

DHAKA TRANSPORT COORDINATION AUTHORITY (DTCA)

PREPARATION OF COMPREHENSIVE TRANSPORT MASTER PLAN WITH PRE-FEASIBILITY STUDY OF MASS TRANSIT NETWORK & CONCEPTUAL DESIGN OF MULTIMODAL HUB FOR NARAYANGANJ CITY CORPORATION

REQUEST FOR QUOTATION FOR TRAFFIC SURVEY (PACKAGE 1) IN PROJECT STUDY AREA



Request for Quotation (RFQ) No: 7060613-NCTMP-TRA-TOR-001

Issue Date: November 2023

Quotation Submission Letter

[Use Letter-head Pad]

To

Team Leader

Consultancy Services for Preparation of Comprehensive Transport Master Plan with Pre-Feasibility Study of Mass Transit Network & Conceptual Design of Multimodal Hub for Narayanganj City Corporation Project

ACE Consultants Ltd., Bangladesh in Joint Venture with BCL Associates Ltd., SMEC International Pty. Ltd., and YOOSHIN Engineering Corporation

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Re: Request for Quotation (RFQ) No: 7060613-NCTMP-TRA-TOR-001

We, the undersigned, offer to execute in conformity with the 'Conditions of Contract' for execution of the work named Request for Quotation for Traffic Survey works required for the Preparation of Comprehensive Transport Master Plan with Pre-Feasibility Study of Mass Transit Network & Conceptual Design of Multimodal Hub for Narayanganj City Corporation Project under the Dhaka Transportation Coordination Authority, Bangladesh (Package 1).

Have examined the above-mentioned Request for Quotation (RFQ), inspected the site and being familiar with all supporting information, we offer to execute the contract for the work described in this RFQ using the 'Contract Agreement' included in the RFQ.

The total Price of our Quotation including applicable Tax and VAT is **insert amount both in figure and words**.

Our Quotation shall remain valid for a period of 60 days from the date of submission and it shall remain binding upon us and, may be accepted at any time prior to its expiry date.

We declare that we have the legal capacity to enter a contract with you and have not been declared ineligible by the Government of Bangladesh on charges of engaging in corrupt, fraudulent, collusive or coercive practices.

We are not submitting more than one quotation in this RFQ process in our own name or other name or in different names. We understand that your written invitation to sign the contract shall become binding upon us until a formal contract is signed.

We have examined and have no reservations to the RFQ document issued by you on November 01 2023.

We understand that you reserve the right to reject all the quotations or annul the procurement proceedings without incurring any liability to us.

Signature of the Bidder

Seal

Date

INTRODUCTION

Narayanganj, a city in Bangladesh, is forked by the Shitalakshya River. A bustling river port due to its convenient location and good transport connections through road, rail, and waterways, Narayanganj is still a thriving business place for thousands of businesses. For the capital Dhaka, Narayanganj serves as a gateway to the Sylhet and Chattogram Region. In the recent past (2011), the Narayanganj Municipality was upgraded to Narayanganj City Corporation (NCC) coining Narayanganj, Siddhirganj, and Kadamrasul Municipality on the opposite bank of the Sitalakshya River to ensure a better living place.

However, due to unregulated development, unplanned urbanization, and an influx of people from nearby districts seeking job opportunities, NCC has become a congested and disorderly place with heavy traffic. The city, covering an area of 72.43 square kms, has a population of approximately two million people. Despite its challenges, Narayanganj remains an important commercial and industrial hub in Bangladesh. Narayanganj has been identified as one of the ten poorest districts of Bangladesh.

DTCA has undertaken a project to develop a comprehensive transport master plan (CTMP) for the Narayanganj City Corporation (NCC) area. The executing agency, DTCA, has appointed the joint venture consisting of ACE Consultant Ltd. (lead firm), BCL Associates Ltd., SMEC International Pty Ltd., and YOOSHIN Engineering Corporation to provide consultancy services for "Package No S1: Preparation of Comprehensive Transport Master Plan with Pre-Feasibility Study of Mass Transit Network and Conceptual Design of Multimodal Hub for Narayanganj City Corporation." This assignment is part of the "Preparation of Comprehensive Transport Master for Narayanganj and Gazipur City Corporation Project," which is funded by the Government of the People's Republic of Bangladesh (GoB).

To undertake the study, the Consultant intends to undertake the following traffic survey. **For Traffic survey work of NCC CTMP are divided into three packages which are shown in the table below.**

Package one	Package two	Package three
1. Classified Traffic Count (CTC); (Location: 14)	1. Classified Traffic Count (CTC); (Location: 15)	1. Axle Load Survey
2. Roadside Interview (RSI) Survey; (Location: 14)	2. Roadside Interview (RSI) Survey; (Location: 15)	
3. Pedestrian Count and Interview (PCI); (Location: 16)	3. Pedestrian Count and Interview (PCI); (Location: 17)	
4. Stated Preference Survey (SPS)	4. Travel Time Survey (TT)	
5. Bus Operator Survey (BOS)	5. Household Interview Survey (HIS)	
6. Bording Alighting Survey (BAS)	6. Establishment Survey	
7. On-board Passenger Survey	7. Tour Dairy Survey	
8. Terminal Passenger Survey and Count		

This TOR is under package 1 which will cover the following survey

Survey for Package one	Purpose
1. Classified Traffic Count (CTC); (Location: 14)	Traffic volume count
2. Roadside Interview (RSI) Survey; (Location: 14)	Origin – Destination Data Vehicle Occupancy (VO) Data
3. Pedestrian Count and Interview (PCI); (Location: 16)	Pedestrian count and OD
4. Stated Preference Survey (SPS)	Modal choice, WTP, VOT
5. Bus Operator Survey (BOS)	Identify total number of buses, drivers, and crews, bus fare, bus operating cost, maintenance cost, and salary structure.
6. Boarding Alighting Survey (BAS)	Bus passenger number
7. On-board Passenger Survey	Bus passenger OD
8. Terminal Passenger Survey and Count	Bus/ Rail/ Waterway passenger count and OD

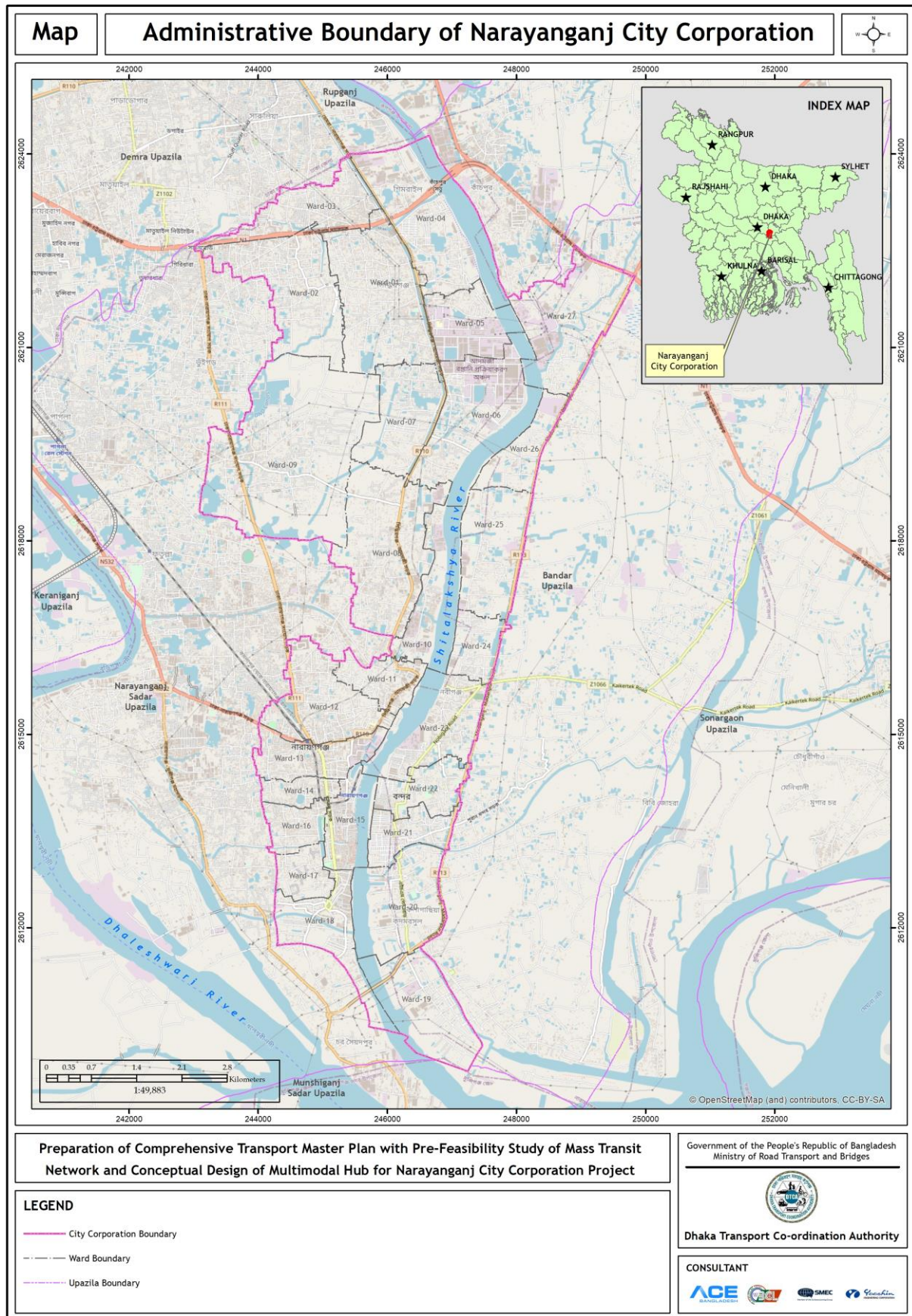


Figure 1: Study Area of Narayanganj City Corporation

INSTRUCTION TO BIDDERS

SUBMISSION AND OPENING OF THE QUOTATION AND OTHER CONDITIONS

Bidders shall submit their 'Quotations' consisting of 'Technical Proposal' and 'Financial Proposal' for the survey. The Sub Consultant is advised to inspect the project area before submitting the proposal. The Technical Proposal shall include but not limited to,

- **'Method Statement'** to be followed to carry out the field survey and other relevant works.
- Detailed **'Work Programme'** showing the tasks to be undertaken and the duration of each individual task to be completed within the stipulated time period.
- Separate **'Safe Work Method Statement (SWMS)'** identifying hazards associated with individual tasks and control measures to be adopted in order to minimize the risk.
- **'Company Profile'** focusing on relevant information concerning previous similar Work Records in relevant Survey works within the past five years with their **project completion certificates or work order from their clients.**
- **Signed** (with Ballpoint Pen by Key Persons) and **Updated CVs** for key personnel such as Team Leader/Project Manager, Project Coordinator, Sr. Field Supervisor and Field Supervisor need to be assigned for the work and these need to be authenticated by the bidder.
- **Equipment's workability** and availability evidence/documents should be submitted.
- **Updated Trade License or Article of Association or Incorporation** (as appropriate).
- **Updated Income Tax and VAT Certificates.**
- **Bidders are highly encouraged to submit a checklist as a summary of documents included.**
- **Bidders are highly encouraged to submit their documents in black and white rather than using colour printer.**
- **Please print both sides of a page to save the environment for both technical and financial proposals**
- **The Sub Consultant will need to seek approval from the local law enforcement authority prior to the commencement of the survey as soon as possible. DTCA, the client as well as the JV consultant will be able to help the Sub Consultant in this regard.**

The Technical and Financial proposals shall be submitted separately in **sealed envelope**. **One original with two photocopies of 'Technical Proposal' in a sealed envelope** and **One original with Two Photocopies of 'Financial Proposal' in another sealed envelope.**

1. Sealed Envelope 01: With Only Technical Proposal for Technical Evaluation (One original with two photocopies).
2. Sealed Envelope 02: With Only Financial Proposal for Bid Opening and Financial Evaluation (One original with two photocopies).

After completion of Technical Evaluation with sealed envelope 01, the Consultant will undertake financial evaluation. The minimum threshold for Technical Proposal will be decided by the Technical Committee. Only technically accepted proposals will be selected for financial evaluation. After the financial evaluation, only the lowest bidder will be invited for negotiations and subsequent award. If for any reasons, the lowest bidder is unable to accept the offer, the Consultant reserves the right to reach the subsequent lowest bidders. (i.e.; If the same bidder belongs to packages 1 and 2 and becomes the lowest bidder for each package, in that case, the Consultant has right to invite 2nd or 3rd or subsequent lowest bidder for negotiations and subsequent award for each package.)

The Consultant's Bid Committee reserves the right to call for negotiation with the recommendation of Technical Committee. In a case where two or more responsive quotations have the same evaluated price, the successful quotation shall be decided by lottery. The Sub-Contractors are

requested to specify the unit cost of each type of traffic survey as requested in BOQ. In case of any amendments, the total cost of the survey will be calculated based on the unit cost.

The Consultant reserves the right to cancel or amend the full traffic survey at any time during the procurement process.

WORKS PROGRAMME/ METHODOLOGY

The Bidders shall submit a detailed methodology explaining how they propose to conduct the traffic survey as described in the TOR including the types of equipment to be used. They shall also submit a 'Work Programme' outlining the time frame.

For the detailed scope of work, please check the Terms of Reference (TOR) and specification.

The table below illustrates the technical evaluation details as well as the scoring for each of them. Bidders are requested to follow the evaluation scoring to prepare their proposal.

Table 1: Technical Evaluation Form and Scoring

SI No.	Description	Percentage Mark (max)	Details
01	Trade License or Articles of Association or Certificate of Incorporation (Most updated or including renewal documents)	Mandatory	Absence of the document or renewed document will disqualify the bidders from the bidding process.
02	VAT Registration Certificate (BIN)	Mandatory	Absence of the document will disqualify the bidders from the bidding process.
03	Tax Certificate (TIN Certificate)	Mandatory	Absence of the document will disqualify the bidders from the bidding process.
04	Financial Solvency Certificate	Mandatory	
05	Method Statement	25	
06	Detail Work Program	10	
07	Safe Work Method Statement (SWMS)	10	
08	Relevant Work Experience or Work Record by Company or Key Persons in the last 5 years	25	
09	Signed CV of Technical Personnel	20	
10	Equipment's workability and availability (Evidence/Documents)	5	
11	Quality of report submission	5	

Preparation of Comprehensive Transport Master Plan with Pre-Feasibility Study of Mass Transit Network & Conceptual Design of Multimodal Hub for Narayanganj City Corporation Dhaka Transport Coordination Authority



TERMS OF REFERENCE

Traffic Survey (Package-1)

1 November 2023

Document Control

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ABBREVIATIONS

BOQ	Bill of Quantities
CO	Carbon Monoxide
CTMP	City Transport Master Plan
CV	Curriculum Vitae
EPZ	Export Processing Zone
GOB	Government of Bangladesh
JV	Joint Venture
MS	Micro Soft
NCC	Narayanganj City Corporation
PM	Particulate Matter
PPE	Personal Protection Equipment
RFQ	Request for Quotation
RHD	Roads and Highways
SLM	Sound Level Meter
SWMS	Safe Work Method Statement
TIN	Taxpayer Identification Number
TMP	Traffic Management Plan
TOR	Terms of Reference
VAT	Value Added Tax

1 OVERVIEW

The assigned task for the CTMP for NCC includes conducting a pre-feasibility study of a mass transit system and creating a conceptual design for a multi-modal hub. The focus of this study is to address social, economic, and environmental concerns while promoting citizen participation. The goal is to support NCC's vision of developing a planned city that is eco-friendly, clean, healthy, safe, and free from poverty. The CTMP aims to ensure that the transport system in Narayanganj is modern, efficient, sustainable, and capable of meeting the needs of its growing population.

