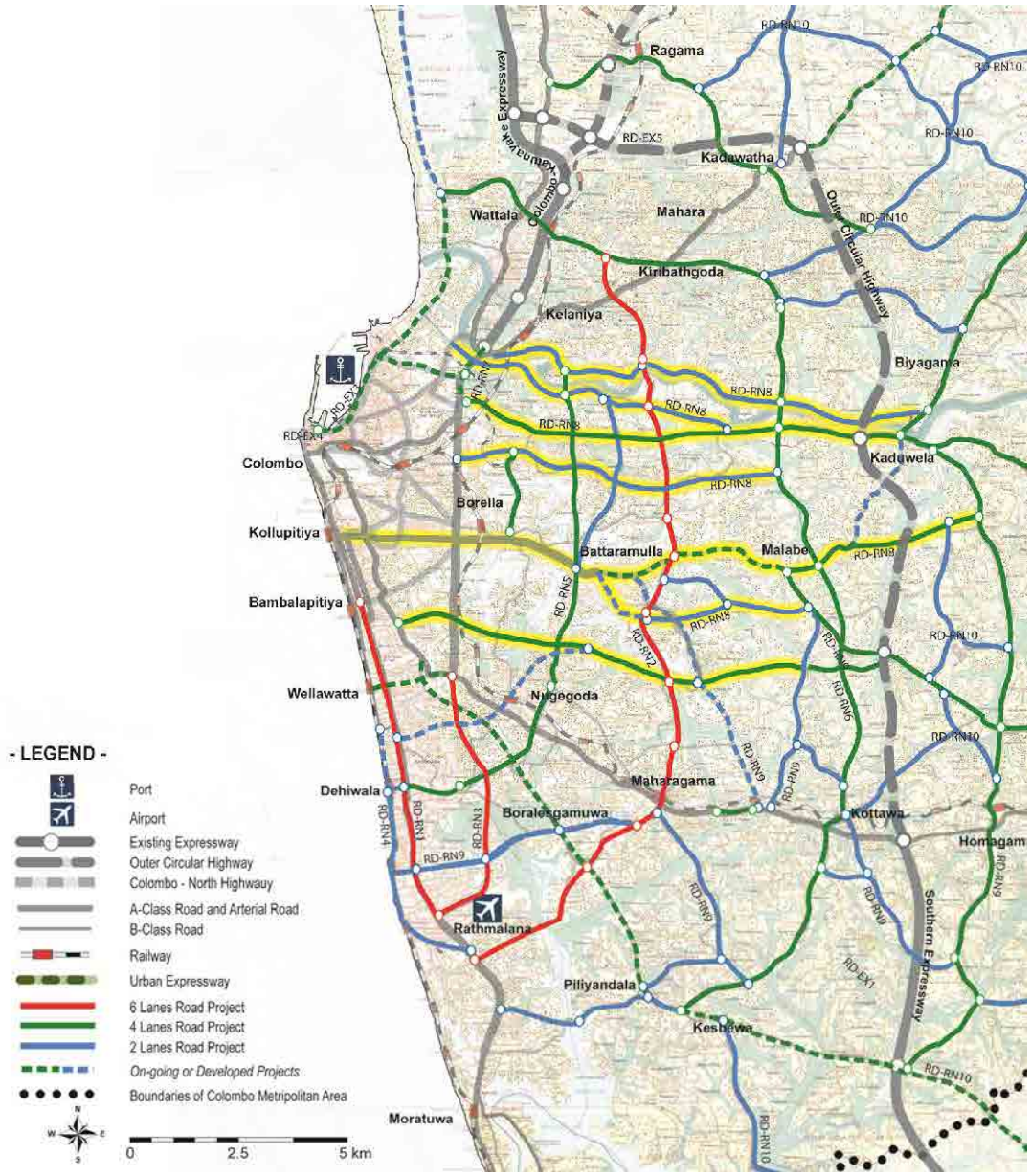


Figure 10.2.1 East-West Arterial Road Network Development in Eastern Suburban Area

10.3 Expressway Network Development

Under the current condition of the expressway network development, it is proposed to connect the CKE with the new urban expressway through the planned elevated road via Kirillapone up to the Southern Expressway shown as the urban expressway 1 in Figure 10.3.1.

Another urban expressway development option is connection between Pore and Borella. This expressway as the urban expressway 2 is shown in Figure 10.3.1 and should be carefully examined because the route is competitive with the planned Monorail Malabe – Borella - Fort line. It could reduce passenger demand on the Monorail.

When the two urban expressway options are compared, urban expressway 1 is better from the viewpoint of network coverage since it would cover a wider area in the metropolitan area.

Figure 10.3.1 Expressway Network Development

10.4 Flyover Development

In urbanised areas, traffic congestion is often observed at intersections due to insufficient traffic capacity which makes the intersections bottlenecks. Construction of a flyover provides grade separation of traffic flows and increases traffic capacity at intersections. It is proposed to develop flyovers at major intersections on the major arterial radial roads from the suburbs to the city centre as indicated in Figure 10.4.1. However the development of flyovers in the city centre should be carefully examined from the aesthetics point of view. If area-wide traffic signal control could substitute for grade separation, it might be better for the aesthetics in the city centre.

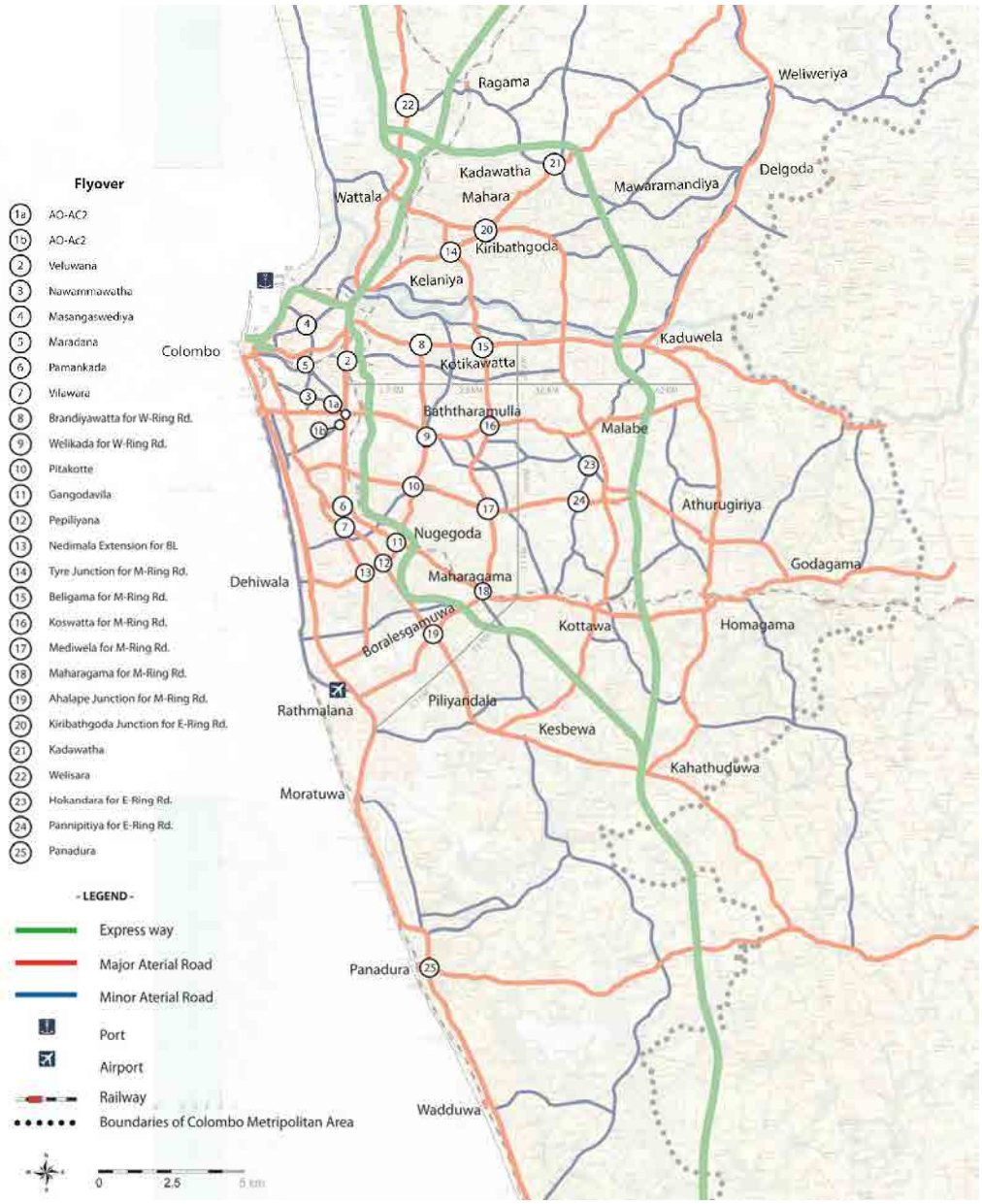


Figure 10.4.1 Flyover Development Plan

10.5 Port Access Road

Development of a port access road as a part of the expressway is proposed to deal with truck traffic in the port and surrounding area. If port access is provided, then it would reduce heavy vehicle traffic flows on the arterial road network in the vicinity of Colombo port. If space inside the port can be used for expressway road development, the road will be connected with CKE.

10.6 Traffic Control

Traffic Signal Control Improvement

Traffic Signal Control Improvement is proposed, which includes Development of a Central Control Centre for traffic signals and Installation /Improvement of signalization for intersections (including Controllers)

Purpose of the Project is as follows

- Reduce traffic congestion by optimised signal control
- Increase in traffic capacity of intersections by signalization at No-signal / Roundabouts
- Improvement of the environment (noise, air) by reduction of traffic congestion

Traffic Information System

A Traffic Information System is proposed, which includes Installation of CCTV, Development of a system to detect sudden events (Traffic volume, Travel time, accidents etc.), and development of a system for providing traffic information on the web.

This will maximise the transportation network function using real-time traffic information, Closed to traffic information and Traffic Regulation information and provide for:

- Appropriate route selection
- Optimization of traffic volume sharing

Parking Information System

A Parking Information System is proposed, which includes Development of a system for collection of parking Full/Empty information and Development of a system for providing information.

This would reduce traffic prowling while looking for parking within the city by providing parking location information and FULL-empty status of each parking facility.

10.7 Transport Demand Management

In order to materialise modal shift from private modes to public transport, it is necessary to apply a Transport Demand Management scheme.

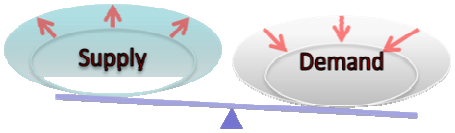


Figure 10.7.1 Image of the Balance of Supply and Demand

Policy measures for TDM are as follows;

- Fuel tax increase,
- Electronic Road Pricing (ERP),
- Peak hour shift by Mobility management and regulation applications,
- Park and Ride (P&R) with incentive scheme and
- Parking pricing policy,
- HOV (high Occupancy Vehicle) lane etc.

In this urban transport master plan, the following impacts to traffic demand by TDM policies are assumed;

- Overall modal shift to public transport (10% of car users),
- Modal shift to public transport entering CMC (10% of car users entering CMC) and
- Peak hour demand reduction (20%).

10.8 Construction of Railway Freight Line

The development of a freight railway line by the private sector has been planned to carry bulk products, like oil, and containers up to Dompe. It would alleviate traffic congestion in the northern part of Colombo where many trucks carry cargo on the roads.

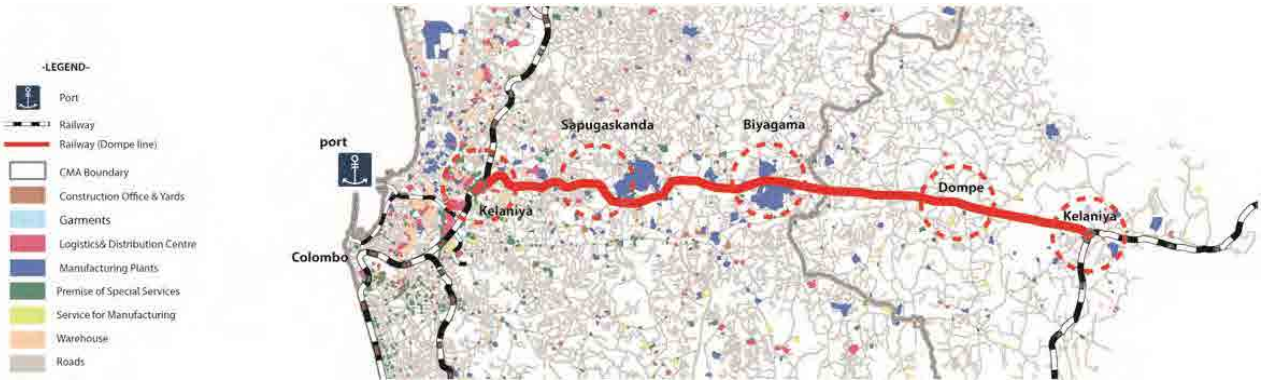


Figure 10.8.1 Dompe Line Development Plan

Table 10.8.1 Projects in Program (2) for Alleviation of Traffic Congestion

Sector	Projects			Outline of the Project	Length (km)	Phase		
	ID	Name				Short	Intermediate	Long
Road	RD-RN5	Enhancement of Traffic Distribution Function of Road Network	Western Ring Road	Development of the Ring Road by making most use of the existing roads for distributing traffic flows between the suburb areas and CBD. On-going projects are on B232.	22.8	✔	✔	
	RD-RN6		Eastern Ring Road	Development of the Ring Road by making most use of the existing roads for distributing traffic flows between the suburb areas and CBD.	50.6		✔	✔
	RD-RN7		Connection between CKE - Kelani Bridge (New) - KelanitissaJCT	JICA Loan, On-going project. This road is planned as alternative route with elevated structure for heavy traffic on existing bridge. End of this connection is set on an existing road with an interchange in an urban area, it is a concern that increasing traffic volume will concentrate on that point in the future.	2.3	✔		
	RD-RN8	Enhancement of east-west connection	East - West Roads	Development of arterial road utilising existing roads in the east-west direction On-going projects and existing plans are on B231, B435, B241 and AB10.	60.1		✔	
	RD-RN10	Development of Suburban Arterial Road		Development of the connection between each rural road and Major Road	135.4			✔
	RD-FO	Construction of Flyover		25 identified locations		✔	✔	
	RD-EX1	Construction of New Urban Expressway	Urban expressway-1: Connection between SEW and CKE	Development of urban expressway to connect CKE and SEW through urban area to avoid traffic concentration at one point in urban area	25.5		✔	✔
	RD-EX3	Construction of New Urban Expressway	Urban expressway-3: Port Access	Between the end of CKE and Colombo Port	5.0	✔		
	RD-EX4	Construction of New Urban Expressway	Urban expressway-4: Access to MmTH at Fort station	Development of an urban expressway to provide direct access from Malabe to Borella to deal with the anticipated increasing car traffic demand.	0.8	✔		
	RD-EX5	Construction of New Urban Expressway	Outer Circular Highway: 3rd Section	Financed by China Exim Bank, On-going project. A part of OCH	9.2	✔		
	RD-EX6	Construction of New Urban Expressway	Northern Expressway	Inter-regional expressway to connect Colombo and Kandy	20.0	✔		

Sector	Projects			Outline of the Project	Length (km)	Phase		
	ID	Name				Short	Intermediate	Long
Traffic Management	TM-S1	Traffic Signal Instalment	Phase-1 Development of the central control room. Improvement of traffic signal control along The Priority Route	Central control room Improvement of Signal (29) Installation of signal (25) (Change exist Roundabout and No-Signal)		✔		
	TM-S2		Phase-2 Improvement of traffic signal control along to The 2nd Priority Route	Improvement of Signal (37) Installation of signal (93) (Change exist Roundabout and No-Signal)			✔	
	TM-S3		Installation of spot traffic signal control associated with road improvement at current congestion points	Construction of Arterial Roads and Upgrading of Road: 16		✔		
				Construction of Arterial Roads and Upgrading of Road: 43			✔	
				Construction of Arterial Roads and Upgrading of Road: 101				✔
	TM-TI1	Traffic Information System		whole of the Colombo Metropolitan Area				✔
	TM-P1	Parking Information System		whole of the Colombo Metropolitan Area, and R+R Parking				✔
	TM-ERP	ERP System		whole of the CMC boundary			✔	
Railway	RL-NR2	Dompe Freight Line Development		Construction of Dompe railway line			✔	

CHAPTER 11 Urban Transport System Development Program (3) for Reduction of Air Pollutants/Traffic Noise and Promotion of Health

Urban transport system development program (3) consists of the projects for the urban transport policy 3: ***Reduction of Air Pollutants/Traffic Noise and Promotion of Health.***

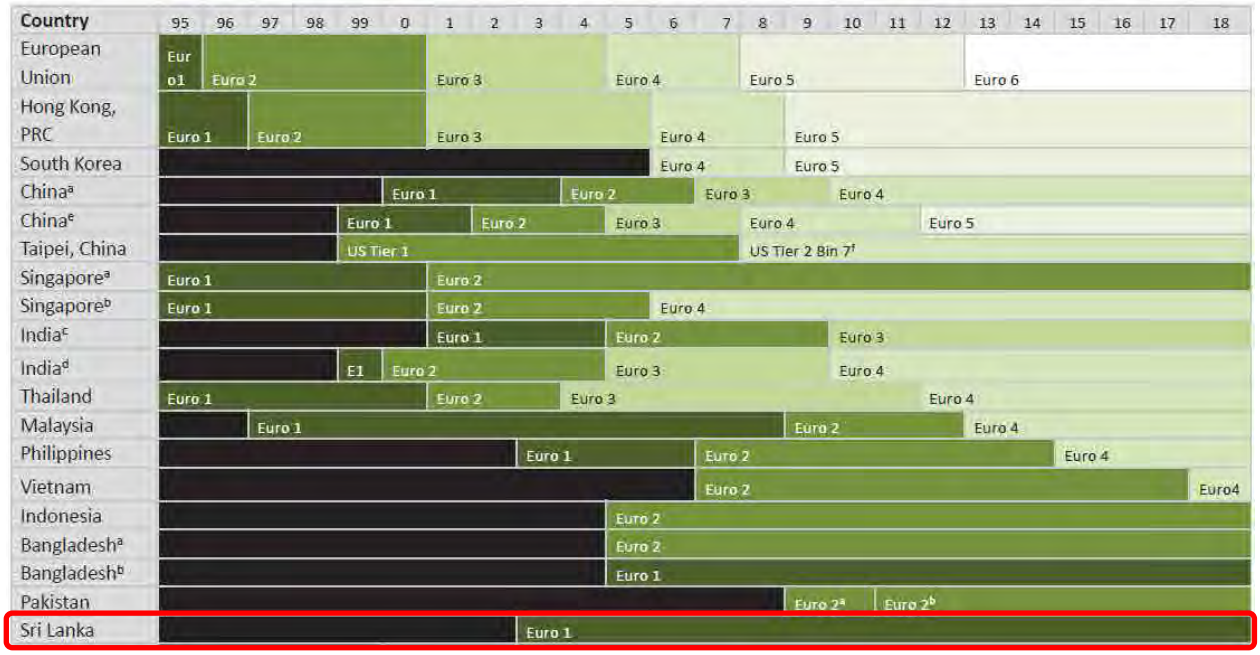
11.1 Establishment of Environmental Management Scheme

Environmental pollution could be avoided by continuous environmental management, implementing pollution control programs that are evaluated and, if necessary, upgraded on a project cycle basis.

This requires an environmental management scheme which consists of environmental monitoring for evaluation and environmental impact simulation based on a regularly updated emission source inventory for planning. To establish and develop the scheme, capacity building for technical staffs and reinforcement of institution/capacity for policy makers in the scheme should be undertaken.

11.2 Establishment and Enhancement of Air Pollutant Emission Standards for Newly Manufactured and Imported Vehicles

Establishing and enhancement of emission standards for newly manufactured vehicles and for vehicles newly imported to the country is the most effective way to reduce vehicle emissions. Sri Lanka has adopted the emission standards established by the European Union and other equivalent standards for these vehicles since 2003. Different standards have been applied for each type of vehicle (Light-Duty Vehicles, Heavy-Duty vehicles, etc.). However, these standards are not effectively enforced and there has been no major enhancement to these standards. For example, emission standards for New – Light-Duty Vehicles have remained as EURO 1 since 2003. Thus, there should be a mechanism to review the existing standards applied for each type of vehicle and to update these standards in a practical manner.



Source: CAI Asia; Update on Clean Fuels and Vehicles in Asia. Oct 2011

Figure 11.2.1 Automotive Emission Standards for New Light-Duty Vehicles in East Asia and Europe

11.3 Enhancement of Vehicle Inspection and Maintenance Programs

Reduction of air pollutants from vehicles is a primary measure to deal with air pollution problems caused by automobiles. Sri Lanka has an air emission reduction strategy mainly implemented and managed by the Department of Motor Traffic and Air Resource Management Centre (Air Mac). In the strategy, a Vehicle Emission Testing (VET) program was officially commenced in November, 2008 as a Pilot Project in Western province. This program requires that all vehicles check their emission to ascertain whether they are within the vehicle emission standards. The Department of Motor Traffic has mandated that the certificate showing that the vehicle passed the emission testing must be submitted in order to renew the annual license for the vehicle. From 2008 to 2012, approximately seven million vehicles have been tested and approximately 15% of the tested vehicles failed to meet the standard. However, there has been a discussion that this program has received many complaints, in that vehicles with serious emission issues are also given the green light. Thus, in order to improve this program, the following aspects must be enhanced;

- Capacity building for VET centre technicians,
- Improvement of inspection and maintenance facilities,
- Audit the performance of inspectors, and
- Increase awareness of the public.

Table 11.3.1 Vehicle Emission Standards for Petrol and Diesel Vehicles

A. Petro Vehicles

Type of Vehicle	Emission Standards (Effective from April 1, 2008)		Remarks
	Carbon Monoxide CO (% v/v)	Hydrocarbon HC (ppm v/v)	
Petrol motor vehicles other than motor cycles and motor tricycles	4.5	1200	Both idling and 2500 RPM/no load
Petrol motor cycles and motor tricycles	6	9000	

B Diesel Vehicles

Type of Vehicle	Emission Standards (Effective from April 1, 2008) Smoke Capacity on Snap Acceleration K factor (m^{-1})
Diesel Vehicles	8.0

Source: Central Environmental Authority (CEA)

11.4 Low Sulphur Diesel Program

In order to reduce PM10 emission, a predominant air pollution factor, and to ensure compatibility with advanced diesel emission control systems such as trap oxidisers and oxidation catalysts, sulphur content in diesel should be kept at a low level. In Sri Lanka, steps were taken in 2007 to reduce the maximum sulphur content in diesel from 3,000 ppm to 500 ppm, however, this standard has not been met due to the inability of the refinery in Sri Lanka. In order to meet the standard for sulphur content of 500 ppm practically and further improve the fuel quality, it is fundamental to establish a mechanism to collaborate with the refinery sector to supply low sulphur diesel fuel.

11.5 Promotion of Natural Gas Vehicles

Promotion of natural gas vehicles could reduce air pollutants like PM10 significantly. Although a natural gas vehicle requires its own engine configuration, gasoline vehicles have the same fuel combustion mode and can be converted to a dedicated natural gas type while diesel vehicles can be converted to dual fuel type (uses diesel and natural gas at the same time), by attaching additional equipment such as a storage tank. And natural gas vehicle promotion also requires sufficient refuelling stations, specially trained staff and equipped garages as its infrastructure.

11.6 Promotion of Hybrid Cars and Electric Vehicles

Hybrid cars and electric vehicles are less polluting vehicles, thus it is recommended to promote these types of vehicles by giving tax incentives. Regarding the rate of reduction of taxes, a detailed study should be conducted to estimate economic benefits from these types of vehicles.

11.7 Promotion of Walking and Bicycle Use for Energy Saving and to Promote Health

Walking and bicycling are non-motorised modes of transport that don't consume fuel; thus, these modes are considered as environmentally friendly means of transport. Recently, walking and bicycling has become popular since walking and bicycling are good for health.

It is proposed to develop a pedestrian network as well as a pedestrian/bicycle network as shown in Figure 11.7.3. The network connects parks and Beira Lake in the city centre and it is located along the wetland, coastal line and Kelani River.

Figure 11.7.1 Example of Pedestrian Paths in Colombo

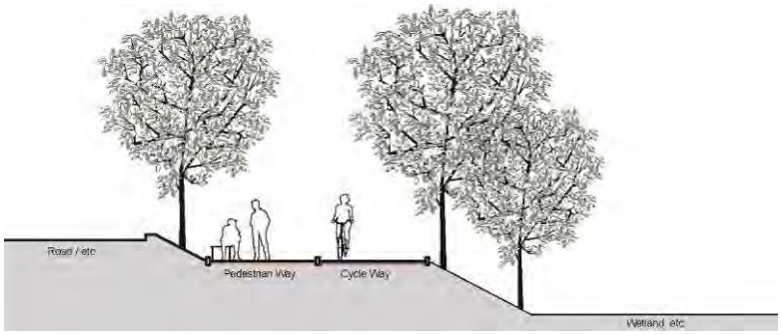


Figure 11.7.2 Typical Cross Section of Pedestrian and Cycle Way.

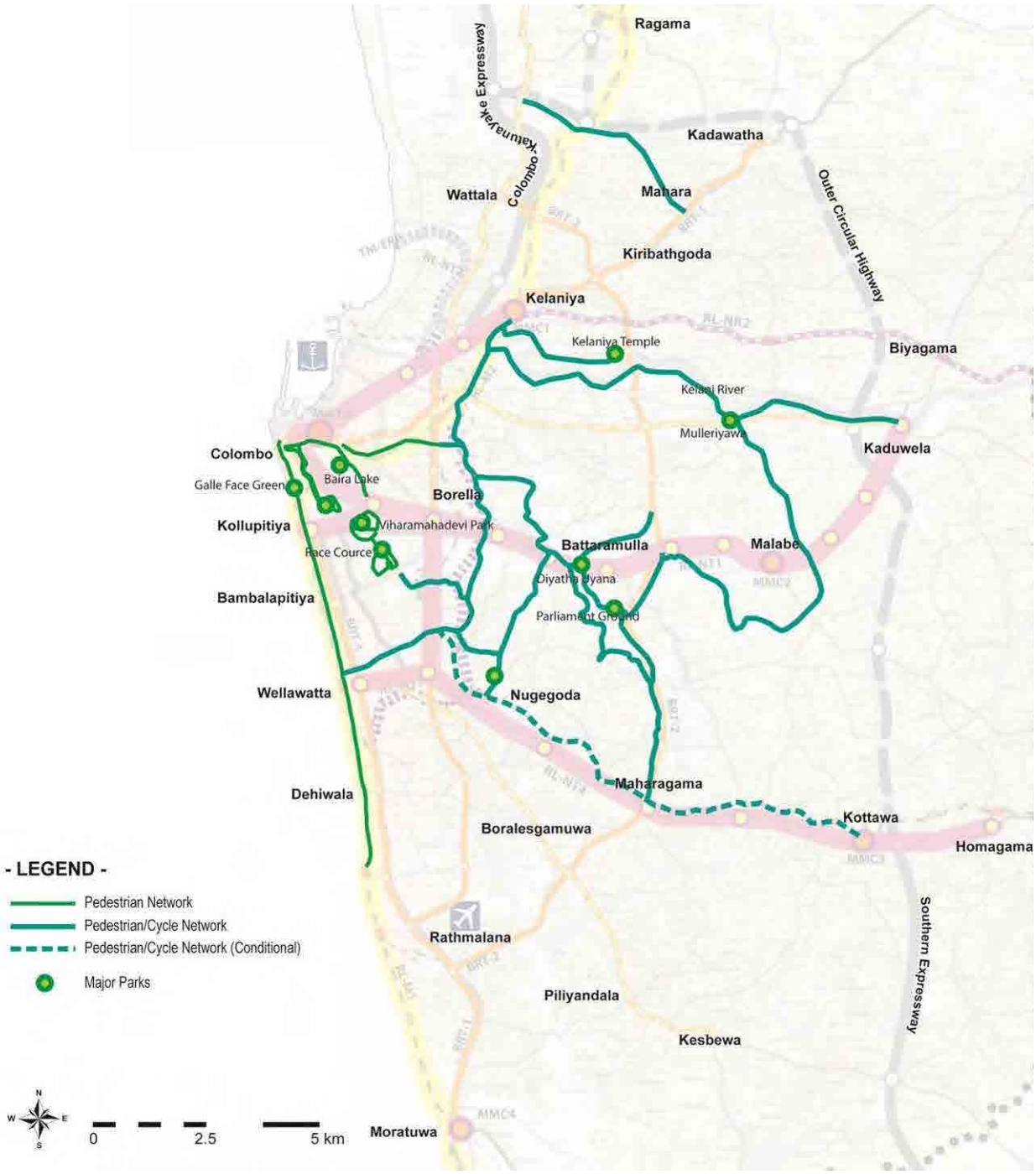


Figure 11.7.3 Pedestrian Paths and Bicycle Road Network

11.8 Provision of Sidewalks for Urban Roads

Provision of sidewalks is required to secure sufficient space for walking trips, which is a mode of access to public transport for urban residents and workers as well as tourists and for creating more attractive urban areas.

