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Problems & Prospects of Transport System of Rajshahi City Corporation: A Survey

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Abstract: *In this paper, an attempt has been made to analyze the present condition of the transport system of Rajshahi City Corporation (RCC). In doing so, in the first part of the paper the authors have analyzed the feasibility of introducing city bus service in RCC. In the second part of the paper, they have tried to identify the problems and prospects of introducing city bus service. In the last part of the paper, they have made some recommendations for improving the transport system in RCC area.*

1. Introduction

Rapid improvement in living standard of the masses was the prime goal of Bangladesh liberation struggle in 1971. This vision for higher living standard for the masses has been enshrined in the Constitution of Bangladesh. The state of Bangladesh through its Constitution (article-15) committed to a higher living standard for its people by providing basic needs to all of its citizens through planned development. With this objective of planned development for the country, the Bangladesh Planning Commission was established in 31 January, 1972.The Cabinet Decision in establishing the Planning Commission laid down ten functions for the Commission. This can be brought down to three broad sets of functions as (a) to prepare the short and mid-term and long-term plans viz. Annual Development Programme, Five Year Plan and Perspective Plans; (b) to make recommendations as well as being involved in the process of deliberation on a range of policies and institutional changes which were necessary for the implementation and realization of the Plan objectives and (c) to co-ordinate the economic policies, both short and long-term, to be undertaken by the various ministries.

Till now seven five year plans and a two year plan have been taken in Bangladesh. The first five year plans was formulated in 1973-78, The second, third, fourth,

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fifth, sixth and seventh five year plans were formulated in 1980-85, 1985-90, 1990-95, 1997-2002, 2011-2015 and 2016-2020 respectively. A two year plan was formulated in 1978-80.

Bangabandhu Sheikh Mujibur Rahman, the father of the nation, dreamt of a 'Sonar Bangla' where the common citizens of the country would live in prosperity and have equitable access to quality education, healthcare, rule of law and employment opportunities. The Grand Alliance Government under leadership of Sheikh Hasina, resurrected that dream in its election manifesto 'Charter for change' in 2008 with the proclamation of Vision 2021 to drive the country's sustainable development agenda by striking the right balance between equitable national economic progress and human development. For the first time in the country's history, such a comprehensive and audacious vision, steeped in self-reliance, to reach middle-income status by the 5th anniversary of the nation was presented to the people. This vision greatly resonated with the aspirations of the people and received overwhelming support in the 2008 national elections. Accordingly, The Grand Alliance Government after taking the charge in 2009 declared a Perspective Plan named vision 2021. It was passed by the national economic council in 2010. This vision 2021 will be implemented by two consecutive five year plans, that is, sixth five year plan (2010-2016) and seventh five year plan (2016-2020).The chapters on the sectoral development strategies of the 7th five year plan have been structured to align with the recently adopted 14 uniform sectoral divisions. Previously, there was a lack of uniformity of sectoral classification among the ministries-Planning Commission followed 17 sectors; Ministry of Finance used 13 sectors for resource allocation while 6th five year plan focused on 10 thematic areas. In Seventh Five Year Plan, sector six has been devoted to Transport and Communication.

Development of modern transport systems both urban and rural are the objectives as well as targets of the vision 2021 and for that matter 6th and 7th five year plans. Development and Infrastructure are two important things in economics. Development is a process in which something changes and becomes more advanced. Where infrastructure is the basic equipment and structures such as transportation and communication systems, water and power lines, and public institutions including schools, post offices, hospitals etc, that are needed for a country, region or organization to function properly. So, development of infrastructure, especially transport and communication, is a precondition for achieving sustained and accelerated growth with immense distributional impact, especially for achieving balanced growth. This is more important for Bangladesh as the country is poised to take off to a new growth path, envisioning to achieve more than 7% growth for the next five years. The transport system of Bangladesh consists of roads, railways, inland waterways, ports, maritime shipping, and air transport. Among the different modes of transport, road transportation has become the dominant mode, carrying

over 70 percent of passengers and 60 percent of freight traffic.