1.1 Introduction

This document shall be applied to the "Traffic Survey (Package- 1) " for " Preparation of Comprehensive Transport Master Plan with Pre-Feasibility Study of Mass Transit Network and Conceptual Design of Multimodal Hub for Narayanganj City Corporation." Being carried out by the ACE-BCL-SMEC-YOOSHIN JV. Which consists of ACE Consultant Ltd. (lead firm), BCL Associates Ltd., SMEC International Pty Ltd., and YOOSHIN Engineering Corporation

To undertake the study, the Consultant intends to undertake a comprehensive traffic survey. For the Traffic survey work of NCC CTMP is divided into three packages. This document outlines the Terms of Reference (TOR) for the proposed traffic survey under package 1 as described in Table 2.

Table 2: Proposed Traffic Survey

Survey for Package one	Purpose
1. Classified Traffic Count (CTC); (Location: 14)	Traffic volume count
2. Roadside Interview (RSI) Survey; (Location: 14)	Origin – Destination Data Vehicle Occupancy (VO) Data
3. Pedestrian Count and Interview (PCI); (Location: 16)	Pedestrian count and OD
4. Stated Preference Survey (SPS)	Modal choice, WTP, VOT
5. Bus Operator Survey (BOS)	Identify the total number of buses, drivers, and crews, bus fare, bus operating cost, maintenance cost, and salary structure.
6. Boarding Alighting Survey (BAS)	Bus passenger number
7. On-board Passenger Survey	Bus passenger OD
8. Terminal Passenger Survey and Count	Bus/ Rail/ Waterway passenger count and OD

1.2 Objective

For NCC CTMP as well as to ensure a successful pre-feasibility study of a mass transit system and creating a conceptual design for a multi-modal hub, a comprehensive traffic survey is required at specific locations.

1.3 Project area

Narayanganj City Corporation and its vicinity.

1.4 Scope of Works

The scope of the traffic survey includes, but not necessarily limited to, the following:

- Classified Traffic Count (CTC)
- Roadside Interview (RSI) Survey
- Pedestrian Count and Interview (PCI)
- Stated Preference Survey (SPS)
- Bus Operator Survey (BOS)
- Boarding Alighting Survey (BAS)

- On-board Passenger Survey
- Terminal Passenger Survey and Count
- Preparation of all relevant safety documentation (e.g., SWMS) and submission to the JV Consultant for approval prior to conducting site works. It is the responsibility of the survey company to take all necessary steps to conduct the survey work safely.

1.5 The Client and the JV Consultant

The Client is the Dhaka Transport Coordination Authority (DTCA) and the JV Consultants are ACE Consultants Ltd., in JV with BCL Associates Ltd., SMEC International Pty Ltd., Yooshin International Corporation. All survey works shall be monitored in the field by the JV Consultant and the representative of DTCA. All survey works are required to be approved by the JV Consultant.

1.6 Sub-Consultant

All survey work associated with the project will be carried out by the Sub-Consultant appointed under this agreement. The bidder before the award of the work will undergo a technical and financial evaluation (separately).

1.7 Sub-Consultant's Obligations

The Sub-Consultant shall liaise with the representative of the JV Consultant and/ or DTCA on a daily basis to discuss day-to-day activities, progress, and problems encountered. In performing their duties, the Sub-Consultant shall:

- Deploy suitably qualified and experienced staff with each survey team.
- Obtain all necessary approval/ prior permission from the relevant authority.
- Submit a detailed programme of works showing the tasks to be undertaken and the duration of each individual task.
- Submit detailed method statement of all field survey works before commencing site operations to ensure safety.
- Submit daily progress report for all field surveys to JV Consultant.
- If applicable, provide a list of all machinery, equipment, and software necessary to carry out the work along with their updated workability, calibration, and license renewal records.
- Organize necessary transport and accommodation for survey staff to perform the fieldwork.
- During the execution of the work, submit progress reports to the JV Consultant.

JV Consultant considers safety as the utmost priority in conducting any field survey work. It is obligatory for the Sub-Consultant to take all necessary steps to conduct the survey work in a safe manner. All machinery and equipment to be used in the field must be safe to use and field personnel must wear appropriate "Personal Protection Equipment" (PPE).

While surveying on/near existing roads or in a crowded area, an appropriate "Traffic Management Plan" (TMP) shall be prepared and implemented during field survey work, as required. Caution shall be exercised while surveying near an existing overhead power line or any other hazardous objects or situation. No member of the survey team should take any risks to perform survey work near live traffic.

1.8 Duration of Work

- Field survey work shall commence within seven (07) calendar days from the date of award of the contract.
- Survey duration and time details are shown in Table 3.

Table 3: Survey duration and time

Survey for Package One	Survey Duration and Time
1. Classified Traffic Count (CTC); (Location: 14)	<ul style="list-style-type: none"> – 72 hours, Three days (7:00 am Saturday to 7:00 am Tuesday): 11 Location – 96 hours, Four days (7:00 am Friday to 7:00 am Tuesday) : 3 Location
2. Roadside Interview (RSI) Survey; (Location: 14)	<ul style="list-style-type: none"> – 72 hours, Three days (7:00 am Saturday to 7:00 am Tuesday): 14 Location
3. Pedestrian Count and Interview (PCI); (Location: 16)	<ul style="list-style-type: none"> – 16 hours per day for three days (i.e.; Saturday to Monday; 7:00 am to 11:00 pm): 16 Location
4. Stated Preference Survey (SPS)	<ul style="list-style-type: none"> – 1,500 samples at the specific location
5. Bus Operator Survey (BOS)	<ul style="list-style-type: none"> – 12 Bus company on any weekday
6. Boarding Alighting Survey (BAS)	<ul style="list-style-type: none"> – 12 bus routes* 10 bus trips per route= 120 bus trips on any weekday
7. On-board Passenger Survey	<ul style="list-style-type: none"> – 12 bus routes* 10 bus trips per route= 120 bus trips on any weekday
8. Terminal Passenger Survey and Count	<ul style="list-style-type: none"> – Bus/ rail/ water terminal or station at any week day – Total 3,000 sample, 1,00 each for bus/ rail/ water terminal/ station

1.9 Transportation

All travel arrangements including transportation of the Sub-Consultant's personnel and equipment to perform the job at site and transportation between job sites shall be provided by the Sub-Consultant.

1.10 Accommodation and Other Expenses

Accommodation for the Sub-Consultant's personnel and storage of the equipment at the site and other expenses such as the establishment of a temporary tent, per diem, coordination fees, communication fees, first aid kit, medicine, etc., shall be provided by the Sub-Consultant.

1.11 Work Programme and Method Statement

The Sub-Consultant shall submit a 'Work Programme' outlining how they propose to execute the works within the timeframe given in the relevant clause of the TOR. The Sub-Consultant shall submit details of the technical team including CVs of all technical personnel. The Sub-Consultant shall submit details of equipment and machineries to be used in executing the works. Availability of the technical personnel, equipment and machineries will be verified by the JV Consultant. The Sub-Consultant shall submit details of his work experience in undertaking similar works completed within the last 5 years. The Sub-Consultant shall submit a 'Method Statement' of how he will execute the works as per the requirements of the TOR before starting his works. A separate 'Safe Work Method Statement' (SWMS) identifying potential hazards associated with individual tasks and control measures to be adopted in order to minimize the risk, shall be submitted.

In order to execute the survey works within the proposed timeframe, the survey team is required to be mobilised as early as possible. Specific survey locations are to be agreed by the JV Consultant. The minimum requirement of the equipment and manpower should be specified from Sub-Consultants.

1.12 Terms of Payment

Payment shall be made as follows:

- The rates will cover all costs incurred by the Sub-Consultant, and no separate payment shall be made for any other costs not included in the Bill of Quantities (BOQ).
- After mobilization for field survey work, the sub-consultant may claim 20% of the total contract value.
- After completion of the field survey work and submission of the deliverables, the sub-consultant may claim 50% of the total contract value.
- The remaining final 30% payment will be paid on acceptance of all the electronic copies and paper copies of the documents. Final payment shall be made within one (01) month of the submission of the final invoice. This shall be submitted after the acceptance of the Sub-Consultant's all deliverables (both electronic and paper versions).
- A penalty of BDT 2,500.00 per day will be imposed for any delay in the deliverables. However, the maximum amount of penalty will be 20% of the final bill amount.
- Tax and VAT will be deducted from each payment as per the rules of the Government of Bangladesh.
- **Any delay in starting the survey work mentioned in Section No. 1.8 will result in the termination of the contract.**

Invoices shall be submitted to the JV Consultant's Team Leader. Advance payment will not be allowed for this work.

2 Technical Specification for Field Work and Data Collection

This site appreciation has been prepared based on the site reconnaissance survey carried out by the Consultant's team. The Sub-consultant, after a site visit, may propose alternative locations due to unavoidable circumstances with prior discussion with the Consultant.

The consultant has undertaken site visit to familiarize with the ground conditions.

2.1 Classified Traffic Count (CTC)

The objective is to identify travel patterns that vary in time of day and week from a representative sample.

2.1.1 Survey Methodology and Equipment Specifications

The Classified Traffic Count (CTC) Survey equipment specifications are as follows:

- 15-minute interval directional traffic flow needs to be counted at mid-block count and turning movement for intersection count location.
- **The traffic count needs to be conducted at a time for all locations under Package 1 and Package 2.**
- 24 types of vehicles need to be considered (excluding pedestrians; pedestrian count will be covered under pedestrian count and interview survey) for traffic count (see: **Appendix A**).
- Video cameras should be used to capture video recordings.
- Video cameras should be equipped with night vision capabilities and wide-angle vision approved by JV Consultants.
- Video camera should be mounted above vehicle height (**approximately 6 to 10 m above**) adjacent to or in the middle (on the median) of the roadway.
- Video footage should be clear enough to identify vehicle classification.
- Availability of lights during dark.
- Due to adverse weather or for absence of electricity, an alternative power supply needs to be provided.
- One field Supervisor and one technician should be present on site per shift for each location.
- The minimum number of cameras for each location is mentioned in **Appendix C**. The Sub-Consultant should follow it.

2.1.2 Location and Duration of Survey

Classified Traffic Count (CTC) survey needs to be conducted at 14 locations including mid-block locations, three-leg intersections and four-leg intersections. Duration and location are as follows:

- 72 hours, Three days (7:00 am Saturday to 7:00 am Tuesday): 11 Location
- 96 hours, Four days (7:00 am Friday to 7:00 am Tuesday): 3 Location

Classified video traffic count survey location map is shown in **Appendix B** and Details of survey locations including coordinates and duration are available in **Appendix C**.

2.1.3 Data Entry Sheet

Classified video traffic count survey sample sheet is available in **Appendix D**

2.2 Roadside Interview (RSI) Survey

The objective of this survey is to understand the OD pattern. Vehicle occupancy information is included in the RSIs' questionnaire.

2.2.1 Survey Methodology and Equipment Specifications

The Roadside Interview survey (RSI) needs to follow the following requirements:

- All RSI locations should be covered for the CTC survey. RSI needs to be conducted at a time for all locations under Package 1 and Package 2.
- RSI survey is expected to cover a significant percentage (minimum 10%) of the total traffic which will be enough to be representative following the industry standard. Sample numbers also need to be stratified based on the traffic count.
- 24 types of vehicles need to be considered (excluding pedestrians; pedestrian count will be covered under pedestrian count and interview survey) for traffic count (see: **Appendix A**).
- All required information on the Roadside Interview Survey (RSI) form needs to be fully completed. The Sub-consultant is encouraged to use the digital data collection process using smart tabs such as Kobo Toolbox or similar.
- RSI survey needs to cover all directional flow at mid-block as well as intersection location.
- Enough lighting needs to be arranged for RSI survey during the dark.
- Proper road safety measures need to be taken to conduct roadside interviews.
- One field Supervisor and four surveyors (minimum) should be present on site per shift for each location on each side of the road where RSI survey will be conducted. RSI sites are to be surveyed for both directions at Mid-Block and all approach directions of intersection.

2.2.2 Location and Duration of Survey

Roadside Interview (RSI) survey needs to be conducted at 14 locations including mid-block locations, three-leg intersections and four-leg intersections. Duration and location are as follows:

- 72 hours, Three days (7:00 am Saturday to 7:00 am Tuesday): 14 Location

2.2.3 Questionnaire and Data Entry Sheet

Roadside Interview Survey (RSI) survey form is shown in **Appendix E**. TAZ number/IDs will be provided by the Consultant for the sub-consultant to follow.

2.3 Pedestrian Count and Interview (PCI) Survey

The objective is to capture the pedestrian flow and OD pattern in the NCC area.

2.3.1 Survey Methodology and Equipment Specifications

Pedestrian count and interview survey need to follow the following requirements.

- 15-minute interval directional pedestrian flow of both sides of the road needs to be counted at mid-block count and the pedestrian number crossing the road at the intersection.
- **The pedestrian count needs to be conducted at a time for all locations under Package 1 and Package 2 with the Classified Traffic Count (CTC) survey.**
- Video cameras should be used to capture video recordings.
- Video cameras should be equipped with night vision capabilities and wide-angle vision approved by JV Consultants.
- The video camera should be mounted above vehicle height (**approximately 6 to 10 m above**) adjacent to or in the middle (on the median) of the roadway.
- Video footage should be clear enough to identify the pedestrian movement.
- Availability of lights during dark.
- Due to adverse weather or for absence of electricity, an alternative power supply needs to be provided.
- One field Supervisor and one technician should be present on site per shift for each location.
- All required information in the Pedestrian Interview Survey form needs to be fully completed. The Sub-consultant is encouraged to use the digital data collection process using smart tabs such as Kobo Toolbox or similar.

- Pedestrian Interview Survey need to be conducted simultaneously and is expected to cover a significant percentage (minimum 10%) of the total pedestrian which will be enough to be representative following the industry standard.
- Pedestrian Interview Survey need to cover all directional flow at mid-block as well as intersection location.
- For two locations, need additional camera for pedestrian count, other location will cover through camera arrangement of CTC.

2.3.2 Location and Duration of Survey

Pedestrian count and interview survey need to be conducted at 16 locations including mid-block locations, three-leg intersections and four-leg intersections. Duration and location are as follows:

- 16 hours per day for three days (i.e.; Saturday to Monday; 7:00 am to 11:00 pm): 16 Location

Pedestrian Count and Interview survey location map is shown in **Appendix F** and Details of survey locations including coordinates and duration are available in **Appendix C**.