The current cross section of urban roads is still insufficient (see photo below). For example, there is no distinction between the shoulder and sidewalk on High Level Road. This is probably because sidewalks were not included in the design standard. Therefore, it is proposed to establish a road standard for urban areas to create sufficient sidewalks.

The proposed cross section can be applied to create sidewalks on the existing road of which ROW is less than 20 meters for four- lane roads.

East-West arterial road development in the eastern part of the suburban area (widening, additional road links)

Marin drive extension from Dehiwala to the south

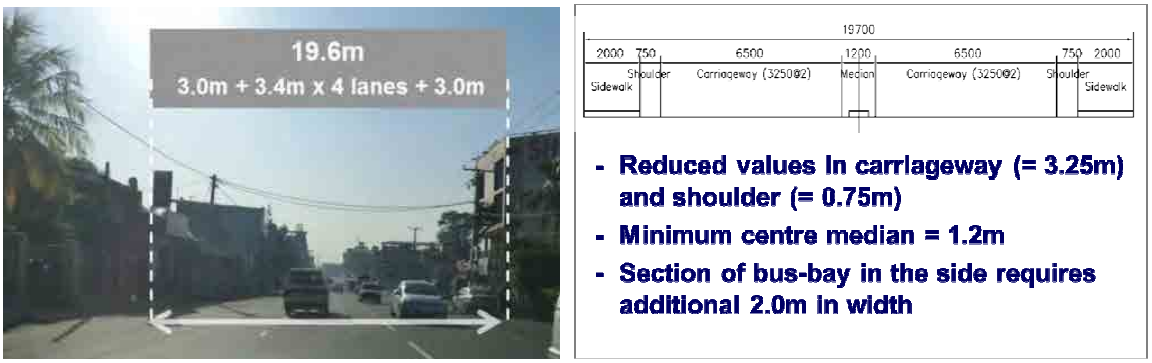


Figure 11.8.1 Proposed Cross Section for Creating Sidewalks in Urban Areas

Table 11.8.1 Projects in Program (3) for Reduction of Air Pollutants/Traffic Noise and Promotion of Health

Sector	Projects			Outline of the Project	Length (km)	Phase		
	ID	Name				Short	Intermediate	Long
Railway	RL-NR2	New Railway Line	Dompe Line Construction of New Railway Line	Kelaniya - Dompe New Construction of railway with double track Mainly cargo train and some passenger train Non-electrification	22.8			✔
Environmental	EN-01	Air Emission Standard for Vehicles				✔		
	EN-02	Vehicle Inspection and Maintenance Programmes				✔		
	EN-03	Low Sulphur Diesel Programme				✔		
	EN-04	Promotion of Natural Gas Vehicles				✔		
	EN-05	Promotion of Hybrid Cars and Electric Vehicles				✔	✔	
	EN-06	Promotion of Walking and Bicycles				✔		

CHAPTER 12 Urban Transport System Development Program (4) for Reduction of Fatalities and Injuries in Transport Accidents and Improvement of Security

Urban transport system development program (4) consists of the projects for the urban transport policy 4: ***Reduction of Fatalities and Injuries in Transport Accidents and Improvement of Security***

12.1 Education on Traffic Safety

Most traffic accidents are attributable to human error, in fact, most traffic accidents on ordinary roads are caused by carelessness and violation of traffic rules. Traffic safety education programs for both drivers and pupils at schools are effective measures to improve traffic safety.

12.2 Rehabilitation and Installation of Traffic Signal System

A considerable number of traffic lights are out of order and need repair work in order to function properly. In addition, further installation of traffic signals should be undertaken, in particular, outside of CMC, where the number of traffic signals installed is very limited. More road sections should also be signalised for the safety of crossing pedestrians.

12.3 Rehabilitation of Railway Signal System

Railway signals do not function properly at present. Due to improper railway signal systems, trains are often delayed or cancelled. The old signal system is not able to protect trains automatically and thus there are high risks for train collision. Rehabilitation of railway signals is a task urgently needed to improve railway safety.

12.4 Analysis on Causes of Traffic Accidents

A traffic accident record reporting system should be developed and an accident database should be established as a part of an urban transport database system for analyses of the causes of traffic accidents.

12.5 Provision of Sidewalks and Pedestrian Crossings

Many traffic accidents involve pedestrians and one reason for many pedestrians being involved in those accidents is lack of pedestrian facilities. Sidewalks and pedestrian facilities should be provided to reduce traffic accidents on the roads.

12.6 Establishment of Urban Road Design Standard for Sidewalks

As recommended earlier, an urban road design standard should be established and sidewalks should be clearly indicated in the standard cross section for urban roads.

Table 12.6.1 Projects in Program (4) for Reduction of Transport Accidents and Improvement of Security

Sector	Projects		Outline of the Project	Length (km)	Phase		
	ID	Name			Short	Intermediate	Long
Safety	SF-01	Traffic Safety Education	Traffic safety education for drivers and school children		✔		
	SF-02	Rehabilitation and Installation of Traffic Signal System	Repair and new installation of traffic signals		✔	✔	
	SF-03	Rehabilitation of Railway Signal System	Repair of railway signal system		✔		
	SF-04	Provision of Sidewalks and Pedestrian Crossings	Provision of sidewalk along major arterial road and minor arterial roads		✔		
	SF-05	Establishment of Urban Road Design Standard for Sidewalks	Establish design standard of urban roads including sidewalk		✔		

CHAPTER 13 CoMTrans Urban Transport Master Plan

13.1 Composition of Urban Transport Master Plan

13.1.1 Public Transport System Development Plan

The entire public transport network with the modernised railway, new transit network (monorail), BRT and bus priority lane, as well as intermodal facilities in the final stage of the planning horizon of the year 2035 is shown in Figure 13.1.1.

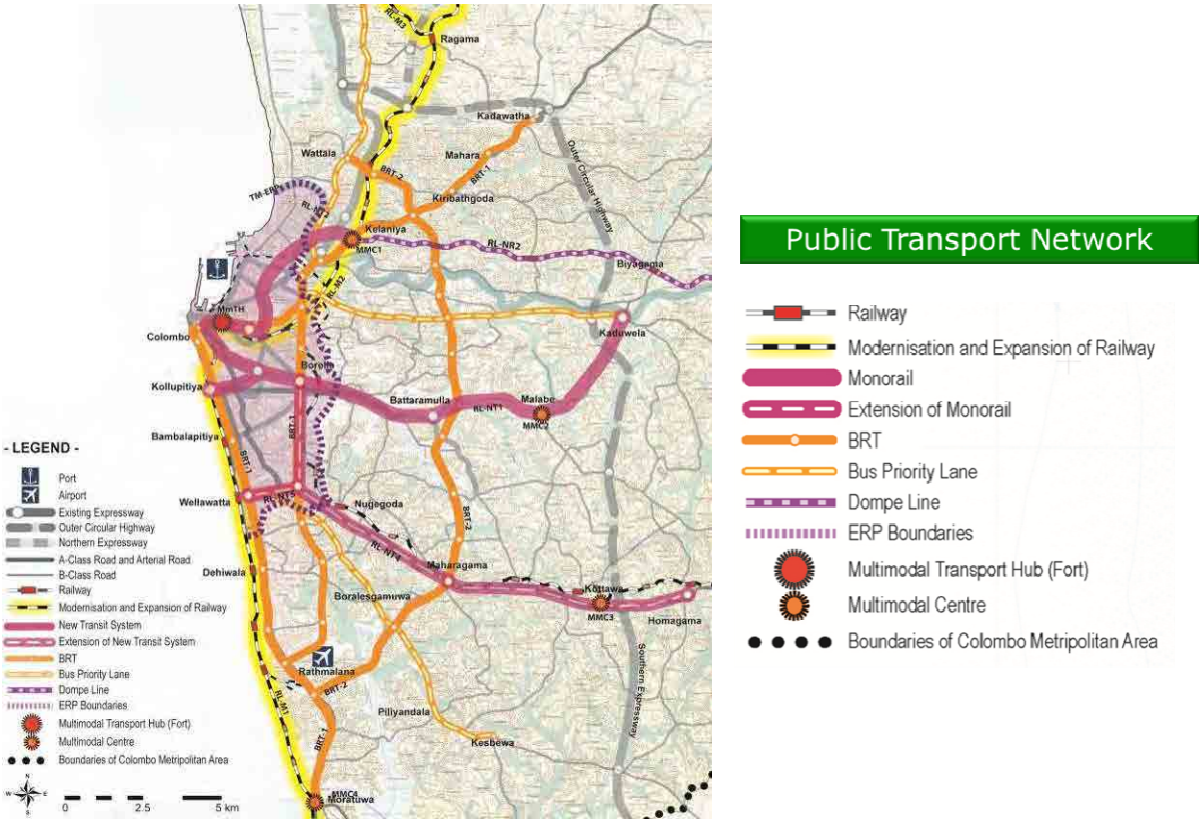


Figure 13.1.1 Public Transport System Development Plan

13.1.2 Road Network Development Plan

The entire road network in the final stage of 2035 is illustrated in Figure 13.1.2.

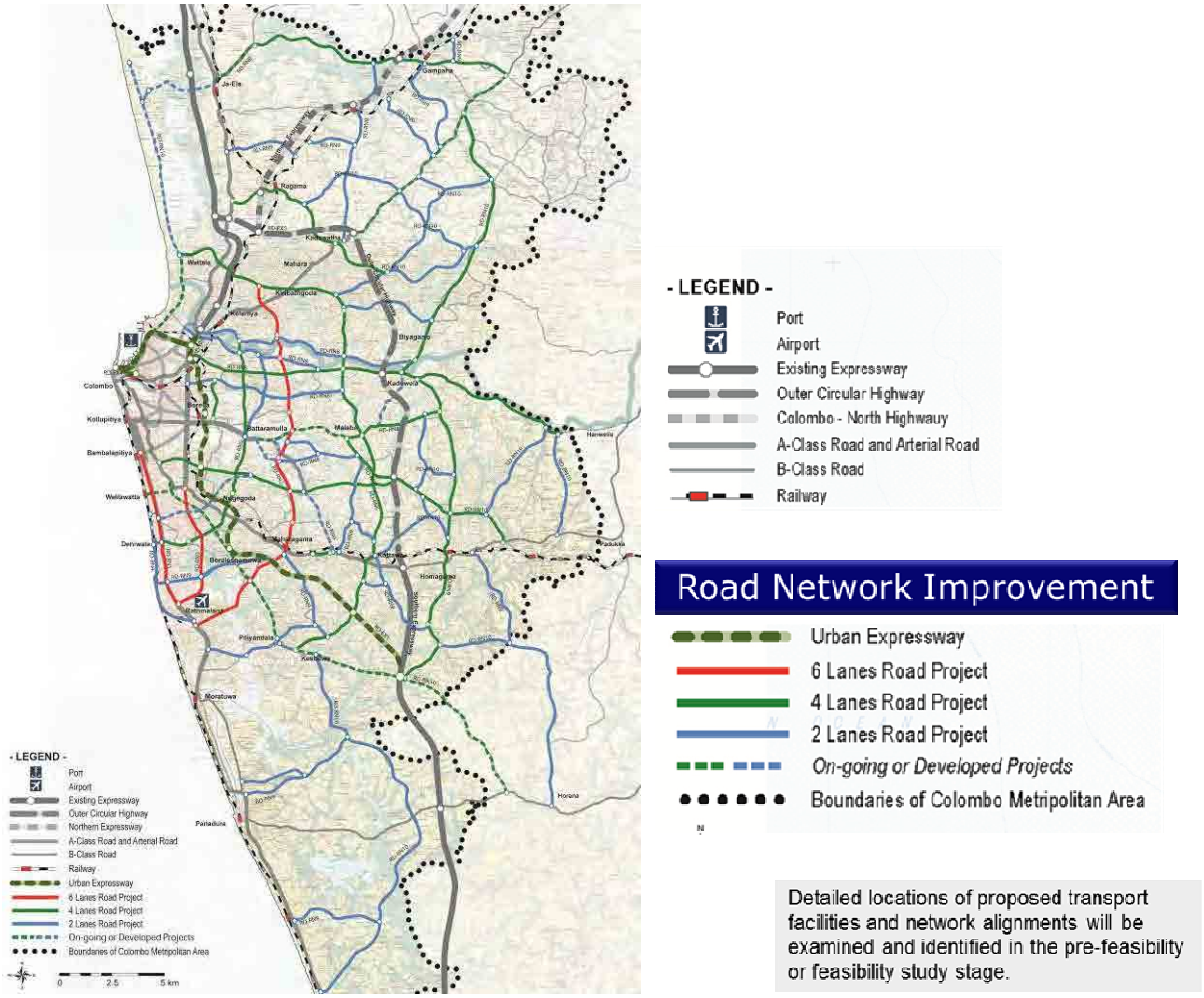


Figure 13.1.2 Road Network Development Plan

(3) Transport Demand Management

ERP System

An ERP System is proposed, which includes development of a system for installation of toll gates, and installation of fee payment machines. The boundaries of the ERP system are proposed to be on the boundaries of CMC, as shown in Figure 13.1.3.

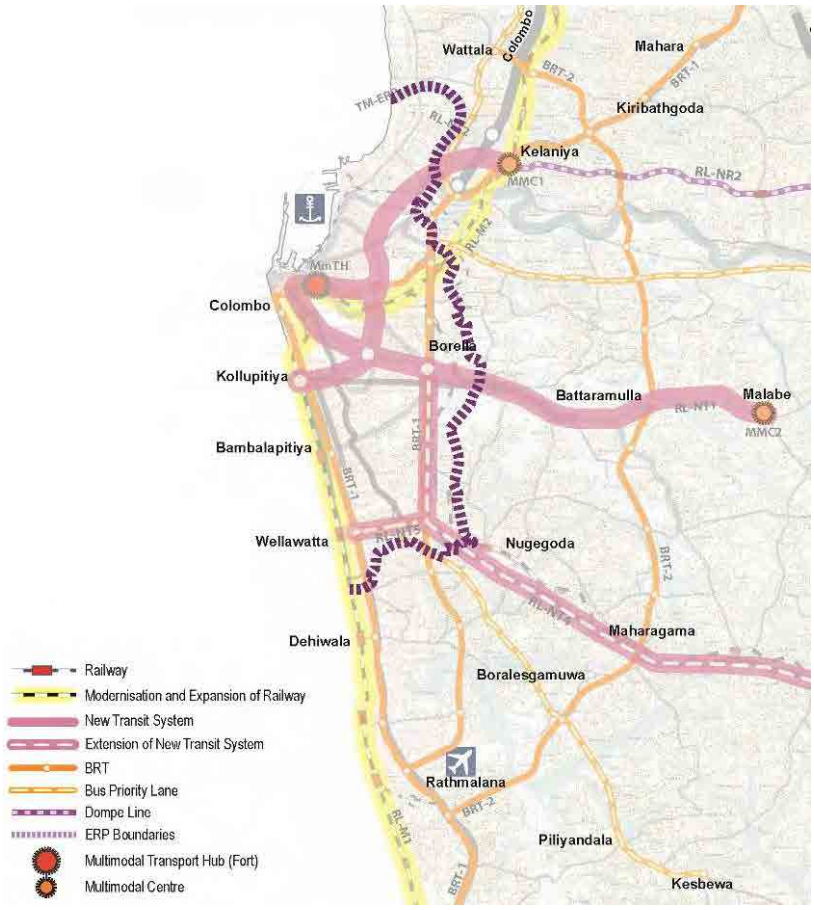


Figure 13.1.3 ERP Area

Purpose of the Project is as follows;

Reduce the flow of traffic within the city of Colombo and promotion of change to public transport by Installation of a system to charge the vehicles to travel across the CMC boundary.

13.1.3 Pedestrian Path and Cycle Road Network Development Plan

As mentioned in Chapter 5.8 (7), it is proposed to facilitate the promotion of walking and bicycle riding. This contributes to energy saving in Transportation as well as health. The network proposed includes a Pedestrian way and Pedestrian and cycle way. It is proposed along the coast, Kelani River, and wetlands, mainly. Inside the city, together with the proposed sidewalk installation, a safe pedestrian network will connect between parks and important monuments. The network is shown in Figure 13.1.4.

A typical cross section is shown below in Figure 11.7.2. Depending on ground conditions, it should be carefully installed without harming the transport network or the social/environmental conditions.

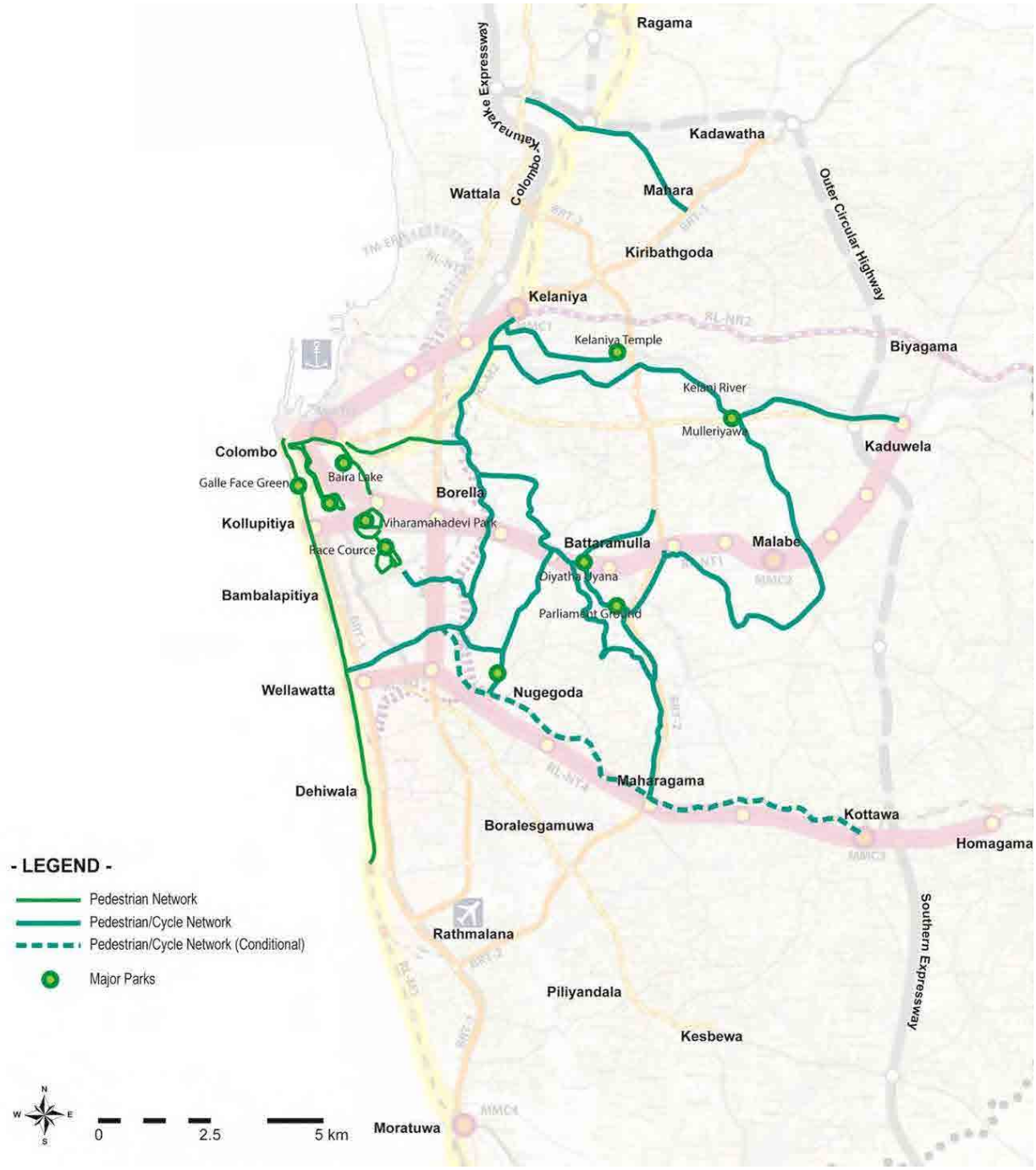


Figure 13.1.4 Pedestrian Paths and Cycle Road Network

13.2 Composition of Urban Transport Master Plan

CoMTrans proposes a phased development program for the urban transport system for short term (~2020), intermediate term (~2025) and long term (~2035), based on the consideration of budget constraints and a logical sequence of project implementation. An outline of the expected future urban transport system at each stage and necessary actions to be taken are listed as follows;

13.2.1 Short Term Development Plan (~2020)

Expected future urban transport system image: the Short-term development program aims to establish an urgent public transport network by the year 2020. As discussed in the previous Chapters, a high quality public transport system is urgently needed to avoid a shift from public transport to private modes of transport. The public transport system which attracts potential car users is a congestion free transport system including railway, monorail and BRT. It is ideal to develop rail-based transport to cover the CMA in a short period because the rail-based transport system is not disturbed by ordinary road traffic; however, it needs a considerable amount of funds for initial development. Thus considering the budget constraints it is proposed to introduce a monorail system as a first step to attract the existing and potential car users. The monorail system should be supported by BRT to form a high quality public transport network. It is also proposed to increase traffic capacity of the roads where it is urgently needed in order to alleviate current traffic congestion in CMA.

Major developments to be implemented by 2020 include;

- The monorail system shall be developed in the Malabe corridor (Malabe - Fort) where currently severe road traffic congestion occurs without rail-based public transport services. The monorail network will connect between the northern area of CMC and Fort area to provide smooth north-south passenger movement within the central area of CMC.
- As the first step to improve public transport services, a BRT system will be installed in Galle corridor, Kandy corridor and Baseline road where the BRT system can be installed physically with sufficient road width and potential public transport passenger demands. Once these BRT systems are linked as a circular BRT network, people can move along a variety of routes within the urban area. In addition, in Horana corridor and Negombo corridor, where it is difficult to install BRT, a bus priority system will be introduced and connected with the BRT network, monorail network and the existing railway. This can produce an integrated urban public transport network even in the early stage.
- In order to make the public transport system more attractive and effective for use, a Multi-modal Transport Hub (MmTH) at Fort/Pettah will be built to ensure the smooth transfer to various transport modes and to provide good access to the urban centre. A Multi-modal Centre (MMC) will also be built in each of the four locations at the end points of major corridors connected by public transport. These MMC will encourage more people to use public transport services for entering CMC.
- With regard to the road network, the new elevated road connecting from CKE via new Kelani Bridge to Colombo port will be constructed to prevent container trailers and port-related vehicles from running on ground level roads. In addition, once the said port-access elevated road is connected with MmTH by a direct access ramp, inter-provincial buses can enter directly to the elevated road and further expressways.
- On-going road widening/extension projects are essential on major corridors to ensure the road traffic capacity. Especially, the Marine Drive to Dehiwala extension project

and inner ring-roads connected with Dehiwala, Nugegoda, and Battaramulla by two-lane roads creates the diversity of route selection to major future destinations of Battalamura.

- In addition to the road developments mentioned above, the urban transport master plan aims to alleviate traffic congestion, especially at peak hours, by improvement of traffic management including traffic signal improvements at major intersections with area control systems, as well as the traffic demand management (TDM) and mobility management (MM) for the purpose of the improvement of people's consciousness and changes in the time required for commuting.
- For traffic safety issues in walking environments, inter-ministerial/institutional coordination and collaboration are essential to provide enough space for sidewalks and to reduce traffic accidents.

The short-term transport system development program for the public transport network is illustrated in Figure 13.2.1 and the short-term road network development program is shown in Figure 13.2.2.

13.2.2 Intermediate Term Development Plan (~2025)

Expected future urban transport system image: By the year of 2025, the intermediate-term urban transport system development program shall further enhance the public transport system that was developed by 2020 to prevent people from shifting from public transport to private modes of transport. It is expected that increasing household income would bring about shifting to car and motorcycle use. In order to prevent such a shift, further enhancement of the public transport system is needed. It aims to develop efficient and convenient urban transport systems. In addition, the urban transport system development would support economic activities not only within CMA but also inter-provincial activities.

Major transport system developments by 2025 include;

- Modernisation and extension of the existing railways shall be completed. This implies that the development of the mass transit system will be materialised. With this development, the MMCs which are planned to be developed in the short-term will be more efficient and effective.
- A BRT system shall be installed on the Middle Ring road which connects Rathmalana, Battaramulla and Wattala, and it would provide public transport service between sub centres directly, not via the centre of CMC.
- New major roads towards CMC will be constructed which run in the east-west direction, parallel to the Malabe Corridor, High Level Road and Low level road, so that the current concentrated traffic flow on those three corridors could be distributed.
- Road traffic capacity on the Galle corridor will be supplemented by Marin Drive extension for south bound traffic from Dehiwala to Rathmalana.
- The Base Line road will also be extended to Rathmalana, to provide an additional route

in the eastern side of CMC from Galle road.

- Development of the three Ring Roads as arterial roads would provide alternative routes for various trip demand movements within the metropolitan area. It would provide a detour for the Base Line road when it is congested.
- The urban expressway will connect with the south side of Kelani Bridge via the CMC boundary and the Southern Expressway, so that ample traffic capacity would be provided for long-distance interprovincial travel as well as trips from the suburbs to the city centre.
- An Electric Road Pricing (ERP) system as a measure of TDM shall be introduced for the heavily congested area to control private vehicle traffic entering the restricted area and to encourage them to shift to the public transport services.
- The intermediate-term development program for public transport systems is illustrated in Figure 13.2.3 and that of the road network is shown in Figure 13.2.4.

13.2.3 Long Term Development Plan (~2035)

Expected future urban transport system image: By the year 2035 as target year of the master plan, the long-term development program shall complete development of the urban transport system with public transport systems integrated with the road network.

Major developments to be completed by 2035 are;

- A new transit system will be installed on the High Level Road and it would be connected with other public transport systems to meet future transport demand.
- Continuous efforts to improve the accessibility by road to railway stations will be made to create a more user-friendly rail-based public transport system.
- As the function of the basic road network in suburban areas in terms of distributors, disaster prevention and basic infrastructure to form a good urban environment, two lane roads shall be installed at intervals of 1 or 2km in the area between corridors.

The long-term development program for the public transport system by the year 2035 is illustrated in Figure 13.2.5 and that for the road network is shown in Figure 13.2.6.

Detailed locations of the proposed transport facilities and the network alignments will be examined and identified in the feasibility study stage.

The further steps of the Study should include establishment of responsible bodies and agencies for implementation of the urban transport master plan, a fund raising mechanism for the project implementation and regulatory framework relevant to implementation of the master plan.

