

# Future transportation for Dhaka

## Roads, elevated expressways and flyovers

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In a recent article I wrote on the need of Dhaka for a Mass Transit System (MRT /METRO) ( Why Dhaka Needs a Metro (Mass Rapid Transit) System. Some of these needs have been reflected and proposed in the recently completed Strategic Transportation Plan (STP), Dhaka, (2004-2024), prepared by consultants Louis Berger Group, Inc. and Bangladesh Consultants for the Dhaka Transport Coordination Board (DTCB) under the Ministry of Communications (MoC), GoB.

In this article I want to dwell on the future ROADS, ELEVATED EXPRESSWAYS and the FLYOVERS proposed in the STP plan as well as what is happening on the ground in reality. As a relevant point it is worthwhile to note that the population of this STP defined study area currently shown to be 19 million shown in the report and is projected to rise to 36 million by 2024. (Exhibit 1). The population of Dhaka Metropolitan Area (DMA) itself will rise from current 12 million to 24million.

Similarly, there are about 325,000 motorized vehicles on the Roads in Dhaka. This excludes some 300,000 to 500,000 estimated rickshaws in the City. Currently there are 330 Km of Primary Roads in the City carrying bulk of this traffic. This quantity of Primary Roads for this volume of traffic has proved to be totally insufficient. Further, the traffic volume, particularly the motorized traffic is increasing at the rate of 10% per year on average. There are twin problems facing the transport sector in Dhaka. On one hand the volume of traffic is increasing every year as noted. On the other hand new areas of human settlement, business and commerce and industry are also opening up. So to solve the

Chittagong Highway near East Town to Dhaka Aricha and Mymensing Road past Tongi supposed to be completed by June 2006 and the completed Mohakhali and the Khilgaon Flyovers. In addition the STP plan proposes some 54 new ROADS (+++) proposals including three (3) Elevated Expressways, Jatra Bari -Gulistan (#52), Gulistan to Mohakhali Elevated Expressway (#44) and Mohakhali to Biswa Road intersection (#44). Exhibit 2 below shows the total Roads and Elevated expressways initially proposed in the STP Plan under ROADS +++ program in the inner city of Dhaka. In the Final Report this was scaled down to ROADS ++ (+) with the exclusion of some Elevated Expressways (Exhibit 4). Exhibit 3 shows the total ROADS ++ (+) package for the outer area of DMA (Dhaka Metropolitan Area). Exhibit 5 shows the total integrated three lines of BRT (Bus Rapid Transit) and three lines of METRO system to be completed by 2024.

### ROADS+++ PROGRAM

My discussion on the ROADS ++ (+) program in this article will be primarily based on the five Exhibits shown for the readers convenience. This article is not a critic per se of the proposed STP plan but in large measure a brief enunciation of the ROADS program and a short evaluation of the 3 proposed Elevated Expressways incorporated in the STP plan. It will be fair to say that the STP consultants were not overly enthusiastic of the three 3 Elevated Expressways (as it did not fit into their mould of increasing public transport services but encouraged private motorized transportation only), but included them in the Plan document in light of the ground realities and the GOB's interests in seeing them developed.

However, before I embark on the issues of the Elevated Expressways, I

connector roads including Bijoy Sarani extension to Tongi Diversion Road (8) by passing the Rangs building and Sonargoan (Panthpath) to Rampura Bridge (11). Other notable city roads include the development of Western Embankment Road (18) and Sonargoan to Rampura Bridge (11) and Merul Badda Golakandial (13).

On the eastern City fringe up to the Balu River, there is a proposal for a major embankment road along the Balu River, Tongi - Demara (54) and Eastern Bypass (23) in the north south direction. With the building of the embankment this whole area would become flood free in future. There could be other problems that would arise from this flood free zone. This could well become a water logged area unless massive drainage, water retention ponds and other mitigating steps are taken. Further, this area is already subjected tremendous development pressures from the private sector builders. There is currently a much delayed Detailed Area Plan (DAP) being developed by RAJUK under the DMDP Structure Plan. However, the delay in creating and implementing the DAP has already caused massive planning and developmental problems. The STP in addition to the two norths - south roads mentioned in this area also proposes the development of several major easts west connector roads in this area. These are Airport Road to First Balu Bridge(5), Progati Sarani - Balu river to Bhulta (Nawabganj) ( 22) and Uttara sector 4 to Dakhin Khan Khordi. It is imperative now ( on RAJUK) that with the adoption of the STP, all major roads shown in this and other areas within its jurisdiction is coordinated with the DAP and reserved with appropriate Right of Way (R.o.W) , on which no development or Building permits should be issued.

