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Identification of Potential Parameters Responsible for Metro Rail Ridership in Future: A Case of Pallabi Metro Station of MRT Line-6.

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CERTIFICATE

This is to certify that the seminar paper entitled **'Identification of Potential Parameters Responsible for Metro Rail Ridership : A Case of Pallabi Metro Station of MRT line-6'** has been prepared by Md. Sarwar Uddin Khan, Project Manager (Deputy Secretary), Dhaka Mass Rapid Transit Development Project (Line-6) who is a participant of 126th Advanced Course on Administration and Development (ACAD) held at Bangladesh Public Administration Training Centre (BPATC), Savar, Dhaka. The paper has been prepared under my direct supervision and guidance accomplishing all the activities satisfactorily. The quality of the paper is above satisfaction to me and the course management can accept the paper as a fulfillment of the course.

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ABSTRACT

Government of Bangladesh has undertaken a project titled "Dhaka Mass Transit Development Project (Line-6)" popularly called Metro Rail Project. This is first Metrorail Project of its kind in Bangladesh. Commercial operation of metro rail system will be started December, 2021.The research problem is to find the potential parameters responsible for future ridership of Pallabi metro station, one of the 16 metro stations under the project. To identify these parameters data has been collected by field survey and key informants' interview. It is found that several parameters like travel demand for commercial, residential and business activities, first and last mile connectivity of metro station, integration of existing bus depot adjacent to metro Pallabi station, facilities inside the station, provision of wider footpath, bus bay, park& ride facilities surrounding the station, TOD facilities vicinity of the station and other matters like security, fare, cleanliness will influence future ridership of Pallabi metro station. This is a qualitative research approach which will form the basis of future research to forecast station ridership quantitively. Accordingly, Dhaka Mass Transit Company Limited will be able to design and implement station facilities (inside and outside of stations) which will lead DMTCL to earn more fare box revenue to ensure financial sustainability of MRT Line-6, the first metro rail in Bangladesh.

Key Word: Ridership, Metro Station, Fare Box Revenue, Traffic Integration, TOD, First Last mile connectivity.

Introduction

Greater Dhaka area has total population of over 18 million and the population is growing about 4.2% annually (World Population Review,2019). The growing population creating additional travel demand continuously. However, in the supply side road space, additional vehicle, mode choices are lagging behind. The bottom line is traffic congestion, air pollution, loss of working hour of passengers. A study popularly called Strategic Transport Plan (STP) was undertaken by Dhaka Transport Coordination Authority (DTCA) former Dhaka Transport Coordination Board (DTCB)back in 2005. In that study to ease congestion three Bus Rapid Transit (BRT) and two Mass Rapid Transit (MRT) lines including some major ring and radial connecting road around in Dhaka city (DTCB,2005).