Short term development Program (~2020)

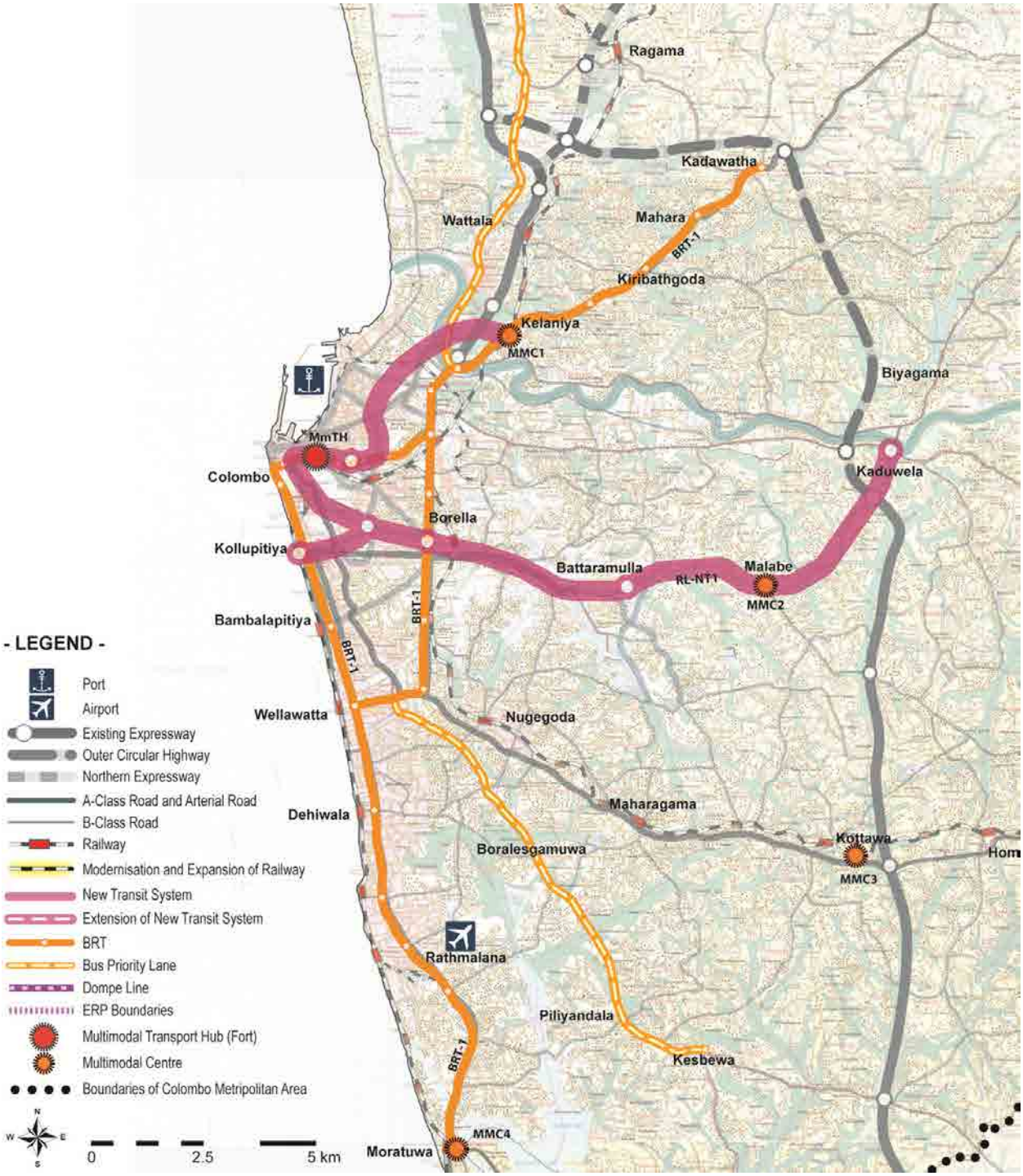


Figure 13.2.1 Short-Term Public Transport Development Plan (~2020)

Figure 13.2.2 Short-Term Road Network Development Program (~2020)

Intermediate term development Program (~2025)

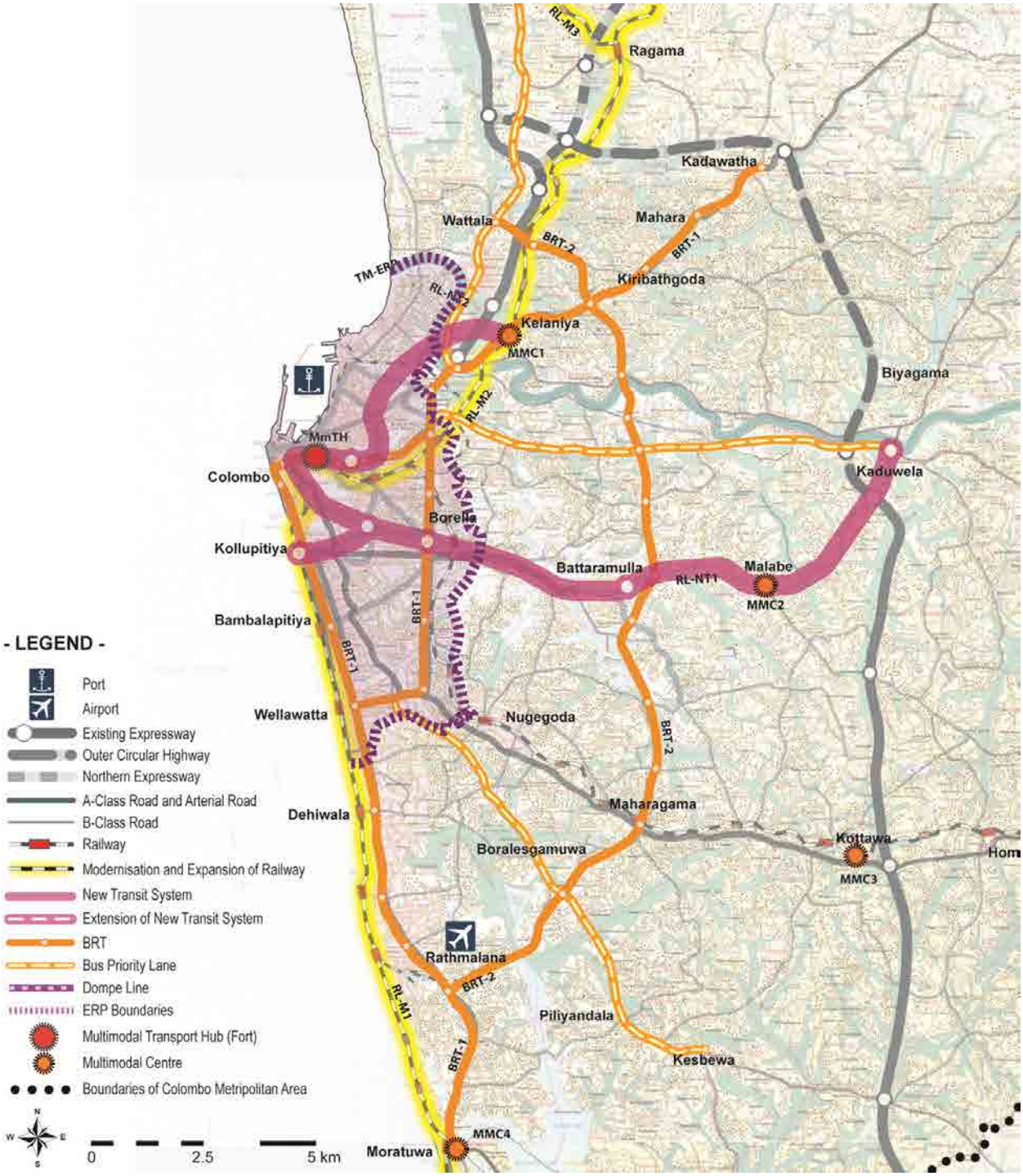


Figure 13.2.3 Intermediate-Term Public Transport System Development Plan (~2025)

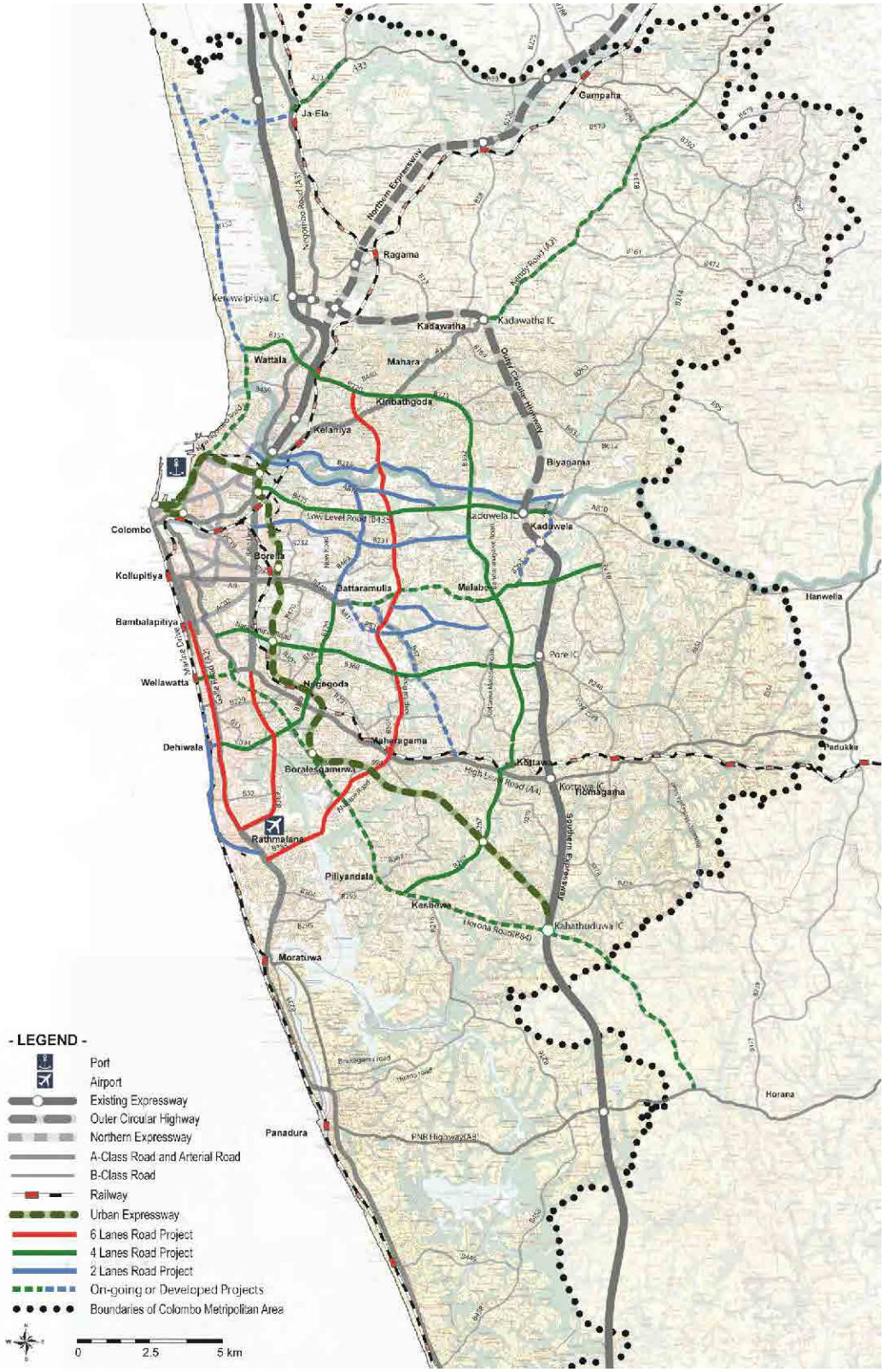


Figure 13.2.4 Intermediate-Term Road Network Development Plan (~2025)

Long term development Program (~2035)

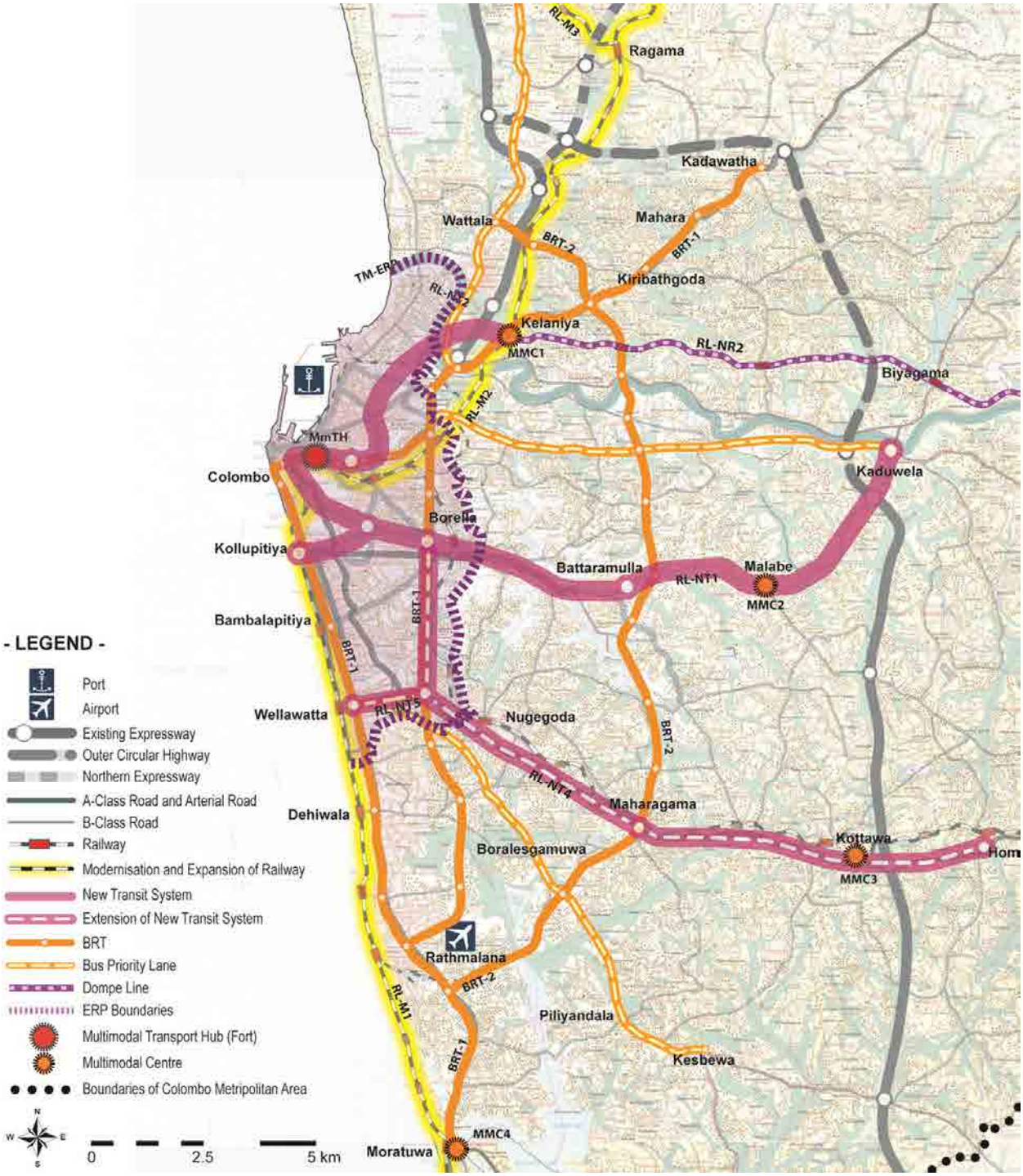


Figure 13.2.5 Long-Term Development Public Transport System Plan (~2035)

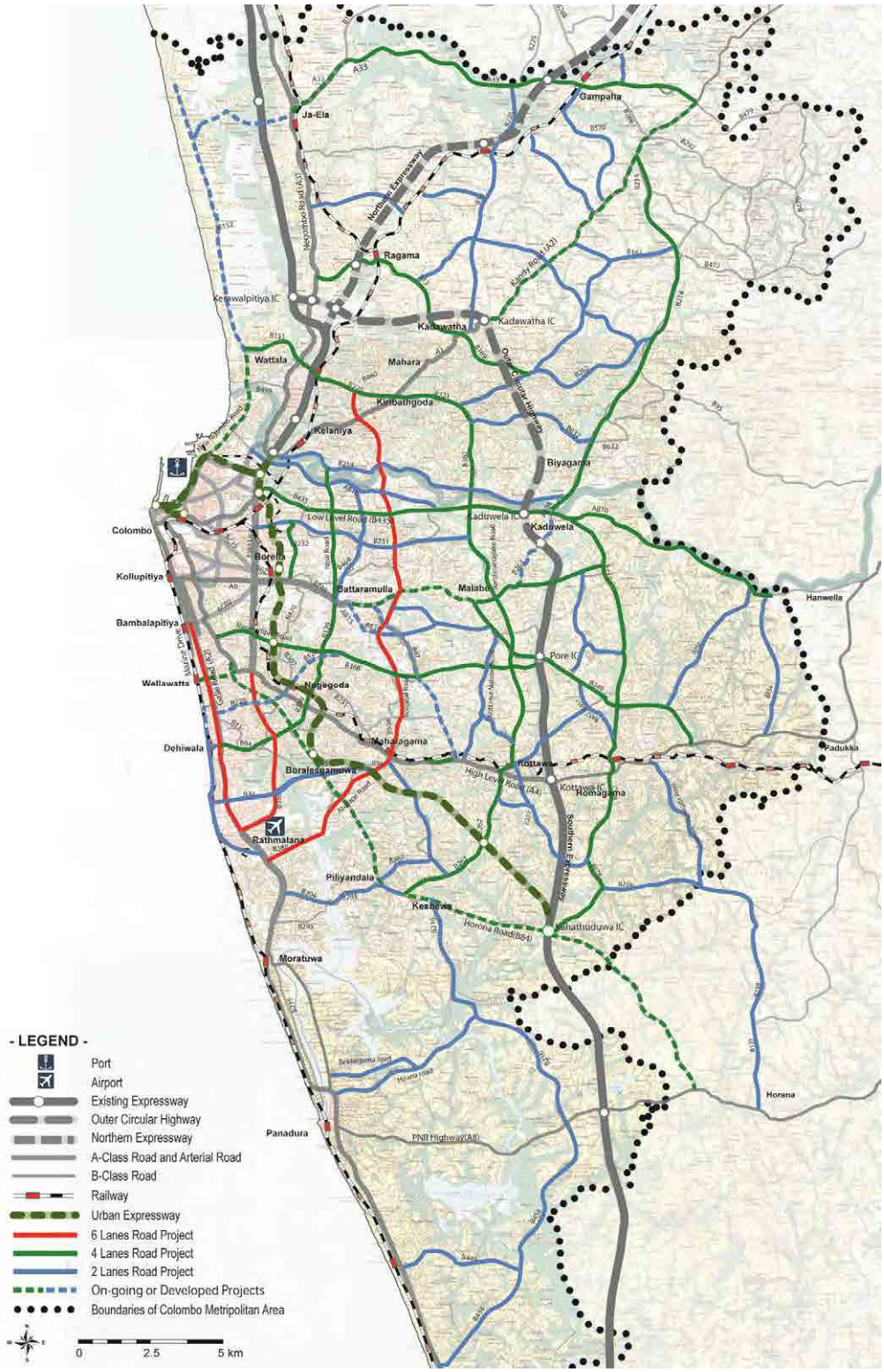


Figure 13.2.6 Long-Term Road Network Development Plan (~2035)

CHAPTER 14 Present Urban Transport Administration

14.1 Present urban transport administration in CMR

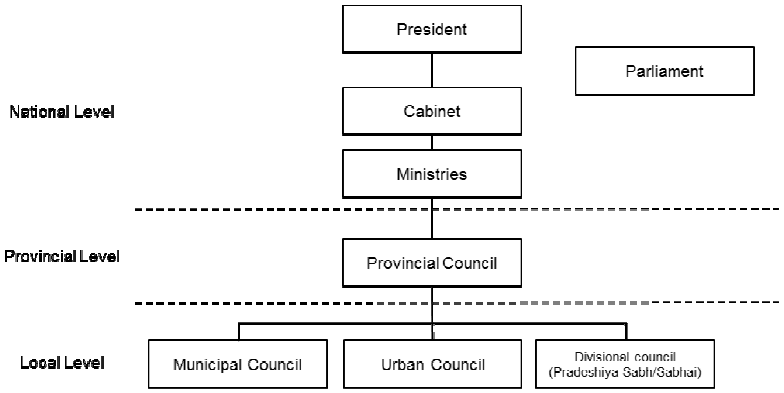
14.1.1 Administrative Structure

Sri Lanka is a democratic republic and a unitary state governed by a semi-presidential system, a combination of a presidential system and a parliamentary system. The government has three branches, the executive, which is the head of state and the government, the president, the legislative, which is the unicameral parliament consisting of 196 members elected in multi-seat constituencies and 29 members elected by proportional representation. The third branch is judicial branch, which consists of Supreme Court, court of appeal, high courts and a number of subordinate courts.

Government administrative structure is divided into three broad groups; central, province and local. Local government is ratified in the 13th amendment to the Constitution. The second-tier provincial authorities are government by the Provincial Councils Act 1987, and the main acts relating to third-tier local authorities are the Urban Councils Ordinance 1939, the Municipal Councils ordinance 1947 and the Pradeshiya Sabhas Act, No.15 of 1988.

Local government is the third and lowest level (tier) of government structure after the central government, provincial councils. The local government bodies are collectively known as local authorities, comprising of municipal councils, urban councils and divisional councils (Pradeshiya Sabh or Pradesha Sabhai). Provincial and local authorities are responsible for providing public services to residents, such as roads, sanitation, drains, housing, libraries, public parks and recreational facilities. The 13th Amendment to the Constitution transferred the control and supervision of local government from Central Government to the Provincial Councils. The Central Government could only create new local authorities, promote them, dissolve them and call an election.

Local authorities are distinguished with separated legal grounds, i.e. the Municipal Council Ordinance No. 29 of 1947, the Urban Councils Ordinance No. 61 of 1939 and the Pradeshiya Sabha Act No. 15 of 1987, i.e. divisional council. As the consequence of basing three different laws, they have slightly different powers. Municipal Councils have more powers than Urban Councils and Divisional Councils.



Source: CoMTrans Study Team

Figure 14.1.1 Hierarchy of Government Structure

According to the Gazette 1681/3-2010 dated November 22, 2010, there are 64 ministers and 54 ministries. (As of April 2013, there are 59 ministries).

1 Minister of Defence, Minister of Defence and Urban Development (starting from 2011)
2 Minister of Finance and Planning
3 Minister of Ports and Highways
4 Minister of Buddha Sasana & Religious Affairs
5 Minister (Senior) for Good Governance & Infrastructure
6 Minister (Senior) for Human Resources
7 Minister (Senior) for Rural Affairs
8 Minister (Senior) for Food Security
9 Minister (Senior) for Urban Affairs
10 Minister (Senior) for Social Welfare
11 Minister (Senior) for Consumer Welfare
12 Minister (Senior) for National Resources
13 Minister (Senior) for Scientific Affairs
14 Minister (Senior) for International Monetary Co-operation
15 Minister of Irrigation & Water Resources Management
16 Minister of Health
17 Minister of Petroleum Industries
18 Minister of Livestock & Rural Community Development
19 Minister of Water Supplies & Drainages
20 Minister of Traditional Industries & Small Enterprises Development
21 Minister of Local Government & Provincial Councils

22 Minister of Industry & Commerce
23 Minister of Power & Energy
24 Minister of Construction, Engineering Services, Housing & Common Amenities
25 Minister of Justice
26 Minister of Economic Development
27 Minister of National Languages & Social Integration
28 Minister of Higher Education
29 Minister of External Affairs
30 Minister of Public Administration & Home Affairs
31 Minister of Parliamentary Affairs
32 Minister of Postal Services
33 Minister of National Heritage
34 Minister of Environment
35 Minister of Child Development & Women's Affairs
36 Minister of Labour & Labour Relations
37 Minister of Education
38 Minister of Plantation Industries
39 Minister of Fisheries & Aquatic Resources Development
40 Minister of Lands & Land Development
41 Minister of Social Services
42 Minister of Sports
43 Minister of Agriculture
44 Minister of Mass Media & Information
45 Minister of Transport
46 Minister of Youth Affairs & Skills Development
47 Minister of Co-operatives & Internal Trade
48 Minister of Rehabilitation and Prison Reforms
49 Minister of Indigenous Medicine
50 Minister of Minor Export Crop Promotion
51 Minister of Foreign Employment Promotion & Welfare
52 Minister of Civil Aviation
53 Minister of Coconut Development & Janatha Estate Development
54 Minister of Culture & the Arts
55 Minister of Disaster Management

56 Minister of Agrarian Services and Wildlife

57 Minister of Resettlement

58 Minister of Public Relations & Public Affairs

59 Minister of Private Transport Services

60 Minister of State Resources & Enterprise Development

61 Minister of Telecommunication & Information Technology

62 Minister of Technology & Research

63 Minister of Productivity Promotion

64 Minister of Public Management Reforms

14.1.2 Provincial Councils

Provincial minister is vested with oversight responsibility, with authority being delegated to the provincial commissioner of local government.

Each province has a governor appointed by the President for a five-year term, responsible for executing the policies of the provincial council[3] through a board of ministers headed by a Chief Minister, and no more than four other (provincial) ministers. The Chief Secretary, appointed by the President, is the most senior public official, who is in charge of day-to-day affairs and matters involving administration, personnel, finance and planning. On the other hand, provincial councils are elected by electoral constituencies in that province.

Provincial councillor serves for five year period, unless the provincial council is earlier dissolved. Provincial council, a legislative body at provincial level, is responsible for administering and supervising local authorities. It has power to pass a "statute" on any subject that is assigned to the provincial council under the Constitution subject to the condition that it should not violate the Constitution.

The functions and vested authorities of the provincial council are listed in the Nine Schedule to the Constitution, which comprises of three lists.

List I	Provincial Councils List
List II	Reserved List
List III	Concurrent List

[3] Provincial Council is not 1) a government ministry of department, 2) a local authority, 3) a statutory corporate or authority or 4) a public company. It is an autonomous body and is not under any ministry, and it undertakes activities earlier had been undertaken by the ministries, departments, corporations and statutory authorities at national level. (Source: Provincial Councils. The Official Website of the Government of Sri Lanka.
http://www.priu.gov.lk/ProvCouncils/ProvincialCouncils.html.

(1) Provincial Councils List

Provincial council can pass statutes on the subjects enlisted without further requirements subject to national policy on each subject.

1) Police and public order: Public order and the exercise of police powers, to the extent set out in the Article 154A, within the province; however, not including the territory of the city of Colombo.
2) Planning: Implementation of provincial economic plans.
3) Local government: administration and supervision of local authorities, such as municipal councils, urban councils and Pradeshiya Sabahas, subject to the existing laws. Provincial Councils are vested to confer additional powers on local authorities but not to take away their powers.
4) Roads and bridges and ferries thereon within the Province, other than;
   a) national highways; and
   b) bridges and ferries on national highways.
5) Regulation of road passenger carriage services and the carriage of goods by motor vehicles within the Province and the provisions of inter-provincial road transport services.
6) Incorporation, regulation and judicial winding up of corporations with objects confined to the Province, excluding trading corporations, banking, insurance and financial corporations.
7) Tax and fees;
   a) Turnover taxes on wholesale and retail sales;
   b) Motor vehicle license fees within such limits and subject to such exemptions as may be prescribed by law made by Parliament;
   c) Stamp duties on transfer of properties, such as lands and motor cars;
   d) toll collections;
   e) fees charged under the Motor Traffic Act;
   f) land revenue, including the assessment and collection of revenue, and maintenance of land records for revenue purposes;
   g) taxes on lands and buildings including the property of the State to the extent permitted by law made by Parliament; and
   h) other taxation within the Province in order to raise revenue for provincial purposes to the extent permitted by or under any law made by Parliament.

(2) Reserved List

Provincial council cannot exercise any power in respect of any subject in this lest nor can it pass any statute in regard to them.

1) Defence and national security
2) Foreign affairs
3) Finance in relation to national revenue, monetary policy and external resources

(customs)

4) Ports and harbours
5) Aviation and airports
6) National transport
   a) railways;
   b) highways declared by or under law made by Parliament to be national highways; and
   c) carriage of passengers and goods by railway, land, sea or air or by national waterways in mechanically propelled vessels.
7) Professional occupation and training
   a) Institutions, such as universities, declared by Parliament by law to be institutions of national importance;
   b) institutions for scientific or technical education by the Government of Sri Lanka wholly or in part and declared by Parliament by law to be institutions of national importance;
   c) provincial agencies and institutions for;
      - professional, vocational or technical training, including the training of police officers
   d) coordination and determination of standards in institutions for higher education or research and scientific and technical institutions.

(3) Concurrent List

Although provincial council can exercise power to pass a statute in regard to the subjects in this list, it needs to consult the Parliament for its opinions on the provisions contained to pass the statute. The provincial council, however, is not bound to give effect to whatever opinion that is expressed by the Parliament.

Where the Parliament desires to pass an Act on a subject in this list, it can do so; however, that it would consult the provincial councils about the provisions of such Act. It is not mandatory for the Parliament to give effect to the opinions expressed by the provincial councils.