2.3.3 Questionnaire and Data Entry Sheet

Pedestrian survey form is shown in **Appendix G**. TAZ number/IDs will be provided by the Consultant for the sub-consultant to follow. Pedestrian count survey sample sheet is available in **Appendix H**.

2.4 Stated Preference Survey (SPS)

The objective of this survey is to estimate the VOT, and WTP and understand the mode share in NCC.

2.4.1 Survey Methodology and Equipment Specifications

- All required information in the Stated preference Survey form needs to be fully completed. The Sub-consultant is encouraged to use the digital data collection process using smart tabs such as Kobo Toolbox or similar.
- The survey will be conducted in three phases.
 - 1st phase: actual data will be collected for the design of the Stated preference survey
 - 2nd phase: a pilot survey will be conducted the check the accuracy of the survey
 - 3rd phase: the final survey will be conducted.
- A total of 1,500 samples needs to be collected for this survey. Before the field survey, the consultant will fix the sample size for each three phases.

2.4.2 Location

The location of the survey is shown in Appendix I.

2.4.3 Questionnaire and Data Entry Sheet

The questionnaire of the SP survey is shown in Appendix I.

2.5 Bus Operator Survey (BOS)

Bus operator survey is conducted to understand the existing status of bus service.

2.5.1 Survey Methodology and Equipment Specifications

- All required information in the Survey form needs to be fully completed. The Sub-consultant is encouraged to use the digital data collection process using smart tabs such as Kobo Toolbox or similar.
- The Sub-consultant need to conduct the bus operator survey for the mentioned bus route (see: Table 4, Appendix J)

Table 4: List of bus route

SI	Route No	Bus Company Name	Bus Route
1	A441	Moumita	Chashra-Gulistan-Nilkhet-Shyamoli-Kollanpur-Savar-Zirani-Chandra
2	A288	Himachol	Chashra-Gulistan-Farmgate-Shewrapara-Mirpur-10,11,12
3	R3	Bondhon	Chashara-Signboard-Gulistan
4	A236	Utshob	Chashara-Signboard-Gulistan
5		BRTC	Chashara-Signboard-Gulistan
6		Sheetal	Chashara-Signboard-Gulistan
7	BRTC-12	BRTC	Chashara-Farmgate-Bijoy Sarani-Amtoli-Banani-Khilkhet-Abdullahpur-Gazipur
8		Bondhu	Chashara-Signboard-Chittagong Road
9	A424	Green Anabil	Chashara-Farmgate-Bijoy Sarani-Amtoli-Banani-Khilkhet-Abdullahpur-Gazipur
10	A229	New Anondo Transport Ltd.	Chashar-Panchabati-Fatullah-Pagla-Tikatuli-Gulistan
11		Borak	Panchabati-Fatullah-pagla-Gulistan
12		Badhon	Chashara-Sonargaon-Panam City

Note: before the field survey, route number will be provided

2.5.2 Location of Survey

The sub-consultant needs to collect those data from the bus companies' offices or depot locations.

2.5.3 Questionnaire and Data Entry Sheet

The questionnaire of the bus operator survey is shown in Appendix K.

2.6 Boarding Alighting Survey (BAS)

The objective of the boarding-alighting survey is to understand the passenger demand for each stoppage.

2.6.1 Survey Methodology and Equipment Specifications

- The Sub-consultant need to conduct the boarding alighting survey for the mentioned bus route (see: Table 4, Appendix J)
- This task requires as many people as entrances the bus has. Surveyors will count the number of passengers boarding and alighting at each stop.
- The boarding alighting survey needs to be conducted simultaneously with the on-board passenger survey (same tip).
- At least four teams per route per shift are required to complete the survey for each direction (**minimum sample size 5 per route per direction in a day, total 10 trips for each bus route or company**). The survey should cover both directions of the route and hence the selection of the buses to survey is important. Two teams team A and team B working in tandem in each shift can select one of the options presented below.
- Two teams need to start simultaneously from the opposite ends of the route, thus ensuring that both directions on the route are covered. For a given route OR (origin) to DE (destination), the two teams can start the first shift simultaneously.
 - Team A starts from the Origin O
 - Team B starts from the Destination D
- The enumerators will follow best practice guidelines:

- To record data, it is recommended that the surveyors seat themselves on the seat right behind the door. This gives them a clear view of the boarding and alighting passengers.
- Do not Switch Seats – This will make it confusing to analyse data
- Synchronize Watches – At the start of the day, make sure the watches of all team members are showing the same time. When the shift changes, new team members should match watches to leaving team members
- When starting a new sheet, make sure to fill out the header information first
- The starting tentative time for 5 trips from each direction for each company is (7 am, 10 am, 1 pm, 4 pm, and 7 pm), this time needs to be followed from the opposite direction also.
- A GPS tracker needs to be used to record the following data
 - The duration of the trip from the beginning of the line to the end;
 - A continuous time-space graph of each run. This record will provide information concerning the timing of passing major intersections, the timing of delays incurred at each bus stop, significant intersections or points of delay, traffic conditions

At the end of each run, the following information will be noted:

- Weather conditions;
- Incidences recorded during the travel (accidents, mechanical breakdowns, etc.).
- **The Sub-consultant also needs to collect the total number of bus trips made from each direction (from depot/ terminal) for each route during the survey day.**

2.6.2 Location and Duration of Survey

Any weekday for the mentioned bus route (see: Table 4, Appendix J)

2.6.3 Data Entry Sheet

The datasheet for the boarding alighting survey is shown in Appendix L

2.7 On-board Passenger Survey

2.7.1 Survey Methodology and Equipment Specifications

- All required information on the Survey form needs to be fully completed. The Sub-consultant is encouraged to use digital data collection process using smart tabs such as Kobo Toolbox or similar.
- The Sub-consultant need to conduct bus operator survey for the mentioned bus route (see: Table 4, Appendix J)
- The on-board passenger survey needs to be conducted simultaneously with the boarding-alighting passenger survey (same tip).
- At least four teams per route per shift are required to complete the survey for each direction **(minimum sample size 5 per route per direction in a day, total 10 trips for each bus route or company)**. The survey should cover both directions of the route and hence the selection of the buses to survey is important. Two teams team A and team B working in tandem in each shift can select one of the options presented below.
- Two teams need to start simultaneously from the opposite ends of the route, thus ensuring that both directions on the route are covered. For a given route OR (origin) to DE (destination), the two teams can start the first shift simultaneously.
 - Team A starts from the Origin O
 - Team B starts from the Destination D
- The tentative time for 5 trips from each direction for each company is (7 am, 10 am, 1 pm, 4 pm, and 7 pm), this time needs to be followed from the opposite direction also.

- RSI survey is expected to cover a significant percentage (minimum 30%) of the total passenger which will be enough to be representative following the industry standard.

2.7.2 Location and Duration of Survey

Any weekday for the mentioned bus route (see: Table 4, Appendix J)

2.7.3 Questionnaire and Data Entry Sheet

The datasheet for the boarding alighting survey is shown in Appendix M

2.8 Terminal Passenger Survey and Count

The terminal survey consists of passenger OD and Count this survey needs to be conducted at the bus/rail/water terminal.

2.8.1 Survey Methodology and Equipment Specifications

- All required information on the Survey form needs to be fully completed. The Sub-consultant is encouraged to use the digital data collection process using smart tabs such as Kobo Toolbox or similar.
- Video cameras need to be set up
- Video cameras should be set up at each entry/ exit location of the terminal/ station to count passengers.
- Duration of count is any working day (7:00 am to 11 pm).
- The questionnaire survey needs to be conducted at each entry/ exit location.
- A total of 3,000 questionnaire samples are needed to collect terminal surveys.

2.8.2 Location and Duration of Survey

Terminal survey locations are listed in Table 5: Location and sample size of Terminal SurveyTable 5 and illustrated in Appendix N, any working day needs to be conducted. This survey need to be conducted at any working day (7:00 am to 11 pm)

Table 5: Location and sample size of Terminal Survey

Terminal	Location	Latitude	Longitude	Sample Size
Bus Counter	Khanpur Bus Counter	23.624786	90.504864	200
	Chanmari Bus Counter	23.630148	90.496205	200
	Shibu Market Bus Counter	23.644162	90.493526	200
	Signboard Bus Counter	23.693985	90.481006	200
	Chittagong Road Bus Counter	23.697864	90.508831	200
Rail Station	Naraynaganj Rail Station	23.620714	90.506517	500
	Chashara Rail Station	23.625421	23.625421	500
Water Terminal	Narayanganj Launch Terminal	23.616966	90.505931	1000

2.8.3 Questionnaire and Data Entry Sheet

Questionnaire and passenger count form is shown in Appendix O.

3 DATA DIGITALIZATION, ANALYSIS AND ELECTRONIC COPY

All survey work data need to be digitised, analysed, and supplied in electronic format.

The deliverables of the data will include:

- CTC data needs to be converted into spreadsheets (preferably in MS Excel) for classified traffic.
- RSI data needs to be converted into spreadsheets (preferably in MS Excel).
- Pedestrian count and interview data needs to be converted into spreadsheets (preferably in MS Excel).
- Stated Preference Survey data needs to be converted into spreadsheets (preferably in MS Excel).
- Bus operator surveys need to be converted into spreadsheets (preferably in MS Excel).
- Boarding Alighting survey needs to be converted into spreadsheets (preferably in MS Excel).
- The on-board passenger survey needs to be converted into spreadsheets (preferably in MS Excel).
- Terminal passenger survey and count data need to be converted into spreadsheets (preferably in MS Excel).

4 Deliverables

The Sub-Consultant needs to ensure the deliverables of the following.

- All video data in a portable hard disk.
- Electronic copy of all survey data (preferably in MS Excel Files).
- Electronic copy of Classified Traffic Count Survey (preferably in MS Excel Files).
- All paper copies of RSI survey data (if any).
- All electronic copies of RSI survey data.
- All paper copies of SP survey data (if any).
- All electronic copies of SP survey data.
- All paper copies of bus operator survey data (if any).
- All electronic copies of bus operator survey data.
- All paper copies of Boarding Alighting survey data.
- All electronic copies of Boarding Alighting survey data.
- All paper copies of on-board passenger survey data (if any).
- All electronic copies of Boarding Alighting survey data.
- All paper copies of terminal passenger survey and count survey data (if any).
- All electronic copies of terminal passenger survey and count survey data.
- Report on all types of surveys with photographs.
- Deliverables should be supplied within **28 days** of completion of the Field Survey

5 Schedule of Field Survey Work

Tentative schedule of the field survey work is shown in the Table 6 It is recommended to follow the field survey schedule to comply with project duration requirement.

Table 6: Schedule of survey

SL. No.	DESCRIPTION	ITEMS	Month 1				Month 2			
			W1	W2	W3	W4	W1	W2	W3	W4
1	Contract Signing and mobilization									
2	Classified Traffic Count Survey	Conducting the Field survey								
		Data entry								
3	RSI Survey	Conducting the Field survey								
		Data entry								
4	Pedestrian Count and Interview	Conducting the Field survey								
		Data entry								
5	Stated Preference Survey (SPS)	Conducting the Field survey								
		Data entry								
6	Bus Operator Survey (BOS)	Conducting the Field survey								
		Data entry								
7	Bording Alighting Survey (BAS)	Conducting the Field survey								
		Data entry								
8	On-board Passenger Survey	Conducting the Field survey								
		Data entry								
9	Terminal Passenger Survey and Count	Conducting the Field survey								
		Data entry								
10		Draft								

SL. No.	DESCRIPTION	ITEMS	Month 1				Month 2			
			W1	W2	W3	W4	W1	W2	W3	W4
	Survey Report Submission	Final Report								

6 Bill of Quantities

The Bill of Quantities (BOQ) is specified in the table below. The quantity included in Table is indicative and subject to variation in line with the actual field condition.

Table 7: Templet for financial proposal

Templet for Financial Proposal (Package-1)					
Item No	Details of Survey Item	Types of Items	Quantity	Unit Rate (BDT)	Amount (BDT)
1. Classified traffic count survey (CTC)					
1.1	Mid-Block; 72 hours (7:00 am Saturday to 7:00 am Tuesday)				
1.1.2	Video Count Survey	Number of Locations	8		-
1.1.3	Data processing	Number of Locations	8		-
1.2	Three Leg Intersection; 72 hours (7:00 am Saturday to 7:00 am Tuesday)				
1.2.1	Video Count Survey - Intersection points	Number of Locations	1		-
1.2.2	Data processing	Number of Locations	1		-
1.3	Four Leg Intersection; 72 hours (7:00 am Saturday to 7:00 am Tuesday)				
1.3.1	Video Count Survey - Intersection points	Number of Locations	2		-
1.3.2	Data processing	Number of Locations	2		-
1.4	Three Leg Intersection; 96 hours (7:00 am Friday to 7:00 am Tuesday)				
1.4.1	Video Count Survey - Intersection points	Number of Locations	1		-
1.4.2	Data processing	Number of Locations	1		-
1.5	Four Leg Intersection; 96 hours (7:00 am Friday to 7:00 am Tuesday)				
1.5.1	Video Count Survey - Intersection points	Number of Locations	2		-
1.5.2	Data processing	Number of Locations	2		-
2. Roadside Interview Survey					
2.1	Mid-Block; 72 hours; (7:00 am Saturday to 7:00 am Tuesday)				
2.1.1	RSI Survey - Mid Block points	Number of Locations	8		-
2.1.2	Data processing	Number of Locations	8		-
2.2	Three Leg Intersection; (7:00 am Saturday to 7:00 am Tuesday)				
2.2.1	RSI Survey - Intersection points	Number of Locations	2		-
2.2.2	Data processing	Number of Locations	2		-

Templet for Financial Proposal (Package-1)					
Item No	Details of Survey Item	Types of Items	Quantity	Unit Rate (BDT)	Amount (BDT)
2.3	Four Leg Intersection; (7:00 am Saturday to 7:00 am Tuesday)				
2.3.1	RSI Survey - Intersection points	Number of Locations	4		-
2.3.2	Data processing	Number of Locations	4		-
3. Pedestrian Count and Interview Survey (PCI); 16 hours per day for Three days (i.e.; Saturday to Monday; 7:00 am to 11:00 pm)					
3.1	Pedestrian Count Survey				
3.1.1	Mid-block				
3.1.1.1	Video Count Survey*	Number of Locations	2		
3.1.1.2	Data processing	Number of Locations	10		-
3.1.2	Three Leg Intersection				
3.1.2.1	Data processing	Number of Locations	2		-
3.1.3	Four Leg Intersection				
3.1.3.1	Data processing	Number of Locations	4		-
3.2	Pedestrian Interview Survey				
3.2.1	Mid-block				
3.2.1.1	Pedestrian interview	Number of Locations	10		-
3.2.1.2	Data processing	Number of Locations	10		-
3.2.2	Three Leg Intersection				
3.2.2.1	Pedestrian interview	Number of Locations	2		-
3.2.2.2	Data processing	Number of Locations	2		-
3.2.3	Four Leg Intersection				
3.2.3.1	Pedestrian interview	Number of Locations	4		-
3.2.3.2	Data processing	Number of Locations	4		-
4. Stated preference survey					
4.1	Questionnaire survey	Sample	1500		
5. Bus operator survey					