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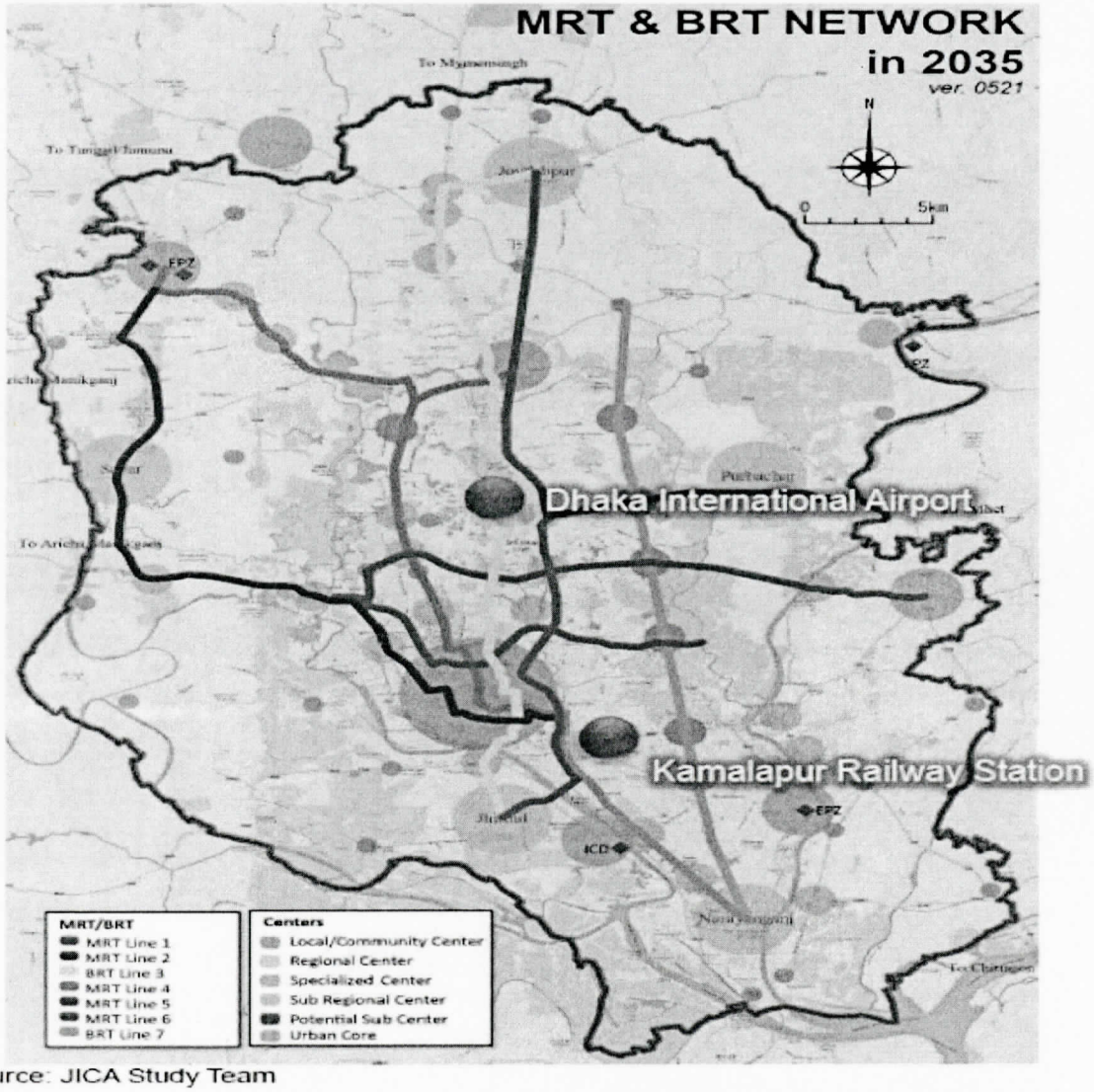
In 2009, STP was approved and further feasibility study was done and MRT-line 6 and BRT line-3 have been undertaken for implementation. Again, revision of STP (RSTP) was made and urban transport policy is revised. In RSTP eight transport policy objectives have been mentioned. These are 'social understanding about urban transport problems, effective management of urban growth and development, promotion and development of attractive public transport, efficient traffic control and management, enhancement of traffic safety, strengthening of transport sector administrative and management Capacities' (DTCA,2015). In line with the RSTP now five MRT and two BRT lines have been considered to implement within 2035.



Source: JICA Study Team

Figure 1: Proposed MRT/BRT Network within 2035

Japan International Co-operation Agency (JICA) came forward to finance MRT Line-6 and a project titled "Dhaka Mass Rapid Transit Development Project (Line 6)" which has been approved by the government of Bangladesh in 2012. Dhaka Mass Transit Company Limited (DMTCL), a government owned company has been formed as an implementing agency of the project. The total cost of the MRT Line -6 project is about BDT 22000 Crore. Under the project about 20.10 Km Viaduct and 16 stations will be constructed along with a depot,24 sets train, and E&M system (DMTCL,2012). Forecasted ridership of MRT Line-6 is 482940 no of passengers per day in 2021when Line-6 will start operation (DMTCL,2014). To implement the project JICA signed a loan agreement with GOB. A subsidiary loan agreement has been signed between DMTCL and GOB to repay the loan. The source of finance for loan repayment by DMTCL shall be mainly fair box revenue.