1) Planning
   a) Formulation and appraisal of plan implementation strategies at the provincial level;
   b) progress control [of abovementioned plans];
   c) monitoring progress of public and private sector investment programs;
   d) the evaluation of the performance of institutions and enterprises engaged in economic activities;
   e) the presentation of relevant data in the achievement of plan targets;
   f) the dissemination of information concerning achievement of plan targets;
   g) publicity of implementation programs;
   h) manpower planning and employment data bank; and
   i) nutritional planning and programs.
2) Fees in respect of any of the matters in this List, excluding fees taken in any Court

(4) Finance of Provincial Councils

Fiscal revenues of Provincial Councils is comprised of;

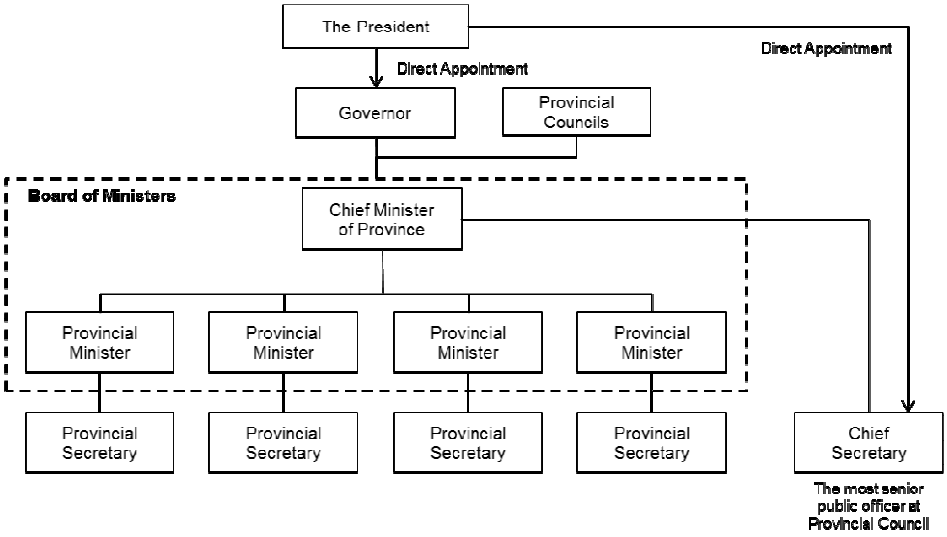
1) Government Grant (Article 154R)
   a) recurrent grant
   b) block grant
   c) criteria based grant
   d) medium-term investment program grant
   e) matching grant
2) Revenue
   a) turnover taxes
   b) excise duties
   c) motor vehicles
   d) stamp duty
   e) other revenues

Table 14.1.1 Summary of Public Service Provision

Service	Delivering Authority				
	Central	Province	Local Authority		
			Municipal	Urban	P. Sabhas
General Administration					
Police	x	x *1			
Fire protection			x	x	x
Transport					
Roads	x	x	x	x	x
Railway	x				
Ports	x				
Airports	x				
Environment & Social Affairs					
Environmental protection	x	x			
Consumer protection	x				

Note: *1 Not including the city of Colombo.

Source: Country Profile – Sri Lanka. 2003. www.clgf.org.uk (modified based on the original table)



Source: CoMTrans Study Team

Figure 14.1.2 Functional Structure of Provincial Council

14.1.3 Local Authorities

Municipal Councils

Municipal council is led by a full-time mayor, nominated by the majority party. The mayor holds office for four years. Standing committee are appointed for finance and policy planning, housing and community development, technical services and environment and amenities.

Urban Councils

Urban council is led by a full-time chairperson, nominated by the majority party. The chairperson holds office for four years. Urban council does not have a legal requirement to establish committees; however, councils have full discretion on appointing advisory committees. Citizens and outsiders can be members of such committees.

Pradeshiya Sabhas

Pradeshiya Sabhas is led by a full-time chairperson, nominated by the majority party. He holds office for four years. Pradeshiya Sabhas can appoint committees in a similar manner to urban councils.

14.1.4 Western Province

Western Province consists of three districts and under the districts, there are local authorities as shown in the tables below.

Colombo municipal is the biggest municipal in Western Province and the capital city of the nation. The province encompasses seven municipal councils, 14 urban councils and 27 Pradeshiya Sabhas.

Table 14.1.2 District and Number of Local Authority

Province	District	Local Authority		
		Municipal	Urban	P. Sabhas
Western Province	Colombo	5	5	3
	Gampaha	2	5	12
	Kalutara	0	4	12
	Total	**7**	**14**	**27**

Source: http://www.pclg.gov.lk/en/sub_pgs/about_us_4.html

Table 14.1.3 Local Authorities in Western Province

District	Type	Name of Local Authority
1. Colombo	1 Municipal	Colombo Municipal Council
	2 Municipal	Dehiwela Mt. Lavinia Municipal Council
	3 Municipal	Sri Jayawardenapura Kote Municipal Council
	4 Urban	Kolonnawa Urban Council
	5 Urban	Seethawakapura Urban Council
	6 Urban	Maharagama Urban Council
	7 Urban	Boralesgamuwa Urban Council
	8 Urban	Kesbewa Urban Council
	9 P. Sabhas	Homagama Pradeshiya Sabha
	10 P. Sabhas	Kotikawatta Mulleriyawa Pradeshiya Sabha
	11 P. Sabhas	Seethawaka Pradeshiya Sabha
2. Gampaha	1 Municipal	Negombo Municipal Council
	2 Municipal	Gampaha Municipal Council
	3 Urban	Wattala Mabole Urban Council
	4 Urban	Peliyagoda Urban Council
	5 Urban	Katunayake Seeduwa Urban Council
	6 Urban	Minuwangoda Urban Council
	7 Urban	Ja-Ela Urban Council
	8 P. Sabhas	Attanagalla Pradeshiya Sabha
	9 P. Sabhas	Biyagama Pradeshiya Sabha
	10 P. Sabhas	Divulapitiya Pradeshiya Sabha
	11 P. Sabhas	Dompe Pradeshiya Sabha
	12 P. Sabhas	Gampaha Pradeshiya Sabha
	13 P. Sabhas	Ja-ela Pradeshiya Sabha
	14 P. Sabhas	Katana Pradeshiya Sabha
	15 P. Sabhas	Kelaniya Pradeshiya Sabha

District	Type	Name of Local Authority
	16 P. Sabhas	Mahara Pradeshiya Sabha
	17 P. Sabhas	Meerigama Pradeshiya Sabha
	18 P. Sabhas	Minuwangoda Pradeshiya Sabha
	19 P. Sabhas	Wattala Pradeshiya Sabha
3. Kalutara	1 Municipal	Kurunegala Municipal Council
	2 Urban	Panadura Urban Council
	3 Urban	Horana Urban Council
	4 Urban	Kalutara Urban Council
	5 Urban	Beruwela Urban Council
	6 P. Sabhas	Agalawatta Pradeshiya Sabha
	7 P. Sabhas	Bandaragama Pradeshiya Sabha
	8 P. Sabhas	Beruwela Pradeshiya Sabha
	9 P. Sabhas	Bulathsinhala Pradeshiya Sabha
	10 P. Sabhas	Dodangoda Pradeshiya Sabha
	11 P. Sabhas	Horana Pradeshiya Sabha
	12 P. Sabhas	Kalutara Pradeshiya Sabha
	13 P. Sabhas	Madurawela Pradeshiya Sabha
	14 P. Sabhas	Matugama Pradeshiya Sabha
	15 P. Sabhas	Palindanuwara Pradeshiya Sabha
	16 P. Sabhas	Panadura Pradeshiya Sabha
	17 P. Sabhas	Walallawita Pradeshiya Sabha

Source: http://www.pclg.gov.lk/en/sub_pgs/about_us_4.html

In line with the provincial government structure illustrated in Figure 14.1.2, Figure 14.1.3 shows the functional structure of Western Province. It consists of four ministries and the Ministry of Transport is responsible for passenger carriage and freight carriage transport.

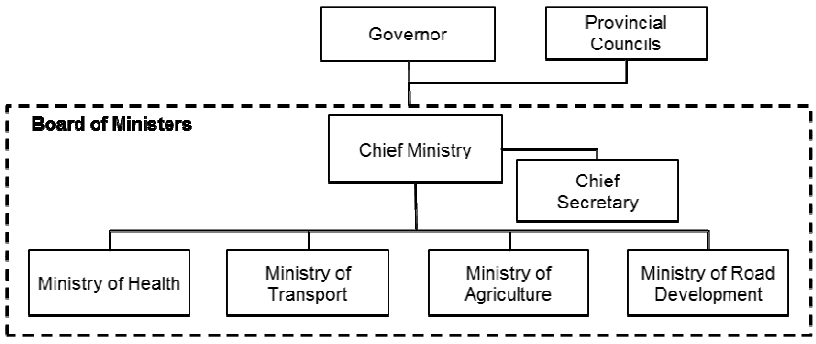


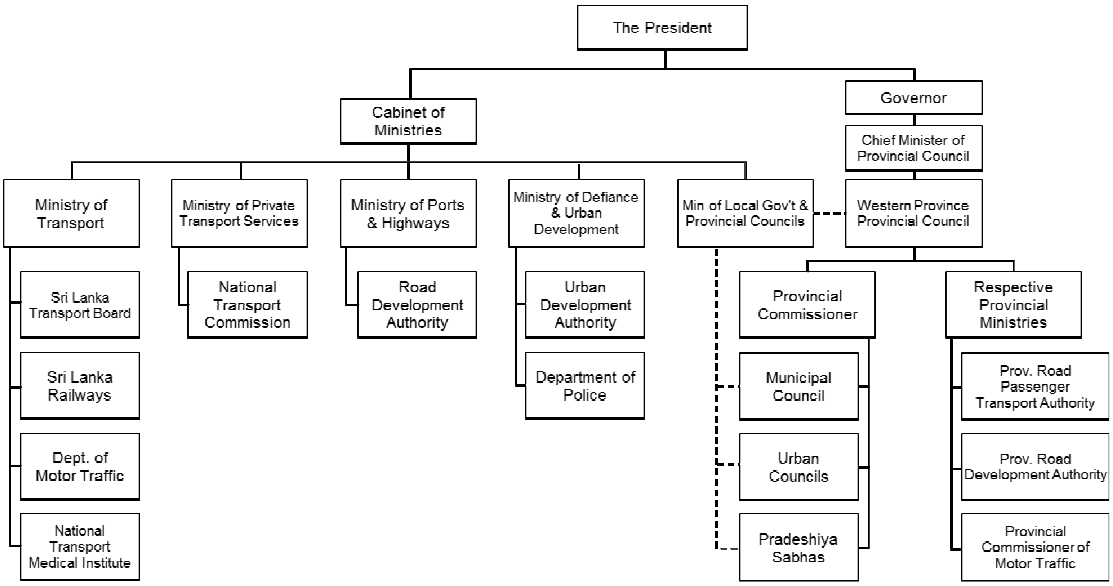
Figure 14.1.3 Functional Structure of Western Province

Ministry of Transport, Sports & Youth Affairs, Arts & Cultural Affairs, Co-operative Development, Food Supplies & Distribution & Rural Development (MoT-WP) is responsible

for all subjects as shown in its ministry's name. The duties of the Provincial Ministry is 1) policy making, 2) planning, 3) guidance, 4) supervision, 5) progress control, 6) coordination, 7) financial control, 8) post-inquiry and 9) re-planning.

Related to transport, the MoT-WP is responsible for the development of transport facilities of the public within its territory. Under its purview, there is one authority, Provincial Road Passenger Transport Authority (WP-RPTA), which is the regulator of road passenger transport in Western Province.

Figure 14.1.4 shows the road passenger transport related governmental agencies at the central level and Western Province.



Source: CoMTrans Study Team

Figure 14.1.4 Road Passenger Transport related Government Agencies

14.1.5 Colombo Municipal Council

Colombo's mayor and the council members are elected through local government elections held once in four years. Head of administration is the Municipal Commissioner, who handles day to day operations of the 15 departments that it is made up of.

The Municipal Council provides sewer, road management and waste management services, in case of water, electricity and telephone utility services the council liaises with the Water Supply and Drainage Board, the Ceylon Electricity Board and telephone service providers.

Engineering Services, Traffic Design and Road Safety (TDRS) is responsible for transport related activities in the municipal. Followings show brief functional tasks and the organizational structure of the TDRS.

A. Traffic Section

The Traffic & Road Safety Division of the CMC is responsible for efficient management of road network & road furniture, facilitating the road safety and minimizing traffic floor in the city

1) Road Design
2) Intersection design
3) Traffic signal design, Installation & maintenance
4) Lane Marking
5) Identifying safe locations for Pedestrian Crossings ensuring safety of pedestrians & installation of pelican crossings, marking of pedestrian crossings etc.
6) Traffic studies
7) Traffic counting
8) Road furniture design, installation & maintenance
9) Road safety education
10) Street light design, installation & maintenance of a Part of the city
11) Designing of Road side parking, tendering & management
12) Private sector participation projects for traffic infrastructure implementation.
13) Preparation of project proposals for infrastructure development within the city for funding agencies.

B. Structural Design Section

The Structural Design Division manages the preparation of Working Structural Drawings, Bills of (BOQs) for construction services and provides construction inspection services for ongoing projects. The Design Division, Performs many services throughout the year as listed below.

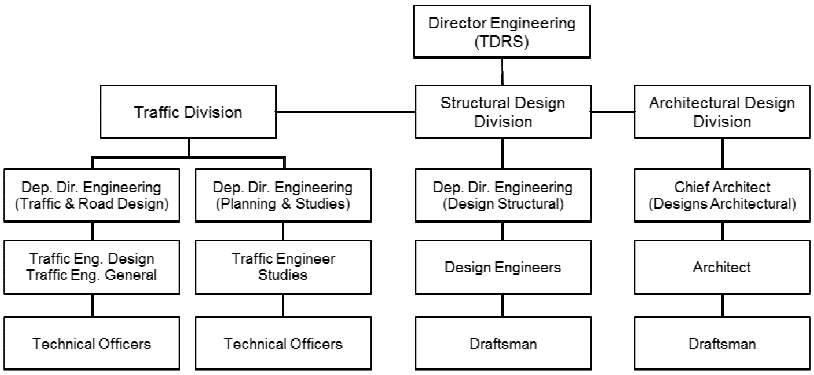
1) Liaising of soil investigation
2) Structural designs of buildings
3) Service designs of buildings such as electrical, water supply, sewer etc.
4) Preparation of Bills of Quantities for new buildings, renovations and improvements
5) Preparation of specifications
6) Preparation of Departmental Estimates
7) Preparation of structural and service drawings.

C. Architectural Section

The Architectural Design Division manages production of Architectural Plans for buildings and landscaping services.

1) Site inspection
2) Preparations of conceptual plans
3) Building designing
4) Construction detailing
5) Assist Drafting

6) Check BOQ.s



Source: Colombo Municipal Council website: (www.cmc.lk)

Figure 14.1.5 Organizational Structure of Traffic Design and Road Safety

14.1.6 National Budget and Expenditure

(1) Legal Framework of Budgeting of the State

Legal framework of state budgeting is briefly illustrated below.[4]

■ The Constitution

Article 148 - Control of Parliament over Public Finance

> Parliament shall have full control over public finance.
>
> No taxes shall be imposed by any local or public authority expect by the authority of the Parliament or existing law.

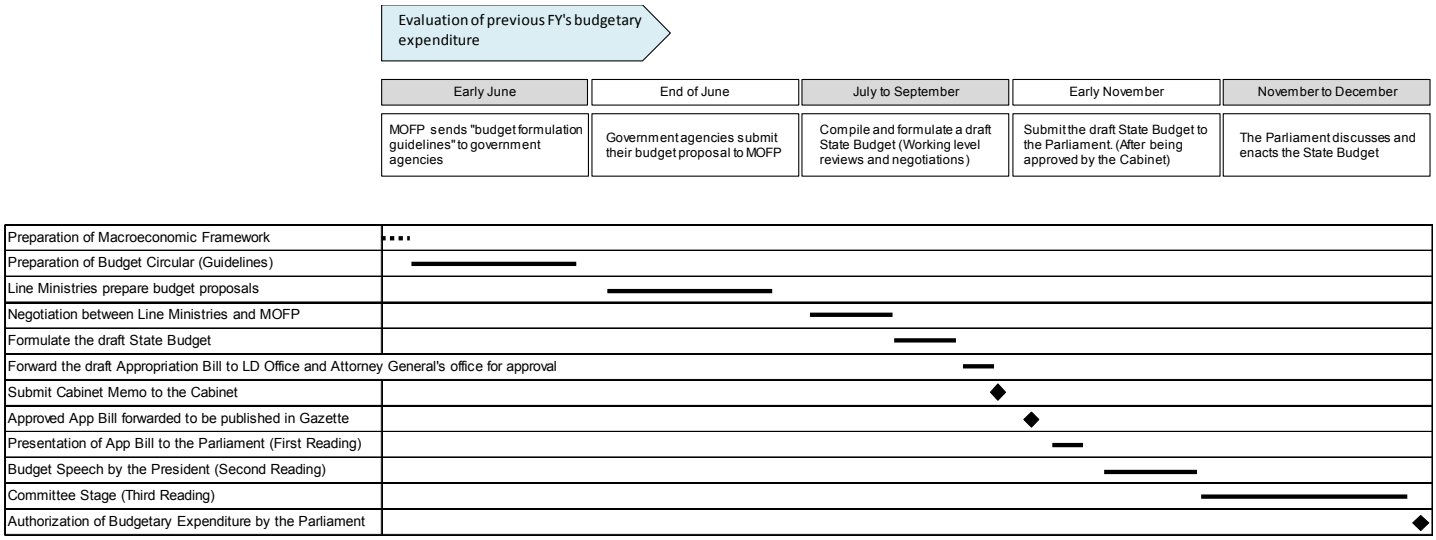
■ Fiscal Management (Responsibility) Act No.3 of 2003

Compulsory reports to submit to the Parliament

- Fiscal Strategy Statement
  - Mid-term fiscal policy and short-term fiscal objectives
  - Budget-based Strategic Priorities
  - Key fiscal measures
  - Fiscal objectives, targets and outcome
- Budget Economic and Fiscal Position Report
- Mid-year Fiscal Position Report
- Final Budget Position Report
- Pre-election Budgetary Position Report

[4] Research Department. One-Text Initiative. "National Budget Making & Fiscal Devolution in Sri Lanka" December 2012.

The process and timeline of state budgeting in fiscal year is shown below.



Source: CoMTrans Study Team

Figure 14.1.6 Process and Timeline of State Budget in Fiscal Year

(2) Legal Framework of Provincial Council and Local Authorities' Budgeting

Legislative enactments defining fiscal budget of provincial councils and local authorities are summarised below.

1) The Thirteenth Amendment to the Constitution
2) Provincial Councils Act No.42 of 1987
3) Municipal Councils Ordinance 1865 and Amendment in 1939 and 1947
4) Urban Councils Ordinance No.61 of 1939
5) Pradeshiya Sabha Act No.15 of 1987

Provincial Councils

Annual Financial Statement (budgetary expenditure statement) has to be passed at Provincial Council and approved by the Provincial Governor. According to the Provincial Act, the chief secretary, appointed by the President and accountable for the President and posted under the Chief Minister, who is selected by the Provincial Council, is responsible for financial management.

The sources of provincial council's budgetary expenditure are;

1) Grant for recurrent expenditures (from the State)
2) Block Grant for recurrent expenditures for 16 devolved functions (from the State)
3) Criteria based Grant for capital expenditures

4) Allocations made by the members of the Parliament in the area of the provincial council
5) Devolved Revenue (vehicle license fees, turnover tax, court fines and stamp duty)
6) Contributions made under project, such as Integrated Rural Development Project
7) Loans
8) Profits from commercial operations (Advance Accounts)
9) Others

The process of annual budgetary expenditure at provincial councils is indicated as follows;

1) Each provincial agency prepares budgetary expenditure estimate (March/April)
2) Examining the estimates in light of actual expenditure and annual revenue of the previous year by the Deputy Chief Secretary, Chief Secretary and Chief Minister.
3) Proposals from provincial ministers, member of the provincial council and departments are submitted.
4) The proposals are referred to the Director (Planning) of the provincial council.
5) Consolidated draft estimate is sent to Chief Minister for approval.
6) The draft estimates is submitted to the Finance Commission established at national level. (April/May)
7) Finance Commission review the draft and discuss with Chief Secretary and senior members of Provincial Council's staff.
8) Finance Commission then meets Director General of Budget in the Ministry of Finance and Planning (MOFP) to negotiate budget appropriation to be allocated to provincial councils.
9) Finance Commission informs a tentative allocation to provincial councils and recommendations made by the commission to the MOFP and the President.
10) After necessary adjustments, Annual Financial Statement is presented by the Governor to the General Assembly under the Provincial Council.
11) After the approval of the state budget at the Parliament, Annual Financial Statement is finalised and endorsed to be the following fiscal year's annual budget.

The officials involved in planning and financial management at provincial level are illustrated in figure below.

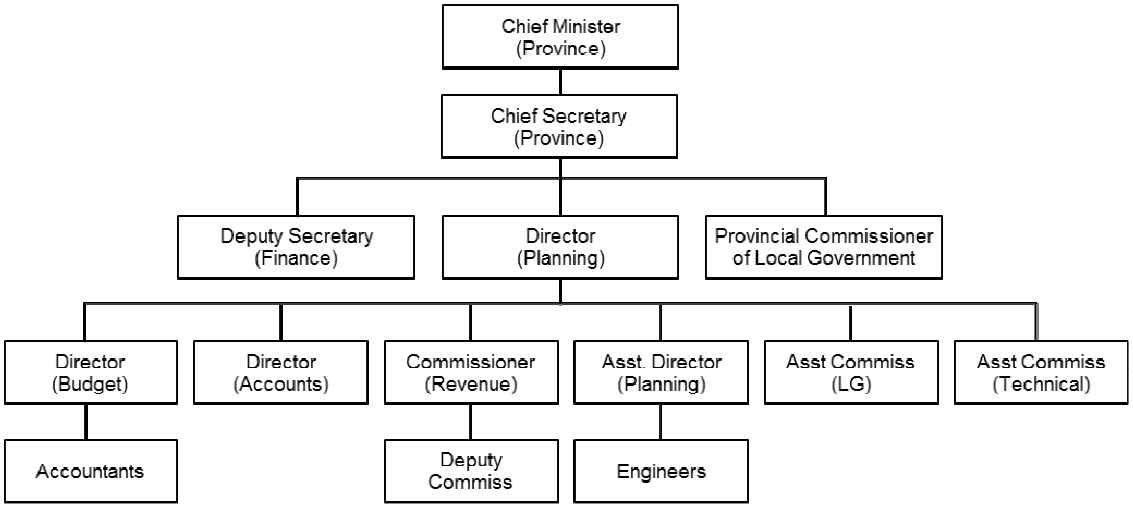


Figure 14.1.7 Organizational Structure of Provincial Government

Municipal and Urban Councils

The process of budgeting in municipal and urban councils is similar to that in provincial councils. Both councils receive grants from provincial councils for recurrent and capital expenditure, while they also have own revenues sources, such as stamp duty and court fines.

Pradeshiya Sabha

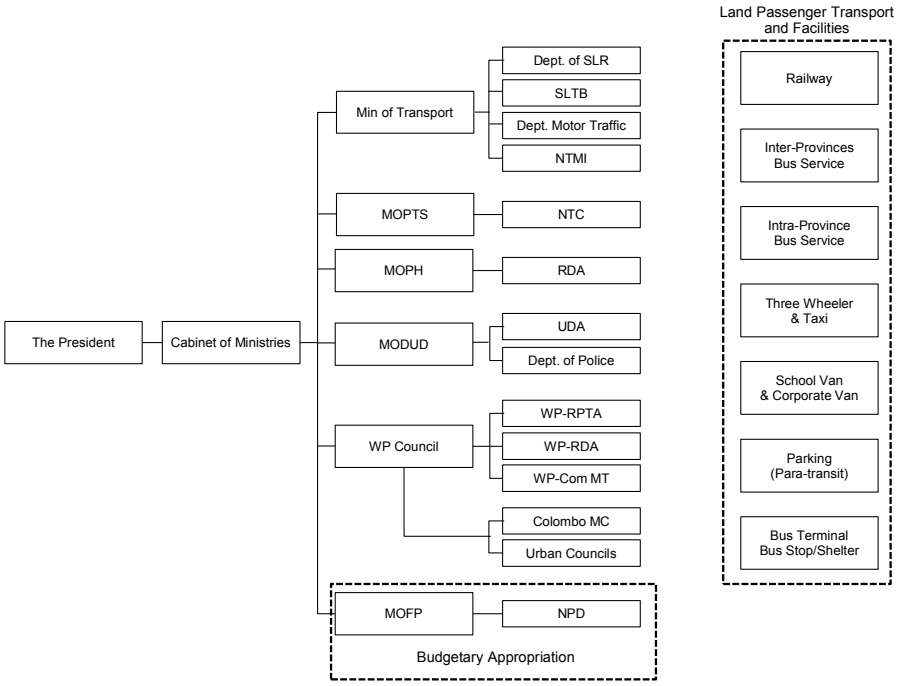
Budgetary expenditure system of Pradeshiya Sabha is somehow different from the municipal and urban councils. 45% to 50% of recurrent expenditure and almost 90% of capital expenditure is given as Grant from provincial councils. The remaining expenditures are sourced by own revenue.

14.2 Transport Administration

14.2.1 Overall Review of Transport Administration in Sri Lanka

Land public transport in the CMR encompasses general bus (intra-province), inter-province bus, railway and paratransit (three-wheeler, school and corporate van, taxi). Transport related government administrations, including institutions for road development and maintenance, are divided into various institutions at the central and provincial level. (Part of administration is devolved to local authorities). Compared to some East Asia countries like Singapore, Malaysia, Thailand and also most of western countries, which trend is either to consolidate functional responsibilities of transport administration or to formulate a cooperative or association, transport administration in Sri Lanka has been heading opposite direction. There are eight institutions under four ministries at the central level, separated from provincial level, where similar structure is established. Figure 14.2.1 shows the ministry and institutions

which involved in land passenger transport and its facilities.



Note: As of January 2014.

MOPTS: Ministry of Private Transport Services, MOPH: Ministry of Ports and Highways, MODUD: Ministry of Defence and Urban Development, WP Council: Western Province Council, MOFP: Ministry of Finance and Planning, Dept. of SLR: Department of Sri Lanka Railway, SLTB; Sri Lanka Transport Board, Dept. of Motor Traffic: Department of Motor Traffic, NTMI: National Transport medical Institute, NTC: National Transport Commission, RDA: Road Development Authority, UDA: Urban Development Authority, Dept. of Police: Department of Police, WP-RPTA: Western Province road Passenger Transport Authority, WP-RDA: Western Province Road Development Authority, WP-ComMT: Western Province Commissioner of Motor Traffic, and NPD: National Planning Department

Source: Government of Sri Lanka

Figure 14.2.1 Transport related Governmental Institutions

National Transport Policy sets following administrative structure to ensure the adequate provision of transport infrastructure and services (Table 14.2.1). The transport administrative structure is divided into five steps, i.e. policy, planning, implementation and monitoring, regulation, infrastructure provision, and service provision. The table shows the institutions which deliver abovementioned five functions by transport modes.

Table 14.2.1 Transport Administrative Structure by Transport Mode

	Policy Making	Planning	Regulation	Infrastructure Provision	Service Provision
Motor vehicles (all)	Ministry of Transport assisted by NTC and other stakeholders	NTC (in concurrence with province for national plans and to give concurrence from centre to provincial plans).	DMT	RDA/PRDA/ LA & Private	Private
Railways			SLR		
Inland Waterways				Provincial Councils	Private
Road Passenger Transport Services			NTC (Inter) RPTA (Intra)	SLTB/NTC/ RPTA/LA/ Private	SLTB/Private
Para-transit (carriage of passenger)			DMT/NTC RPTA (Intra) LA	LA	Private
Rental vehicles			DMT	Private	Private
Freight vehicles (carriage of goods)			NTC (Inter) RPTA (Intra)	Private	Private
Non-motorised			LA	RDA/PRDA/ LA	Private
Traffic Management			LA	RDA/PRDA/ LA	RDA/PRDA / LA

Note: DMT: Department of Motor Traffic, LA: Local Authorities

Source: National Transport Policy on Transport in Sri Lanka, Ministry of Transport. September 2008.

Corresponding to Table 14.2.1 detailed functional responsibilities are illustrated in Table 14.2.2. Although Table 14.2.1 indicates that the transport policy is made by the MOT assisted by the NTC and other stakeholders, and the planning is done by the NTC, the reality is that there are central and provincial governments involved in vertical sphere, and some institutions involved in horizontal sphere, even only at the central government level. If including subsidiary institutions, such as the DMT, MOFP and so on, there would be more stakeholders involved in transport administration.

The complexity of existing urban transport administration, as illustrated in Table 14.2.2, makes the urban transport administration in CMR inefficient and difficult to carry out new transport measures and integrated transport policies, such as inter-modal transfer/connection, common transport pass system and so on. As stated in the National Transport Policy, the efficiency of transport administration lies in how such complexity can be dealt with a planned manner. In order to ensure the planning function is strengthened and becomes a responsibility of assigned agencies, the Government indicate in the National Transport Policy to set a coordination mechanism for urban transport through the Presidential Committee for Urban Transport (PCUT).