Templet for Financial Proposal (Package-1)					
Item No	Details of Survey Item	Types of Items	Quantity	Unit Rate (BDT)	Amount (BDT)
5.1	Questionnaire survey	Sample	12		
6. Boarding alighting survey					
6.1	Passenger count	Bus Trip	12*10=120		
7. On-board passenger survey					
7.1	Questionnaire survey	Bus Trip	12*10=120		
8. Terminal survey					
8.1 Bus terminal					
8.1.1	Questionnaire survey	Sample	1,000		-
8.1.2	Passenger count	Terminal	5		
8.2 Rail station					
8.2.1	Questionnaire survey	Sample	1,000		-
8.2.2	Passenger count	Station	2		
8.3 Water terminal					
8.3.1	Questionnaire survey	Sample	1,000		-
8.3.2	Passenger count	Terminal	1		
9. Report					
9.1	Final Report	Copy	5		
A. Total amount excluding VAT & TAX (BDT)					-
B. AIT=(A/0.9)*0.1					-
C. VAT=(A+B)*0.15					-
Total amount including VAT & TAX (BDT)= (A+B+C)					-
* For two locations, need additional camera for pedestrian count, other location will cover through camera arrangement of CTC					

Appendix A Types of Vehicles

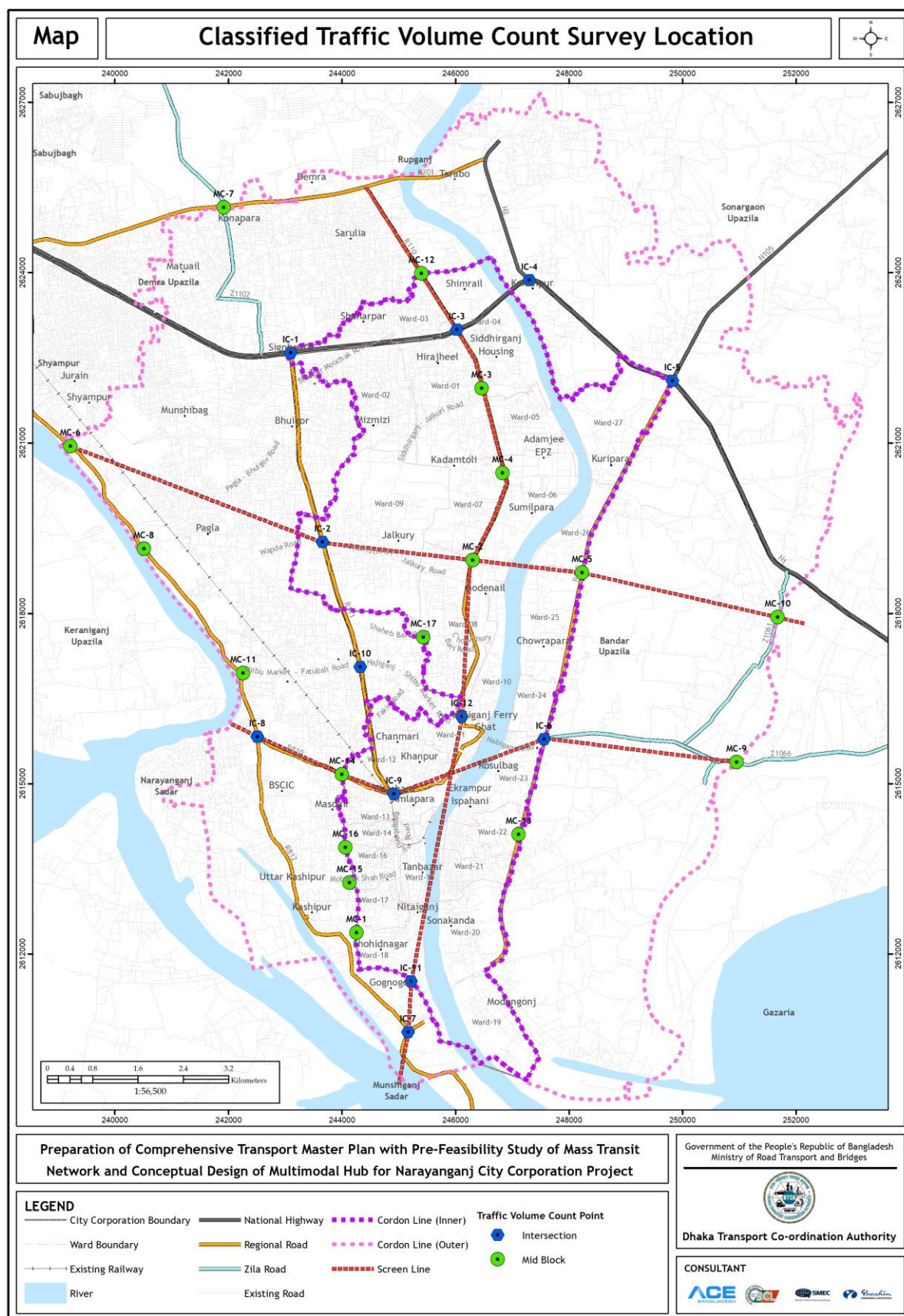
No.	Category	Characteristics	Photo
1	Pedestrian	Person (walking)	
2	Bicycle	All pedal cycles.	
3	Rickshaw	Three wheeled cycle rickshaws (manual and battery)	
4	School van	Used for school purpose	
5	Rickshaw Van	Three wheeled Van (manual and battery)	
6	Push Car (Thela Gari)	All manually drawn/pushed carts	
7	Motorcycle	All two wheeled motorised vehicles.	

No.	Category	Characteristics	Photo
8	CNG/ Mishuk	Babytaxi and Mishuks, Tempo Auto-Tempo and Auto-Vans	
9	Auto		
10	Car/SUV	All types of cars used for personal or taxi services.	 
11	Taxi	All types of cars used for taxi services.	
12	Microbus	Up to 16 seats	 
13	Jeep/Pick-up	Jeeps, and four wheels drive vehicles, such as Pajero's and Land Rover's	  
14	Tempo/Leguna/Maxi	Fixed route transit service	

No.	Category	Characteristics	Photo
15	Minibus	Between 16 and 39 seats	
16	Large Bus	More than 40 seats on 36 foot or longer chassis. Includes double decker buses	 
17	AC Bus		
18	Staff Bus		
19	School/College/ University Bus	Jeeps, SUV and four wheels drive vehicles, such as Pajero's and Land Rover's	
20	Small Open Truck/ Small Van	Small trucks up to 3 tonne payload.	  
21	Medium Truck/ Truck 2 Axle	All 2-axle rigid trucks	

No.	Category	Characteristics	Photo
22	Large Truck/ 3 Axle Truck	All 3-axle rigid trucks	
23	Container Trailer	All container carriers	
24	Tanker/ Tank Lorry		
25	Others (Ambulance, Fire engine, Towing car, Construction vehicles, Armored car, Animal Driven Car, Nosimon, Korimon, etc.)		

Appendix B Classified Video Traffic Count Survey Locations



Appendix C Details of Survey Locations

Package 1														
S N	ID	Location Types	Latitude	Longitude	Duration of Survey (Day)						Union/ Ward	Local Address	Road Type	Minimum required number of cameras
					CTC		RSI		Pedestrian count and interview					
					No of Day	Duration	No of Day	Duration	No of Day	Duration				
1	IC-1	Four leg intersection	23.693763	90.48071	4	Friday 7 am to Tuesday 7am)	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Ward No. 01	Signboard	National Highway (N1)	8
2	IC-2	Four leg intersection	23.66373	90.486777	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Ward No. 09	Jalkury	Regional Road (R111)	8
3	IC-3	Four leg intersection	23.697886	90.509363	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Ward No. 04	Chittagong Stand	National Highway (N1)	8
4	IC-4	Three leg intersection	23.705942	90.521722	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Kachpur Union	Kanchpur	National Highway (N1)	6
5	IC-5	Four leg intersection	23.690365	90.546714	4	Friday 7 am to Tuesday 7am)	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Ward No. 27	Madanpur	National Highway (N1)	8
6	IC-7	Three leg intersection	23.586071	90.503047	4	Friday 7 am to Tuesday 7am)	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Gognagar Union	Koylaghat Chottor	Regional Road (R812)	6
7	MC-1	Mid-block	23.601728	90.493813	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Ward No. 18	Hatkhola	Tertiary Road	2

Package 1														
S N	ID	Location Types	Latitude	Longitude	Duration of Survey (Day)						Union/ Ward	Local Address	Road Type	Minimum required number of cameras
					CTC		RSI		Pedestrian count and interview					
					No of Day	Duration	No of Day	Duration	No of Day	Duration				
8	MC-2	Mid-block	23.661287	90.512743	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Ward No. 06	Dhonkunda Dokkhin Para	Regional Road (R110)	2
9	MC-3	Mid-block	23.688609	90.513779	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Ward No. 01	Siddhirganj Pool	Tertiary Road	2
10	MC-4	Mid-block	23.675229	90.517666	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three day (Saturday to Monday)	Ward No. 01	College Road	Tertiary Road	2
11	MC-5	Mid-block	23.659572	90.531687	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Ward No. 25	Taltola Bus Stand	Regional Road (R113)	2
12	MC-6	Mid-block	23.678276	90.442943	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Shyampur Union	Shyampur	Regional Road (R810)	2
13	MC-7	Mid-block	23.716666	90.468695	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three days (Saturday to Monday)	Matuail Union	Konapara Bridge	Regional Road (Z1102)	2
14	MC-8	Mid-block	23.662161	90.455956	3	Saturday 7 am to Tuesday 7am	3	Saturday 7 am to Tuesday 7am	3	7 am to 11pm for each three day (Saturday to Monday)	Kutubpur Union	Pagla Bazar	Regional Road (R810)	2
15	PC-1	Three leg intersection	23.632290	90.520016	3	-	-	-	3	7 am to 11pm for each three days (Saturday to Monday)	Ward No. 23	Nabiganj Bazar		6

Package 1														
S N	ID	Location Types	Latitude	Longitude	Duration of Survey (Day)						Union/ Ward	Local Address	Road Type	Minimum required number of cameras
					CTC		RSI		Pedestrian count and interview					
					No of Day	Duration	No of Day	Duration	No of Day	Duration				
16	PC-4	Three leg intersection	23.615357	90.508516	3	-	-	-	3	7 am to 11pm for each three days (Saturday to Monday)	Ward No 22	Bandar		6

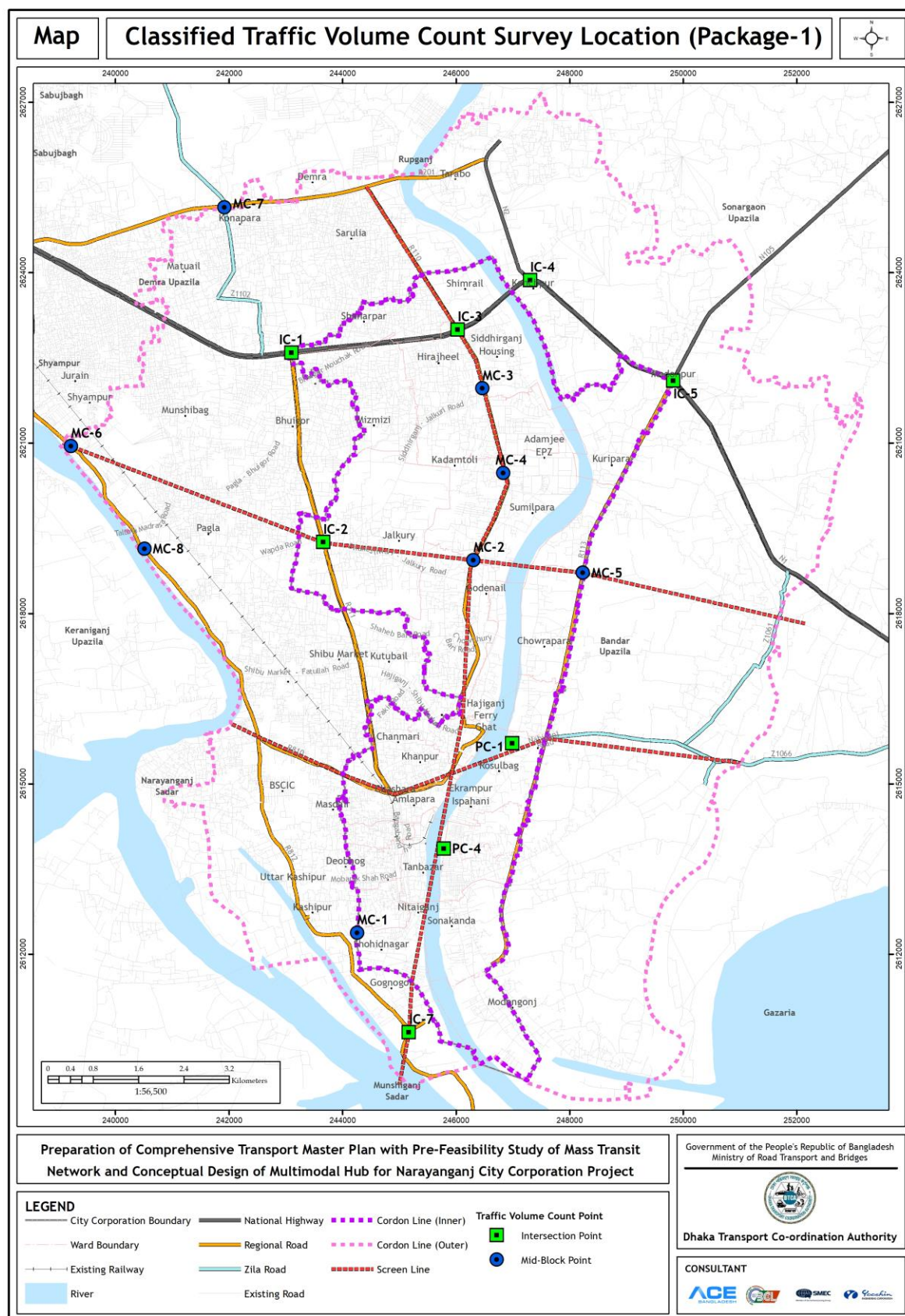
Appendix D Classified Traffic Count Survey (CTC) count sheet for Each Direction (sample)

Narayanganj City Corporation Comprehensive Transport Masterplan Project																									
Classified Directional Traffic Count Survey Data Sheet																									
Date:		Intersection/Road:																Surveyor Name:							
Day:		Approach Name:																Surveyor ID:							
Count Hours	From_to_hrs																Weather Condition								
Location Name																									
Location ID																	Supervisor								
Direction from					Direction to														Surveyor						
		Motorized Vehicles																Non-Motorized Vehicles (NMV)							
Time		Small open truck	Medium Truck	Large Truck	Container Trailer	Tanker/Tank Lorry	Tempo/Leguna/Maxi	AC Bus	Mini Bus	Staff Bus	Large Bus	School/College/University Bus	Car/ SUV	Taxi	Microbus	Jeep/ Pick-up	CNG/Mishuk	Auto	Motorcycle	Bicycle	Rickshaw	School Van	Rickshaw Van	Push Car (Thela Gari)	Others
Start	End	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
00:00	00:15																								
00:15	00:30																								
00:30	00:45																								
00:45	01:00																								
00:00	00:15																								
00:15	00:30																								
00:30	00:45																								
00:45	01:00																								
00:00	00:15																								
00:15	00:30																								
00:30	00:45																								
00:45	01:00																								