This study deals with the potential parameters influencing Metro Rail Line-6 future ridership in general and specifically concentrate on identifying parameters influencing ridership of Pallabi Metro station. Current study shall also form a basis for future researcher to develop ridership model based on regression analysis in which dependent variable 'metro station ridership' shall be estimated against the identified independent variables (in this and future research) i.e. 'ridership influencing parameters' within the station catchment area. This study shall also guide DMTCL management what steps to be taken in near future to increase metro station ridership which will be use to assesses the fair box revenue. This is crucial for DMTCL to repay the loan mentioned and to meet its operational cost i.e. to achieve financial sustainability of DMTCL as a mass transit operator.

Literature Review

There are many factors found in the literature influencing the rail ridership. According to a study it is found that rail ridership is most-sensitive to such as housing density. In the same study it is also revealed that ridership also sensitive to reliability and frequency (Richard, 2017). Yang Zhao et al (2018) in a study mentioned that ridership is significantly associated with the number of nearby shopping malls, distance to city center, days since opening, nearby bus stations, transportation hub and the ridership on weekdays is mainly affected by commuting activities, while the ridership on weekends is driven by commercial access.

The Transport Road Network Design (TRND) means, designing road network surrounding the metro station. Which has influence on travel demand which determines the ridership number in a particular metro station. Network design includes the design of route layouts and the determination of associated operational, characteristics such as frequencies, rolling stock types, and so on. Route

layout design is guided by passenger flows, routes are established to provide direct or indirect connection between locations and areas that generate and attract demand for transit travel, such as residential and activity related centers (Matthew et al,2009). Passenger flows between a central business district and suburbs follows the design of radial routes while demand for trips between different neighborhoods may lead to the selection of a circular route connecting them. Anticipated service coverage, transfers, desirable route shapes, and available resources usually determine the structure of the route network. so, TRND surrounding the metro station influence rider ship.

Choi et al (2011) while researching station to station level analysis of metro ridership at Seoul Korea, mentioned several influencing parameters. It is found that ridership depends on time of the day when travelling happen and origin/destination of the passengers. In the same station during morning peak 'population' is a key parameter while in the evening 'employment' become dominant parameter for station ridership. This is why they argue that 'mixed land use' in the vicinity increase station ridership. Which actually support development of TOD around station. Their study also concludes that good 'feeder bus service' connecting origin/destination stations and 'walkability' within a station's pedestrian catchment area (PCA) considerably enhanced the ridership. These are popularly called first and last mile connectivity. They identified two variables influencing station ridership these are 'metro travel time' has most influence of ridership and the other one is 'car travel time' the second influential variable affecting the metro ridership. Higher the 'car travel time' higher the metro ridership and vice versa.

McLeod et al (1991) conducted a study on mass transit system of Honolulu Hawaii. They emphasis that transport planners should consider economic perspective i.e income would be considerable influence on transit ridership particularly in the long run. It is found that demand of mass transit decreases with the increase of income of the passenger. They concluded that in terms of economic perspective 'mass transit' is an inferior goods.

The present study is first of its kind to make an effort to identify the potential parameters affecting the future ridership in metro station specifically Pallabi of MRT Line-6. While searching the net and other sources it is found that no such study has been undertaken so far to assesses the potential parameters influencing the future ridership of Pallabi Metro station. This will be the unique study which will identify the potential parameters responsible future ridership of Pallabi metro station. The

study result shall form the basis of developing a regression model of the 'identified independent variables' to estimate ridership of Pallabi metro station quantitively in future research undertakings.

Conceptual Framework

Ridership

It counts the number of passengers using the public transport facilities in general. Transport facilities include buses/rail/river/port terminals and any transport system. The more passenger uses the facilities the more is the ridership. To make effective use of public transport it is important to develop ancillary facilities to enhance rider ship.

TRND

Transport Road Network Design is designing (TRND) the layout of road/rail network for a particular city. A good design well connects the transport facilities with the residential and commercial space of a city. Well designed TRND generates more ridership to the adjacent metro stations and other transit facilities.