Bangladesh is a developing country in South Asia. There are 11 city corporations in Bangladesh and Rajshahi is one of the oldest city corporations, which was established on 11 September 1988(RCC). Geographical location of Rajshahi City corporations is 24-05' to 25-14' North Latitude and 88-09' to 89-25' East Longitude and its area is 96.72 square kilometer. Present population of Rajshahi city is about 763,952 (RCC). Inspite of being an ancient city corporation, true public transport, as we mean is that yet to develop here. Town service is almost absent in the area. The main causes of it is that every day about 26 buses of Rajshahi University run in the city. Besides some government and semi-government institutions including Rajshahi College, RUET and Rajshahi Medical College have buses plying in the city area to serve their purposes that deprive the common residents of Rajshahi City Corporation. Therefore, a public transport should be introduced in Rajshahi city in order to serve its citizens.

Before 2008, man-pulled rickshaw was the main vehicle for short distant transportation. But after 2008, battery driven auto-rickshaw has emerged as the main transport in the Rajshahi City Corporation. Now it is the most popular transport means. According to a private survey, there are nearly 15,000 battery-run auto-rickshaws, 35,000 rickshaws, 800 CNG-run auto-rickshaws, 1,500 human haulers, 1,200 rickshaw vans and 1,500 cars and microbuses in Rajshahi City (the independent 2015). According to the RCC (2016), there are 9,998 auto-rickshaws and 22,561 rickshaws running in the city area.

Everyday several thousands of battery driven unauthorized auto-rickshaws are plying on the main streets in the city, creating extreme traffic jams and sometimes deadly accidents. They do not follow the traffic rules and regulations. Many passengers of the auto-rickshaws said that, accidents and traffic jams are increasing on the streets due to plying of the auto-rickshaw by inefficient drivers. Most of the people, who earlier used to pull rickshaws and vans, are now driving the battery run auto-rickshaws without any training. Even, many of them do not have necessary valid papers like registration of the vehicle and driving license. As a result, accidents occur every day. For this reason, to remove traffic jam, reduce accidents and travel faster at low cost, it has become essential to introduce town service in Rajshahi City Corporation.

2. Literature Review

Extended studies have been done on different aspects and issues of transportation system. Generally researchers used technique of tabular analysis in their papers.

Iqbal (2013) in his research paper included comparative study between battery operated easy bike and CNG operated auto rickshaw in terms of cost (operating cost, manufacturing cost, maintenance cost), user friendly and environment issue. From the study, in terms of cost, it was seen that the manufacturing cost and main-

tenance cost were little bit higher for CNG operated auto-rickshaw than that of battery operated easy bike. He showed the battery of battery operated easy bike is not environment friendly, because the battery is dumped into open space. Battery contains harmful chemical known as lead-acid battery. This makes the land as well as the air polluted.

Begum and Sen (2004) suggested in their paper about the income, health, livelihood and other indicators of well being of the rickshaw puller. They showed that most of the rickshaw pullers came from a very poor economic background consistent with the characteristics of chronic poverty. They were susceptible to systematic health risks, very limited schooling and the poor range of occupational choices for children. They suggested some policy for the improvement of the conditions of rickshaw pullers.

Siddique (2010) examined the use of public transit and the existing socio-economic characteristics of the lower and middle income group of Khulna city in Bangladesh in terms of trip generation. Role, efficiency and equity of public transit were also discussed in his study. The case study showed that the middle-income group generates relatively more trips than other income groups and they were mostly dependent on public transit. Again, lower income group cann't afford personal vehicles. Therefore, efficient and equitable public transit is essential for the development of any city.

Chien et al. (2003) showed in their study that bus routing is one of the most important elements of public transit system in planning. This article presents a model for optimizing service headway and a bus route serving an area with a commuter (many-to-one) travel pattern. The bus route is optimized by minimizing the total system cost, including operator and user costs, while considering diagonal links in the study network. Results show that the optimal bus route is sensitive to demand distribution over the service area. The developed model is particularly useful for planning a new bus service and evaluating an existing one in many cities embedded with general grid networks.