Table 14.2.2 Functional Responsibilities of Transport related Institutions

Sector	Sub-sector	Policy	Planning					Regulation	Fare/Revenue			Infrastructure Development					Asset Management			Operation and Management						Law
		Policy Making	Master Plan (Mid-, Long-term Planning)	Strategic planning (Action Plan)	Service Delivery Planning	Planning for Public Transport Infrastructure Development (Include Budgeting)	Authorization/License and Permit Approval	Regulatory Authority/Regulator	Formulating and updating Administrative & Technical Standards, Norms, Minimum Service Standards and Guidelines	Fare Setting	Managing Fare Collection System	Sales revenue and assets management	Financial planning and Budgetary Expenditure (Budgeting)	Land Acquisition	Procurement of Infrastructure Development (Construction)	Construction Supervision & Technical Inspection	Land	Base Infrastructure	Upper Infrastructure (Equipment & Facility)	Financial Source for Operation and Maintenance (O&M)	Operation and Maintenance of Constructed Infrastructure (Base)	Operation and Management of Equipment & Facility (Upper)	Financial Arrangement for Business Operation	Business Operation	Property Management (shops, vendors and so on)	Business Operation Performance Evaluation	Law Enforcement
Road Network	Class A & B (National Road)	MoHPS	RDA MoHPS	RDA MoHPS		RDA	RDA	RDA	RDA MoHPS				RDA MoHPS	RDA	RDA	RDA	RDA	RDA	RDA	RDA	RDA & LA	RDA & LA	RDA	RDA	RDA		RDA & NPL
	Class C (Provincial Road)	PRDA	PRDA	PRDA				PRDA	RDA MoHPS				PRDA	PRDA	PRDA	PRDA	PRDA	PRDA	PRDA	PRDA	PRDA	PRDA	PRDA	PRDA			PRDA & NPL
	Class D & E (Local Authority Road)	PRDA & LA	LA PC	LA PC				LA	RDA MoHPS				LA PC	LA	LA	LA	LA	LA	LA	LA PC	LA	LA	LA	LA			LA & NPL
	Urban expressway (toll road)	MoHPS	RDA MoHPS	RDA MoHPS	RDA	RDA	RDA	RDA	RDA MoHPS	RDA MoHPS	RDA	RDA	RDA	RDA	RDA	RDA	RDA	RDA	RDA	RDA	RDA	RDA	RDA	RDA	RDA		RDA & NPL
Rail-based Transport	Railway	MOT	SLR MOT	SLR MOT	SLR MOT	SLR MOT	MOT	SLR	SLR	SLR MOT	SLR	SLR	SLR MOT	MOT	SLR	SLR	SLR	SLR	SLR	SLR	SLR	SLR	SLR	SLR	SLR	SLR MOT	SLR MOT
Bus Transport	General bus service **(Public)** (Inter-province bus service)	NTC	NTC	NTC	NTC	SLTB *5	NTC	NTC	NTC	NTC & SLTB	SLTB	SLTB							SLTB		SLTB *5	SLTB	SLTB		SLTB	NTC & NPL
	General bus service **(Private)** (Inter-province bus service)	NTC	NTC	MoPTS	MoPTS		NTC	NTC	NTC & MoPTS	NTC	NTC	OPR							OPR	OPR	OPR *5	OPR	OPR		OPR	NTC & NPL
	General bus service **(Public)** (Intra-province bus service)	NTC	NTC	NTC	SLTB	SLTB	SLTB	NTC	NTC	SLTB	SLTB	SLTB							SLTB		SLTB *5	SLTB	SLTB		SLTB	NTC & NPL
	General bus service **(Private)** (Intra-province bus service)	RPTA	RPTA	RPTA	RPTA	RPTA	RPTA	RPTA	NTC & RPTA	NTC	OPR	OPR							OPR	OPR	OPR	OPR	OPR		OPR	RPTA & NPL
	Bus terminal (Inter-provincial bus terminal) (Public)	NTC	SLTB	SLTB	SLTB	SLTB	SLTB	NTC	NTC	NTC	SLTB	SLTB	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC		NTC	NTC & NPL
	Bus terminal (Inter-provincial bus terminal) (Private)	MoPTS	MoPTS	MoPTS	MoPTS	MoPTS	MoPTS	NTC	NTC	NTC	OPR	OPR	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC		NTC	NTC & NPL
	Bus terminal (Intra-provincial bus terminal)	RPTA & UDA	RPTA & UDA	RPTA	RPTA	RPTA	RPTA & PC	NTC	NTC	RPTA	RPTA	RPTA	Prov Council	Prov Council	Prov Council	Prov Council	Prov Council	Prov Council	Prov Council	RPTA	RPTA	RPTA	RPTA		RPTA & LA	RDA & NPL
	Bus stop/shelter (Class A & B roads)	NTC, RDA UDA	NTC, RDA UDA	NTC, RDA UDA	NTC, RDA UDA		RPTA	RDA	RDA				RDA	RDA	RDA	RDA	RDA	RDA	RDA	RPTA	RPTA	RPTA				RDA & NPL
	Bus stop/shelter (Class C, D & E roads)	RPTA LA	RPTA LA	RPTA LA	RPTA LA	RPTA LA	RPTA LA	PRDA & LA	PRDA & LA				RPTA LA	RPTA LA	RPTA LA	RPTA LA	RPTA LA	RPTA LA	RPTA LA	RPTA	RPTA	RPTA				PRDA, LA & NPL
Paratransit	Three Wheeler & Taxi	MoPTS	RPTA	RPTA	RPTA	RPTA & LA	RPTA	RPTA	RPTA	RPTA	OPR	OPR							OPR	OPR	OPR	OPR	OPR		OPR	RPTA & NPL
	Private coach services (school van, corporate van)	MoPTS	RPTA	RPTA	RPTA	RPTA & LA	RPTA	RPTA	RPTA	RPTA	OPR	OPR							OPR	OPR	OPR	OPR	OPR		OPR	RPTA & NPL

Table 14.2.3 Functional Responsibilities of Transport and HRD related Ministries

Institution	Key Functions	Departments, Public Corporations & Statutory Institutions	Laws to be Implemented
Minister of Finance & Planning	1. Formulation of policies, programs and projects, in regard to the subjects of finance & planning, economic reforms and … 2. Direction of the implementation of such policies, programs and projects within time lines agreed with the national planning authorities, and within budgeted resources, with a view to achieving relevant objectives. 3. Preparation of national development public investments programs. 4. Liaising with donor agencies and international financial institutions.	• Department of National Planning • Department of External Resources • Department of public enterprises • Local loans and development fund	
Minister of Defence and Urban Development	1. Formulation of policies, programs and projects in regard to the subjects of Defence, maintenance of law & order, urban development, citizenship and all subjects… 2. Regulation and planned promotion of integrated economic, social and physical development in urban areas.	• Department of Police • Urban Development Authority	• Police Ordinance • Urban Development Authority Law No.41 of 1978 • Urban Development Projects (special provisions) Act, No.2 of 1980
Minister of Ports & Highways (newly changed to Minister of Ports, Highways & Shipping)	1. Formulation of policies, programs and projects in regard to the subjects of ports, highways and expressways and all subjects that come under the purview of departments and statutory institutions listed… 2. Provision and maintenance in optimum condition of a high quality network of national highways and other principal road. 3. Improvement of clear coordination process to cover all road project implementing agencies for an integration development and monitoring… 4. Formulation of programs and projects based on national policy in respect of provincial and local authority roads and coordination and monitoring of such programs and projects.	• Road development authority and its subsidiaries and associates. (RDA) • Road development fund	• National Thoroughfares Act, No.40 of 2008 • Road Development Authority Act, No.73 of 1981
Minister (Senior) for Good Governance & Infrastructure	Coordination of activities with such Ministries as Highways, Power, Energy, Telecommunications, Transport, Irrigations, Agriculture and Water Supplies with the objective of ensuring the development of infrastructure	None	None
Minister of (Senior) for Urban Affairs	Create a mutually connected network among cities for urban development in order to create a strong urban development mechanism… Coordination of activities with Ministries related to subject areas, such as infrastructure, health, education, housing and highways to empower the backward urban communities both economically and socially.	None	None
Minister of Local Government & Provincial Councils	1. Formulation of policies, programs and projects in regard to the subjects of provincial councils, local government and … 2. All matters relating to provincial councils 3. Government functions relating to local authorities	• Sri Lanka Institute of Local Governance	• Municipal Councils ordinance • Provincial Councils Act, No.42 of 1987 • Sri Lanka Institute of Local

Institution	Key Functions	Departments, Public Corporations & Statutory Institutions	Laws to be Implemented
			Governance Act • Urban Councils Ordinance • Gramdaya Mandala Act, No.28 of 1982 • Local Loans and Development Fund Act, No. 22 of 1916
Minister of Public Administration & Home Affairs	1. Formulation of policies, programs and projects in regard to the subjects of public administration, home affairs and … 2. Public service training 3. Administration of the combined services 4. Functions under the Establishments Code	• Sri Lanka Institute of Development Administration	• Sri Lanka Institute of Development Administration Act, No.9 of 1982
Minister of Lands & Land Development	1. Formulation of policies, programs and projects in regard to the subjects of lands, land development and all subjects… 2. Administration and management of state lands and land use planning. 3. Acquisition of lands for development projects	• Department of Land Use Policy Planning	• Land Acquisition Act, No.9 of 1950 • Land Development Ordinance • State Land Ordinance
Minister of Transport	1. Formulation of policies, programs and projects in regard to all subjects that come under the purview of Departments and Statutory Institutions listed on the basis of Mahinda Chinthana – Vision for the Future and any other over all National Policies that may be adopted by the Government. 2. Directions of the implementation of such policies, programs and projects… within time lines agreed with the national planning authorities and within budgeted resources. 3. Development of an integrated national passenger and freight rail transport system and railway infrastructure development and providing railway services 4. Provision of safe and reliable passenger transport service 5. All matters pertaining to construction of new railways including land acquisition and infrastructure development.	• Department of Sri Lanka Railways • Lakdiva Engineering Company (Pvt) Limited • Sri Lanka Transport Board • National Transport Medical Institute • Department of Motor Traffic	• Railways Act, No.18 of 1950 • Sri Lanka Transport Board Act, No.27 of 2005 • National Transport Medical Institute Act, No.25 of 1997 • Motor Traffic Act
Minister of Private Transport Services	1. Formulation of policies, programs and projects in regard to all subjects that come under the purview of … and any other overall national policies that may be adopted by the Government. 2. Direction of … within time lines agreed with the national planning authorities and within budgeted resources. 3. Safe and reliable passenger transport service 4. Registration and licensing of motor vehicles 5. Issue of driving licenses 6. Regulation of motor traffic	• National Transport Commission	• National Transport Commission Act, No.37 of 1991 • Private Omnibus Services Act, No.37 of 1991
Minister of Public Management Reforms	1. Formulation … to ensure that all government business including the implementation of development plans and the provision of public services is conducted in the most efficient manner, utilizing modern management techniques and technology where appropriate, while eliminating corruption and waste	• National Administrative Reforms Council	None

Note: Excerpt from Gazette 1681/3 - 2010

Source: Gazette 1681/3 -2010. November 22, 2010.

14.2.2 Demarcation of Functional Responsibilities of Transport Administration

(1) Ministry of Transport

Vision

Our singular vision is to make Sri Lanka the country with the most comfortable and efficient bus and railway services in this region of the world.

Mission

Our ambition based on the Mahinda Chinthana is to use state of the art technology for the continuous improvement maintenance of all human resources and infrastructure facilities, so as to improve the life within the country by bringing a higher level of convenience and comfort to the transport services used daily by Sri Lankans[5]. The key functions, according to the Performance Report 2012 are:

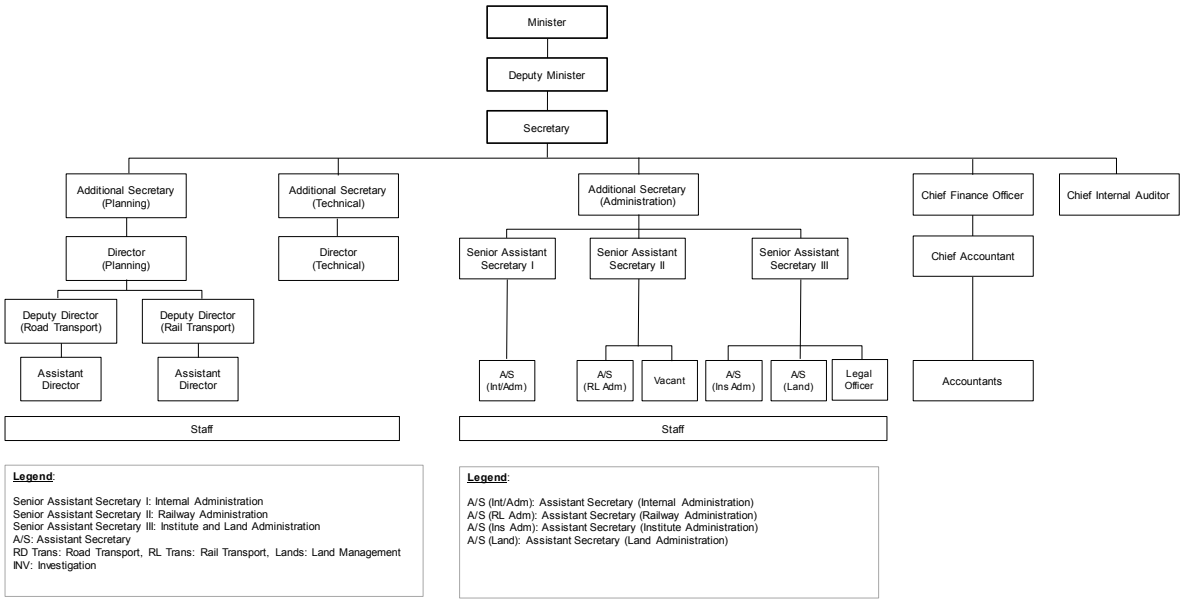
1. In terms of Mahinda Chinthana Vision for the Future and other national policies formulation of policies, programs and projects relating to the subjects in departments and the statutory institutions under the Ministry of Transport.
2. Implementation and operation of above policies, programs and projects within the period agreed with the national planning authorities and within the budgetary resources in order to achieve the relevant objectives.
3. Providing the public services belonging to the scope of the functions of the Ministry efficiently and in a user friendly manner.
4. Establishment of a national integrated passenger and goods railway transport system, development of railway infrastructure facilities and providing rail services.
5. Providing passenger ferry services
6. Providing a safe and reliable passenger transport service.
7. Performing all activities pertaining to acquiring lands, development of infrastructure and construction of new railway lines.
8. All other subjects delegated to other institutions under the Ministry.
9. Supervision of institution under the Ministry.

Figure 14.2.2 shows the organizational structure of the Ministry of Transport, excluding

[5] Performance Report 2012. Ministry of Transport.

departments and related institutions. The MOT is functionally divided into three divisions, planning, technical and administration. A total number of professional staff (above MN7 level) is 22 persons,

Considering the tasks vested to the Ministry, the number of professional staff is quite limited. Besides the number of the professional staff, when educational background is taking into account, there is only one person who has advanced degree in transport and a few professional staff with development planning degree. Most of managerial staff hold diploma in public administration or specific discipline, such as accounting, public procurement and engineering.



Source: Ministry of Transport. As of January 2014.

Figure 14.2.2 Organizational Structure of the Ministry of Transport

(a) Planning Division

The functional responsibilities of planning division are;

- Assisting the Secretary of the Ministry to formulate and review policies and strategies in relation to transport sector development.
- Preparing the Annual Progress Reports of the Ministry required by the parliament.
- Participating for the meetings and other programs organised by the treasury, other line ministries and foreign missions, etc., representing the Ministry to extend cooperation for their programs.
- Assisting the Secretary of the Ministry to coordinate all the institutions and departments under purview of the Ministry for executing approved projects and reviewing progress of projects.
- Assisting the Secretary to create public awareness of development projects and activities by coordinating Government Information Centre.

- Preparation of Annual Action Plans in line with Corporate Plan of the Ministry.
- Assisting the chief accountant to prepare Annual Capital Budget with coordinating all the institutions under purview of the Ministry.
- Contributing to research and development activities of the Ministry
- Contributing to research and development activities of the Ministry by coordinating relevant entities.
- Performing the duties, with regard to new development project, such as "Urban Transport System Development Project for Colombo Metropolitan Region and the Suburbs" that is implemented by the Ministry with assistance of JICA.
- Participatory contribution of the MOT to other national level programs, such as Deyata Kirula National Development Exhibition.
- Organise capacity development programs for ministry's officials.

(b) Technical Division

The functional responsibilities of technical division are;

- Carrying out preliminary feasibility studies, feasibility studies and environment studies in view of the projects implemented under the Ministry of Transport, as well as holding steering committee and evaluation meetings in respect of the relevant studies6.

(c) Administration Division

The functional responsibilities of administration division are;

Internal Administration

- All administrative work related to appointment, transfer and promotion of public officers, and approve salary increment
- Grant approval for public service pension fund (PSPF) contributions and functions connected to it.
- Placement, management and supervision of human and physical resources of the Ministry in effective way.

Institute Administration

- Coordination and directing of administrative functions of the institutions under the Ministry; Department of Motor Traffic, Sri Lanka Transport Board (SLTB), Transport Medical Institute and Lakdiva Engineering Company (Ptv) Ltd.
- Legal works involving the Ministry

[6] Ministry of Transport website (http://www.transport.gov.lk/)

- Drafting cabinet memoranda and replying to questions from the Parliament.
- Coordinating Public Petition Committee and Consultative Committee with the institutions under the Ministry.
- Providing local and foreign training for the staff and affiliated institutions.

Railway Administration

- Directing and supervising the duties of the Department of Railway, so as to improve the performance of work of the staff.

Land Administration

- Acquisition of land belonging to the Ministry and institutions under it, in accordance with the land acquisition act for foreign aid projects.
- Acquiring, releasing and taking action under Section 38 "A" of Land Acquisition Act, when acquiring lands for urban development activities to the Urban Development Authority, and supervision of administration pertaining to all such activities.
- Compensation inquiries pertaining to land acquisition and participating in Compensation Review Committee.
- Participating in objection inquiries, according to Land Acquisition Act representing the Ministry.
- Taking over release and payment of compensation and administration of all such matters on behalf of the Ministry.
- Pertaining on the activities of Land Disposal Committee.

(d) Department of Sri Lanka Railways

Sri Lanka Railways (SLR) is a government department supervised under the Ministry of Transport and accountable directly for the Secretary of the Ministry of Transport. SLR is governed by the general manager of railways (GMR).

Vision

To be the most sought-after land transport provider in Sri Lanka, providing unsurpassed value to our stakeholders.

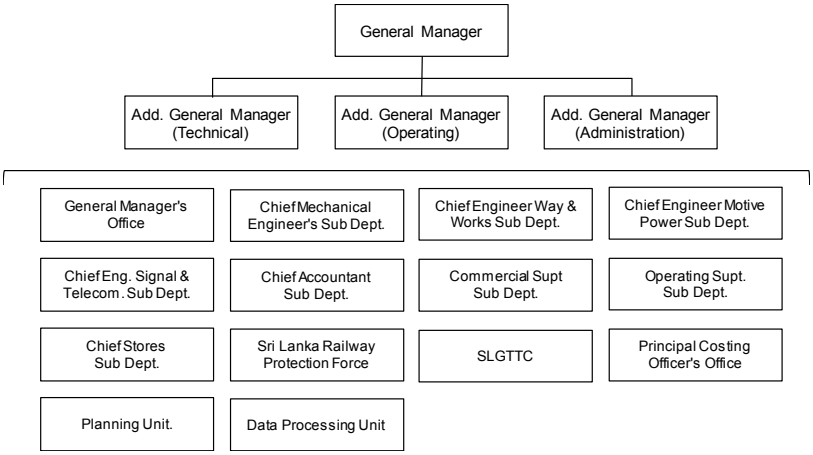
Mission

Provision of safe, reliable and punctual rail transport service for both passenger and freight traffic, economically and efficiently.

It aims at, according to Performance Report - 2012, 1) upgrading rail contribution for the

passenger and freight traffic, 2) confirming security of railway operations, 3) improving quality of the passenger rail transport service, 4) improving management efficiency, 5) increasing rail revenue and 6) developing human resources.

Under the GMR, there are three additional general managers, responsible for technical matters, operation and administration. There are 14 sub departments and units in total.



Note: SLGTTC: Sri Lanka German Technical Training Centre

Source: Performance Report - 2012. Department of Sri Lanka Railways

Figure 14.2.3 Organizational Chart of Department of Sri Lanka Railways

SLR embraces 14,964 staff in total, consisting of 1,218 in the administration, 9,775 in the technical and 3,971 in operating. Although it embraces the largest staff members in one institution under the MOT, according to Performance Report - 2011, one of the challenges SLR encounters is a large number of vacancies. SLR has problem of incurring and additional payment of overtime due to a large number of vacancies in recent years. The latest vacancy data shows 8.6% decrease of cadre in 2011, compared to that of 2010. Taking account of actual number of labour force in 2012 of the SLR, it runs the operation in 59% of desired, i.e. approved number, staff number, according to the SLR.

Table 14.2.4 Cadre of 2010 and 2011

Sub Department	Year 2010			Year 2011		
	Approved #	Actual #	Vacancy	Approved #	Actual #	Vacancy
Railway General Manager Office	326	198	128	326	250	76
Accountant Office	609	426	183	609	185	424
Chief Costing Officer Office	41	13	28	41	8	33
Stores Superintendent Office	535	306	229	535	281	254
Railway Protection Force	707	549	158	707	509	198
SLR German Technical Collage	60	35	25	60	31	29
Transport Sub Department	5,049	2,971	2,078	5,049	2,791	2,258
Commercial Supt. Office	94	58	36	94	46	48
Motive Power Sub Department	3,582	2,341	1,241	3,582	2,115	1,467
Mechanical Eng. Sub Dept.	4,193	2,385	1,808	4,193	2,166	2,027
Way & Works Sub Dept.	8,136	6,021	2,115	8,136	4,847	3,289
Signalling & Telecom Sub Dept.	582	440	142	582	440	142
Total	**23,914**	**15,743**	**8,171**	**23,914**	**13,669**	**10,245**

Source: Performance Report - 2011. Department of Sri Lanka Railways

(e) Department of Motor Traffic

Vision

Excellence in motor traffic regulating for highest public appreciation

Mission

Through team work of motivated staff and modern technology executing the rules and regulations entrusted by the Motor Traffic Act and others in an efficient manner for highest public appreciation

Value

- High Public Appreciation through Organization
- Efficiency and Effectiveness through Processes
- Customer Satisfaction through Services
- Employee Motivation through Teamwork

Objectives

- Provide efficient and effective service as entrusted by the Motor Traffic Act
- Execute other vested laws and regulations efficiently and effectively
- Optimum use of Human, Physical and financial Resources within the Department

Key functions of the department are;

- Register motor vehicles in accordance with rules and regulations of Motor Traffic Act.
- Register the transferring of vehicles to owner.
- Issue driver's license on the basis of skills certificate.
- Technical service.
- Supervise auto emission tests.

(f) Sri Lanka Transport Board (SLTB)

The original form of SLTB was established in 1957, then it was named Ceylon Transport Board. It was repealed by Sri Lanka Central Transport Board Law in 1978. After Sri Lanka Central Transport Board (SLCTB) was established, the history shows several changes in its functional responsibilities and institutional structure it landed to the current institution, the SLTB. The SLTB, established by Sri Lanka Transport Board Act No. 27 of 2005, is public transport service provider, i.e. bus service provider for intra- and inter province buses and it operates public bus throughout the nation.

Vision

The excellent transport provider in the region.

Mission

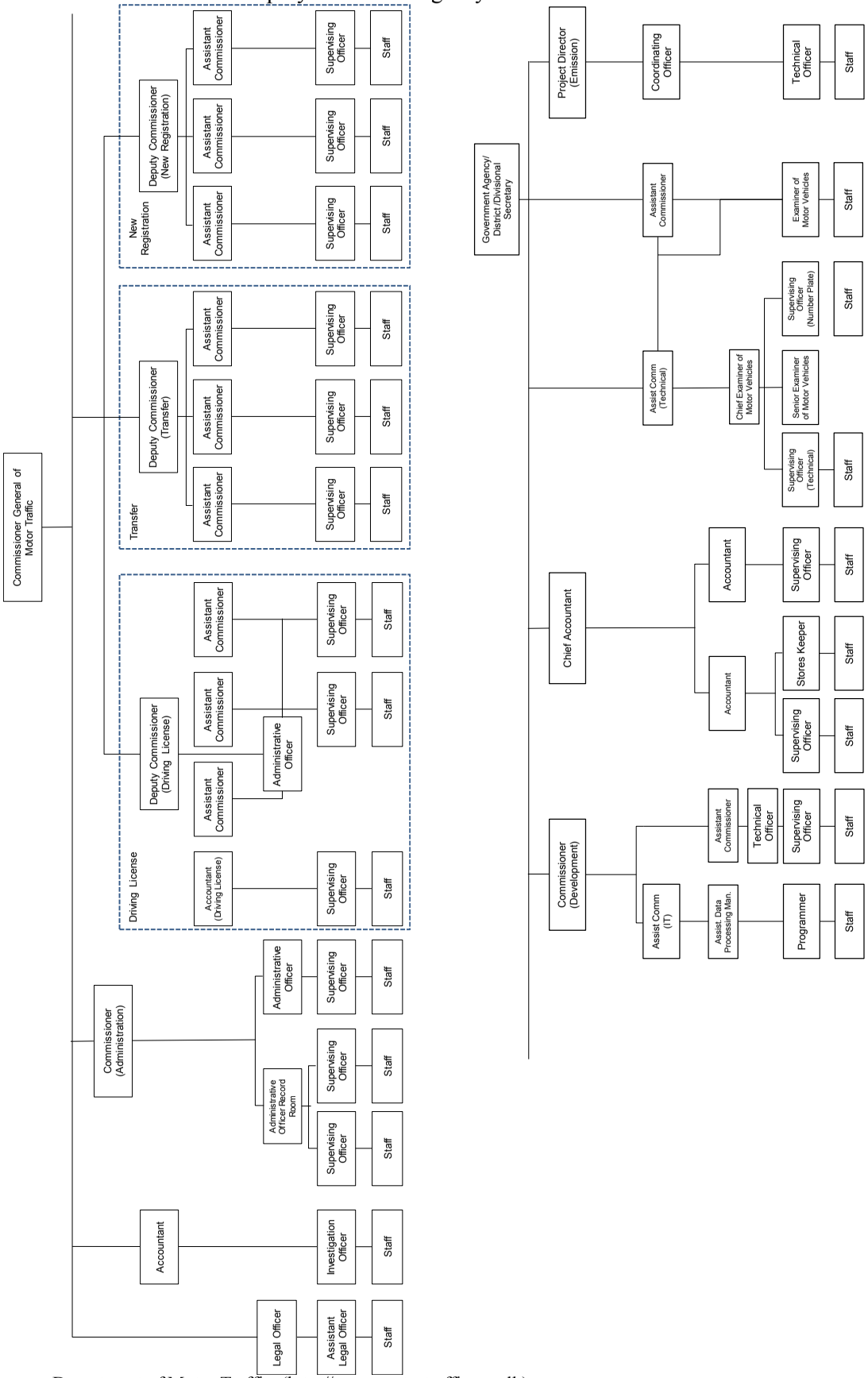
To provide the public a safe, dependable and comfortable road passenger transport at a reasonable fare system through a staff dedicated to service and obtain the maximum utilization of all resources functioning as a financially viable organization.

Function[7]

- To provide efficient passenger service throughout the country, while competing with the private sector under regulated market conditions.
- To provide bus services for services of a socially necessary service for which specific subsides are provided by the regulator.
- To become the market leader in the provision of qualitative bus transport services by improving in reliability and safety and customer care.
- To maintain designated bus terminals and to compete with private sector in long-term.

[7] http://www.gic.gov.lk/gic/index.php?option=com_info&id=650&task=info&lang=en

To be available for deployment in emergency situations.



Source: Department of Motor Traffic. (http://www.motortraffic.gov.lk)

Figure 14.2.4 Organizational Structure of Department of Motor Traffic

(g) National Transport Medical Institute

The National Transport Medical Institute (NTMI) was established by Act of Parliament No.27 of 1997 and formally inaugurated on 01st January,1999.It is a statuary organization which functions under the purview of the Ministry of Transport.

Vision

Healthy driver behind each steering wheel.

Mission

- To provide a high quality medical report at the conclusion of medical examinations.
- To expand the services of the Institute island wide by opening a branch office in all Provinces, Branch Offices with qualified Medical Officers and devoted staff in order to provide services to clients expecting service from the Institute.
- To keep the drivers aware of health problems causing road accidents.

Objective

- To examine the physical and mental fitness of all candidates before issuing medical recommendations for heavy vehicle licenses.
- To collect and analyse data on drivers who have met with road traffic accidents who are been referred by courts or by the Traffic Police and to utilise them for feature planning.
- To minimise road traffic accidents by doing a proper medical examination.

Function

- To provide medical services and assistance to drivers and operators operating or driving all categories of motor vehicles including heavy-duty vehicles.
- To examine drivers and operators of all categories of motor vehicles including heavy-duty vehicles and furnish certificates of physical and mental fitness to such drivers and operators.
- To carryout medical examinations on drivers and operators of all categories of motor vehicles including heavy-duty vehicles and furnish recommendations regarding their suitability and fitness.
- To provide medical services and assistance in the cases of accidents involving any category of motor vehicles.
- To ensure either by itself or in consultation with other organizations that motor vehicles of all descriptions are operated or driven only by person who are physically and mentally fit and competent.
- To appoint a panel of suitable Medical Officers to various districts and provinces for

the purpose of discharging its functions.