Traffic Forecasting Model

In transport system planning, ridership estimation modelling forms the basis of feasibility and sustainability of the particular transport system. Ridership at metro station also influenced by the station facilities around it. Traditionally the four-step (generation, distribution, mode choice, and assignment) model is used to forecast the ridership. However, the four-step model has some problem in terms of accuracy, low data precision, insensitivity to land use, institutional barriers, and high expense. It is generally effective for forecasting ridership on a larger area rather than relatively smaller area like the catchment area of metro station . In that case direct demand models based on regression analysis is a alternative approach, which estimates ridership as a function of influence factors within the station catchment areas.

Methodology

This research work aims to find the potential parameter affecting the future ridership in Pallabi Metro Station. To conduct the research primary data regarding travel behavior of the potential metro passengers has been collected around the Pallabi Mero Station which is under construction now. Also, key informant interview (KII) has been done to identify operational aspects of metro system in Dhaka in general.

Primary data has been collected based on questionnaire survey, a very well-known and widely-used research technique. In travel demand estimation it is very useful. Questionnaire survey can be conducted quickly. In this study sample data was collected by questionnaire survey. Twenty-Three no of people participated in the questionnaire survey. Most questions are closed ended and some are open ended. KII was done involving project personnel who has in-depth knowledge about the project implementation and operation of metro station.

FINDINGS

Two methods are applied for data collection. These methods are questionnaire survey and Key Informants Interview (KII). Data was analyzed in the light of both methods.

Questionnaire Survey Analysis

In the questionnaire survey twenty-three responded response to sixteen nos questions. Question no 1 asked the responded about location of the Pallabi metro station. Question 2, Question 3, Question 4 were asked the distance of Pallabi station from the respondent's home or origin of journey, how they reach to the Pallabi station and by which mode respectively. So Question 2, Question 3, Question 4 assesses the First Mile Connectivity of Pallabi Metro Station means the connectivity between passenger's origin in this case it might be home and Pallabi station. Question 6, Question 7 asked the passenger how the passenger will reach their final destination after disembarkation of a particular Metro Station. This is actually the Last Mile Connectivity of a particular Metro Station. Question 8 was asked the ridership relation with respect to First and Last mile connectivity. Question no 9 inquires the facility needed for the ease of First and Last Mile connectivity.

Question no10 asked about the traffic integration with BRTC depot near to the Pallabi Station. This is specific to the Pallabi station. This is an important parameter assessing ridership of Metro Station in general.

Question no 11, Question no 12 and Question no 13 are related to the facilities or parameters which influences the station ridership as assumed. Question 14 assesses the impact of ridership due to installation of facilities mentioned in Question no 11, Question no 12, Question no 13.

Question 15 is an important parameter as we find in the literature review plays vital role to increase station ridership. This is called Transit Oriented Development (TOD) facilities around Pallabi

Station. Question 16 is an open-ended question which allowed the responded to identify other parameters responsible for station ridership.

Table: Identification of Ridership Parameters from Potential Passengers Interview

Sl No.	Identified Parameter	Passengers Response
1	First & Last Mile Connectivity of Metro Station	100% Passenger thinks it will Increase Ridership
2	Mode Choices for First Mile Connectivity	30.40% Passenger use NMT, 13.04% Walking, 17.39% use City Bus, 39.17% use more than one mode to come to Pallabi Station from their origin.
3	Mode Choices of Last Mile Connectivity.	13.04% Passenger use NMT, 43.47% Walking, 13.04% use City Bus, 30.45% use more than one mode to reach final destination after disembarkation from Metro Station.
4	Integration with Bus Depot	About 74% respondent think integration with BRTC depot will increase station ridership. Where as 26 % disagree on that.
5	Facilities inside the Stations (like Food Court, retail shop, Gymnasium)	17.39 % Food courts, 30.43% retail shop, 8.70% all, 43.48% mentioned none of them.
6	Provision of wider footpath, bus bay, Park& Ride facilities	86.96% response is positive towards increased ridership whereas only 13.04% has negative view on station ridership.
7	TOD (Provision of Housing, Commercial, recreational, medical, entertainment facilities)	4.34% Shopping mall, 4.34% Commercial Facilities, 47.82% Medical Facilities, 30.43% All Facilities and 13.07% mentioned more than one facility.
8	Others (Security, Fare, Cleanliness, Special Arrangement for Women)	34.78% Security, 30.43% Fare, 4.34% Cleanliness, 4.34% Women coach and 26.11% identified no other parameters