Mahmud et al. took an attempt to point out the inherent weakness of Dhaka Metropolitan City in particular relation to transportation system and identified some of the forthcoming challenges for sustainable development. At the very outset of the paper, a brief outline of the existing land use and transport scenario and detailed quantitative analysis with accessibility and functionality of the existing road network had been presented.

Mahmud et al. discussed in their paper on characteristics of transportation and consequent mobility, safety and environmental effects. The purpose of the paper was to conceptualize a vision and identify supporting policies for sustainable transport development. The authors also made an attention on key transport issues and possible options for ensuring sustainable transport development in Bangladesh.

Mahmud et al. tried to show the deficiencies of existing mass transit system to put forward an appropriate rapid mass transit system to recover the huge demand. An overview of the existing modes of travel and operation characteristics was also described. Finally some potential rapid mass transit options were highlighted with the context of prevailing land use and transport characteristics, socio-economic context of Dhaka Metropolitan City.

Study Area and Sampling Procedure

Among 11 City Corporations Rajshahi is one of the oldest in Bangladesh. According to 2001 and 2011 census, the population of Rajshahi City Corporation was 388,811 and 763,952 (RCC) respectively. 2011 to 2016, there has been substantial changes in the size of population caused by the changes in national, regional, socio-economic and political conditions. Therefore, we see the population of Rajshahi city has doubled in a decade.

Accordingly, the population may be about 1.5 million and 3 million in 2021 and 2031 respectively. So, it is high time to formulate plans for introducing town service to remove public sufferings. The number of rickshaws and auto-rickshaws registered till 19.05.2016 was 22,561 and 9,998 respectively in RCC. This registration process is going on. Besides, many unregistered rickshaws and auto-rickshaws are running in Rajshahi city.

We collected primary data from different points of Rajshahi City Corporation through sample survey to find out the conditions of existing transport system. For data collection purpose, we selected four main entry points of Rajshahi City, where maximum number of rickshaws and auto-rickshaws exit through and enter into the city. These four points are Binodpur, Railgate, Court Point and Court Station. The number of unregistered auto-rickshaws entered into and exited from the city from 7.30am till 11.30am was counted in these four points. An office day skipping Friday and Saturday was taken for this purpose.

3. Objective and Methodology

The broad objective of this paper is to examine the feasibility of introducing City Bus Service in RCC area. Within this broad objective the following sub-objectives have been determined:

1. To examine the conditions of existing transport system of RCC;

2. To identify the problems of transportation of RCC;

3. To make recommendations for removing those problems and introducing town service of RCC like others city corporations.

In preparing this paper, we have used both primary and secondary data. Secondary data have been collected from Rajshahi University, RUET, Rajshahi College, Rajshahi Medical College, RCC, RDA, and BBS. Primary data have been

collected through field survey. We have used statistical method in data processing. Besides these, we have taken the help of different publications on transportation systems by different authors.

The limitation of this paper is that, we have failed to collect profit and loss of corresponding departments because they have refused to give these informations. Therefore, we may assume that they are losing concerns.

4. Decision of Results

In this study, tabular technique and diagram were used to illustrate existing conditions and problems of transport system in RCC.Table-1 shows that maximum number of unregistered auto-rickshaws entered into RCC through court point. In 4 hours from 7:30am to 11:30am, total number of 74 auto-rickshaws entered into RCC and 56 exited through this point while 54 entered and 36 exited through Binodpur point. Another 50 and 32 auto-rickshaws entered and 44 and 19 exited crossing Railgate and Court-station points respectively. Therefore, most of the unregistered auto-rickshaws entered into and exited from RCC from 9:30am to 10:30pm. Due to increase in demand among school, college and office going passengers, the number of unregistered auto-rickshaws increase during this time.Table-1 portraits that a number of 210 unregistered auto-rickshaws entered into and 155 exited from RCC through Court, Binodpur, Cout-station and Railgate points within only 4 hours from 7: 30am to 11:30am.