Appendix E Roadside Interview Survey (RSI) survey form

Roadside Interview (RSI) Survey Form					
1. Name of surveyor		2. Weather			
3. Date of Survey		4. Day			
5. Survey point		6. Survey time			
Trip Origin			Trip Destination		
7. Where did you start this trip			8. Where this trip will end?		
Address (Road/ Sector/Location/ Upazila/ Zila)			Address (Road/ Sector/Location/ Upazila/ Zila)		
TAZ ID			TAZ ID		
When are you returning to your home		Within Today	Within 3 Day	Within 7 Day	More than 7 days
9. Type of vehicle					
1	Pedestrian	10	Large bus/ Double Decker bus		
2	Pedestrian	11	4 Wheel Drive/ Jeep/ SUV		
3	Bicycle	12	Rickshaw		
4	Motorcycle	13	Rickshaw Van		
5	Car	14	School van		
6	Motorized 3 wheel/ CNG/ Auto Rickshaw	15	Cart		
7	Human hauler/ Leguna/ Tempo/ Maxi	16	Light Truck/ Pickup/ Small cover van		
8	Microbus/ NOAH/ Hiace	17	Medium Truck/ Tanker		
9	Mini bus/ Staff bus	18	Heavy Truck		
10. How often do you make this trip			11. Trip purpose		
1	Less than 1 time per month	origin	Purpose	Destination	
2	1-3 times per month	1	Home	1	
3	Once a week	2	Work	2	
4	2-5 times per week	3	Education	3	
5	Everyday	4	Leisure	4	
12. Vehicle Capacity(person)		5	Shopping	5	
13. Vehicle Occupancy (person)		6	Terminal	6	
Only for freight vehicle		7	Medical	7	
14. Vehcile capacity (tons)		8	Others	8	
15. Amount of goods in the vehicle (tons)					

Appendix F Pedestrian Count and Interview Survey Locations



Appendix G Pedestrian Interview Survey Form

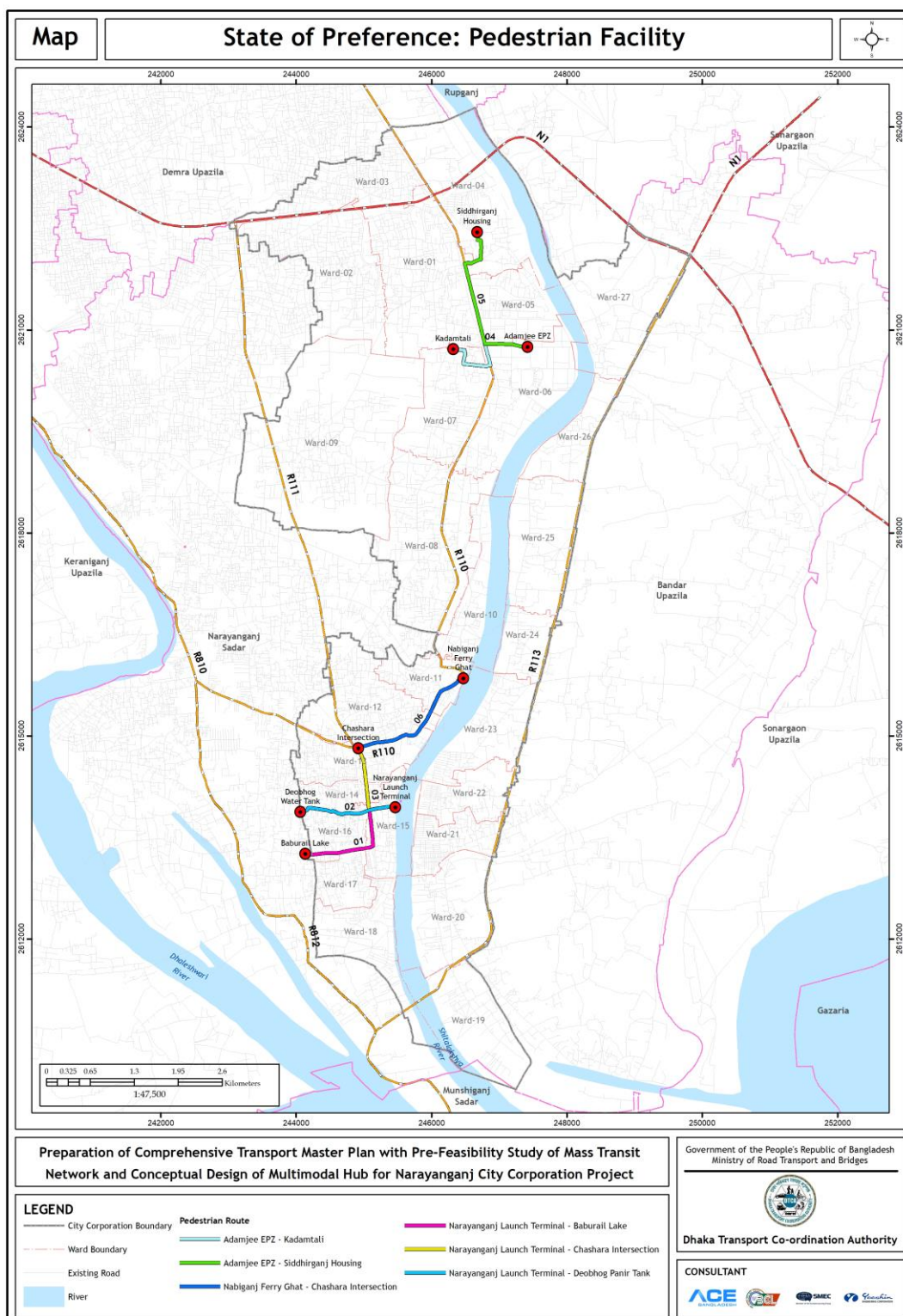
Pedestrian Interview Survey Form								
1. Name of surveyor					2. Weather			
3. Date of Survey					4. Day			
5. Survey point					6. Survey time			
Trip Origin				Trip Destination				
7. Where did you start this trip				8. Where this trip will end?				
Address (Road/ Sector/Location/ Upazila/ Zila)				Address (Road/ Sector/Location/ Upazila/ Zila)				
9. Gender		1. Male	2. Female	3. Others				
TAZ ID					TAZ ID			
10. Address of work place (Road/ Sector/Location/ Upazila/ Zila)								
11. Address of residence (Road/ Sector/Location/ Upazila/ Zila)								
12. Age								
0-2	3-6	7-10	11-20	21-30	31-40	41-50	51-60	
61-70	71-80	81-90	Greater than 90					
13 Disability				11. Trip purpose				
1	Physical Disability			origin	Purpose		Destination	
2	Autism			1	Home		1	
3	Metal illness leading to disability			2	Work		2	
4	Visual Disability			3	Education		3	
5	Speech Disability			4	Leisure		4	
6	Intellectual Disability			5	Shopping		5	
7	Hearing Disability			6	Terminal		6	
8	Deaf-blindness			7	Medical		7	
9	Cerebral Palsy (CP)			8	Others		8	
10	Multiple Disability							
11	Others							
12	Person with No Disability							
12. How often do you make this trip								
1	Less than 1 time per month							
2	1-3 times per month							
3	Once a week							
4	2-5 times per week							
5	Everyday							

Appendix H Pedestrian Count sheet for Each Direction (sample)

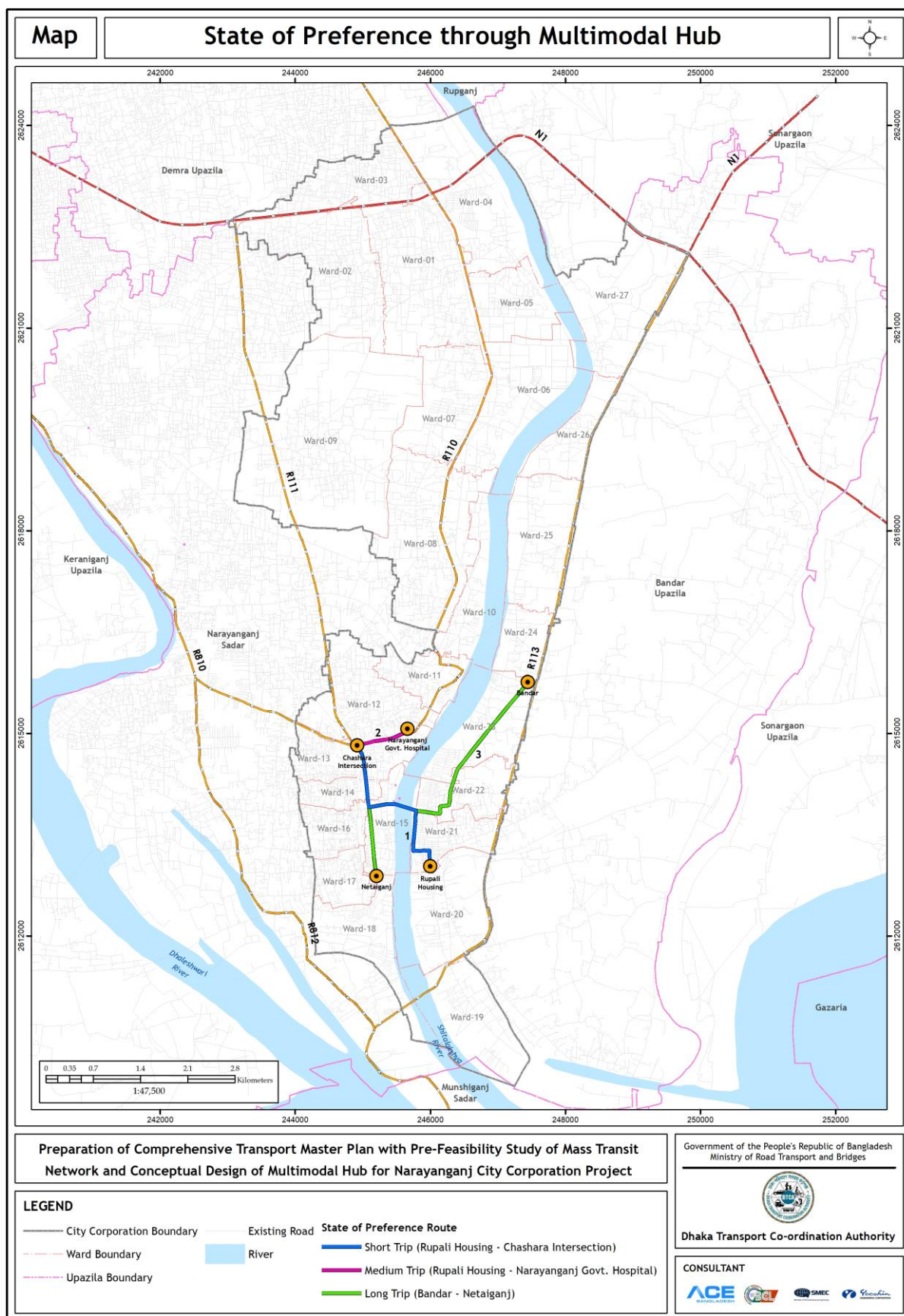
Narayanganj City Corporation Comprehensive Transport Masterplan Project					
Pedestrian Count Survey Data Sheet					
Date:		Intersection/Road:		Surveyor Name:	
Day:		Approach Name:		Surveyor ID:	
Count Hours	From_to_hrs			Weather Condition:	
Location Name					
Location ID					Supervisor
Direction from		Direction to		Surveyor	
		Pedestrian			
		Direction 1		Direction 2	
Time		D1-PD1	D1-PD2	D2-PD1	D2- PD2
Start	End				
0:00	0:15				
0:15	0:30				
0:30	0:45				
0:45	1:00				
0:00	0:15				
0:15	0:30				
0:30	0:45				
0:45	1:00				
0:00	0:15				
0:15	0:30				
0:30	0:45				
0:45	1:00				

Appendix I Stated Preference Survey Location and Survey Form

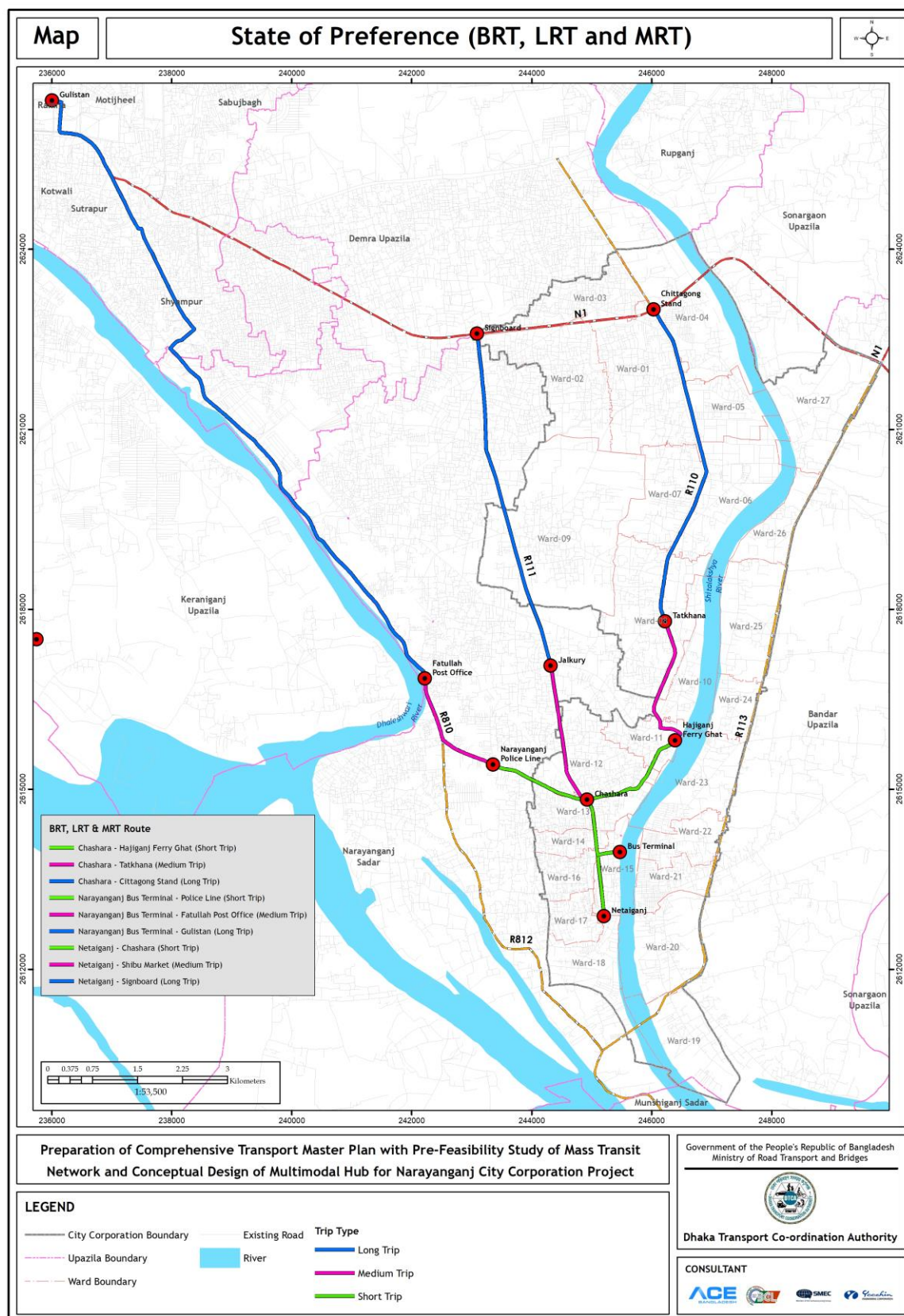
SP Survey Locations for Pedestrian Facilities Improvement