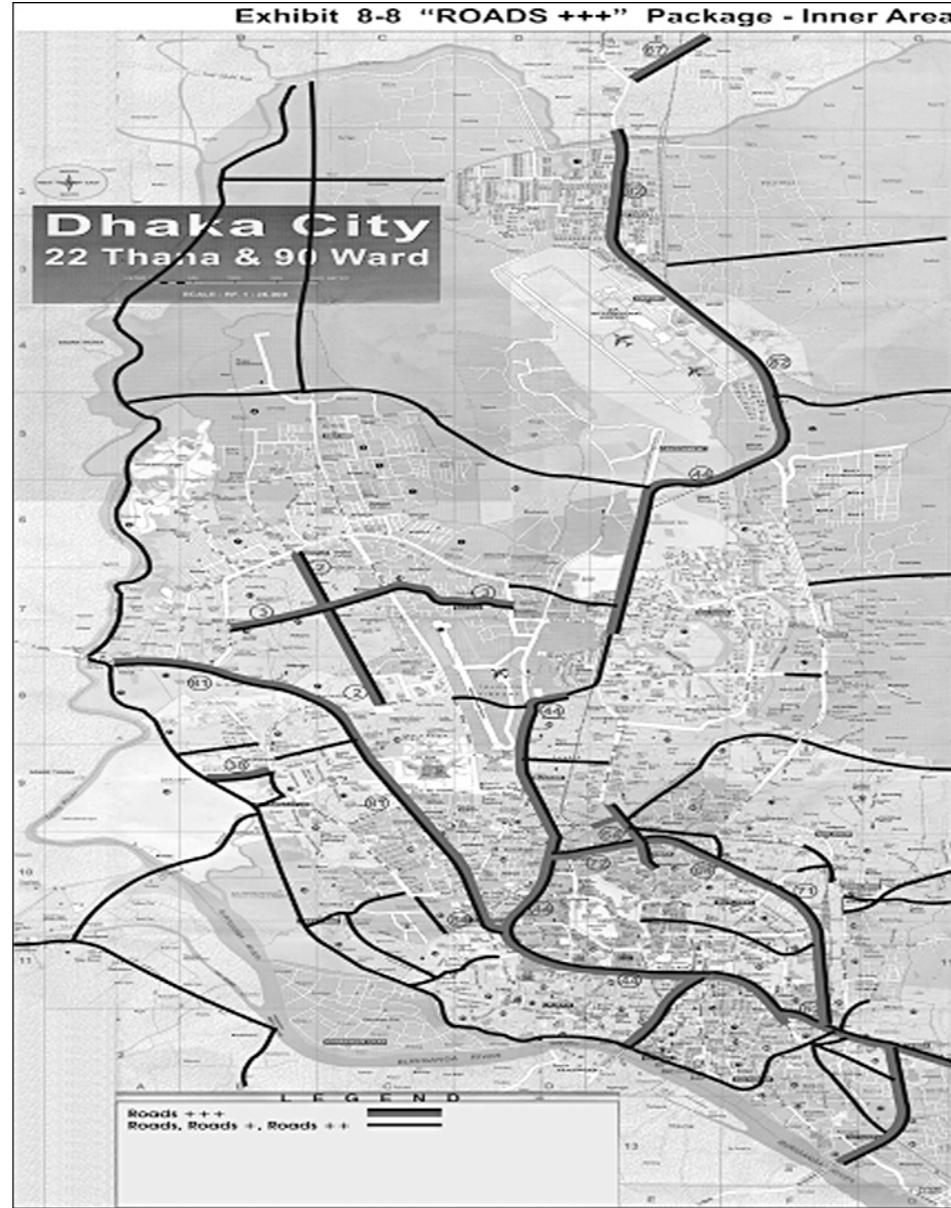


Exhibit 2

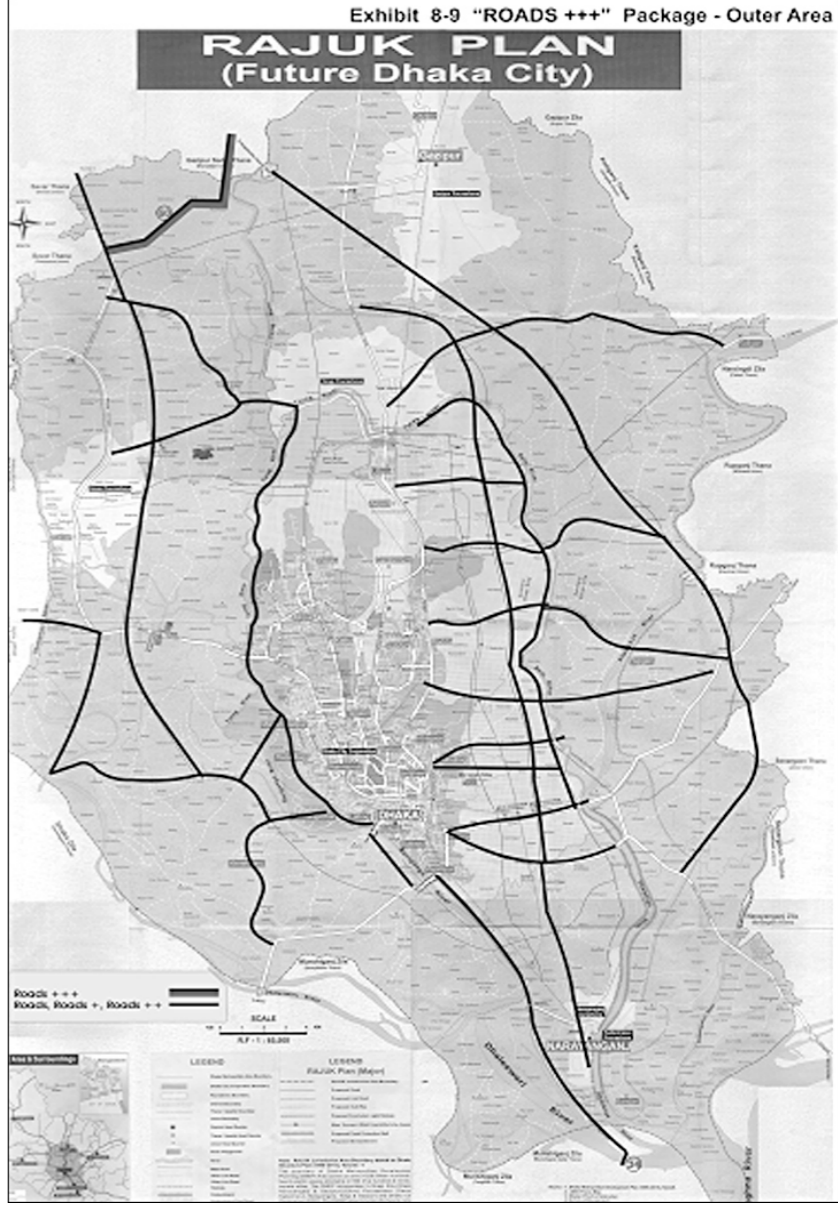


Exhibit 3

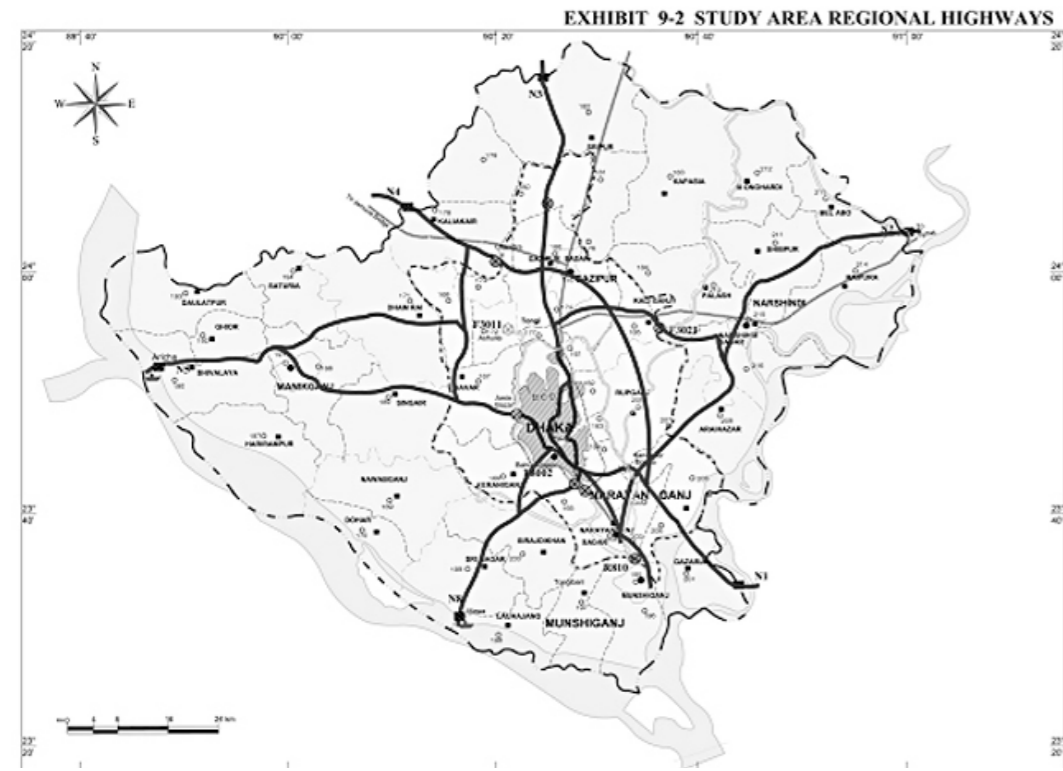


Exhibit 1. Dhaka STP Study Area 1547 sq. km.

problem there will be an acute need to build more roads and add better connectivity within the built up areas and also add more arterial and primary roads in the new and projected built up areas as well other viable modes of transportation.

To resolve these long term transportation problems the STP provides a three part proposed solution. One of the three transportation components in the Strategic Transportation Plan (STP) documents is the ROADS ++ (+) program. The two others are, a) a proposal for a three line Buss Raid Transit and b) a three line plan for a METRO ( underground, over ground or a combination there of ) mass transit railway over a twenty year period. While I have dealt with reference to the urgent need of a METRO system in my last article, I am not entirely convinced of the viability of a Bus Rapid Transit system in a heavily built up congested metropolitan area. However, this article is not devoted to either the need or the viability of a Bus Rapid Transit system. This article deals with what is provided in the STP plan documents for the ROADS program as well as my assessment of some aspects of the proposal particularly with respect to the proposed Flyovers and the Elevated Expressways.