From the questionnaire several parameters responsible for station ridership have been identified. These are First and Last mile connectivity of metro station, integration of existing bus depot adjacent to metro station, facilities inside the station, provision of wider footpath, bus bay, park& ride facilities surrounding the station, TOD facilities vicinity of the station and other matters like security, fare, cleanliness, special arrangement for the women etc.

Regarding First & Last file connectivity 100% passenger opined that convenient connectivity will enhance the ridership. About 74% respondent mentioned that integration with BRTC bus depot with Pallabi station will increase the ridership. While responding to the questions whether facilities inside the stations like food court, retail shop, gymnasium will increase the station ridership or not, 17.39 % responded supports food courts, 30.43% retail shop, 8.70% all however 43.48% mentioned none of them will increase the ridership.

Regarding provision of wider footpath, bus bay, park& ride facilities adjacent station about 87% respondents opined the positive relationship with the ridership and remaining responded expressed negative relationship. Regarding TOD (Provision of Housing, Commercial, recreational, medical, entertainment facilities in the vicinity of station area) about 4.34% Shopping mall, 4.34% Commercial Facilities, 47.82% Medical Facilities, 30.43% All Facilities and 13.07% mentioned more than one facility . In general, there is a positive relationship between TOD and station ridership.

Question no 16 was an open-ended question, to know what other parameters relates to the station ridership according to the respondents. These parameters are security, fare, cleanliness, special arrangement for women. Security, Fare, 4.34% Cleanliness, 4.34% Women coach and About 34.78% shows concern about security, about 30.43%likes comparable fare with the existing transport facilities, about 4,34% emphasis on cleanliness, and 4.34% raised special arrangement for women to ride metro rail. About 26.11% identified no other parameters influence the ridership. The interview revealed that factors like fare and security have much influence station ridership of the passenger.

Analysis for Key Informants Informer Interview

Four key informants were interviewed to dig down not only the parameters responsible for station ridership but also overall contribution of metro rail system to reduce traffic congestion, professionalism of system management, cost effectiveness of the system in terms of ridership.

More than two of the informants said that station ridership depends on several factors like travel demand for residential, business and commercial activities. Provisions like entry and exit facilities ,wider foot path, last mile connectivity with feeder bus services & bicycle , park & ride facilities, bus bay and bus stops, pick and drop boxes, queueing system, connectivity with other metro lines ,connectivity with BRTC Bus Depot nearby the Pallabi Station, connectivity with Mirpur12 residential area these are key to increase the Pallabi station ridership . One informant raised that station surrounding needs to be hawker free and free from water logging which is critical to attract more passengers particularly in rainy season. One informant emphasis on fixing the fare. He suggested to fix the fare even below the existing services to attract more passenger with increased revenue if the passenger ridership dips down the forecasted ridership.

Regarding reduction of traffic congestion one of the key informants inform that metro rail will operate every 4 minutes interval in each station and the expected passenger carrying capacity is 60000 passengers in both direction when it will run in full capacity. So, it is expected that traffic congestion will be reduce along the MRT line -6 corridor. However, to reduce congestion in other area it requires to increase network of MRT or other modes as opined by the key informant.

There is a perception that metro rail operation may not be done professionally. Operation may not be continued as planned maintaining international standared. At this point one of the informant emphasis that whole system of metro rail operation is computerized and centrally operated and monitored from Operation Control Center (OCC). The train is basically driverless. Drivers duty merely to response in case of emergency only. Operators like driver, station controller, OCC operator is under recruitment. They will be trained in Japan and mentored by the experienced professional during operation. There will be less human interference during operation. Some of the informant identified 'reliability and frequency' is very important for station ridership.