- To render medical advice and recommendations on industrial hygiene and industrial accidents.
- To provide advice and special guidelines relating to the quantum of compensation or damages payable in cases on accidents.
- To set standards and prescribe parameters regarding transport medicine to be adopted and implemented by the relevant implementing authority.
- To render medical services and assistance to drivers and operators employed in companies formed under the Conversion of Public Corporations or Government owned Business Undertakings into Public Companies act No.23 of 1987, public corporations and Private Omnibus Companies, registered under the National Transport Commission Act No.37 of 1991.

(2) Ministry of Defence and Urban Development

Ministry of Defence and Urban Development was initially established as the Ministry of Defence and External Affairs in 1948. The ministry was then responsible for army, navy and air force, and internal matters. The Ministry of Defence was separated from the Ministry of Foreign Affairs in 1977, and then some functional responsibilities in internal affairs was separated to another ministry. In 2010, the Ministry of Defence was given the responsibility on urban development matters throughout the nation, which encompass urban development, waste management, flood mitigation and keeping social security in urban areas.

Vision

Towards a secured and liveable country

Mission

Formulating and executing strategic plans & policies for a secure, safe & sovereign country with territorial integrity, sustainable urban environment, competitive economy and a high quality of life.

Objectives

- Maintenance of internal security and Defence of Sri Lanka.
- Implementation and maintenance of the Prevention of terrorism Act No. 48 of 1979 as amended by the Act No. 10 of 1982.
- Maintenance of the Commonwealth war Memorials and the war Graves.
- Supervision and maintenance of the establishment matters of the three services and the Kotalawala Defence Academy.
- Supervision and maintenance of the establishment matters of the National Cadets

Corps.

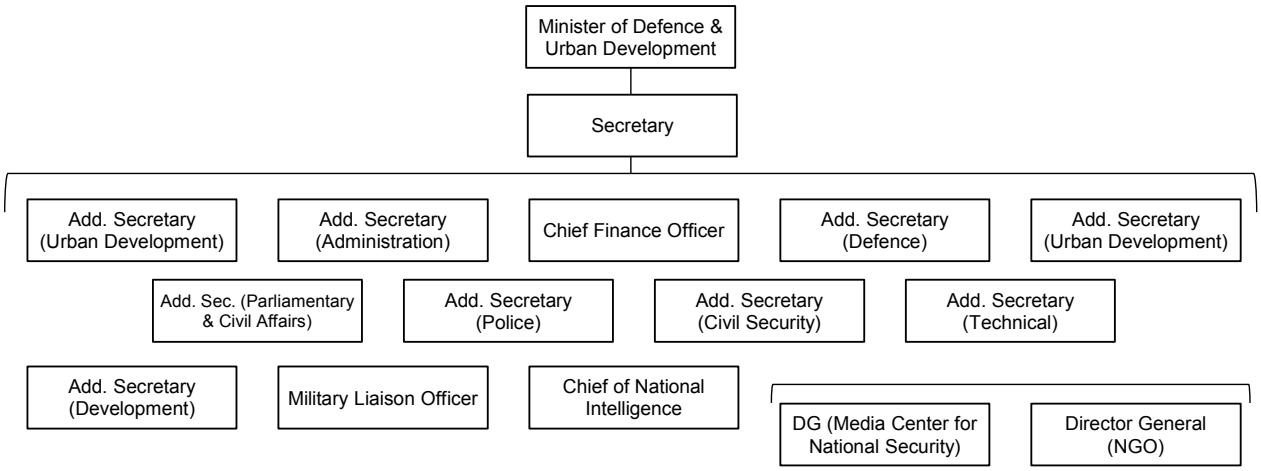
- In pursuance of the above objectives the Ministry of Defence provides policy directives and guidelines to the Departments functioning under it.

Function[8]

- Formulation of policies, programs and projects in regard to the subjects of Defence, maintenance of Law & order, Urban Development, Land Reclamation and Development citizenship & all subjects that come under the purview of Departments and Statutory Institutions, based on the Mahinda Chinthana -Vision for the Future and any other National Policies, that may be adopted by the Government.
- Direction of the implementation of such policies, programs and projects within time limits agreed with the national planning authorities and within budgeted resources, with a view to achieve relevant objectives.
- Public Order /Police powers and functions relating to public order.
- External and Internal Security of Sri Lanka.
- Prevention of Terrorism Activities.
- Intelligence Services.
- Regulation and planned promotion of intergraded economics, social and physical development in urban areas
- Malambe Integrated Urban Development Project (Information Technology Park)
- Reclamation and Development of Lands

The ministry has six divisions, administration, defence, police and civil security, development, parliamentary and civil affairs, technical, urban development and financial divisions. Under the minister and secretary, co-ordinating secretary and staff are assigned to support them. Under the secretary, nine additional secretaries, chief finance officer, military liaison officer and chief of national intelligence are appointed to manage the divisions and special units and institutions.

[8] Progress Report 2012. Ministry of Defence and Urban Development



Source: Progress Report 2012. Ministry of Defence and Urban Development

Figure 14.2.5 Organizational Chart of the Ministry of Defence and Urban Development

(a) Urban Development Authority (UDA)

Urban Development Authority (UDA) was established in 1978 under the Urban Development Authority Law No.41 of 1978 with the mandate to promote integrated planning and implementation of economic, social and physical development of designated urban development areas, where being declared by the Minister of Defence and Urban Development from time to time in line with the national policy framework for urbanization. Since 1978, urban development areas have increased up to 240 areas throughout nationwide by 2011.

Vision

To be at the centre of Sri Lanka's development by creating urban centres, in which people will continue to want to live, work and play and make their livelihood pleasant.

Mission

To prepare development plans and to promote, implement and regulate development activities with a view to achieving the position of a financially independent and globally admired creator of fully-fledged, sustainable urban centres.

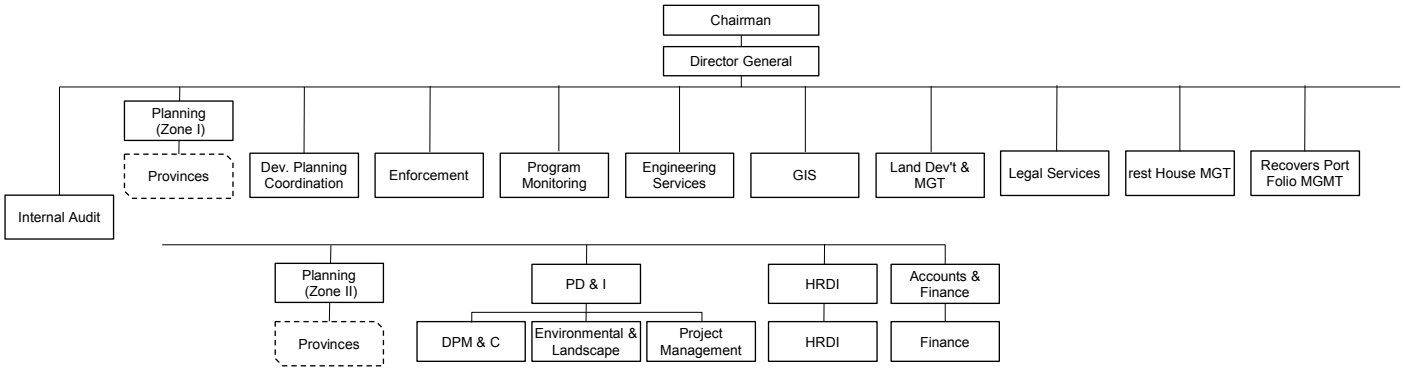
Function[9]

- To carry out integrated planning and physical development within and among such areas, subject to any directions that may be given to the Authority by the Minister from tune to time
- To implement related programs of development work, activities and services in such areas that are consistent with integrated planning in such areas, subject to any directions that may be given to the Authority by the Minister from time to time

[9] Urban Development Authority Law. (amended with UDA Amendment Act No.41 of 1988). Government of Sri Lanka

- To enter into, perform and carry out, whether directly or by way of joint venture with any person in or outside Sri Lanka, all such contracts or agreements as may-be necessary for the purpose of carrying out any development project or scheme, as may be approved by the Government
- To undertake the execution of development projects and schemes as may be approved by the Government
- To enter into any contract with any person for the execution of development projects and schemes as may be approved by the Government
- To undertake the completion of any approved development project or scheme in default by any person failing to complete such project or scheme
- To implement development plans and capital investment plans approved by the Government
- To formulate capital improvement programs in such areas
- To formulate and implement an urban land use policy in such areas
- To develop environmental standards and prepare schemes for environmental improvements in such areas;
- To carry out building, engineering, and other operations, and undertake any work in connection with the infrastructure development of such areas
- To acquire and hold any movable or immovable property or dispose of any movable or immovable property acquired or held by it
- To formulate and execute housing schemes in such areas
- To cause the clearance of slum and shanty areas and to undertake the development of such areas
- To prepare at the request of any Government agency development projects and planning schemes on behalf of such agency and to coordinate and supervise the execution of such projects or schemes;
- To approve, co-ordinate, regulate, control or prohibit any development scheme or project, or any development activity, of any Government agency or any other person in such areas
- To provide technical planning services for the benefit of Government agencies or other persons in such areas
- To regulate any planning projects or schemes prepared by any Government agency or other persons in such areas;
- To call upon any Government agency at the direction of the Government to undertake in consultation with the Authority, any development projects or schemes and to regulate the activities of such projects or schemes
- To charge rents or fees for any building or for any services provided by the Authority ;
- To accept gifts, grants, donations or subsidies whether in cash or otherwise and to apply them for carrying out any of the objects of the Authority
- To do all such acts or things as are incidental to or consequential upon the exercise,

discharge and performance of its powers, functions and duties under this Law.



Source: Corporation Plan 2008-2012. Urban Development Authority

Figure 14.2.6 Organizational Chart of Urban Development Authority

(3) Ministry of Private Transport Services

Ministry of Private Transport Services was established in 2010, stipulated in Gazette 1681/3 dated November 22, 2010. The ministry is a primary regulator for private bus service for inter-provincial private bus service, nationwide. The National Transport Commission (NTC), which is a regulatory body of public bus services for both private and public buses.

Vision

A comfortable, speedy journey - strength to the progress of Sri Lanka

Mission

To provide passengers with an efficient and comfortable service accompanied by modern technology; a service with an ability to fulfil passenger-demands and trusted by passengers; and through such service, to contribute maximally to the progression of other areas of the economy[10].

Function[11]

- Composing programs and projects relevant to private transport sector which accords to the Mahinda Chinthana future vision and other national policies accepted by the Government.
- Implementing these identified programs and projects within a specific period agreed upon by national planning authorities and an allotted budget.
- Directing the duties of the National Transport Commission (that functions under the ministry) more efficiently and in people friendly-manner and supervising those activities.

[10] Progress of Year 2012 and Targets for Year 2013. Ministry of Private Transport Services. November 2012.

[11] ditto.

- Taking measures to create a passenger transport service which is secure, reliable and beneficial to the passenger public.
- Making provisions to regulate all the public transport media that comes under the private transport sector.

(a) National Transport Commission

National Transport Commission (NTC) was established under the National Transport Commission Act, No. 37 of 1991, and the Private Omnibus Services Act No.44 of 1983 was repealed as the NTC was established. It was established to provide advice to the government on passenger transport national policy by omnibus, and to implement such policy as regulator of general for bus passenger transport. It also aims to reorganise passenger transport and to provide financial support for certain passenger transport service.

In an attempt to avoid financial burden to public sector, i.e. amounted to 40% of operating costs plus depreciation, the NTC was legislated so that no permits to operate bus transport services were to be issued to state or provincial-owned companies[12]. Its policy is clearly illustrated in the Act, as the preamble indicates[13];

> *that the ownership and operation of services relating to passenger transport by omnibus shall be vested wholly in the private sector, and no State institution. Provincial Council or Local Authority or anybody corporate in which the State, a Provincial; Council or Local Authority holds shares shall acquire in whole or in part ownership or control of anybody providing such services and that where the State now owns or holds any interest in any such body it shall divest itself of such interest as expeditiously as practicable*

After a new government came into the administration in 1994, a committee was set up to evaluate the performance of the peopolised companies[14] and the NTC. Accordingly, the NTC Act was amended in 1996 to consolidate the peopolised companies into 11 cluster companies and to require that as from March 2003, no permits should be offered to private companies with less than 50 buses[15].

Vision

Ensure quality, cost effective and safe, integrated Transport System and Service that provide for the socio economic development across the country and the different mobility requirement of every individual and corporate citizen of Sri Lanka.

[12] Study of public passenger transport conditions in Sri Lanka. K.M. Gwilliam. February 2005.

[13] National Transport Commission Act No. 37 of 1991.

[14] "Peopolised company" means a company formed under the Conversion of Public Corporations or Government Owned Budiness Undertakings into Public Companies Act, No.23 of 1987 to take over the functions or part of the functions of the Sri Lank Central Transport Board or a Regional Transport Board established under the Transport Board Law No.19 of 1978. National Transport Commission Act No. 37 of 1991.

[15] ditto

Mission

Advise the Government of Sri Lanka on the National Policy relating to passenger transport, and establish the required regulatory framework to ensure an efficient bus transportation system which meets the transport needs of the public.

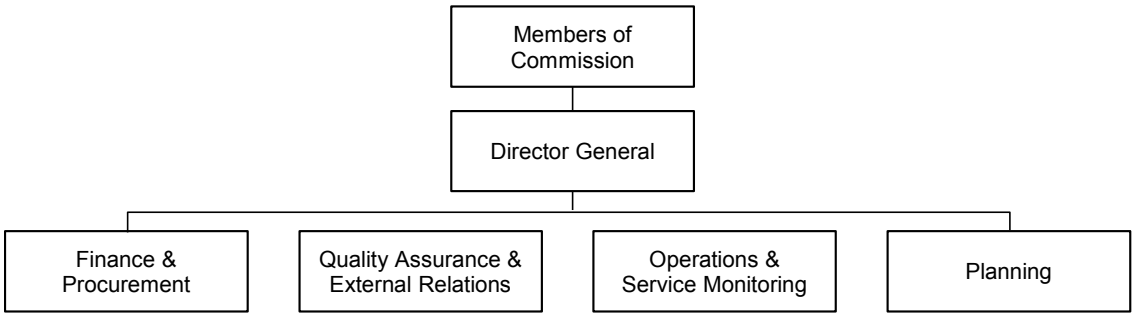
Function[16]

- To monitor the availability of omnibus services of an acceptable quality to meet the passenger transport needs of the public and to determine the minimum levels at which such services shall be maintained
- To specify the conditions subject to which an authorised person may issue or renew a passenger service permit or other authority authorizing the use of an omnibus for the carriage of passengers at separate fare
- To monitor and enforce subject to the provisions of any written law, the compliance by permit holders with the conditions of passenger service permits issued to them, under the Act or by authorised person.
- To prescribe the form in which passenger service permits may be issued by an authorised person
- To determine the rates to be charged for the issue or renewal of passenger service permits by an authorised person
- To specify the documents relating the vehicle fitness, passenger carrying capacity and driver fitness and other evidence that shall be produced to an authorised person by an applicant for a passenger service permit
- To require holders of passenger service permits issued by an authorised person to furnish to the Commission such returns and information as may be necessary for the Commission to exercise and discharge its powers and functions under the Act
- To liaise with Government departments, institutions and authorised persons in respect of omnibus services required by such departments and institutions including
  - carriage of mail, and
  - the provision of school services on concessionary rates, for school children and for students of universities, technical institutions and other similar institutions
- To grant passenger service permits for omnibus services in the specified area
- To ensure the provision of omnibus services on un-remunerative routes, by entering, after the consideration of competitive bids, into contracts with persons for the provision of those services and where necessary, providing financial support to persons providing such services and to specify the fares that may be charged by such persons having regard to the nature of the services provided
- To enter into agreements with any person for the provision of inter-provincial omnibus

[16] National Transport Statistics 2012. National Transport Commission.

services and to issue passenger carriage permits in respect thereof

- To provide managerial expertise and assistance to authorised persons, and any other assistance or advice that may be required by authorised persons for the proper discharge of their functions relating to the provision of omnibus services
- To arrange for the carriage of goods on omnibuses



Source: http://www.ntc.gov.lk/sub_pgs/aboutus.html#orga

Figure 14.2.7 Organizational Structure of National Transport Commission

(4) Ministry of Ports, Highways and Shipping

Ministry of Highways and Ports was renamed and given additional role of shipping in October 2013. The Gazette Extraordinary notified that the Gazette Extraordinary No.1681/3 of November 22, 2010 was amended and the Minister became the Minister of Highways, Ports and Shipping.

Vision

Be a leading partner in making Sri Lanka the "Emerging Wonder of Asia" by providing an island wide modern road network and world-class maritime facilities

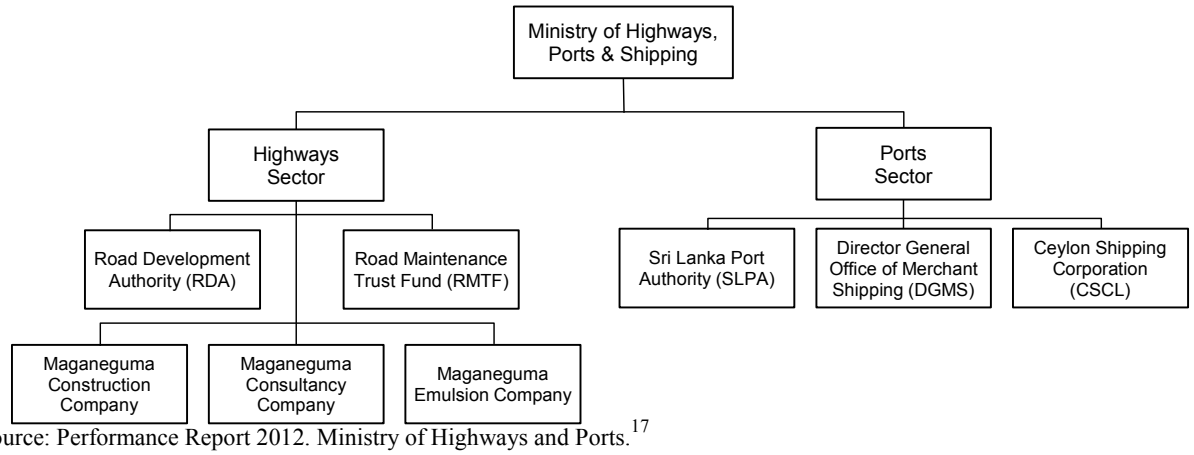
Mission

Composing suitable policies and preparing efficient mechanism for the effective utilization of limited resources and modern technology to maintain the road network and marine activities in optimum level for the socio economic development of the nation.

Function

- Formulation of policies programs and projects in regard to the subjects of Ports, Highways and Expressways and all subjects that come under the purview of Departments and Statutory Institutions mentioned below on the basis of Mahinda Chinthna - Vision for the Future and any other over-all National Policies that may be adopted by the Government.
- Direction of the implementation of such policies, programs and projects within time lines agreed with the national planning authorities and within budgeted resources, with a view to achieving relevant objectives.

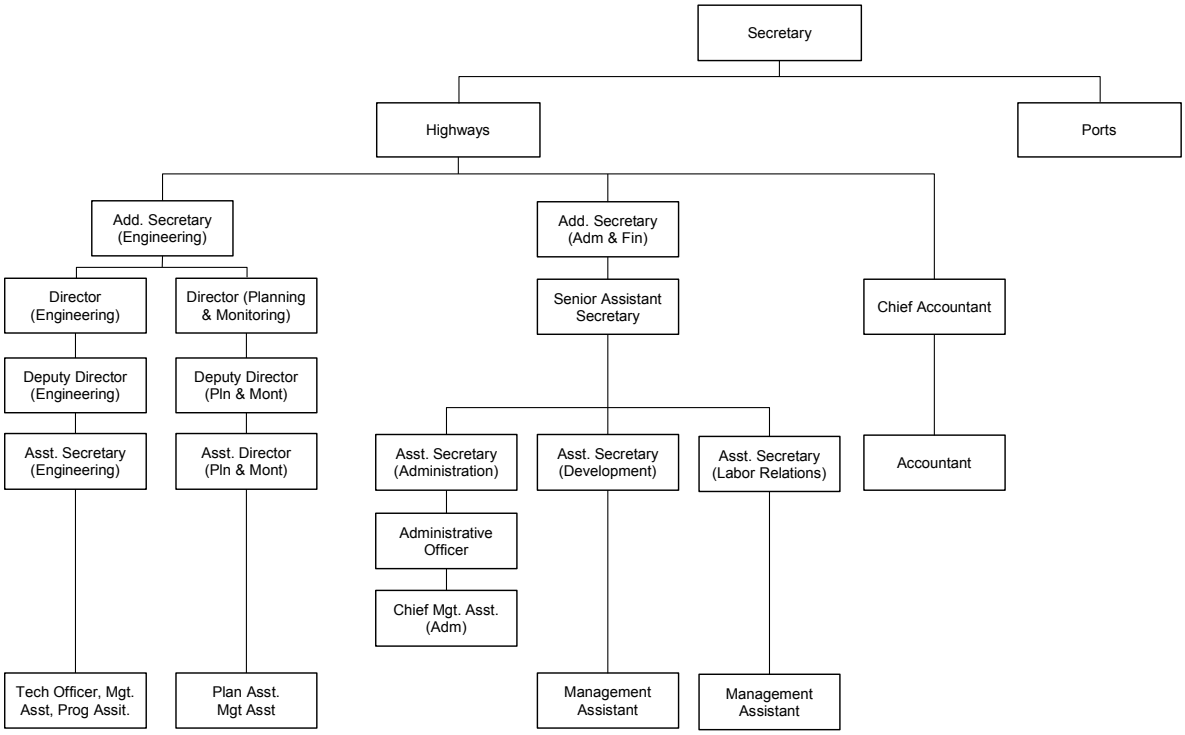
- Provision of all public services that come under the purview of the Ministry in an efficient and people friendly manner.
- Reforming of all systems and procedures to ensure the conduct of business in an efficient manner deploying modern management techniques and technology where applicable while eliminating corruption and waste
- Provision and Maintenance in optimum condition of a high quality network of national highways and other principal road
- Implementation of the Maga Neguma Rural Road Development Program
- Improvement of clear co-ordination process to cover all road project implementing agencies for an integration development and monitoring collection of road user charges in respect of National Policy
- Formulation of Programs and Projects based on National Policy in respect of Provincial and Local Authority roads and co-ordination and monitoring of such programs and projects
- Road Development activities connected to Kottawa, Kaduwela and Kadawatha Township Development Project
- Development and Administration of ports and harbours, light houses and beacons, oil installation other than those belong to Admiralty
- Arbitration of disputes between shipping Service providers and users
- Establish rules of competition for shipping Services
- Assist and ensure consultation between shipping service providers and users
- Receiving of Wrecks and Ocean salvages
- Administration of Shipping Development Fund
- Freight and shipping Services
- Coastwise passenger traffic



Source: Performance Report 2012. Ministry of Highways and Ports.[17]

Figure 14.2.8 Main Institutions of Ministry of Highways and Ports

[17] Available latest performance report is "Performance Report 2012" download from the website of the Parliment of Sri Lanka (www.parliament.lk), so the institutional structure is based on it.



Source: Ministry of Highways, Ports and Shipping website (http://www.mohsl.gov.lk)

Figure 14.2.9 Organizational Structure of Ministry of Highways, Ports and Shipping

(a) Road Development Authority (RDA)

Vision

To upgrade the National Highway Network to meet the expectations of all stakeholders and to make the Road Development Authority an institution of multidisciplinary excellence in Highway Engineering.

Mission

As the premier National Organization of the road sector, to provide an adequate and efficient network National Highways, to ensure mobility and accessibility at an acceptable level of safety and comport, in an environment friendly manner for the movement of people and goods for the socio-economic development of the nation.

Goals and Objectives

- Achieve an adequate National Highway Network.
- Achieve an acceptable level of mobility in the National Highway Network.
- Provide a high mobility expressway network.
- Maintain the National Highway Network at an acceptable condition.
- Reduce road user cost.

- Improve road safety in the National Highway Network.
- Ensure efficient utilization of assets and investments.
- Ensure protection of the environment in all activities.
- Promote organizational development.
- Assist in the development of the local road construction industry.

(5) Roles and Responsibilities

The functions performed by the RDA consist mainly of the maintenance and development of the roads and bridges in the National Highway Network and the planning, design and construction of new highways, bridges and expressways to augment the existing network.

The RDA has a responsibility for the development of the road network to cater for the on-going overall development programme of the country. Since, Road Transport is the primary mode of transport in the country, it is very vital that road network is adequate to developed to promote efficient transport of people and goods. The RDA has a responsibility to plan the future road network taking into consideration the future travel demand and formulating project proposals to meet this demand.

The RDA being the Principal Highway Authority has a responsibility to provide a road network to meet the social aspirations of the people in terms of mobility and safety. Since, the people at large depend on public transport for their travel needs it is the responsibility of the RDA to maintain the road network to a reasonable standard so that there would be un-interrupted public transport available to them.

Since, the rehabilitation and development of the road network is undertaken with public funds at a very high cost, it is responsibility of the RDA to ensure that the adequate economic returns are achieved from the investments made on highway improvements. This is achieved by carrying out feasibility studies before major projects are undertaken and followed by post evaluation of these projects after completion.

14.3 Overview of Act and Regulation

14.3.1 Motor Traffic Act

(1) Separate License for Road Passenger Transport (Public Transport)

Separate license for road passenger transport drivers has been under discussion with the purpose, among others, for reducing the number of accidents caused by passenger transport vehicles. The Ministry of Transport drafted a regulation to amend the Motor Traffic Act, in order to modify driving license mechanism to launch a new driving license for road passenger transport drivers, who drive motor coach, but exempting taxi and three-wheeler.

Main reason for launching the separate license, according to Ceylon Today, is due to accidents caused by passenger transport vehicles. It cited 2,444 people were killed due to the 42,145 accidents in 2012 throughout the country, and out of 2,444, 320 deaths were caused by private buses.

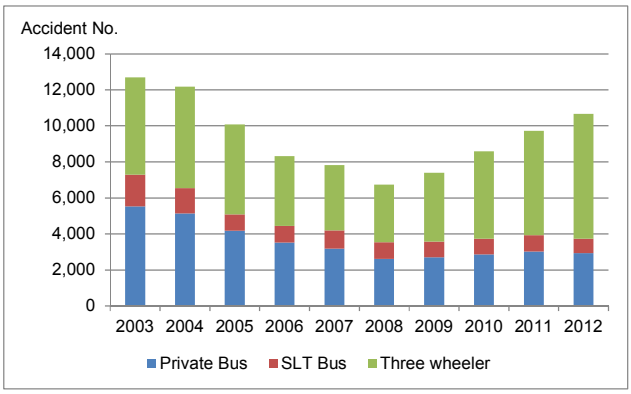


Figure 14.3.1 Nationwide Traffic Accident Number (Public Transport)

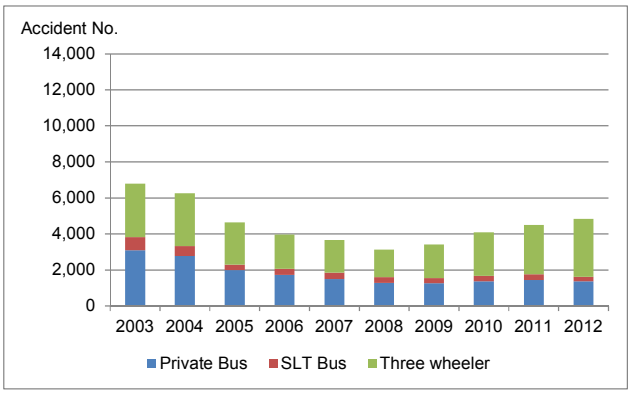


Figure 14.3.2 Traffic Accident Number in Western Province (Public Transport)

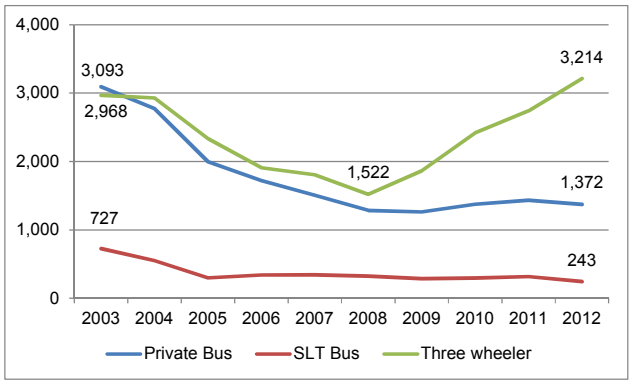


Figure 14.3.3 Traffic Accident Number in Western Province in Number

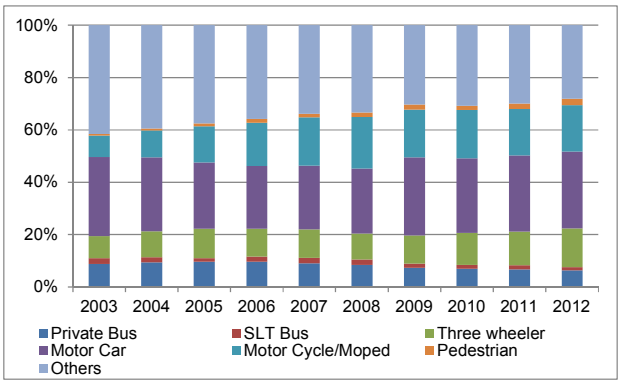


Figure 14.3.4 Ratio Distribution of Traffic Accident in Western Province (%)

Figure 14.3.1 and Figure 14.3.2 shows the number of traffic accidents caused by public transport vehicles, i.e. private buses, SLTB buses and three-wheelers. By category, there is no data available for accidents caused by taxies since it is categorised in motor car. The number of accidents of public transport vehicles shows similar trend in the nationwide and Western Province. The number of accidents had decreased until 2008 and has shown gradual increase until 2012. Looking at the statistics of Western Province, taking into account only public transport, nearly 70% of accidents were caused by three-wheelers in 2012 followed by private buses at 28.4% and SLTB buses at 5.0%, yet it should be noted that the number of three-wheelers operating in Western Province is much higher than SLTB buses. It is true that the overall number of three-wheelers is twelve times higher than that of buses (mini bus and motor coach), so speaking of the numbers in comparison, the accident rate of three-wheelers is rather low compared to that of buses because of the parameter of three-wheelers is much bigger than that of buses. However, it should be pointed out here that the trend of increasing number of accidents caused by three-wheelers, and the separate license system, which aims at reducing traffic accidents, does not include three-wheeler.