The 20 year STP plan contains some 64 proposed ROADS, Highways and Elevated Expressways to provide expanded roads network within the existing Dhaka City as well as for the future growth of the City in the Greater Dhaka Area up to the year 2024. This ROADS ++ (+) program includes some ten ( 10) Base Network currently ongoing Roads program including the under construction Dhaka Bypass east of Balu River from the Dhaka

intend to have a brief relevant discussion on the overall ROADS ++ (+) proposal. Exhibits 3 and 4 outline the 54 ROADS ++ (+) program in the inner city and the outer city areas to be developed in twenty years. The ground realities to day are that existing City relies primarily on five (5) Primary or Arterial Roads. These are the Satmasjid Road, Mirpur Road, the Airport Road (the spine), the Tejgoan Road and the Bishwa Road (Pragati Sarani). The east west road connections are weak and tenuous. Some of these are Bijoy Sarani, Panthapath, and Zahir Raihan Road. The transportation on the five north south roads and the east west connections are further complicated by the location of the old (Tejgoan) airport, the Dhaka Cantonment, the DOHS and the new Airport. This vast contiguous area is a functional and planning disconnect within the Dhaka City. These four elements effectively divide Dhaka City into east and west half with very weak road connections. Unfortunately more DOHS (Defense Officers Housing Society) are springing up as in Baridhara DOHS. These add further to the problems of Dhaka in transportation connectivity as little or no public or private civil transport is allowed to pass through areas, adding to the congestion on the principal north south roads. The STP tries to remedy some of these problems by proposing some east - west connections: such as by Tunnel Connection (12) under old airport from Shahid Jahangir Gate to Rokyea Sarani, Mirpur 14 to Airport Road (42) ( Banani Railway Station on the fringe of Kurmitola Golf Course and Zia Colony (Airport Road) to Cantonment (7) - Pallabi. There are several other east- west proposed

Whether these proposed Roads package will be adequate to serve the needs of the City only proper implementation and time will tell. It will be worthwhile to mention here since multiple organizations will be involved in the final planning ,design and implementation including the DTCB, RAJUK, DCC, Roads and Highways etc, a very close cooperation and coordination between them is an absolute imperative.