Table 1: Number of unregistered auto-rickshaws plying in RCC area

Time (AM)	Court		Court-Station		Railgate		Benodpur	
	In	Out	In	Out	In	Out	In	Out
7.30-7.45	1	0	2	0	1	0	2	1
7.45-8.00	3	0	1	1	2	0	1	1
8.00-8.15	1	0	2	1	1	1	1	1
8.15-8.30	2	1	2	1	9	8	2	2
8.30-8.45	2	1	2	2	3	1	5	2
8.45-9.00	6	4	2	0	2	5	3	3
9.00-9.15	5	4	1	1	1	2	3	3
9.15-9.30	5	3	2	1	2	2	3	1
9.30-9.45	9	4	3	1	2	3	5	4
9.45-10.00	9	5	2	1	3	5	7	0
10.00-10.15	7	6	2	2	4	3	3	1
10.15-10.30	8	10	1	3	3	3	3	4
10.30-10.45	5	3	1	2	5	2	1	2
10.45-11.00	6	5	4	1	6	4	6	5
11.00-11.15	3	7	2	1	4	3	5	4
11.15-11.30	2	3	3	1	2	2	4	2
Total	74	56	32	19	50	44	54	36

Source: Sample Survey Results.

Route wise number of trips by Rajshahi University Buses

Though Rajshahi University was established in 1953, its transport sector started in 1970. After our independence Bangabandhu Sheikh Mujibur Rahman donated 12 buses. As the number of students was small, the number of buses and their routes were also limited. Now the number of both buses and trips has increased with the increase of number of students. Route-wise number of trips of RU buses are given in table-2. Information presented in Table- 2 indicates that 26 buses take 120 trips through 16 routes every day. Moreover every Friday two buses are used for bazar trips for the teachers. Baneshwer is the remotest route in the east while Kasiadanga and Naohata are the remotest routes in west and north respectively.

Table 2: Route-wise number of trips by Rajshahi University Buses

Number of Routes	Number of Buses	Number of Trips
Baneshwer	3	7
Laxmipur	2	13
C&B	3	8
Court	3	8
Bornali	2	8
New-market	1	7
Naohata	1	5
Alluporti	1	7
Kashiadanga	2	7
Bihas	1	4
BGB sector	1	6
Katakhali	1	6
BRTA(am chottor)	1	7
Somsadipur	2	13
Rajshahi rail station	1	6
Naricalbaria krishi unit	1	3
Library trip	4	4
Club trip	1	1

Source: Rajshahi University transport department

Route-wise number of trips by RUET buses

Rajshahi University of Engineering and Technology (RUET) established in 1964 as Rajshahi Engineering College with three engineering departments. Later it was converted into Bangladesh Institute of Technology (BIT), Rajshahi in 1986 to enhance technical education. The institute is upgraded as Rajshahi University of Engineering and Technology (RUET) in September, 2003 to expand education and

research. Currently, there are more than 3000 students and 254 academic staffs in RUET. The university provides its own regular bus service almost everywhere in Rajshahi City for the convenience of students and academic staffs. Table-2 shows that 8 buses provide 21 trips in 10 routes every day.

Table 3: Route-wise number of trips by RUET buses

Number of Routes	Number of Buses	Number of Trips
Court	1	4
Baya	1	2
Court-station	1	1
C&B - Vadra	1	3
Katakhali	1	2
RUET-Quarter	3	3
217 bellow- Quarter	1	3
Bazar trip	1	1
Mohila Hall	1	1
Nawdapara	1	2

Source: RUET Transport department

Route-wise number of trips of Rajshahi College busses

It is said to be the third oldest institutions of higher education in Bangladesh following Dhaka College and Chittagong College. Rajshahi College was established in 1873. After establishment the college became one of the main centers of higher education for the inhabitants of then East Bangal, North Bengal, Bihar, Purnia and Assam. Rajshahi College was the first institution in the territory to offer Bachelor and Honours degree courses in various disciplines since 1878. There are about 4000 students in Rajshahi College.