One of the informants opined that to make the operation cost effectively all-out effort will be given. Operation of metro system will be demand driven. During pick hour frequent service will be provided while during off pick hour frequency of the train will be adjusted. To make the operation financially sustainable there will be some non-rail business like revenue collection from advertisement inside the train and station.

From the above analysis several parameters were identified which are responsible for potential ridership in Pallabi Station. These are first and last mile connectivity of metro station, integration of

existing bus depot adjacent to metro station, facilities inside/outside of the station, provision of wider footpath, bus bay, park& ride facilities surrounding the station, travel demand for residential, business and commercial activities, connectivity with BRTC Bus Depot near the Pallabi Station, with Mirpur12 residential area, TOD facilities vicinity of the station and other matters like reliability and frequency ,security, fare, cleanliness, special arrangement for the women etc.

Recommendations

In this study the potential parameters of future Pallabi metro station ridership has been investigated. The parameters identified are first and last mile connectivity of metro station, integration of existing bus depot adjacent to metro station, facilities inside/outside of the station, provision of wider footpath, bus bay, park& ride facilities surrounding the station, travel demand for residential, business and commercial activities, queueing system, connectivity with other metro transport mode ,connectivity with BRTC Bus Depot near the Pallabi Station, connectivity with Mirpur12 residential area, TOD facilities vicinity of the station and other matters like reliability and frequency ,security, fare, cleanliness, special arrangement for the women, non-rail business these are the potential parameter to increase the Pallabi station ridership. From the interview it is evident that some responded identified some parameters having high influence with ridership while other parameters have moderate to low influence with the ridership. In this context further investigation is necessary to find the correlated parameters to ridership so that DMTCL management has the opportunity to make choice to develop facilities that will impact to the ridership of Pallabi Metro station specifically and all other stations of MRT-Line 6 in general.

Conclusion &Implication

The research has been undertaken as part of course curriculum of 126th Advance Course on Administration and Development. So far of my knowledge similar kind of research work has not been undertaken before. Several potential parameters responsible for Pallabi metro station has been identified by this research work. However, opinion of only twenty-three respondent and four key informant interviews has been considered. Based on this small sample size it is not wise to conclude the identification of potential parameter responsible for future ridership on Pallabi station . This research work will facilitate the future research options which will be based on reasonably larger size representative sample to identify the parameters to estimate the ridership in Pallabi Metro station. In

terms of policy formulation, ridership estimation is very important to assesses the fair box revenue and make the metro operation financially self-sufficient. Not only that the trend of modern town planning incorporate mass rail transit facilities where there is a tendency to maximize ridership by applying mixed land use surrounding to the station area which is very much relevant in case of MRT line-6, the first metro line in Bangladesh.

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Annexure-A

(Questionnaires)

Questionnaire

Name of the Responded:
উত্তরদাতার নাম: পরিমল মন্ডল সাগর।

Profession:
পেশা: চালু ব্যবসায়ী (এল. জি ব্রাদার্স)

Age:
বয়স: ৩৫ ও ৩৬ বছর।

1. Do you know there will be a Metro Station near Pallabi Bus Stand?
আপনি কি জানেন পল্লবী বাস স্ট্যান্ডের নিকট মেট্রোরেলের একটি ষ্টেশন নির্মিত হবে?

হ্যাঁ।

2. How far your residence from Pallabi Metro Station?
আপনি পল্লবী ষ্টেশন থেকে কত দূরে থাকেন?

১/২ কি.মি.।

3. How will you reach Pallabi Metro Station to go to your destination? Please put tick mark to the following options.
আপনার গন্তব্যে যাওয়ার জন্য পল্লবী মেট্রোষ্টেশনে কিভাবে আসবেন? দয়া করে নিম্নের অপশনসমূহে ঠিক চিহ্ন দিন।

(i) Walking (পায়ে হেটে) (ii) NMT (রিক্সা/ভ্যান) (iii) City Bus (বাস)
(iv) Multimode (একাধিক পরিবহন ব্যবহার করে)

4. If you choose the multimode which combination you will need to use?
আপনি যদি একাধিক পরিবহন ব্যবহার করে থাকেন তাহলে কি কি ব্যবহার করবেন?