### Elevated Expressways and Flyovers

The STP Consultants have incorporated three major Elevated Expressways and Flyovers in its plan documents as it was the GoB intentions to do so. These are the JatraBari Gulistan Flyover (52), Gulistan Mohakhali Elevated Expressway (44) and Mohakhali to Bishwa Road Junction on Airport Road (44). All of these are to be elevated expressways above existing roads .The JatraBari-Gulistan Flyover is to connect with Gulistan- Mohakhali Elevated expressway. Similarly the Gulistan Mohakhali Elevated Expressway is to connect with the already built Mohakhali Flyover. (Exhibit 5)

Before analyzing the pros and cons of the three proposals, I think it will be beneficial to look at the already built Mohakhali Flyover and assess its impact on the traffic. Built with a lot of fanfare the Tk. 120 crore projects have not lived up to its promise of relieving the traffic congestion at the Mohakhali junction. Public buses do not use it. Its entry and exit points are constantly jammed with traffic. Since much of the surface traffic still very much uses the rail crossing the whole Flyover purpose is defeated. Further, the sloping ramps at both ends with out elevated connection possibilities will be a future design

and connection nightmare for the Gulistan- Mohakhali elevated expressway on this corridor. The proposed Shahid Jahangir Gate -Rokyea Sarani tunnel under the old Airport will further complicate the intersections traffic problems.

Jatra Bari - Gulistan Flyover is proposed to be built as BO (Build and Operate) as a dual 2 lane elevated expressway between Jatrabari and Gulistan. It is some 4 kilometers in length with some thirteen exit and entry ramps. Following are some of the questions that come to mind on this proposed Flyover (Elevated Expressway) as it is designed now.

1.Jatra Bari Gulistan is proposed as a dual carriage 2 lane Flyover (that is a total of 4 lanes combined in both directions). Because of growing traffic volume the Dhaka - Chittagong highway will have to be at some time in the future be designed as dual carriage 3 to 4 lane highways. This will be connected to the Jatra Bari Gulistan Flyover. There will be constructions at the entry and exit points and lane reduction to traffic coming and going to Chittagong at Jatra Bari on this stretch. Question is how will this problem be dealt with? Are we not short changing ourselves without wide expansion possibilities of the Flyover?.

2.The current traffic volume in Jatra Bari is around 65,000 vehicles per day. This will increase at the rate of some 10 % per year. How will this additional traffic volume be handled on this dual two lane flyover future? It will be obsolete the day it will be commissioned.

3.All traffic coming from Chittagong side will be virtually forced on to the proposed Flyover. What other options will drivers have of not using the Flyover since this will be a very heavy toll road? Will the traffic be able to move without using the Flyover?

4.What will happen to the existing road surface? Will people be able to use it for same direction travel as the expressway?

5.What will happen to local streets and cross roads that meet at or near entry and exit points? How will this cross road traffic be handled?

6.Most importantly the exit ramps and entry ramps near Gulistan take up practically the whole road width. When this Fly over is expected to connect to the proposed Gulistan Mohakhali Elevated expressway, how will this above grade connection be made if no provision is made now for the future. Currently there is no such provision in the design.

7.Since all the toll booths on the exit

ramps are located at or near grade on the surface roads this will create a massive traffic jams on the exit and entry points. How will this situation be handled?

8.A further ill conceived plan is that once a vehicle gets up on the Flyover, it will have to pay a uniform toll regardless of the distance the distance it will travel on the flyover. This is unfair to the traveling traffic and will discourage its use. Short distance flyover traffic will want avoid this and seek alternate routings and create additional jams

9.The Flyover is supposed to add to the capacity of existing roads not to supplement it. It seems that this design solution only is interested in builders interest.

10.The structural piers of the cantilevered elevated Flyover will take up 10' to 12' in road width in the centre of the existing surface road. How will this road surface reduction be compensated?

To alleviate all or some of the points mentioned above, I suggest the following.

1.In addition to the design of this seven hundred crore taka Elevated flyover project, there should be a comprehensive Impact Assessment Study of the surface road circulation and traffic movements well as that of

the elevated flyover. This should include provision for alternate traffic movements in the same direction on the surface (at grade) as on the elevated Flyover and the cross traffic generated from the local side roads. The existing road capacity should be added and not only supplemented through this flyover design solution. No concession permission should be given prior to completion of this study.

2.The meeting of the entry and exit ramps with the surface roads should be properly designed so as not to create additional traffic jams at these points.