Traffic accidents caused by public transport vehicle are steadily about 20% in past years, and it should be pointed out that traffic accidents of three-wheeler have shown significant increase since 2008, i.e. annually 10% increase, and considering rapid increase of three-wheeler and many of accidents were not officially reported to the police, it is expected that more traffic accidents are anticipated in the province. For sure, some countermeasures must be executed to reduce the number of accidents caused by three-wheeler. One of potential solutions is to apply a separate license, i.e. public transport license system for three-wheeler as well.

According to Commissioner General of Motor Traffic, the regulation for separate license was already reviewed by the Attorney General's office and sent for parliament review. The regulation is expected to be enacted by March 2014. It is a positive direction for passenger vehicles, buses, but not for taxi and three-wheeler, because the separate license system only applies to buses, although taxi and three-wheeler are considered as public transport modes.

Separate license for passenger transport vehicle is for bus, minibus and van (school, corporate/office bus service). Three wheeler and taxi are excluded from this new drivers' license system because they are not directly under the control of the central government but provincial governments and each provincial government seems to have different policies to deal with them, according to the Commissioner General. The Department does not have a plan to include three wheeler and taxi into the new license system

After the enactment of the regulation, the separate license system will not be effective immediately since the Department must provide various training programs for to-be drivers and carry out preparation for legal and administrative matters. The Department is now under discussion with related agencies to design curriculum for three core training, 1) first aid, 2) mechanical knowledge, and 3) ethic and law/discipline. Trainings for 1) will be provided by National Transport Medical Institute, 2) by the Department and 3) by the Ministry of Private Transport Services.

The MoT plans to provide trainings to private bus drivers to enhance their driver skills and make them aware the importance of safe driving; thus, the effective date to imposing the new regulation will be a year after the enactment

Table 14.3.1 shows the category of existing driving license system. The proposed separate license will affect vehicle class D, D1 and DE illustrated in Table 14.3.1.

Table 14.3.1 Category of Driving License

Description	Vehicle Class	Other vehicle class	Pictograph
Light motor cycles of which Engine Capacity does not exceeds 100CC	A1	G1	
Motorcycles of which Engine capacity exceeds 100CC	A	A1, G1	
Motor Tricycle or van of which tare does not exceed 500kg and Gross vehicle weight does not exceed 1000 kg: Motor vehicle in this class include an invalid carriage (Three-wheeler)	B1	G1	
Dual purpose Motor vehicle of which Gross Vehicle Weight does not exceed 3500kg and the seating capacity does not exceed 9 seats inclusive of the driver's seat, which may be combined with a trailer of which maximum authorised tare does not exceed 750kg: Motor vehicle in this class include and invalid carriage and all cars where the seating capacity does not exceed 9 seats inclusive of the Driver's seat.	B	G1	
Light Motor Lorry – Motor Lorry of which Gross Vehicle Weight exceeds 3500 kg and does not exceed 17000kg: Motor vehicles in this class may be combined with a trailer having maximum authorised tare which does not exceed 750kg: Motor vehicles of this class include a motor ambulance and motor hearses.	C1	B, G1	
Motor Lorry of which Gross vehicle Weight is more than 1700kg; may be combine with a trailer having a maximum authorised tare which does not exceed 750kg	C	C1, B, J, G, G1	
Heavy Motor Lorry; combination of motor lorry and trailer (s) including articulated vehicles and its trailer (s) of which maximum authorised tare of the trailer exceeds 750kg and gross vehicle weight exceeds 3500kg	CE	C, C1, B, B1, G, G1,J	
Light Motor Coach- Motor vehicles used for the carriage of persons and having seating capacity of not less than 9 seats and not more than 33 seats inclusive of the driver's seat; motor vehicle in this class may be combined with a trailer having a maximum authorised tare which does not exceed 750kg	**D1**	C1, B, B1, G, G1	
Motor Coach where the seating capacity does not exceed 33 seats inclusive of the driver's seat; motor vehicles in this class may be combined with a trailer having a maximum authorised tare which does not exceed 750kg	**D**	D1, C, C1, B, B1, G, G1,J	
Heavy Motor Coach – Combination of motor coach having a seating capacity of 33 seats inclusive of the driver's seat and it's trailer having maximum authorised tare exceeding 750kg or a combination of two motor coaches	**DE**	D, D1, C, C1, CE, B, B1, G, G1,J	
Hand Tractors - Two Wheel Tractor with a Trailer	G1	Nil	
Land Vehicle - Agricultural Land Vehicle with or without a trailer	G	G1	

Description	Vehicle Class	Other vehicle class	Pictograph
Special purpose Vehicle, Vehicle used for construction, loading & unloading excluding motor lorries, light motor lorries and heavy motor lorries, equipped with construction equipment and equipment for loading and unloading goods	J	G1	

Source: Department of Motor Traffic

14.4 Institutional and Regulatory Issues in Transport Administration

14.4.1 Review of Institutional and Regulatory Issues in Previous Studies

Institutional arrangement of urban transport administration for Colombo metropolitan region (CMR) has been studied by several urban development and urban transport development studies in past years. The studies have identified institutional and regulatory issues of urban transport administration, which have been unchanged and prevailing issues nowadays in the CMR. In conclusion, the studies solidly suggested to establish better coordination and institutional arrangement among related institutions for consolidated urban transport administration.

Table 14.4.1 Issues and Recommendations identified in the Past Studies

Study Name	Issues and Recommendations
1. Colombo Metropolitan Regional Structural Plan (CMRSP) (1998)	- A declaration defining the jurisdiction of the CMR, as defined by the Structure Plan, will be required to give the legal recognition of the CMR. This declaration will have to be in the form of a Gazette notification, and it should state specifically the area coming under the purview of the CMR and its geographical boundaries. - To decide the implementing agency of the CMR Structure Plan. - Establishment of a new agency to be named as the National Physical Planning Agency (NPPA). This agency will be entrusted with all aspects of monitoring, co-ordination and implementation of Structure Plan, including enforcement of laws and regulations on land acquisition, area demarcation and zoning, reclamation and redevelopment and payment of compensations. *CMRSP contains comprehensive transport planning, i.e. expressway development, road development, bus transport strategy, fright transport strategy, rail transport strategy, inter-modalism strategy and paratransit strategy.*
2. Colombo Urban Transport Study 1 and 2 (CUTS1 and CUTS 2) (1999)	- The transport master plan to be implemented as recommended would need a well-coordinated program. While some of the recommendations made are within the scope of existing agencies and their project formulation capabilities and execution powers, others are not. - There are a number of areas, which do not fall within the terms of reference of existing organizations. There are two agencies that appear necessary to formulate and execute the recommendations

Study Name	Issues and Recommendations
	made in the report. ➢ Traffic management council; is (a) to formulate and coordinate transport demand management measures with other agencies; and (b) to be a coordination and planning body, which singularly responsible for planning traffic related improvements. ➢ Metropolitan rapid transit agency; is to carry out detail study of light rapid transit and to operate the new transport system in the CMR.
3. The Study on the Urban Transport Development of the Colombo Metropolitan Region (2006)	- Although there are various coordination bodies (as of 2006), there is no single coordination body with functions similar to the Inter-Ministerial Committee for Coordination and Planning of Transportation (IMCCPT) established in 1984, so that there is no single body responsible for the overall coordination of transportation policy and the institutions in charge of their implementation (either at the national or provincial level). - Frequent changes in the functions and scope of work of government organizations due to changes in the political landscape. - Sometimes an unclear delamination of responsibility between ministries/government agencies and provincial and local government authorities regarding transport-related services and infrastructure development. - Insufficient performance of the public sector due to poor quality of service, inadequate consideration of consumer concerns, lack of technical and financial capacity, and political interference. - There is no common framework or strategy among relevant regulatory/implementing institutions to approach traffic congestion problems in the region. - The use of transport institutions as mechanisms of political patronage has been an issue throughout the public transport sector's history and has been recognised repeatedly as one of the largest issues that is inhibiting improvements in the sector. - There is a lack of implementation and enforcement of regulations that have already been passed by Parliament or the Provincial Councils. - Decision-makers often lack adequate experience in transport, which results in an uncertainty in moving forward and has continued to allow external pressures to interfere in the sector. The limited capacity and skills has also resulted in a loss of focus on the passenger in daily operations and decision making. - Currently, most private buses are owned by individual operators and there are no current plans to change this structure. This presents a difficult management scenario for WPRPTA as it is nearly impossible to manage each operator's service quality and provision of services. - Public and private buses are rarely coordinated with regards to timetables, even though they share the same routes, which increases competition among the operators. Additionally, the main public and private terminals WP are not integrated, thereby wasting space

Study Name	Issues and Recommendations
	and resources. - Private bus operators and government officials alike agree that there are too many buses operating in the CMR, which has led to high competition along the route, low profitability of private sector operators, higher congestion, inability to maintain timetables, and longer travel times for passengers. - Central or provincial oversight of three-wheelers is lacking and they are operating in a completely unregulated environment. This has contributed to their uncontrolled growth and unsafe operations. ➢ Establishment of a Presidential Committee on Urban Transport (PCUT). Main objectives of the body are to; (a) clarify and adjust institutional responsibilities among relevant government bodies, (b) legally establish powerful, effective and efficient coordinating body, and (c) develop and implement a comprehensive transport policy in CMR.
4. Review of Sri Lanka Transport Sector (2010)	- Presidential Committee on Urban Transport (PCUT) and secondary coordination mechanism was approved with cabinet paper in 2008 and awaiting constitution and calling of meeting). *According to the hearing from the MOT, PCUT is not formally established and being functioning now.* - The current status of bus and railway is inadequate to provide adequate services attracting people when their incomes increase. As such, a strategic plan should be developed how the public passenger market share within Western Province can be retained. - Western Province Passenger Transport Authority (WP-RPTA) has general constraints, such as (a) confining their activities to the issue and renewal of route permits without ensuring better quality of services to the public, (b) lacks of professional managers and executives who have transport regulatory and planning expertise, and (c) lacks of direct pubic and service user interaction to serve issues faced by the public.

Source: Colombo Metropolitan Regional Structural Plan. UDA. May 1998
Working Paper 25: A Master plan for the Development of Transport in the CMR. Colombo Urban Transport Study Stage 2. WS Atkins International Ltd in association with the University of Moratuwa. June 1999.
Working Paper 26: Institutional Proposals for Traffic Management. ditto.
The Study on the Urban Transport Development of the Colombo Metropolitan Region. JICA. October 2006.
Review of Sri Lanka Transport Sector. Amal. S. Kumarage. July 2010.

Institutional and regulatory issues in the past can be summarised. although not comprehensive. below.

Institutional issues

Lack of continual political willingness and motivation to improve and/or restructure public transport service delivery systems.

Unclear and/or overlap delineation of functional responsibilities among transport related institutions.

Lack of coordination mechanisms and mind-set for integrating public transport services

Regulatory issues

Absence of legal bases of master plan and/or legal binding power to such master plan

Absence an implementing institution with legally binding power to implement a transport master plan

Others

Political interference: the use of labour unions as vehicle of political patronage, which hamper introducing new service standards, new technologies and restructuring public transport systems.

14.4.2 Towards the Realization of CoMTrans Master Plan

In line with National Transport Policy, the Study Team suggests to establish Urban Transport Council under the President. The council is expected to be a central higher-level body that represents all main political decision makers in urban transport, including Western Provincial Council. The members consist of appropriate ministers and/or deputy ministers from central government and chief minister and/or transport minister of the Western Province Council. The council is led by the chairperson appointed by the President. The council is set-up for making decisions on urban transport policy and planning in CMR, so it would not replace the existing transport sub-committee under the Cabinet nor the Parliament. The sub-committee for transport under the Cabinet shall be the final resort for the urban transport council, as well, to politically solve transport issues which encompass widespread area.

(1) Issues for Realization of the CoMTrans Master Plan

Four pillars of issues are identified, i.e. legal basis or positioning of the Master Plan, financial resources, sufficient capacity for the implementation management and cross section coordination.

Legal basis: if there is no legal basis, it is well envisioned that the Master Plan will be less accepted from line ministries and local governments. Thus, concrete positioning, legal basis of the Master Plan is inevitable to implement and reach the visions of the Master Plan. Along with the issue of legal basis of the master plan, clearance of legal aspects is another inevitable path to bring the Master Plan acknowledged legal document, in particular, conflicts of mandates of line ministries and mandates of provincial government on intra-provincial transport policy with the Master Plan's implementation plans must be solved and agreed upon among the stakeholders.

Financial resources: how to secure financial resources to realise proposed projects in the Master Plan is one of huge issues to overcome before the Master Plan is legalised. In other words, as long as complying current national budgeting system, the Ministry of Finance and Planning is the body to make final decisions on budgeting project by project based on the project proposal submitted separately by respective ministries. Thus, in order to smoothly and to meet maximum effects of the suggested urban transport strategies in the Master Plan, there must be a new budgeting system.

Sufficient capacity of management for implementation of the Master Plan: The management capacity for implementing, i.e. administrative and technical capacity to administer, monitor and formulating rolling plan, the Master Plan is crucial for the success. At this point, which institution has such suitable institutional capacity is not clear; yet, it is understood that the Ministry of Transport is lack of human resources for urban transport management, so the matter should be carefully and seriously discuss among the stakeholders.

Cross section coordination: lack of consensus of mutual transport infrastructure planning and development leads to ineffective development and less user friendly and/or low service level transport service delivery. Although some opinions were raised that coordination meetings were held periodically and necessary bases, but whether those coordination meetings were effectively influence or give direction to transport policy in integrated way is questionable, considering a third part, like JICA Study Team found out not a few but many disparities in urban transport planning and implementation.

(2) Transport Authority

Transport authority is a body for better coordination, efficient urban transport development and coherent management, but not for taking away existing agencies' vested interests.

Transport authority;	**Transport authority should;**
- is not a monolithic bureaucracy which consolidates all present department and agencies	- be an efficient strategic policy setting body that coordinates and governs all the components of urban transport
- is not a funding agency and does not collect revenues	- make funding decisions to support and enable implementation of policy, but recommend budget allocations to MOFP who allocates budget directly to agencies
- is not just responsible for solving traffic congestion	- be responsible for every facet of urban mobility including private modes and public transport, also have an influential role in city development planning
- does not replace of any existing agencies	- provide greater support, direction and coordination. Existing agencies will remain to be the implementing agencies of respective transport polices and service deliveries.

(3) Organizational Structure Alternative for the Management of the Master Plan

Table 14.4.2 and Figure 14.4.1show potential alternatives for a management body for urban transport in CMR. Committee is more to be coordination body which already exist among transport related ministries, yet it seems to be more customary structure instead of legally structured one. Similar urban transport studies conducted in the past reached out to almost same recommendation in terms of institutional matter, i.e. suggesting to establish a body to oversee urban transport in integrated manner. One of suggestions was to establish a presidential committee for integrated transport policy making and its implementation, which is illustrated in

Transport Policy 2009. Although the establishment of such committee was tangibly written in the policy paper, such committee has not been established so far, and no assertive actions were taken.

Learning from other urban cities' transport policies and managements in Asian countries, it is evident that a statutory entity for integrated transport management is the most preferable arrangement, except Tokyo, where strong central government's agency controls and administers mass transit in general, and the Metropolitan government also has strong power and capacity to coordinate with private sectors, as well as administer its own public transport service delivery.

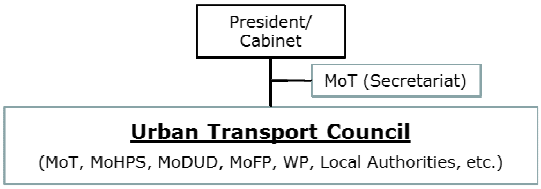
Although a statutory entity is the most recommended structure for managing public transport administration in CMR in long-run, it is recommended to start from a committee type of organizational structure, since not only there are many stakeholders in urban transport administration in CMR, but also there are functional overlapping and unclear functional demarcation are perceived.

Table 14.4.2 Organizational Structure Alternatives

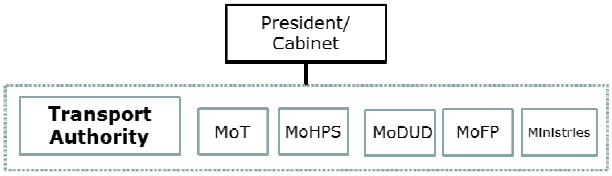
	Committee	Transport Authority	
	(A)	(B)	(C)
Establishment & Structure	Committee (Coordination)	Ministry (Board/Authority)	Statutory Entity
1 Be able to establish under current legal framework?	Yes *1	Yes (require new act)	Unknown
2 Who would be the main actors for the management?	Committee members	Board members	Board members
3 Formulating urban transport policy and actions plans	Yes (Coordination)	Yes	Yes
4 Transit operation (planning & operation)	No	Yes/No (+operation)	Yes
5 Does it develop infrastructure & carry out O&M?	No	Yes	Yes
6 Who will be the supervisory institution?	None	President/Cabinet	Minister
7 Main source of human resources	Public officers	Public officers	Public officers and private employees
8. It will be similar to what?		METRO	LTA, Metrolink

Note: *1 - Establishment of a presidential committee is already indicated in "Transport Policy 2009"
Source: CoMTrans Study Team

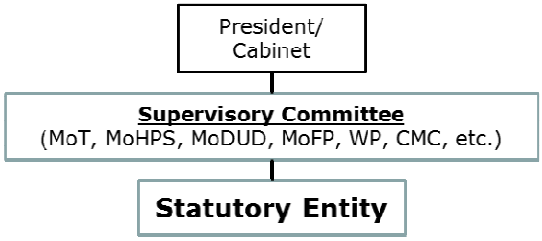
(A) Council (Coordination)



(B) Ministry (Board/Authority)



(C) Statutory Entity



Source: CoMTrans Study Team

Figure 14.4.1 Organizational Structure Alternatives

(4) Transport Authority in Urban Cities in the World

Table 14.4.3 shows three types of transport authority in urban cities in the world. LTA, Singapore Land Transport Authority is under the Ministry of Transport's purview, but it has relatively strong power and own decision making power in public transport policy making and operation and monitoring in general. It is also an operating body, MRT, LRT, public bus and Taxi, under the authority. Metrolinx is established under provincial law of Ontario province, so unlike LTA, a sub-central government is the main actor of public transport administration. METRO's distinguished difference is that it receives significant financial supports from local governments' tax revenue as incorporated budgeting system. Besides, unlike other two authorities, it does not operate any transport modes by itself.

Table 14.4.3 Transport Authority in Urban Cities

	Singapore Land Transport Authority (LTA), Singapore	**Metrolinx Ontario, Canada**	**METRO Oregon, USA**
1. Location	Singapore	Greater Toronto Area and Hamilton area	24 cities of Clackamas, Multnomah and Washington counties in Oregon (state)
2. Legal Basis	State Parliament	Provincial Law	Home-rule Charter (approved by voters in 24 cities of residents).
3. Institutional Setup	Statutory Board + Operation body	Statutory Board + Operation body	Directly elected regional government directed by Council President & Council
4. Supervisory Institution	Ministry of Transport	Government of Ontario	None
5. Financial Resources	Transit revenue, non-fare revenue, Financial supports from the state government	Transit revenue, non-fare revenue, Financial supports from Ontario province.	Enterprise revenue, property taxes, interfund transfers, grants from state and local governments, excise tax and intergovernmental revenues
6. Transport Mode	MRT, LRT Public bus, Taxi Expressway, ERP	Train and Public bus Express Railway	(Transportation planning) Metro does not operate any transport modes by itself.
7. Activity	- Policy making - Land transport planning - Public transport licensing - Vehicle registration and licensing - Setting guidelines and enforcing standards - Operation of public transportation (MRT, LRT and public bus)	- Transport policy making - Transit operation - Commercial space renting - Parking	- Land-use planning - Transportation planning - Parks, trails and green space management - Recycling & waste prevention - Garbage & hazardous waste - The Oregon Zoo - Data Resource Centre, etc.

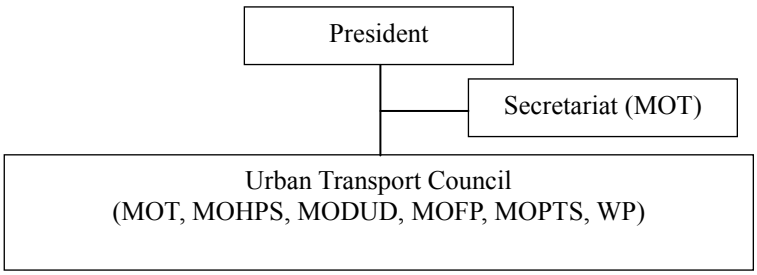
Source: CoMTrans Study Team

(5) Institutional Arrangement

The council must be established as a standing council until it's functions are transferred to envisaged urban transport authority in the future. However, it is not intended to create another institution such as ministry, department or authority. Therefore, it is suggested to establish a sub-division under the Planning Division of the MOT to support the council as secretariat. The functions of secretariat is to support all administrative and technical tasks appointed by the council; yet, considering the scarcity of professionals in urban development and transport planning in the government sector, it is suggested that the academia, e.g. University of Moratuwa provides technical supports to the secretariat. Since the council is consisted of higher-level of members, an establishment of technical committee or technical task force shall be taken into account, once the council is formally established. The functions of technical committee, among others, are to update the transport data collected for the CoMTrans master plan, and to formulate roll-over transport annual action plans, to monitor the progress of the master plan, and to provide technical inputs to the council.

It should be underlined that the council, the secretariat in the MOT and the technical committee must be legally supported as formal bodies, i.e. being established under a presidential decree and announced in Gazette.

It should be also noted that the proposed council is not, apparently, a monolithic bureaucracy which consolidates all present departments and agencies, but it is an efficient strategic policy setting body that coordinates and governs all the components of urban transport. It is also not a funding agency, but to make funding decisions under the framework of given functions of the council to support and recommend budget allocations to MOFP, which allocate budget directly to agencies based on its decisive criteria. The council is envisaged to be responsible for every facet of urban mobility including private modes and public transport and will also have some influential role in city development planning, in close cooperation with NPPD, UDA, Western Provincial Council and local authorities.



Source: CoMTrans Study Team

Figure 14.4.2 Urban Transport Council

(6) Legalizing CoMTrans Master Plan

Unless the CoMTrans master plan become a legally binding master plan, there would be no base for the newly established urban transport council to implement the plan, taking into account that respective ministries and local government must already have their own plans to develop roads,

public transport service delivery and so on.

Considering anticipated members of the council is almost same as the members of the steering committee of the CoMTrans master plan project, it is expected that first the CoMTrans master plan would be agreed among the steering committee members and the MOT submit it as legally binding master plan to the Administration to be endorsed. It is crucial that the short-term projects shall be jointly scrutinised with the National Planning Department of the MOFP, in terms of feasibility of budget allocations for forthcoming project proposals.

(7) Risks for the realization of CoMTrans Master Plan

In the past, similar recommendations were made in several studies; yet, an establishment of coordination body was not established. As stated in previous sections, several issues have hindered the realization of recommended measures, i.e. lack of continual political willingness and adverse political interventions, unclear delineation of functional responsibilities among transport related institutions, lack of coordination mechanisms, absence of legal bases of master plan and implementing institution.

The biggest issue encountered for the realization of the master plan is unpredictable political influence and wandering political directions, which are hard to control and prevent. However, once the master plan becomes a legally binding document, which will be at least a roadmap for urban transport development in CMR. Previous JICA study team failed to make its master plan to be legally binding plan, so it had weakness in the implementation stage; so it is strongly suggested that the steering committee agree upon the CoMTrans master plan and make it legally binding plan within the project period. Once the master plan is endorsed by all stakeholders, the council will be established and functional responsibilities between the council and related line ministries, agencies and local authorities become crystal clear since proposed projects and implementing agencies are indicated in the master plan.

CHAPTER 15 Strategic Environmental Assessment (SEA) of the CoMTrans Master Plan

15.1 Purpose of SEA

The purpose of a Strategic Environmental Assessment (SEA) is to ensure that environmental, social and economic sustainability has been taken account of in developing major public policy documents and that the wider impact of policies and the means to implement them has been understood and taken into account, in addition to achieving the basic goals of the project. It is then possible to formulate all policies so that they improve the sustainability of the project, or at least not make the situation worse.

This SEA is carried out as per the requirements of the JICA's Environmental and Social Guideline (JICA Guideline). The Central Environmental Agency (CEA) also published the "Simple guide to Strategic Environmental Assessment" in May 2006, however, there is no legal requirement for implementation of an SEA in Sri Lanka. The JICA study team is assisting MOT in the process of implementation the SEA according to the JICA Guideline. The SEA process mainly consists of the following stages;

- Stage A: Objective & Baseline
  - Identifying other relevant Policies, Plans and Programmes.
  - Collecting Baseline information
  - Identifying environmental problems
  - Developing SEA Objectives
- Stage B: Scoping
  - Consulting on the scope of SEA
- Stage C: Assessment
  - Developing Strategic alternatives
  - Assessing each intervention in terms of its environmental implications against SEA objectives and baseline.
  - Consulting the SEA draft report.
  - Final SEA report

Stage A is to collect and establish baseline information which is relevant to the CoMTrans Master Plan and is used to determine the range of issues/opportunities to be addressed in the SEA. Then, a scoping process is used to enable consultation with stakeholders on the scope of the planned SEA work and to finalise the SEA objectives. At stage C, a strategic alternative of the CoMTrans Master Plan is assessed against the SEA objectives to evaluate likely significant environmental and social effects of implementing the CoMTrans Master Plan and suggest any mitigation and monitoring measures.

15.2 Developing Strategic Approaches to Achieving the CoMTrans Goals

Having established the problems for urban transport system in Colombo Metropolitan Area and the need to tackle them, a wide range of possible ways of solving these problems and of delivering the goals of the CoMTrans has been explored as shown in Table 15.4.1 for SEA purpose. Three strategic alternative scenarios have been selected as follows;

- Intensive Road development scenario
- Intensive Public transport development scenario

15.3 Public transport development and demand management scenario SEA Methodology

In summary, the approach to the SEA of the CoMTrans project has been to provide an expert judgement based system of prediction and assessment, guided by the SEA objectives. Broadly the assessment has included:

- Identifying the environmental effects of the CoMTrans Programme and
- Assessing effects for their significance.
- Identifying mitigation and monitoring measures

Taking in to account these other policies and plans helped in determining the cumulative effects from the other development programmes and projects.

15.3.1 Approach to SEA

This section sets out the overall approach for the SEA, which includes the following components:

Stage A: Objectives & Baseline:

The SEA objectives are identified based on the review of the strengths and weaknesses of the current transport system in Colombo Metropolitan Area (CMA) and suburbs, the problems/issues, causes, constraints and opportunities are taken into account while reviewing the relevant environmental problems through collected Baseline information relevant to the transport sector.

Stage B: Scoping

The review of environmental related policies, plans and programmes, and collected environmental baseline data has been used to identify environmental issues, as well as opportunities that could be incorporated into the Master Plan of The CoMTrans Project. Then, based on the identified problems and opportunities, a scoping meeting was conducted to formulate SEA objectives. Relevant stakeholders from the Ministries and Agencies participated in the scoping meeting.