SP Survey Location at Multimodal Hub Location



SP Survey Locations for Bus Network Restructuring and Introduction of Mass Transit Service (BRT/LRT/MRT)



Stated Preference Survey Form (Sample)

Stated Preference Survey Form

(High Income/Business/Long Trip)

Survey Location Code:

Direction Code:

Name of Survey Staff:

Survey Date:

Survey Time:

Weather:

Sunny/Fair/Cloudy/Rainy

Trip Information

Q1. Trip Purpose: (please tick the relevant box)

1	Business	<input checked="" type="checkbox"/>	2	Commuting	<input type="checkbox"/>	3	Others	<input type="checkbox"/>
---	----------	-------------------------------------	---	-----------	--------------------------	---	--------	--------------------------

Q2. Income: (please tick the relevant box)

1	Low (<20,600 Tk)	<input type="checkbox"/>	2	Medium (20,601-51,600 Tk)	<input type="checkbox"/>	3	High (>51,600 Tk)	<input checked="" type="checkbox"/>
---	------------------	--------------------------	---	---------------------------	--------------------------	---	-------------------	-------------------------------------

Q3. Please state your preference on the mode choice

(please write one (1) for yes and zero (0) for no in the relevant box)

For Long Trip

Chashra

Distance=

Signboard

Q4. Mode Choice



	Mode	Options	Waiting Time (min)	IVTT (min)	Total Time (min)	Cost/Fare (Tk)	Seat/Stand [1/0]	Preference Yes/No [1/0]
1	Walking	Mean						
		Best						
		Worst						
		Better						
		Worsen						
2	Rickshaw	Mean						
		Best						
		Worst						
		Better						
		Worsen						
3	Bicycle	Mean						
		Best						
		Worst						
		Better						
		Worsen						

Q5. Mode Choice of Private Transport

	Options	Mode	Waiting Time (min)	IVTT (min)	Total Time (min)	Cost/Fare (Tk)	Seat/Stand [1/0]	Preference Yes/No [1/0]
1	Car	Mean						
		Best						
		Worst						
		Better						
		Worsen						
2	Motorcycle	Mean						
		Best						
		Worst						
		Better						
		Worsen						

Chashara								Signboard
Distance=								

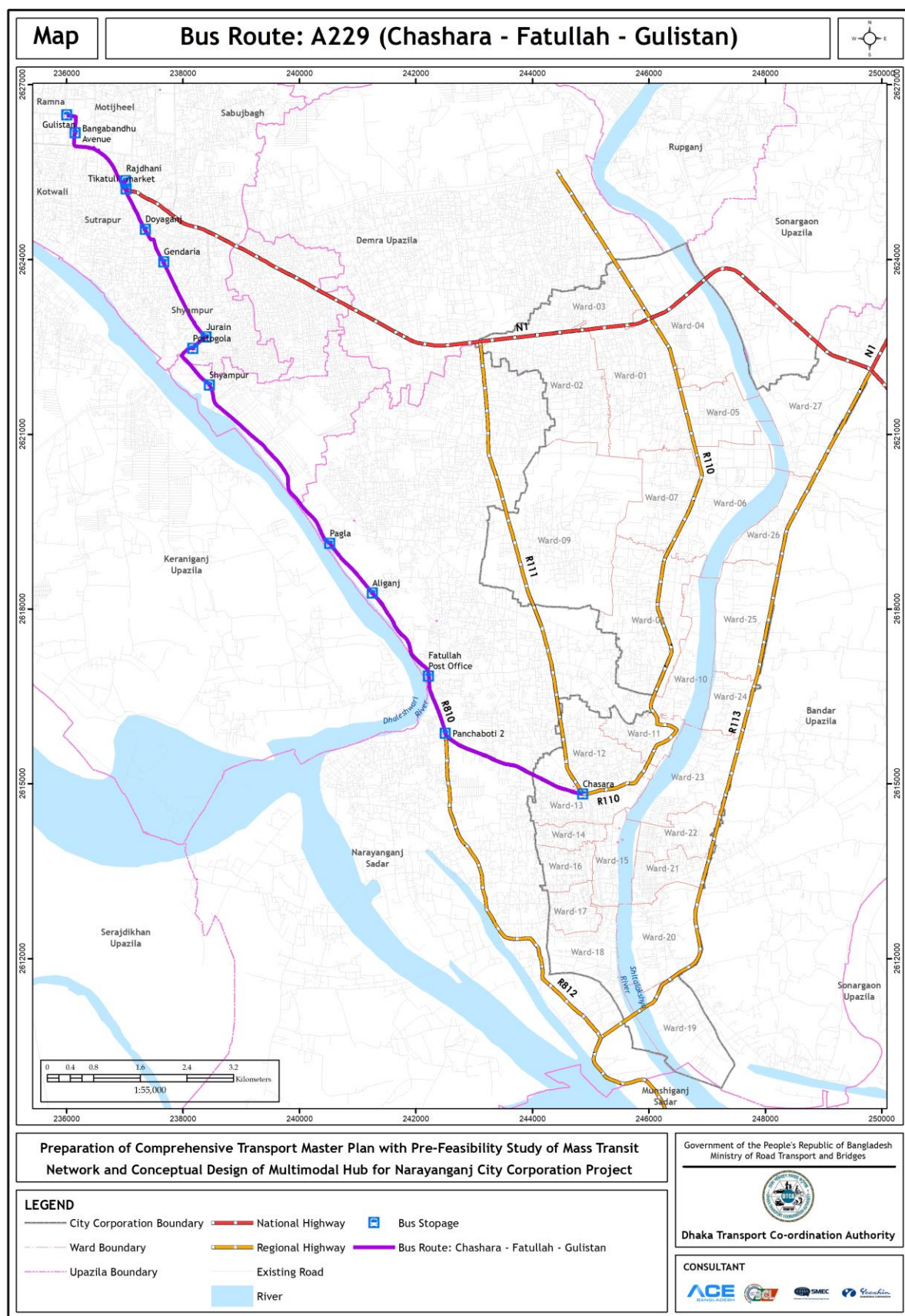
Q6. Mode Choice of Para-Transit

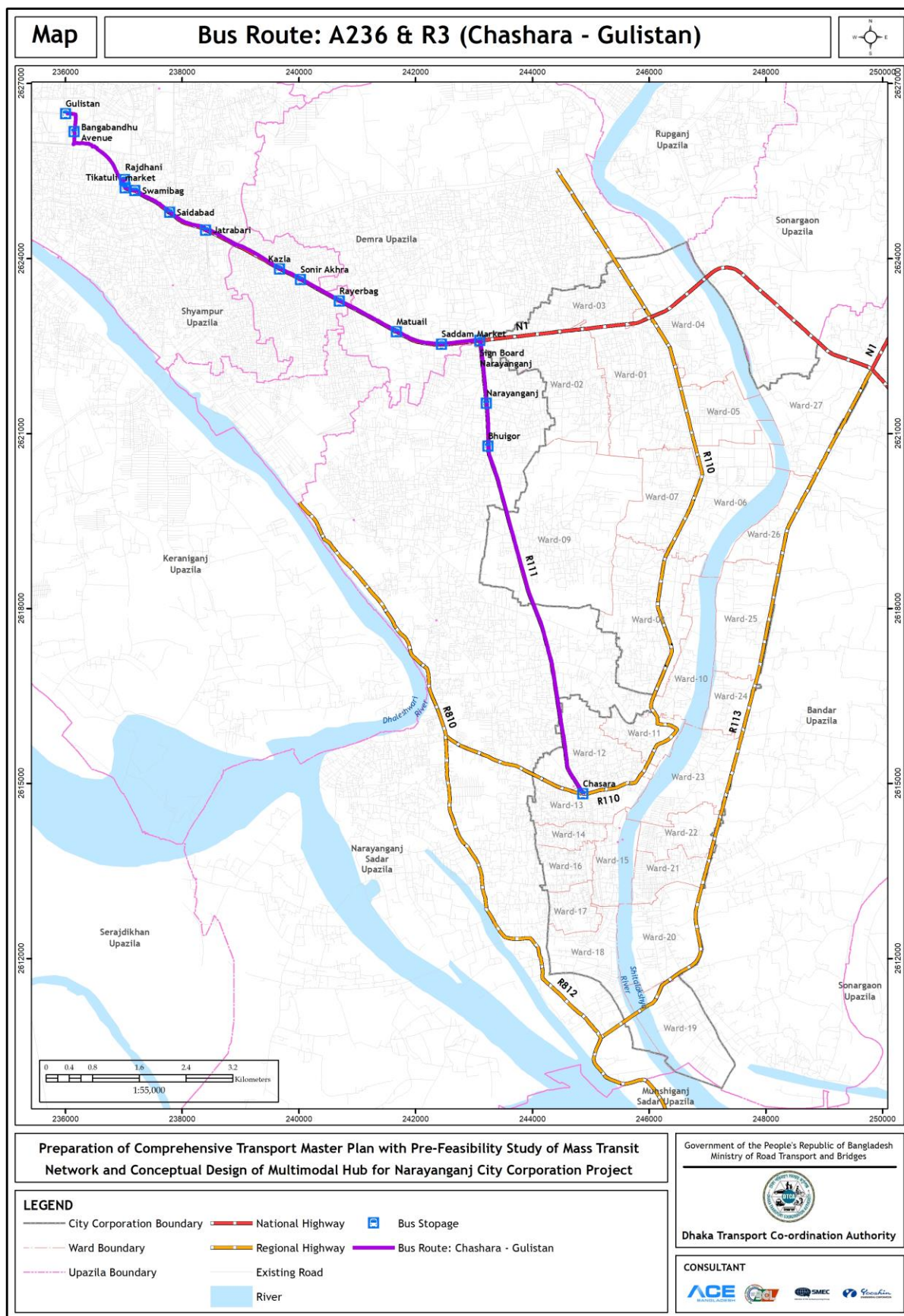
	Options	Mode	Waiting Time (min)	IVTT (min)	Total Time (min)	Cost/Fare (Tk)	Seat/Stand	Preference
							[1/0]	Yes/No [1/0]
1	Tempo/HH	Mean						
		Best						
		Worst						
		Better						
		Worsen						
2	CNG/Auto	Mean						
		Best						
		Worst						
		Better						
		Worsen						
3	Ride Service	Mean						
		Best						
		Worst						
		Better						
		Worsen						