For smooth transport of the students, 11 buses are running on fare in different routes. These buses take 66 trips in 5 routes every day. In Table-3, Baneshwer, Belpukur, Naohata and Kasiadanga are the main routes locating 17 km, 12 km, 11.1km, and 6.8 km apart from the college campus. The number of buses compared to about 4000 students is not sufficient.

Table 4: Route-wise number of trips of Rajshahi College busses

Number of Routes	Number of Buses	Number of Trips
Baneshwer	4	24
Bellpukur	1	6
Horian	1	6
Naowhata	3	18
Kashiadanga	2	12

Source: Rajshahi College Transport department

Route-wise number of trips by RMC buses

Rajshahi Medical College established in 1958, is the first medical college in northern region of Bangladesh. Presently the college has only 2 buses for students transportation. Table-2 shows that 2 buses take total 4 trips to Dental and Court. Therefore it can be inferred that most of the students use local public vehicle for their transportation.

Table 5: Route-wise number of trips by RMC buses

Number of Routes	Number of Buses	Number of Trips
Dental	1	2
Court	1	2

Source: Rajshahi Medical College Transport department

Comparison of transport informations of RU, RUET, RMC and RC

It is projected from Table-6 that a total number of 164 staff is working in RU, RUET, RMC and RC. Among them, 119 staff works in RU. In RC, 20 out of total 23 are contractual staffs as all the buses of this college are run on fare. The 4 institutions have a total of 46 buses among which RU has 26 buses of its own. In comparison with the route and trips, RU buses take 11 trips in 16 routes while RC buses takes 66 trips in 5 routs and RUET buses takes 21 trips in 10 routes.

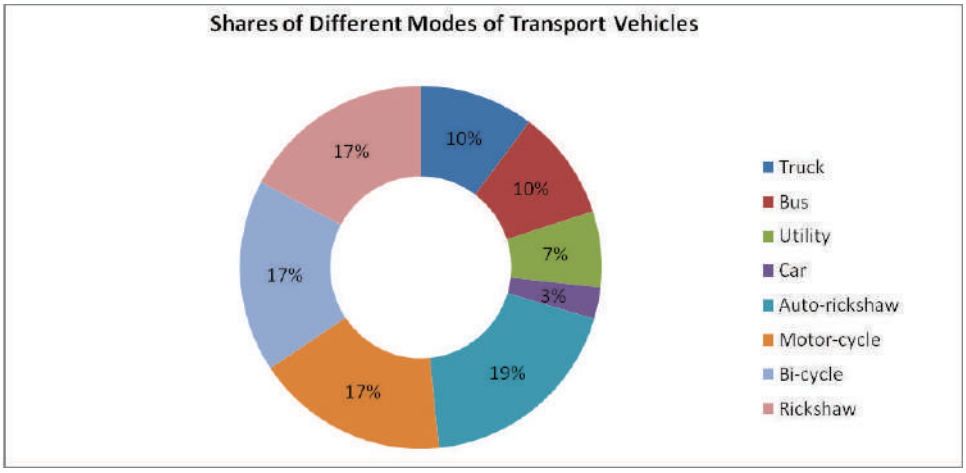
Table 6: Comparison of transport informations of RU, RUET, RMC and RC

	Rajshahi University	RUET	Rajshahi Medical College	Rajshahi College
Number of Staffs	119	20	2	23
Number of Buses	26	8	1	11
Number of Routes	16	10	2	5
Number of Trips	120	21	4	66