3.The toll collection for the Flyover should be on the flyover and not at the surface road inter section. Also, the amount of toll should be based on the distance the vehicle travels and on one fixed amount.

4The width of the dual two lanes elevated Flyover is designed with current traffic volume (Max. 65,000 vehicles and minimum 42,000 vehicles per day, both ways combined) in mind. The traffic volume will be doubled in ten years. Minimum of dual three lanes (i.e. 3 lanes each way) or more should be planned for the future, since the width of the elevated flyover can not be expanded in future.

5. The Flyover designs for the Jatra Bari and its connection to the future

Gulistan to Mohakhali should be carefully studied and resolved before proceeding with the Jatrabari - Gulistan Flyover. Integration of the two in to a seamless Elevated Expressways as well toll collection harmonization is a must for this component to work smoothly and effectively.

The rush to start of construction without carefully studying all aspects of the technical and financial design must be avoided at all cost. Pragmatism must prevail over short term expediency. Once built the errors and mistakes of such an important national project can not be rectified. The design of the flyover should be submitted to a competent review committee comprising of traffic engineers, architects, urban planners and civic society members as well as members of local stakeholders and residents.

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Figure 4

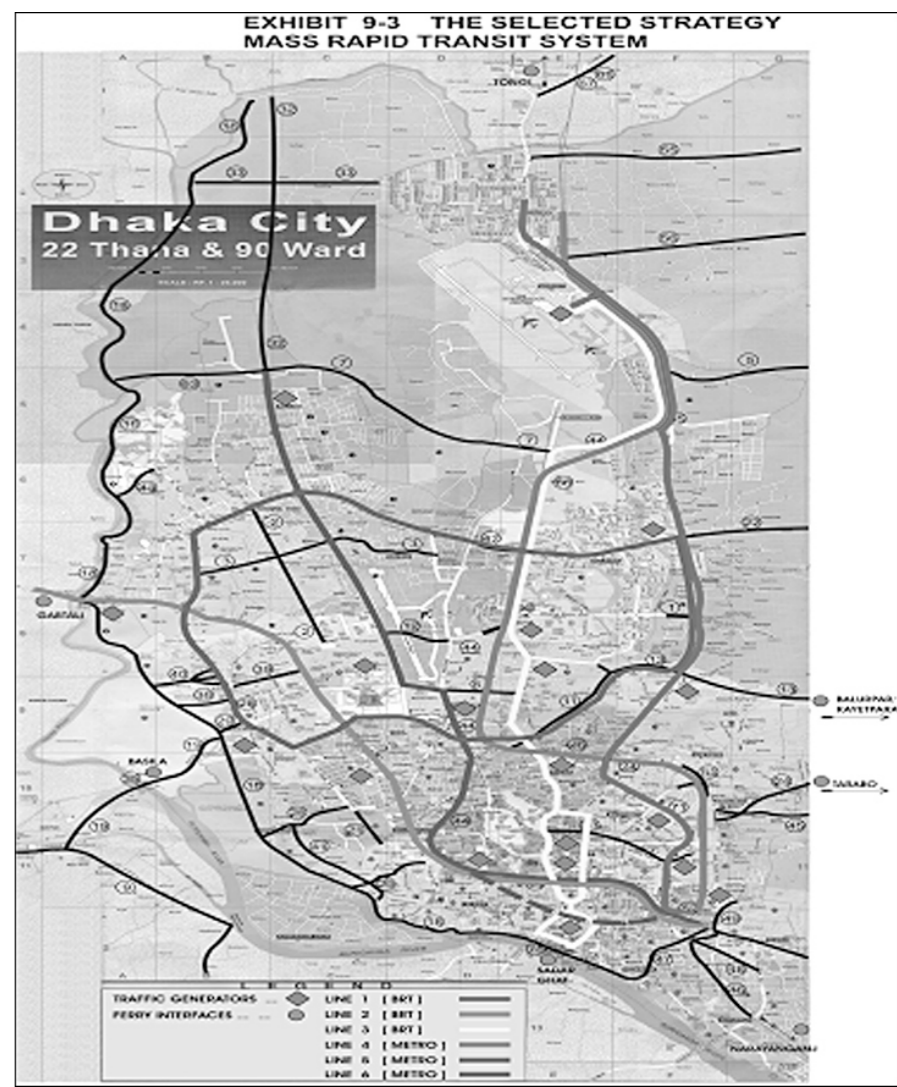


Figure 5