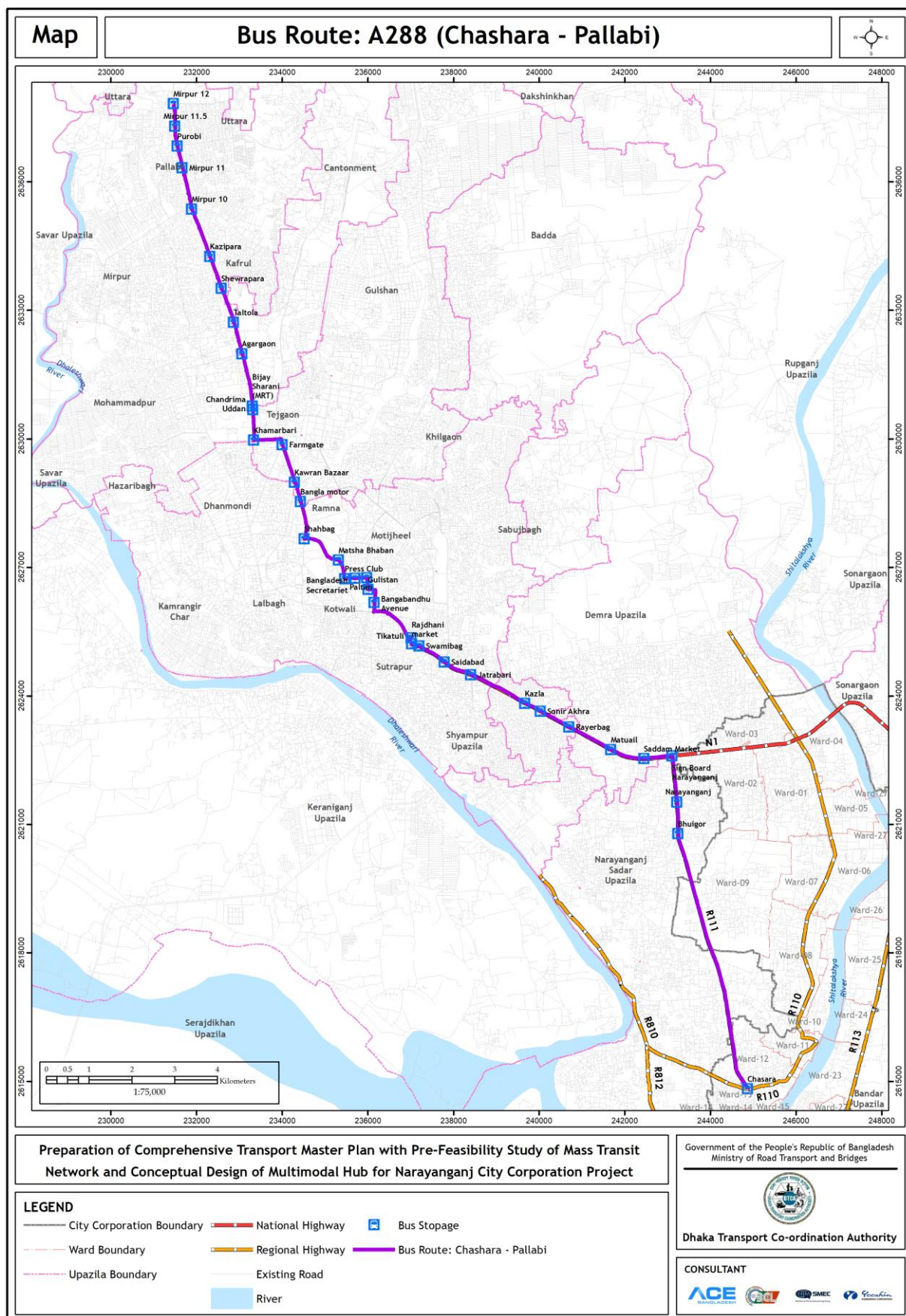
Q7. Mode Choice of Public Transit

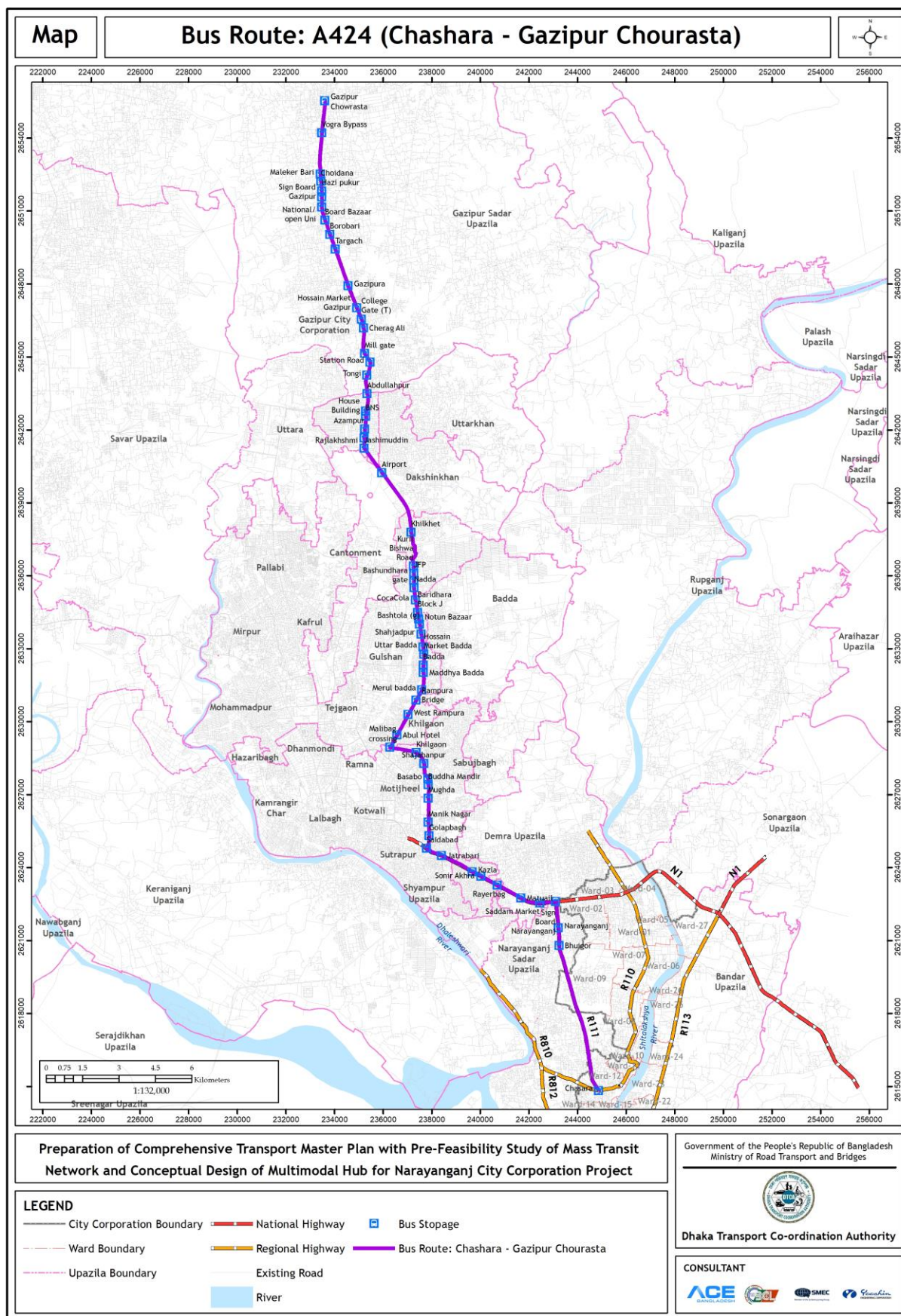
	Options	Mode	Waiting Time (min)	IVTT (min)	Total Time (min)	Cost/Fare (Tk)	Seat/Stand	Preference
							[1/0]	Yes/No [1/0]
1	Bus	Mean						
		Best						
		Worst						
		Better						
		Worsen						
2	Train	Mean						
		Best						
		Worst						
		Better						
		Worsen						
3	MRT	Mean						
		Best						
		Worst						
		Better						
		Worsen						
4	BRT	Mean						
		Best						
		Worst						
		Better						
		Worsen						