Source: Sample Survey Results

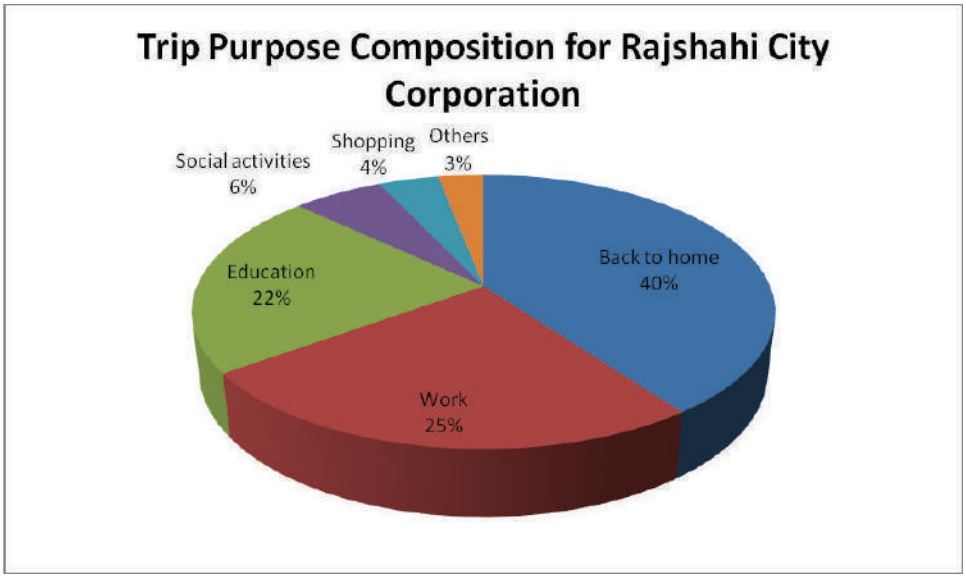
Apart from the buses of Rajshahi University, RUET, Rajshahi Medical College and Rajshahi College, buses of different government, semi-government, and autonomous institutions located in RCC area move throughout the city. On the other hand the main mode of transport of the dwellers of the city is battery driven auto-rickshaws. There are 19% auto-rickshaws, 17% motorcycles, 17% bai-cycles and 17% rickshaws, 10% trucks, 10% buses, 7% utility vehicles and 3% cars running in the city area (Ashraful Haque, 2015). This is illustrated in diagram-1:

Diagram-1: Shares of different modes of transport vehicles plying within RCC area, 2016.



The purpose of traveling(Ashraful Haque, 2015) of the dwellers is 40% to back home, 25% for work, 22% for education, 6% for social activities, 4% for shopping and 3% for other uses of their total trips (Diagram-2).

Diagram-2: Uses of transport vehicles by the city dwellers of RCC, (2015).



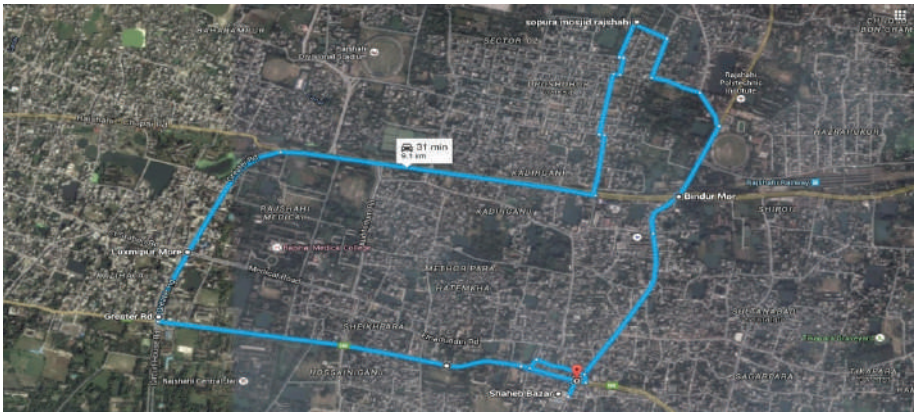
The number of battery driven auto- rickshaws and rickshaws is increasing day by day for their increasing demand and popularity among the travelers resulting traffic jam in important points. To portrait the scenario of traffic jam, two points named Monichattar and Zeropoint is shown in the picture. The illustration shows bigger number of rickshaws and auto-rickshaws compared to other vehicles.

Photograph-1: Rickshaw and Auto-rickshaw in Monichattar and Zeropoint.