Stage C: Assessment Stage

The significance of effects has been assessed using expert judgment methods, based on the baseline data and significance criteria such as; type of effect, magnitude and spatial extent, vulnerability of receptor and timing and duration of the effect etc.

15.4 Base Line Conditions and SEA Objectives

The review of environmentally related policies, plans and programmes, and collection of environmental baseline data have been conducted to identify environmental problems as well as opportunities that could be reflected into the Master Plan of The CoMTrans. Then, based on those identified problems and opportunities, final SEA objectives are formulated. Indicators are used to help in the evaluation of the SEA objectives in the assessment stage. Please see Appendix1 for details.

Table 15.4.1 Summarised outcome of the Scoping

Indicator	Objective	Indicator
Environment		
Air Quality	To reduce transport related air pollution	Change in PM(Particular Matter) emitted in the transportation model area
Climate	To reduce transport related CO2 emission	Change in CO2 emitted in the transportation model area
Noise	Reduce disturbance to people from high noise levels from all transport modes and traffic	Length of main transportation network with a change in noise levels
Water	Minimise transport related effect on water quality, flood plains and areas of flood risk.	Extent of increase of flood risk and impact on water resources and area of flood plains affected by transport system.
Biodiversity, Flora and fauna	To protect and maintain biodiversity and avoid irreversible losses of habitats.	Extent of positive or negative impact on protected area.
Landscape	To help reduce the impact of and improve the quality of natural and semi-natural beauty of the landscape and townscape.	Area of transportation infrastructure affecting natural and semi-natural beauty of the landscape and townscape.
Social		
Population	To minimise negative impacts on the livelihood and improve quality of life	Potential for resettlement and land acquisition.
Health and safety	To promote sustainable travel modes of transport (i.e. walking, cycling)	Increase in walking and cycling numbers
	To reduce traffic accidents by providing better transport systems	Reduction in the number of traffic accidents
Cultural Heritage	To avoid and minimise the impact of transport to designated archaeological sites.	Area of transportation infrastructure affecting designated sites
Economic		
Accessibility	To increase accessibility and movement to the increasing population	Extent of scheme to improve travel time and reliance on transportation.
Economic Activity	To maximise support of economic development.	Extent to which scenario improves economic development

15.5 Assessment of Significance of Effects

The SEA assessed the significance of the effects of each of the 4 different alternative scenarios with the indicators identified during the scoping stage.

The significance is a function of magnitude of an environmental effect combined with the sensitivity or importance of the environmental receptor being affected. The impact has been assessed using expert judgment, based on the baseline data and significance criteria.

Table 15.5.1 Consideration to be used during the SEA

Issues for consideration	Details
Type of Effect	Positive or negative
	Direct or indirect, primary or secondary
	cumulative and
	Temporary or permanent
Magnitude and spatial extent	Where will it impact? Will it be within CMA area or more widely?
	Will it cause trans-boundary issues and impact on adjacent areas, regionally, nationally or internationally?
	What is the geographical area and size of population likely to be affected
Vulnerability of receptor	Sensitivity of receptors
	Special natural characteristics/areas or cultural heritage;
	Protected areas (nature conservation and cultural heritage) and
	Relative importance of the site, whether it is a nationally or internationally important feature or of local significance.

The guidance scale utilised for assessing the significance is given in the following table:

Table 15.5.2 SEA Significance Criteria

Significance of effect		Description of Effect
+2	**Major Positive**	Likely to benefit a large part of the CMA or large number of people and receptors, the effects are likely to be direct and permanent and magnitude will be major.
+1	**Minor Positive**	The extent of predicted beneficial effect is likely to be limited to small areas with in CMA or small groups of people and receptors. The effects can be direct or indirect, temporary or reversible. The magnitude of the predicted effects will be minor.
0	**Neutral**	Neutral effects are predicted where the option being assessed in unlikely to alter the present or future baseline situation.
-1	**Minor negative**	Minor negative effects are likely to be limited to small areas within CMA or limited to small groups of people and receptors. The effects can be direct or indirect, temporary or reversible. The importance of the receptor that is affected is likely to be minor as is the magnitude of the predicted effects.
-2	**Major negative**	Likely to affect the whole or large part of the CMA, also applies to effects on nationally or internationally important assets. The effects are likely to be direct, irreversible and permanent. The magnitude of the predicted effects will also be major.

The summary of the assessment findings are presented in the following tables, where negative environmental effects or opportunities for significant environmental enhancements have been identified as a result and followed by the mitigation measures and monitoring plan.

Table 15.5.3 Air Quality

SEA Indicator	**Air Quality**	
SEA Objective:	**To reduce transport related air pollution**	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	In general, deterioration of the Air Quality is expected to increase significantly due to the increasing congestion and increased net traffic levels, this would lead to significant negative impact on this indicator.	**-2**
Intensive Road Developmen t Scenario	New expressways improve the flow and the vehicle movement, and potentially reduce local traffic, thereby helping reduce air pollution. However, it is more likely that, the new road will attract an increased number of vehicles, resulting in negative impact due to the increased pollution sources. Moreover, it is likely that a capacity under the intensive road development scenario would not be sufficient to accommodate the expected growing number of vehicles, leaving the traffic congestion problem unsolved. A new expressway passing Battaramulla area, may bring increased pollution levels around the environmentally sensitive zones, including Sri Jayawardenapura Sanctuary area where eco- friendly developments are being proposed. It is difficult to assess the effect of pollution at this level and it should be assessed in more detail during the project level. In summary, overall impact could be negative and moderately significant.	**-1**
Public Transport Intensive Scenario	This scenario may bring a positive impact. Improving the existing railway system by electrification would help to reduce air pollution emission which is currently emitted by diesel and coal engines. In addition, the public transport intensive scenario would encourage modal shift and reduce reliance on private vehicles, and therefore, the reduced private vehicle usage could help to reduce the air pollution emission. However, the impact would depend upon the uptake of public transport utilization, and is likely to be limited because it is generally hard to shift people from a captive group of private vehicle use to public transportation system without additional measures. The introduction of public transport systems around the environmentally sensitive zones might bring a positive secondary impact on environmental condition on such areas by improving air quality at the local level, but not likely significantly. Overall, the effect is positive, but not significant.	**+1**
Public Transport and control demand scenario	The demand management would greatly encourage the people to use more public transport system by introduction of road pricing systems. Therefore, this would result in significant positive impacts on the air quality by minimizing the private vehicle use, traffic congestion, and controlling the traffic flow.	**+2**

Table 15.5.4 Climate

SEA Indicator	**Climate**	
SEA Objective:	**To reduce transport related CO2 emission**	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	Increased traffic levels, congestion and vehicular movements will increase CO2 emission levels, hence, this option would be likely to bring more negative effects on the climate.	**-1**
Intensive Road Development Scenario	New expressways could have direct impact on the flow and the vehicle movement, and potentially reduce local traffic and congestions, thereby helping to reduce emission levels. However, it is more likely that the new roads will attract an increased number of vehicles, resulting in negative impact due to the increased CO_2emissions. Overall, this scenario would bring negative effects on the climate.	**-1**
Public Transport Intensive Scenario	This scenario may potentially bring a positive impact. The Public transport intensive scenario includes the implementation of Monorail, BRT, improving the existing railway system and improving the existing road network to enhance access to public transport systems. Improving the existing railway system by electrification would reduce CO2 emission which is currently emitted by diesel and coal engines. In addition, the public transport intensive scenario would encourage modal shift and reduce reliance on private vehicles, therefore, reduced private vehicle usage could help to reduce CO2 emission. However, the impact would depend upon the uptake of public transport utilization, and this is likely to be limited because it is generally hard to shift people from a captive group of private vehicle use to public transportation system without additional measures. Overall, taking consideration of the climate scale, the effect of this scenario would potentially be positive, but is likely to be minimal.	**0**
Public Transport and control demand scenario	The demand management would greatly encourage the people to use more public transport systems by introduction of road pricing systems. Therefore, this would result in positive impacts on the climate by minimizing private vehicle use, traffic congestion, and controlling the traffic flow.	**+1**

Table 15.5.5 Noise

SEA Indicator	**Noise**	
SEA Objective:	**Reduce disturbance to people from high noise levels, from all transport modes and traffic**	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	In general, the noise levels from the roads are expected to increase significantly, due to increased traffic levels expected on a road network whose capacity is insufficient to accommodate foreseen traffic levels.	**-2**
Intensive Road Development Scenario	New expressways could provide free flowing traffic movement and potentially reduce local traffic, thereby potentially helping to reduce noise nuisance. However, it is likely that the capacity under the intensive road development scenario would not be sufficient to accommodate the expected growing number of vehicles, leaving the traffic congestion problem unsolved. Therefore, there would be significant negative impact on this indicator.	**-2**
Public Transport Intensive Scenario	The public transport intensive scenario would encourage modal shift and reduce reliance on private vehicles, therefore, reduced private vehicle usage could help to reduce noise levels. However, the impact would depend upon the uptake of public transport utilization, and is likely to be limited because it is generally hard to shift people from the captive group of private vehicle use to public transportation system without additional measures. Introduction of BRT would reduce net bus trips in the CMA. Since the bus is generally a major source of noise nuisance, BRT would reduce traffic noise and there would be a positive effect on the noise. Moreover, the proposed Monorail system, considered to be a sustainable transport system, would become a main backbone of public transport systems in CMA, helping to develop a CMA in a more sustainable manner, potentially encouraging people to use more sustainable transport modes, namely public transport, cycling and walking. Hence, there would be secondary positive impacts to reduce net noise levels.	**+1**
Public Transport and control demand scenario	The demand management would greatly encourage the people to use more public transport systems by introduction of road pricing systems. This would reduce traffic level, therefore, reducing noise level. In addition, education on safe driving would improve driver`s behaviour, resulting in contribution to noise reduction.	**+2**

Table 15.5.6 Water

SEA Indicator	**Water**	
SEA Objective:	**Minimise transport related effects on water quality, flood plains and areas with flood risk.**	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	There would be a possibility of increase in pollution of the water bodies due to the runoff from the increasing traffic and congestion levels. Since there will not be additional infrastructural developments under this scenario, there will not be any likely increase in the risk of flood.	**-1**
Intensive Road Development Scenario	The intensive road development scenario includes development of new highways and widening of existing roads. Increased inflow of vehicles due to the improved road conditions is likely to have a negative impact due to the increasing risk of runoff pollution from the vehicles. There would also be a significant risk of water contamination during construction of new roads, particularly on paddy land and river crossing areas. There is a possibility of increasing of flood risks due to the new land intake and land filling activity, which may affect the drainage patterns of the designated areas such as Thalangam tank, Diyawannawa Sanctuary, wetlands around Battaramulla, and Bolgoda Lake.	**-2**
Public Transport Intensive Scenario	The public transport intensive scenario could encourage modal shift and reduce the usage of private transport systems in CMA. This would potentially reduce the inflow of the number of vehicles and in turn reduce the likelihood of runoff pollution on the receiving water courses. However, the impact would depend upon the uptake of public transport utilization, and this is likely to be limited because it is generally hard to shift people from a captive group of private vehicle use to public transportation system without additional measures. There is a possibility of increasing of flood risks due to the new land intake and land filling activity, which may affect the drainage patterns, however, the public transport intensive scenario would help to utilise existing infrastructure to its full potential and would have less impact on this indicator compared to the Intensive road development scenario.	**-1**
Public Transport and control demand scenario	The demand management may reduce the inflow of private vehicles, and assist the modal shift towards the public transport system, which may have a secondary positive impact on reducing the surface water runoff pollution generated from the private vehicles.	**0**

Table 15.5.7 Biodiversity, Flora and Fauna

SEA Indicator	**Biodiversity, Flora and Fauna**	
SEA Objective:	To protect and maintain biodiversity and avoid irreversible losses of habitats.	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	No direct impact is expected on this indicator, as there would be no additional land uptake. However, degradation of the environmental condition, particularly air quality is likely foreseen under this scenario due to increasing unregulated traffic level, there could be secondary negative impacts on biodiversity on a regional scale, though it would be difficult to quantify.	**-1**
Road intensive Scenario	The road intensive scenario includes development of new expressways and widening of existing roads. This could have an adverse effect directly and indirectly on the biodiversity – including from direct physical impacts on habitats. Particularly, the new expressway to OCH might pass on or near environmentally sensitive areas, such as, Sri Jayawardenapura Sanctuary and Thalangama EPA, which is an important wildlife area and essential bird migration routes. The scale, nature and location of the new expressway would be likely to contribute to habitat fragmentation, degradation and loss. There would also be a potential disturbance to wildlife resulting from noise and artificial light from the new expressways. In summary, this scenario would have major adverse effects on biodiversity.	**-2**
Public Transport Intensive Scenario	The public transport intensive scenario includes implementation of public transport systems including Monorail, BRT, improving of the existing railway system and improvement of the existing road network to enhance access to public transport systems. Several public transport corridors would pass through environmentally sensitive areas, including Bellanwila Atthidiya Sanctuary, Bologoda lake EPA, Sri Jayawardenapura Sanctuary and Thalangama EPA. Effects will be largely dependent on the route and scale of the public transport systems to be implemented, although, there would be a certain extent of negative impact and may therefore create an adverse effect. They are likely to contribute to improve air quality through this scenario and improved air quality could have secondary positive effects on biodiversity, although, these would be difficult to quantify and are likely to be insignificant.	**-1**
Public Transport and control demand scenario	Even though this scenario controls inflow and promotes modal shift, the impact would be more similar to the public transport intensive scenario.	**-1**

Table 15.5.8 Landscape

SEA Indicator	**Landscape**	
SEA Objective:	**To help reduce the impact of and improve the quality of the natural and semi-natural beauty of the landscape and townscape.**	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	No direct impact is expected on this indicator, as there would be no additional infrastructure development. However, as a higher traffic level is expected on the road network whose capacity is insufficient to accommodate foreseen traffic levels, there could be secondary significant negative visual impact on a regional scale by congested traffic.	**-1**
Road intensive Scenario	The road intensive scenario includes development of new expressways and widening of existing roads. This could require transformation of existing land use and introduction of additional infrastructure, which would change existing townscape and landscape significantly as expressways are heavy structures and bring significant visual impact. Particularly, the new expressway to OCH might bring significant adverse impact on the landscape as the area of the expressway corridor accommodates environmentally sensitive areas with natural and semi-natural landscape.	**-2**
Public Transport Intensive Scenario	The public transport intensive scenario would help to utilise existing infrastructure to its full potential and would have minimum direct effect on this indicator. This scenario would result in CMA townscape improvement as traffic congestion is likely reduced, although the significance of the effect would be minor. Introduction of a Monorail would introduce a new accent to the townscape and landscape. The structure of the Monorail is generally slim and tends to harmonise with surrounding townscape in urban areas. However, effects will be largely dependent on the location, scale and design of the Monorail and the extent of the impacts is unknown at this time.	**0**
Public Transport and control demand scenario	The demand management, which encourages people to use more public transport systems, would result in townscape improvement as traffic congestion in CMA is reduced due to introduction of road pricing systems.	**+1**

Table 15.5.9 Population

SEA Indicator	**Population**	
SEA Objective:	**To minimise negative impact on livelihood and improve the quality of life**	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	People in the low-middle income level cannot typically afford private vehicles and rely upon the public transport systems (Bus and Rail). These riders spend much time using the public transportation systems, which are not currently favourable due to unreliable journey times and overcrowding. This scenario will worsen this condition with increasing population and will have a significant adverse impact on this indicator.	**-2**
Road intensive Scenario	This scenario may improve the quality of life by improving accessibility. However, this would primarily benefit those with access to private vehicles and there would be significant degradation of transport conditions for those who are non-private vehicle users (low to middle class).	**-2**
Public Transport Intensive Scenario	The Public transport intensive scenario includes implementation of a public transport system consisting of a Monorail and BRT. This scenario would increase the means of public transportation, providing alternative transportation modes which are safer and more comfortable, particularly for those who are non-private vehicle users. Therefore, there would be a positive effect on this indicator.	**+1**
Public Transport and control demand scenario	Same as above	**+1**

Table 15.5.10 Health and Safety

SEA Indicator	**Health and Safety**	
SEA Objective:	**To promote sustainable travel modes of transport (i.e. walking, cycling) To reduce traffic accidents by providing better transport systems**	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	In general, the traffic level would be expected to increase significantly due to insufficient road network capacity to accommodate the foreseen traffic level. This would lead to increase the chance for traffic accidents. In addition, increased use of private vehicles would worsen the air quality level and noise level, which are associated with adverse effects on human health, thus there would be a negative impact on human health.	-2
Road intensive Scenario	New high quality expressways connecting Inner Colombo Metropolitan to the suburban network, including the Southern highway and Katunayake highway could provide free flowing south – north and east – west traffic movement and potentially reduce local traffic, thereby helping reduce air polluting emissions and noise nuisance. Development of new quality roads with improvement of intersections would improve road safety, resulting in a reduction in the number of accidents. However, an increase in travel speed on expressways would raise the risk of serious accidents. Therefore, the overall effect would be negative, but not significant.	-1
Public Transport Intensive Scenario	Public transport enhancements should encourage modal shift which could primarily have various positive effects on health and safety. Should modal shift result in a reduced general traffic level, this could improve road safety. Well-connected public transport systems encourage people to walk or cycle to or from the public transport start and end points, this may lead to a positive effect on human health. In addition, reduced traffic level and introduction of lower pollution emission transport modes could lower the level of exhaust pollutants, thereby improving local air quality that could result in secondary local public health benefits. Noise nuisance would also be reduced.	+1
Public Transport and control demand scenario	The demand management would have a significant positive effect on human health. In addition to the effect of the public transport intensive scenario, reduced traffic levels would significantly improve road safety and reduce traffic accidents. Also, the effect of air quality improvement would be significant and the associated noise nuisance would also be significantly less. Therefore, there would be a significant positive effect on living environment.	+2

Table 15.5.11 Cultural Heritage

SEA Indicator	**Cultural Heritage**	
SEA Objective:	**To avoid and minimise the impact of transport to designated archaeological sites.**	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	There is no negative impact due to this option on the culturally or historically important sites in CMA.	0
Road intensive Scenario	The road intensive scenario includes development of new expressways and widening of existing roads. There will be a direct effect on the cultural landscape due to new road intensive infrastructure. The effect would be significantly negative due to the scale of the heavy highway structures.	-2
Public Transport Intensive Scenario	The public transport intensive scenario includes implementation of public transport systems including Monorail. This option has a moderate level of direct negative impact on this indicator due to the development of new road infrastructure etc. Introduction of the Monorail would introduce new visual impact to the value of cultural heritage sites and there would be negative impact. However, the structure of a Monorail is generally slim and tends to harmonise with surrounding townscape in urban areas. Therefore, the impact would be mitigated and will not be significant.	-1
Public Transport and control demand scenario	Same as above.	-1

Table 15.5.12 Accessibility

SEA Indicator	**Accessibility**	
SEA Objective:	**To increase accessibility and movement for the increasing population**	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	Due to anticipated worsening traffic congestion, there would be significant negative impact on this indicator.	-2
Road intensive Scenario	The road network, including express ways, could partially help reduce the problem of congestion, thus leading to journey time savings and improved journey time reliability. However, it is likely that the capacity under the Road intensive scenario would not be sufficient to accommodate the expected growing number of vehicles, leaving the traffic congestion problem unsolved. This scenario could also reduce the accessibility from parking spaces to the end point if parking spaces cannot be provided nearby the end points. Therefore, overall there would be moderately negative impact on this indicator.	-1
Public Transport Intensive Scenario	The public transport systems, including monorail and improved railway would improve journey times and journey reliability as these systems are not affected by road congestion, therefore, there would be a positive effect on this indicator. However, expected road congestion would reduce accessibility between the start /end points and public transport systems, which would ultimately increase journey times and adversely affect journey reliability. Overall, there would be a positive effect on this indicator, but the effect is not significant.	+1
Public Transport and control demand scenario	Demand management will encourage modal shift and improve local and regional accessibility significantly.	+2

Table 15.5.13 Economic Activity

SEA Indicator	**Economic activity**	
SEA Objective:	**To maximise support for economic development.**	
Scenario	**Nature of the Effect**	**Magnitude**
Implement minimum Scenario	There would be no additional impact on economic activity under this scenario.	0
Road intensive Scenario	The road intensive scenario would support the regional economy through enhancing accessibility to key economic centres and improving the movement of people and freight. As local level economic activities, this scenario would maintain and enhance para-transit services.	+1
Public Transport Intensive Scenario	The public transport intensive scenario would have a positive impact on the local and regional economies as local accessibility is enhanced, together with improvements being made to longer distance travel by public transport. In addition, this scenario would attract new local economic development near key public transport hubs, and therefore, could bring significant positive impact on the local economy.	+2
Public Transport and control demand scenario	In addition to the effects of the public transport intensive scenario, this scenario could induce development of new businesses, such as traffic information management services. At the same time, improvement of these services would further enhance traffic movement, resulting in improvement of local and regional economic activity.	+2

The assessment for each scenario identified by the CoMTrans Project is summarised in the table as follows:

Table 15.5.14 Assessment of Significant Effects Comparative Summary

SEA Indicator	The CoMTrans strategic scenario			
	Implement minimum Scenario	Intensive Road Development Scenario	Public Transport Intensive Scenario	Public Transport and control demand scenario
Air Quality	**-2**	**-1**	**+1**	**+2**
Climate	**-1**	**-1**	**0**	**+1**
Noise	**-2**	**-2**	**+1**	**+2**
Water	**-1**	**-2**	**-1**	**0**
Biodiversity, Flora and fauna	**-1**	**-2**	**-1**	**-1**
Landscape	**-1**	**-2**	**0**	**+1**
Population	**-2**	**-2**	**+1**	**+1**
Health and safety	**-2**	**-1**	**+1**	**+2**
Cultural Heritage	**0**	**-2**	**-1**	**-1**
Accessibility	**-2**	**-1**	**+1**	**+2**
Economic Activity	**0**	**+1**	**+2**	**+2**

15.5.1 Summary of the effect of each scenario

The summary of each scenario is described below.

1.	**Implement minimum Scenario**	This scenario will create most of the significant adverse impacts due to insufficient road network capacity to accommodate foreseen traffic levels, and shows significant adverse effects on the air quality, noise levels, water quality and human health. Thus, this is not a favourable Scenario for the future developments.
2.	**Road Intensive Scenario**	This scenario would bring positive aspects on some indicators due to possible reduction of congestion and improving accessibility. However, it is likely that the capacity under this scenario would not be sufficient to accommodate the expected growing number of vehicles, leaving the traffic congestion problem unsolved. In addition, this scenario would bring direct negative impacts on indicators such as noise, water, biodiversity and landscape, by construction of a new expressway. Hence, this is not a favourable scenario for the future developments.
3.	**Public Transport Intensive Scenario**	This scenario ensures more sustainable public transport modes with minimal adverse effects on the natural and built environment. However, the success factor of this scenario depends upon the percentage of people joining the modal shift. Therefore, promoting and encouraging the people is identified as a key element which may result in the reduced usage of individual private vehicles in CMA. In addition, this scenario is considered to be more environmental friendly due to the promotion of the non-emitting transport modes such as, cycling, walking etc. This scenario overall could be accommodated with moderate levels of environmental safeguard measures.
4.	**Public Transport and Control Demand scenario**	This scenario produces a similar level of effect on sustainability as mentioned in scenario:3. However, this includes the controlling function which may ensure the improved environmental sustainability of the public transport systems.

If all road network development under the road intensive scenario is added on "Public Transport and Control Demand scenario", there would be additional direct negative impact on parameters including noise, water, biodiversity and landscape, however, overall the positive effect would be a similar to the "Public Transport and Control Demand scenario" due to the significant improvement of sustainable transport system

15.6 Mitigation

It is important to prevent, reduce or offset any significant adverse effects that have been identified during the assessment process. The likely significant effects of the CoMTrans can be mitigated through interventions at various scales and decision points. Consideration should be given to proactive avoidance of adverse effects and enhancement of beneficial effects. Recommended mitigation and enhancements are summarised below.

(1) Air quality

- Work in partnership with Authorities such as the Ministry of Environment, Ministry of Transport, Metrological Department and institutions such as AirMAC etc. to efficiently implement air pollution reduction strategies, including implementation of air monitoring systems.
- Develop and implement the strategies to promote transportation through public transport systems and as well as to encourage non-pollution emitting transport methods such as cycling, walking etc.
- Measures should be considered to manage and control increasing private vehicle use to reduce net air pollution emission.

(2) Climate

- Measures should be considered to manage and control increasing private vehicle use to reduce net CO2 emission levels.
- Improve the accessibility and free movement of the people through sustainable modes of transport.
- Promote and encourage the usage of low- or non-pollution emitting transport modes.

(3) Noise

- The significance of the impact of noise pollution on the surrounding environment should be assessed including the cumulative effect.
- Necessary measures should be taken to reduce and avoid the impact of the noise during the project interventions.
- Measures should be considered to manage and control increasing private vehicle usage to reduce the noise levels.

(4) Water

- Hydrological geological assessments need to be conducted to assess the significance of the impact on the flooding risk.
- Avoid, reduce and mitigate the impact on the surrounding environment during the project interventions.
- Work in partnership with Authorities such as the Irrigation department, Urban Development Authority, Sri Lanka Land Reclamation & Development Corporation (SLLR&DC), Agricultural department, Ministry of Environment, Ministry of Transport and institutions such as IWMI to efficiently implement flooding and water pollution reduction strategies.

(5) Biodiversity Flora and Fauna

- Detailed assessments need to be conducted to assess the significance of the impact on the surrounding biological environment.
- Consider the alternative activities and designs options at the highest level to avoid and

minimise the impact on the biological environment and designated areas.

(6) Landscape

- Alternative activities and design options should be considered to the highest possible level to avoid and minimise the impact on the land scape.
- Effects on the landscape could be mitigated through sensitive scheme design and construction.
- Where trees have been removed, replacement trees should be planted in an acceptable nearby location.

(7) Population

- A separate assessment needs to be conducted in detail to assess the significance of the impact of the land acquisition and resettlement on the surrounding environment.
- Improve the accessibility and free movement of the people through sustainable public transport modes.

(8) Health and Safety

- Measures should be considered to manage and control increasing private vehicle usage to reduce the health and safety issues.
- Improve the accessibility and flow of vehicles to minimise the impact on Health and Safety issues.
- Introducing lower emission or no emission sustainable transport modes may reduce the impacts on the Health and Safety.
- Encouragement of active travel modes, including walking and cycling, to increase physical fitness and improve the health.

(9) Cultural Heritage

- Work in partnership with the Ministry of Culture and the Arts, Department of Archaeology and private institutions to efficiently address the archaeological issues during the project interventions.

(10) Accessibility

- Measures should be considered to manage and control the increasing private vehicle use due to the improvement of accessibility.
- Improve connectivity of the different transport modes and the Economic hubs.
- Promote and encourage the usage of sustainable transport modes such as public transport.

15.7 Monitoring

The baseline conditions and assessment part of the project has identified both significant adverse and positive impacts that are likely to arise from the implementation of the CoMTrans Programme.

The assessment has also identified some areas of uncertainty over the significance of some of the predicted effects and monitoring has, therefore, been considered to cover these effects as well. The significant effects to be monitored, which have been predicted to arise from the implementation of the CoMTrans program, have been summarised in Table 15.7.1 below, based on the SEA assessment.

Table 15.7.1 Significant Effects to be monitored

SEA Topic	Effects to be monitored
Air quality	➢ Changes in air quality level ➢ Air quality in areas directly affected by transport measures (NOx, SOx, PM10 and PM2.5) ➢ Project level effects (through project level monitoring arrangements)
Climate	➢ Project level effects (through project level monitoring arrangements) ➢ Modal shift, walking and cycling ➢ Greenhouse gas emission (CO2)
Noise	➢ Noise levels related to transport ➢ Project level effects (through project level monitoring arrangements)
Water	➢ Transport effects on water quality ➢ Project level effects (through project level monitoring arrangements) ➢ Increase of Flood risk
Biodiversity	➢ Transport effects on biodiversity, including disturbances in the designated areas. ➢ Project level effects (through project level monitoring arrangements)
Population	➢ Community severance from transport infrastructure ➢ Levels of public transport usage, including a 'modal shift' to these methods of transport ➢ Project level effects (through project level monitoring arrangements)
Health and Safety	➢ Transport related accidents ➢ Respiratory health ➢ Levels of walking and cycling ➢ Project level effects (through project level monitoring arrangements)
Cultural heritage	➢ Transport effects on historic sites and landscapes ➢ Accessibility to the Cultural and historic sites ➢ Project level effects (through project level monitoring arrangements)
Landscape	➢ Effects on landscapes and townscapes from transport ➢ Project level effects (through project level monitoring arrangements)
Accessibility	➢ Effects on the accessibility and connectivity from the transport system ➢ Project level effects (through project level monitoring arrangements)