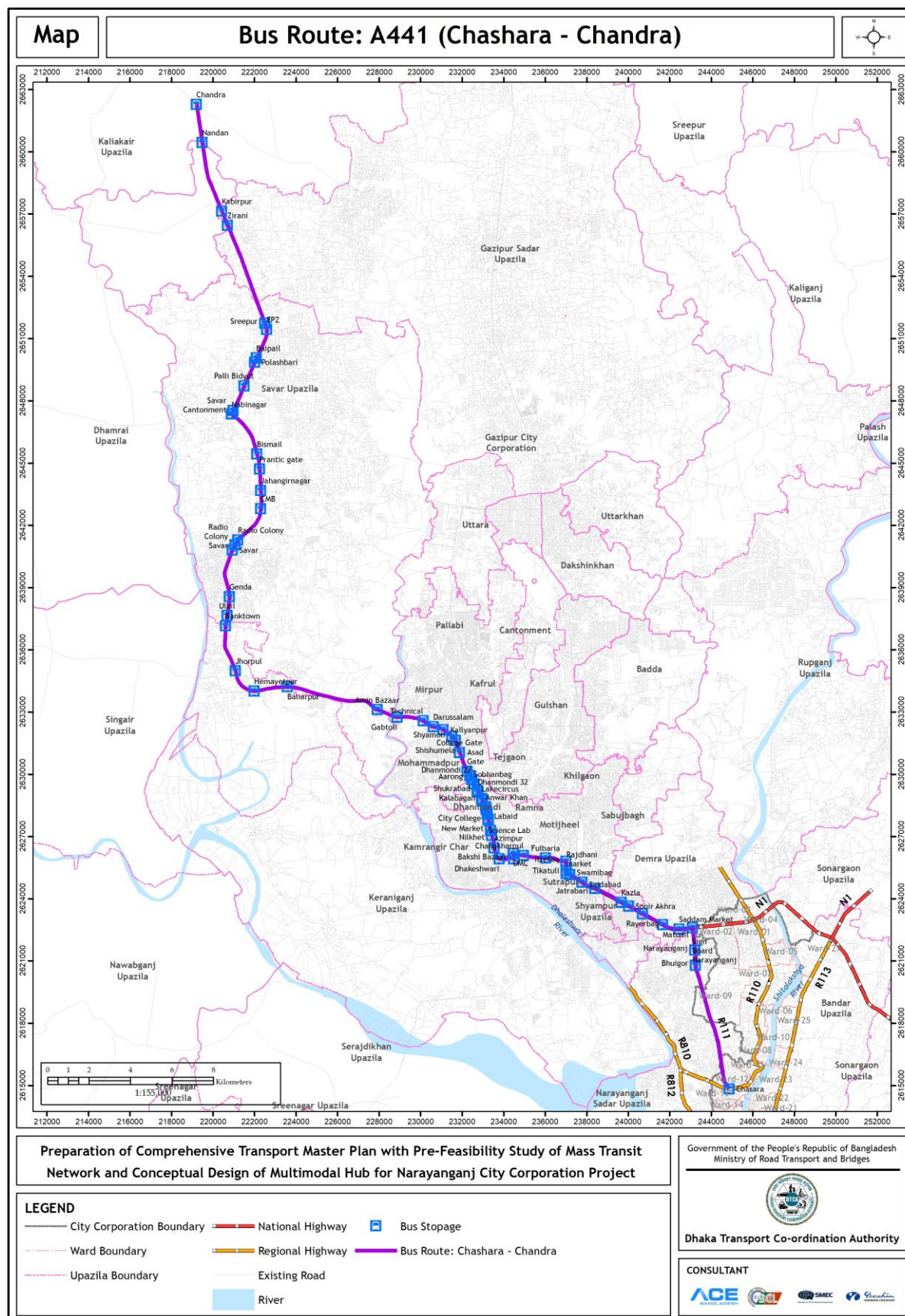
Appendix J Bus Route

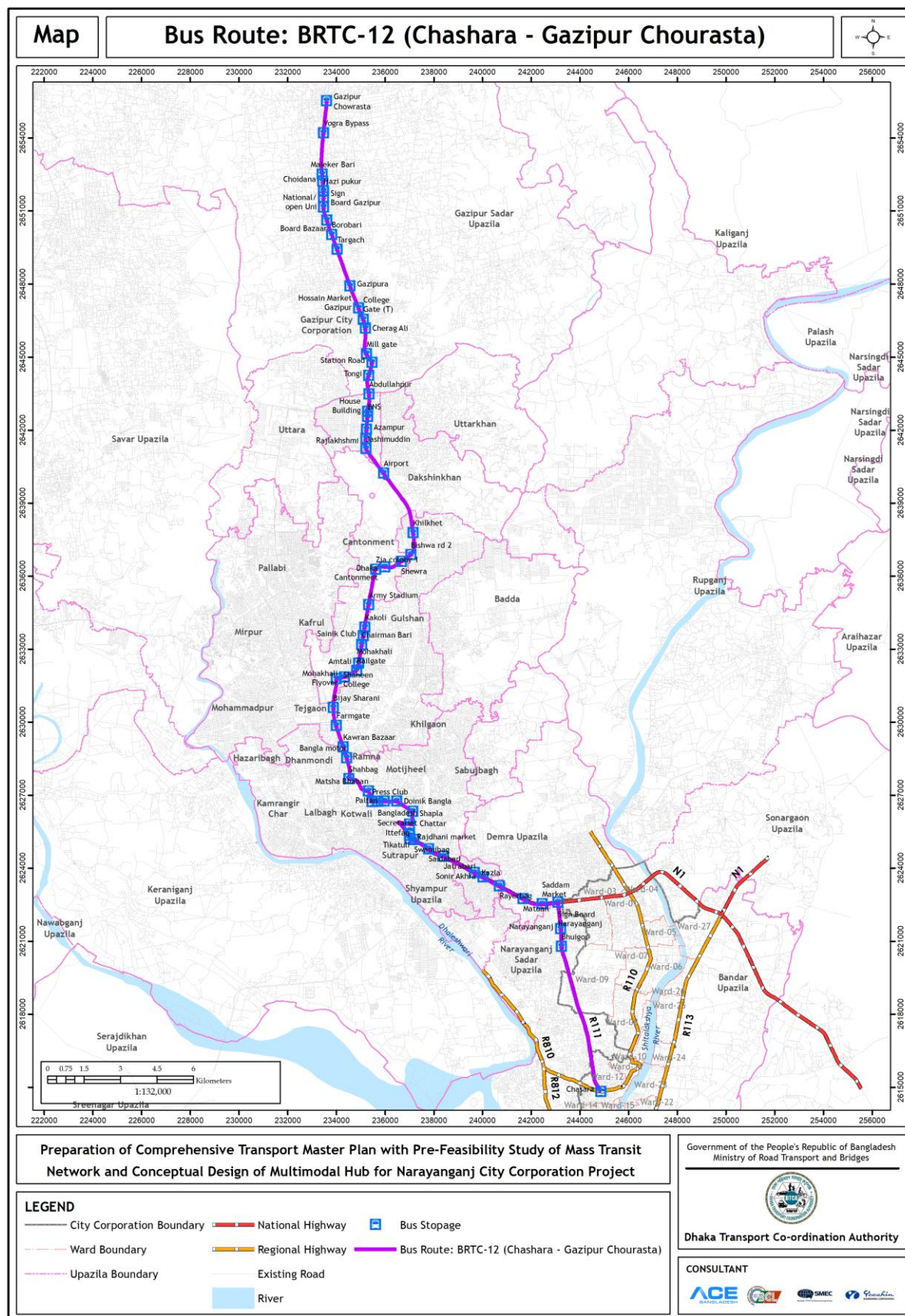


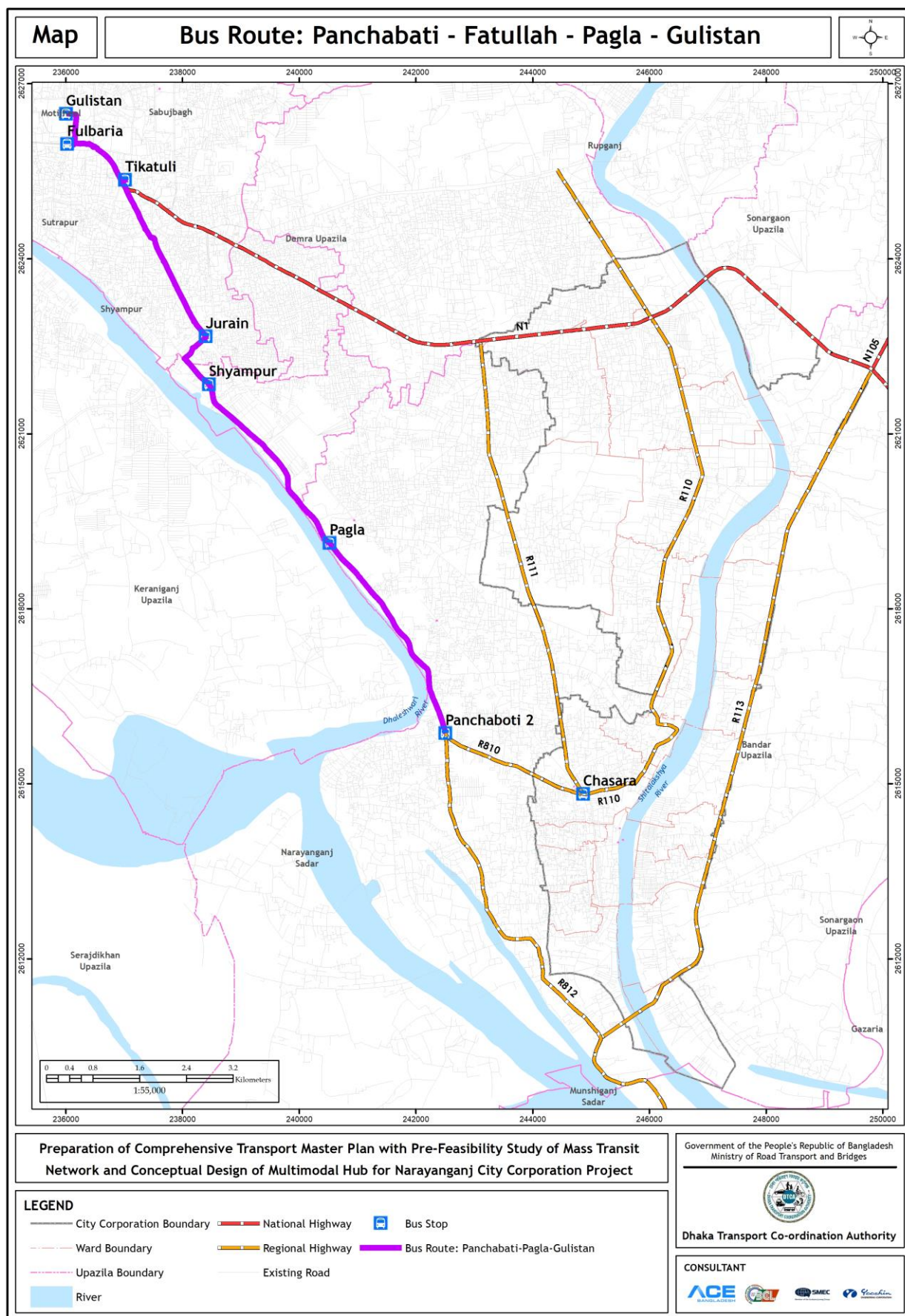


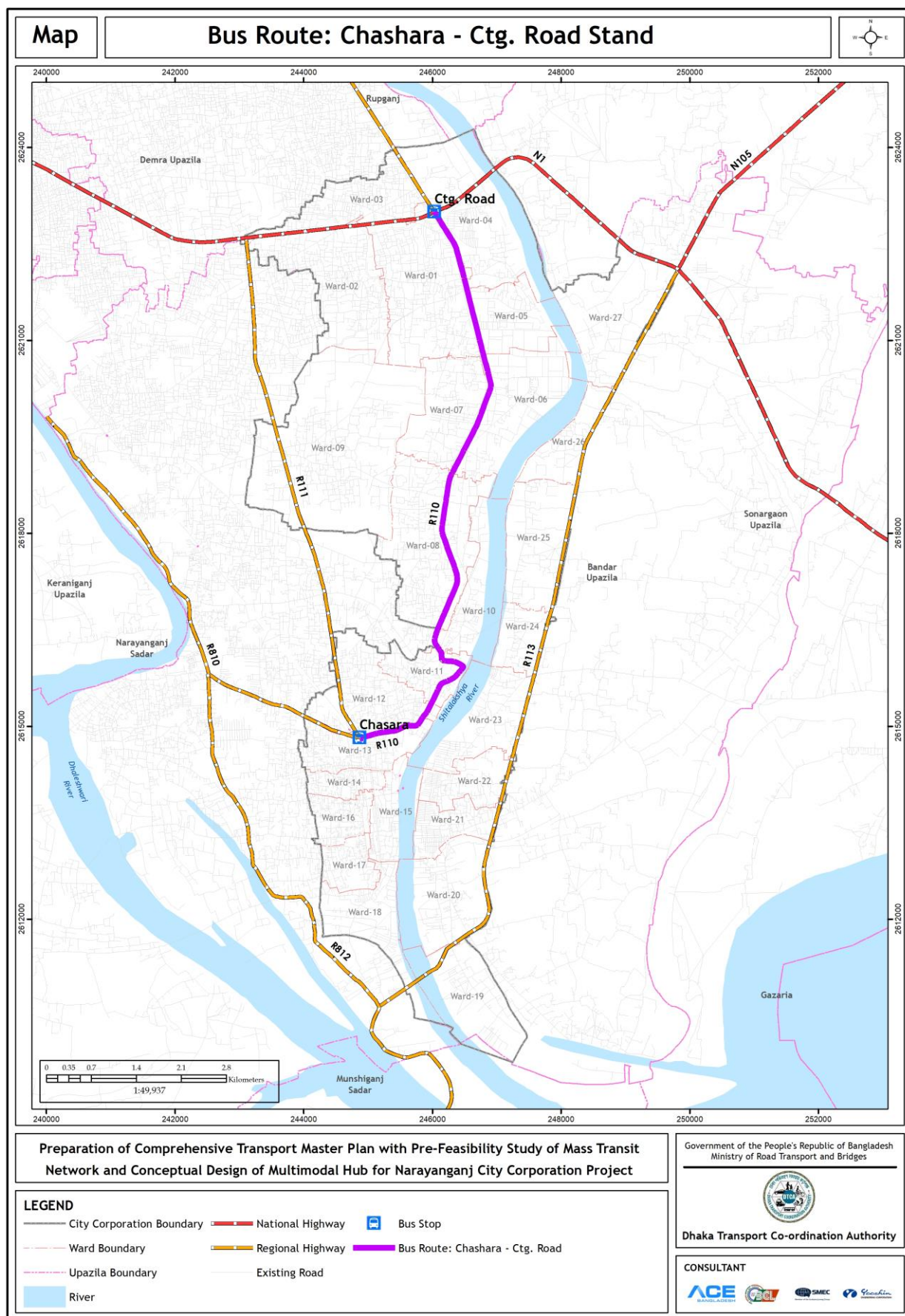


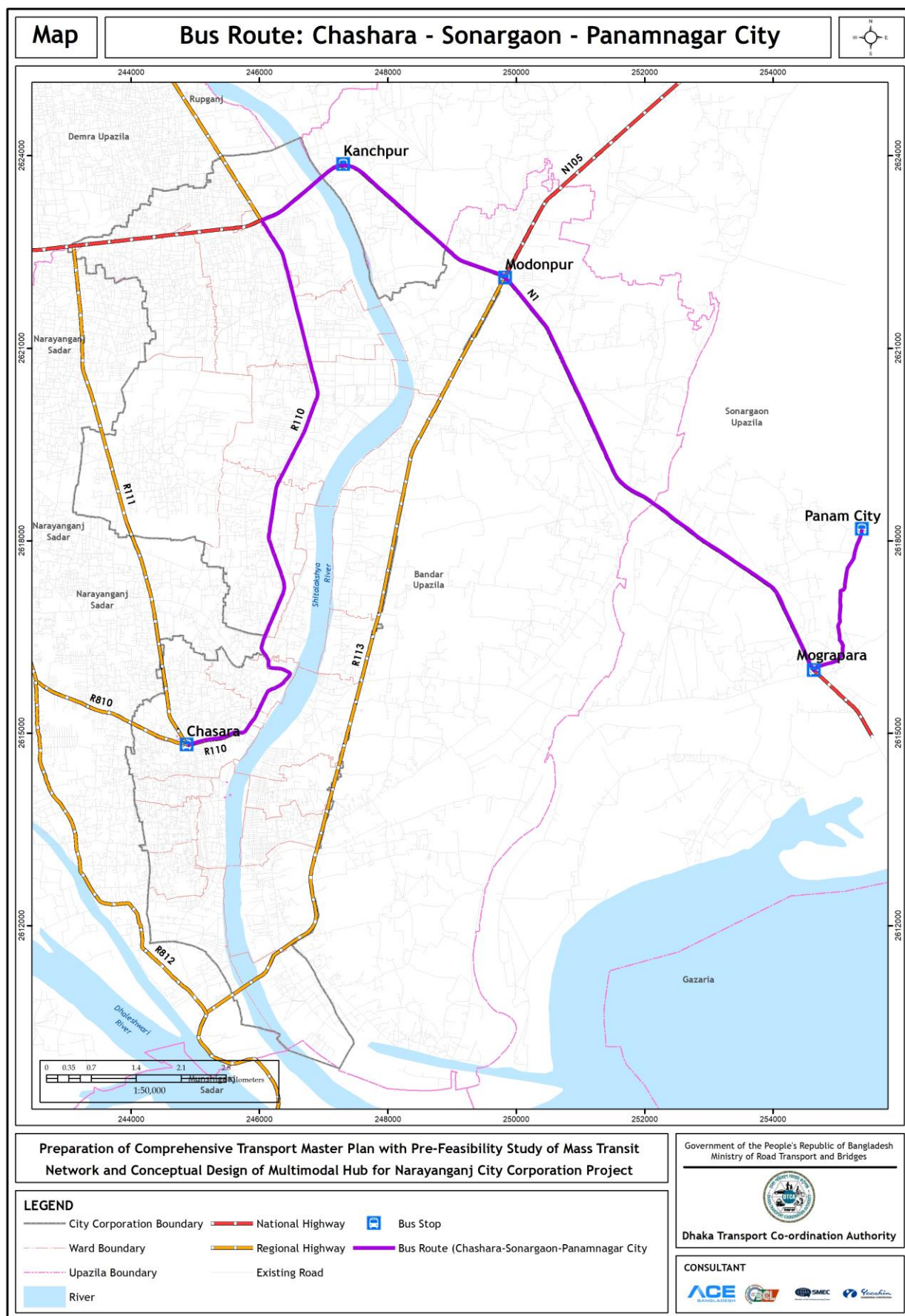












Appendix K Bus Operator Survey Form

Bus Operator Survey Form				
Name of surveyor				
Date of Survey				
Bus Operator Name		Route No		
Trip Origin		Trip Destination		
Number of Buses		AC	Non AC	Ticket System
				Yes
				No
How many buses operates in a day		How many trips in a day per bus (Both Direction)		
		Total No. of trips of the operator in a day (Both Direction)		
Type of Bus		Approx. Avg. No of daily passenger per trip		
Mini	Standard		Avg. per day income from the bus	
			Amount of money deposited to the owner of the bus per bus in a day	
Number of Manpower and salary per month		Travel time of bus for per trip in morning		
Manpower	Number	Salary		Travel time of bus for per trip in noon
Drivers				Travel time of bus for per trip in evening
Conductors				Cost Category
Supervisors				Cost of the bus
Staffs				Fuel Cost
				Lubricant Cost
				Tyre Cost
				Repair and maintenance cost
				Annual route permit and fitness fee

Appendix L Boarding Alighting Survey Form

1. Name of surveyeer					2. Weather				
3. Date of Survey					4. Day				
5. Bus Route					6. Bus Company Name				
7. Start point					8. End point				
9. Start time (24hr)					10. End time (24hr)				
SL	Time		Soppage name	Stoppage ID	TAZ number	No. of Passenger entry	No. of Passenger Exit	Number of Passenger Remain on the Bus	Remaks
	Hour	Min							
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Appendix M Onboard Passenger Survey Form

Public Transport On Board Passengers Interview Survey Form

1. Name of surveyor				2. Weather			
3. Date of Survey				4. Day			
5. Bus Route				6. Bus Company Name			
7. Start point				8. End point			
9. Start time (24hr)				10. End time (24hr)			
11. Survey time							
12. Passenger information		Gender		Age			
Trip Origin				Trip Destination			
13. Que: Where did you start this trip?				15. Que: Where will you get off the bus?			
Address (road, Sector, location)				Stoppage name			
				Stoppage ID			
TAZ				TAZ			
14. Que: Where did you get on the bus?				16. Que: Where is your final destination?			
Stoppage name				Address (road, Sector, location)			
Stoppage ID							
TAZ				TAZ			
17. Which Mode of transport did you use to get to the bus and which mode of transport will you reach your final destination?				18. Address of work place			
Origin	Mode	Destination		19. Address of residence			
1	Walking	1					
2	Rickshaw	2		20. Trip Purpose			
3	Bicycle	3		Origin	Purpose	Destination	
4	Motorcycle	4		1	Home	1	
5	Car	5		2	Work	2	
6	Microbus	6		3	Education	3	
7	Jeep/ SUV	7		4	Leasure	4	
8	CNG/Auto Rickshaw	8		5	Medical	5	
9	Tempo/ HH	9		6	Shopping	6	
10	Local bus	10		7	Others	7	
11	Long dist. Bus	11		21. How often do you make this trip?			
12	Train	12		1	Less than 1 time per month		
13	Waterway	13		2	1-3 times per month		
14	Others	14		3	Once a week		
22. How long did you wait for the bus?				4	2-5 times per week		
				5	Every day		
23. Sevice level							
		Level					
1	Frequency	Low	1	2	3	4	5 High
2	Safety	Low	1	2	3	4	5 High
3	Availability	Low	1	2	3	4	5 High
4	Reliability	Low	1	2	3	4	5 High
5	Comfort	Low	1	2	3	4	5 High
6	Facilities for EWCD	Low	1	2	3	4	5 High

Appendix N Terminal Survey Locations



Appendix O Terminal Survey Interview Form

Passenger Interview Survey Form									
1. Name of surveyor						2. Weather			
3. Date of Survey						4. Day			
5. Station/ Terminal Name						6. Survey time			
7. Are you?	1	Going out of City			3	Accompany Somebody			
	2	Coming to City			4	Working in the Station/ Terminal			
				5	Others				
Trip Origin					Trip Destination				
7. Where did you start this trip					8. Where this trip will end?				
Address (Road/ Sector/Location/ Upazila/ Zila)					Address (Road/ Sector/Location/ Upazila/ Zila)				
TAZ ID					TAZ ID				
9. Where did you get on the bus/train/water transport?					10. Where is your final destination?				
Address (Road/ Sector/Location/ Upazila/ Zila)					Address (Road/ Sector/Location/ Upazila/ Zila)				
TAZ ID					TAZ ID				
11. Gender	1. Male	2. Female	3. Others						
12. What is your Age?									
0-2	3-6	7-10	11-20	21-30	31-40		41-50	51-60	
61-70	71-80	81-90	Greater than 90						
13. Address of work place (Road/ Sector/Location/ Upazila/ Zila)									
14. Address of residence (Road/ Sector/Location/ Upazila/ Zila)									
15. Which Mode of transport did you use to get to the bus/train/water transport and which mode of transport will you reach your final destination?					16. Trip Purpose				
Origin	Mode	Destination			Origin	Purpose	Destination		
1	Walking	1			1	Home	1		
2	Rickshaw	2			2	Work	2		
3	Bicycle	3			3	Education	3		
4	Motorcycle	4			4	Leasure	4		
5	Car	5			5	Medical	5		
6	Microbus	6			6	Shopping	6		
7	Jeep/ SUV	7			7	Others	7		
8	CNG/Auto Rickshaw	8			17. How often do you make this trip?				
9	Tempo/ HH	9			1 Less than 1 time per month				
10	Local bus	10			2 1-3 times per month				
11	Long dist. Bus	11			3 Once a week				
12	Train	12			4 2-5 times per week				
13	Waterway	13			5 Every day				
14	Others	14							
18. How long you are staying in the station or terminal									
19. Sevice level									
Level									
1	Frequency	Low	1	2	3	4	5	High	
2	Safety	Low	1	2	3	4	5	High	
3	Availability	Low	1	2	3	4	5	High	
4	Reliability	Low	1	2	3	4	5	High	
5	Comfort	Low	1	2	3	4	5	High	
6	Facilities for EWCD	Low	1	2	3	4	5	High	
20. Disability									
1. Physical disability		2. Autism		3. Mental illness leading to disability		4. Visual Disability			
5. Speech Disability		6. Intellectual Disability		7. Hearing Disability		8. Deaf-blindness			
10. Multiple Disability		11. Others		12. Person with No Disability					

21. Evaluate the transport mode you use											
		Mode									
		Bus	Train	Private Car	Motorcycle	Tempo/Leguna	CNG	Auto	Rickshaw	Bicycle	Ride Sharing Service
1	Frequency										
2	Safety										
3	Availability										
4	Reliability										
5	Comfort										

Level					
Low	1	2	3	4	5 High
Low	1	2	3	4	5 High
Low	1	2	3	4	5 High
Low	1	2	3	4	5 High
Low	1	2	3	4	5 High

Passenger Count Form

Passenger Counts					
1. Name of surveyor				2. Weather	
3. Date of Survey				4. Day	
5. Station/ Terminal Name				6. Start Time	
7. Survey position/ Gate No.				8. End time	
SI	Time		Entering Passenger	Existing Passenger	Remarks
	Start	End			
	7:00	7:15			
	7:15	7:30			
	7:30	7:45			
	7:45	8:00			
	8:00	8:15			
	8:15	8:30			
	8:30	8:45			
	8:45	9:00			