5. Policy Recommendations

It takes about 90 minitues to travel 23.6 km on auto-rickshaws and 45-50 minutes on CNG from Court to Baneshwer the main route crossing Rajshahi city which is much time consuming. It will take only 30 minitues to travel the same distance if town service is introduced. Other important routes say Baneshwer to Kasiadanga, Court to Naohata and Baneshwer to Naohata are of the same distance.Time is a very vital factor for every nation. In the developed countries, travel time is of highest consideration in city life. To reduce travel time in everyday life for work or school, they are constantly improving and updating their transport policy and modes of transportation. To do so, this is highly recommended that introduction of town service for all citizens of Rajshahi City like other city corporations would be the only solution to the existing traffic problem. To reduce the travel time and hassle, town service is now a situational demand for long-term solution to the traffic problem in the Rajshahi city. Besides, it will reduce the traffic jam and consequently lower road accident. Auto-rickshaws are running with electricity. Recently RCC is suffering from severe load shedding due to auto-rickshaws. If town service is introduced, this load shedding will be reduced.

Map-1 shows the proposed routes for town service in Rajshahi City Corporation area.



To introduce City Bus Service, our recommendations are as follows:

1. In order to introduce city bus service a new department named "RCC Bus Department" should be established.
2. At the initial stage the RCC should come in contract with the existing bus service departments of Rajshahi University, Rajshahi College, Rajshahi medical College and RUET for transferring their buses to the RCC Bus Department. The City Corporation may buy the buses or pay rents to this organizations. Their stuffs can be utilized for this purpose. Wages should be paid to the staff on monthly basis so that they can find job security and can work safely.
3. There may be six routes in RCC area. They are:

- Baneshwer – Talaimari – Monicattar – Court ;
- Baneshwer – Talaimari – Railgate – Kasiadanga ;
- Baneshwer – Talaimari – Railgate – Naohata ;
- Naohata – Railgate – Laxmipur – Court ;
- Baneshwer – Belpukur – Amchattar – Naohata ;
- C&B¬¬¬– Zero-point– Railgate – Rajshahi Polytechnique Institute– Cantonment Road –Bornali (Circle route).

4. In every the routes, there must be specific stoppages. Without stoppage no busses will stop and take passengers. Buses can leave their stations every 10 minutes.
5. Different sorts of cards like hourly, daily, weekly, monthly, half-yearly, yearly etc. fare cards (in future smart fare card) may be introduced on consetion for fare collection.
6. According to RDA, two road construction projects from Airport road to Baipas road and from Kapasia bazaar to Sucorno Moor will be completed by June 2018. Within June 2020 another two projects of constructing overpass from Greater Road to Shahid Captain Monsur Ali Park and four lane upgradation of Baipass road will be completed. Upgradation of roads from Chotobongram Purbopara to Meherchandi and from Barind Medical to Chakpara will be completed by June 2020. Besides these projects, following RDA master plan, many other projects will be incorporated very soon. These upcoming projects will gradually pave the way for smooth town service system.
7. In the main center point of the city having busy and narrow roads,

rickshaw and auto-rickshaw can run there as buses cannot move without specific routes.

In this paper an attempt has been made to present conditions of existing transport system in Rajshahi City Corporation and also try to identify the problems of transportation of RCC. It is a well established fact that adequate an efficient mass transportation service plays an important role in combating the ever worsening problems of traffic congestion and improving safety within urban areas. So, city service system is essential for safe, comfortable and mobility need of the city dwellers of RCC.

At present the population of Rajshahi city is about7 lac. The population is rising day by day. So, RCC authorities should take steps to build under-ground rail system (metro) in the near future. Otherwise Rajshahi city would be a congested and blocked city like Dhaka. Besides RCC other cities like Chittagram, Khulna, Sylhet, Barisal, Rangpur and Mymensh-ingh should plan to construct under-ground railways. Otherwise Bangla-desh would not be able to establish modern economic system.

6. Conclusion

Rajshahi City Corporation is the oldest City Corporation in Bangladesh. But, still no city bus service has developed in it. This is because of the presence of transport departments in Rajshahi University, RUET, Rajshahi Medical College and Rajshahi College. Therefore, these institutions must reach at consensus with the RCC in order to introduce a city bus service system within its area. The sooner it happens the better will it be for dwellers in RCC.

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