Example: Walking & NMT or NMT & City bus please Mention:
উদাহরনস্বরুপ: হাটা ও রিক্সা/ভ্যান অথবা রিক্সা/ভ্যান ও সিটি বাস। দয়া করে উল্লেখ করুন:

5. Which destination you prefer to travel by metro rail using Pallabi Metro Station? Please mention the name.
আপনি পল্লবী ষ্টেশন ব্যবহার করে কোথায় যেতে চান? দয়া করে উল্লেখ করুন।

মতিঝিল।

6. After riding Metrorail and arriving the desired Metro Station which other modes you will need to use to reach your final destination? Please mention the name.
আপনি মেট্রোরেল ব্যবহার করে কাঙ্খিত ষ্টেশনে নামার পর গন্তব্যে যেতে কি ধরনের পরিবহন ব্যবহার করবেন? দয়া করে নিম্নের অপশনসমূহে ঠিক চিহ্ন দিন।

(i) Walking (পায়ে হেটে) (ii) NMT (রিক্সা/ভ্যান) (iii) City Bus (বাস) (iv) Multimode (একাধিক পরিবহন ব্যবহার করে)

7. If you Chose multimode in question No-6 which combination you will need to use?
প্রশ্ন নং-৬ এর উত্তর যদি "একাধিক পরিবহন ব্যবহার" হয় করেন তবে সেগুলো কি কি?
Example: Walking & NMT or NMT & City bus please Mention:
উদাহরনস্বরুপ: হাটা ও রিক্সা/ভ্যান অথবা রিক্সা/ভ্যান ও সিটি বাস দয়া করে উল্লেখ করুন:

হাঁটা, রিক্সা ও সিটি বাস।

8. Do you agree if people from their home come to the Pallabi Station, ride Metrorail and finally reach their destination conveniently, will increase ridership?
আপনি কি মনে করেন যাত্রীসাধারণ যদি সহজে স্টেশনে এসে এবং স্টেশন থেকে নেমে সহজে গন্তব্যে পৌছতে পারে তাহলে স্টেশনে আগত যাত্রীসংখ্যা বৃদ্ধি পাবে?

(a) Yes (হ্যা) (b) No (না)

9. If the answer of question no.8 is 'yes' do you think following facilities are necessary to come to station and to go to the destination using Metro rail conveniently. Please put tick mark in following options.
যদি (৮) নং প্রশ্নের উত্তর হ্যা হয় তবে স্টেশনে আসা ও স্টেশন থেকে গন্তব্যে পৌছানোর জন্য নিম্নোক্ত কোন কোন সুবিধাদির প্রয়োজন। দয়া করে নিচের অপসনসমূহে ঠিক চিহ্ন দিন। একাধিক ঠিক চিহ্ন দেয়া যেতে পারে।

(a) Wider Footpath (সুপ্রশস্থ ফুটপাত) (b) bicycle lane (বাইসাইকেল লেন) (c) Reliable Bus Network (নির্ভরযোগ্য বাস সার্ভিস) (d) All (সবকটি)

10. There is a BRTC depot adjacent to Pallabi Metro Station. Do you think integration with BRTC depot will attract more passenger to Pallabi Metro station?
পল্লবী বাসস্ট্যান্ডের নিকট বিআরটিসির একটি ডিপো রয়েছে। আপনি কি মনে করেন বিআরটিসির ডিপোকে মেট্রোরেলের সাথে সমন্বিত করে ব্যবহার করলে পল্লবী স্টেশনে যাত্রীসংখ্যা বৃদ্ধি পাবে?

(a) Yes (হ্যা) (b) No (না)

11. The length of Pallabi Station is about 180 meters. For convenience of the passenger lift, escalator and stair will be constructed. Please mention, what other facilities will increase passenger ridership in Pallabi Metro Station.
পল্লবী ষ্টেশনের দৈর্ঘ্য প্রায় ১৮০ মিটার। যাত্রী সাধারণের ষ্টেশনে উঠার সুবিধার্থে লিফট এক্সেলেটর এবং সিড়ির ব্যবস্থা রয়েছে। পল্লবী মেট্রোস্টেশনে যাত্রীবৃদ্ধিকরণে অন্যান্য কি সুবিধাদি প্রদান করা যায় উল্লেখ করুন।

অন্যান্য সুবিধাদির প্রয়োজন নেই।

12. Do you think following facilities inside the stations will attract more passenger to Pallabi Metro Station? Please put tick mark in one of the following options.

আপনি কি মনে করেন পল্লবী স্টেশনের অভ্যন্তরে নিম্নোক্ত সুবিধাদি সমূহ যাত্রীসাধারণকে স্টেশন ব্যবহারে উৎসাহিত করবে? দয়া করে নিচের অপসনসমূহে টিক চিহ্ন দিন। একাধিক টিক চিহ্ন দেয়া যেতে পারে।

(a) Food Court (খাবারের দোকান) (b) Retail shop (খুচরা দোকান) (c) Gymnasium (ব্যায়ামাগার) (d) All (সবকটি) (e) কোনটিই নয়

13. Do you think wider footpath, bus bay, park & ride facilities are necessary in the station area? Please answer Yes or No.
আপনি কি মনে করেন স্টেশন এরিয়াতে সুপ্রশস্থ ফুটপাত, বাস-বে, পার্ক ও রাইড সুবিধা স্টেশন ব্যবহারকারী যাত্রীসাধারণকে আকৃষ্ট করবে? অনুগ্রহপূর্বক হ্যা এবং না-তে জবাব দিন।

(a) Yes (হ্যা) (b) No (না)

14. If the facilities mentioned in the question no.13 are provided will it increase passenger? Number of passengers will be.
যদি উল্লেখিত ১৩-নং প্রশ্নের উত্তর হ্যা হয় তবে বর্ণিত সুবিধাদি প্রদান করলে স্টেশনে আসার জন্য যাত্রীগণ উৎসাহিত হবে কি না? এক্ষেত্রে যাত্রীসংখ্যা বৃদ্ধির অবস্থা কেমন হবে?

(a) Minor increase (সামান্য বৃদ্ধি পাবে) (b) Increase substantially (উল্লেখযোগ্য পরিমাণ বৃদ্ধি পাবে) (c) Not increase (বৃদ্ধি পাবে না)

15. Do you think following facilities vicinity of the station will attract more passenger? (আপনি কি মনে করেন স্টেশনের আশেপাশের নিম্নোক্ত সুবিধাদি স্টেশনে আগত যাত্রী সংখ্যা বৃদ্ধি করবে?)

(a) Housing (আবাসন) (b) Shopping Mall (শপিং মল) (c) Commercial Facilities (বাণিজ্যিক সুবিধাদি) (d) Entertainment Facilities (বিনোদন সুবিধাদি) (e) Medical facilities (চিকিৎসা সুবিধা) (f) All mention (উল্লেখিত সবগুলো)

16. What other issues do you think important to increase Pallabi Metro Station ridership? Please mention.
আপনার মতে, পল্লবী স্টেশনে যাত্রী সংখ্যা বাড়ানোর জন্য আর কি কি বিষয় গুরুত্বপূর্ণ? দয়া করে উল্লেখ করুন।

১. স্টেশন এরিয়াতে পরিচ্ছন্ন রাখার বিষয়ে
সংশ্লিষ্ট কর্তৃপক্ষকে গুরুত্ব দিতে হবে।
২. নিরাপত্তার বিষয়টি সবসময় নিশ্চিত করতে হবে
৩. টিকেটিং সিস্টেম আধুনিক ও যুগোপযোগী হতে হবে

Questionnaire For KII

(a) How does Metro Station enable to control over traffic disruption?

(b) What steps so far you have taken to ensure professionalism in overall Management.

(c) How far this sort of Metro station be cost effective to attract more passengers on board?

(d) What are the important parameters affecting station ridership in general and particular to Pallabi Station.