

**TERMS OF REFERENCE (TOR) FOR CONDUCTING
TRAFFIC SURVEYS
FOR THE PROJECT**

**DETAILED PROJECT REPORT (DPR) FOR INTEGRATED
DEVELOPMENT OF COASTAL HIGHWAY WITH CYCLE
TRACK IN THIRUVANANTHAPURAM, KOLLAM AND
ALAPPUZHA DISTRICT**

AUGUST 2021

KSCSTE-National Transportation Planning and Research Centre

(An institution of Kerala State Council for Science, Technology and Environment)

K. Karunakaran Transpark, Akkulam, Thiruvikkal Post

Thiruvananthapuram – 695011, Kerala State



I. BACKGROUND

National Transportation Planning and Research Centre (NATPAC) is an established research institution in the transportation sector under Kerala State Council for Science, Technology and Environment. This document is regarding the details of conduct of traffic surveys and data extraction/analysis related to Detailed Project Report for Coastal Highway in Thiruvananthapuram, Kollam and Alappuzha districts.

II. SOLICITATION

It is required to carry out traffic surveys such as traffic volume count studies at various intersections and mid block sections towards the preparation of DPRs. It is solicited to engage Engineering colleges affiliated to KTU for the conduct of surveys as tabulated in Table 1. The scope of work with key ToRs, General Conditions and the formats for the submission of the Expression of Interest (EOI) are given in the following sections.

Table 1. Scope of works

Sl. No.	Survey	Scope of work
1	Volume count at midblock sections	Section IV
2	Turning movement count at intersections	Section V
General Conditions		Section VI
Format for submission of EOI		Section VII
<i>*Please note that the general conditions, payment terms, locations, units etc. are indicative.</i>		

III. GENERAL INSTRUCTIONS

- a) For the EOI to be considered for evaluation, the college is to submit EOI for all the survey types and for a minimum of three locations mentioned in the document, failing which the EOI will not be considered for evaluation.
- b) At least one regular / permanent faculty with minimum educational qualification of Masters in Transportation Engineering with 3 years of experience should be a part

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- of the team offering EOI for this work and will be responsible for all the deliverables mentioned in the EOI.
- c) Professional charges amounting to a consolidated sum of INR 5,000/- will be paid to the faculty involved in the work and this is in addition to the rates mentioned in Table 2 and 3.
 - d) The colleges are to arrange all the items required for survey like cameras, lighting and other facilities required for the collection of data. No such arrangements will be carried out by NATPAC.
 - e) The EOI should contain the detailed information about the camera type and quality specification, lighting facilities available with the college and the quality of video data that can be offered.
 - f) The EOI provided shall be exclusive of GST.
 - g) The colleges are to submit their EOI in sealed envelopes at the following address **(KSCSTE National Transportation Planning and Research Centre, K Karunakaran Transpark, Akkulam, Thuruvikkal Post Thiruvananthapuram – 695011, Kerala State)** on or before 17:00 Hrs, IST, 25.08.2021. The subject on the envelope should be – “EOI for conduct for traffic surveys for the project – DPR for Coastal highway in Thiruvananthapuram, Kollam and Alappuzha district”.
 - h) The EOI should be submitted on college letter head duly signed by the Head of Institution and shall have the following contact information:
 - (i) Faculty Point of Contact Name
 - (ii) Contact Mobile No
 - (iii) Contact email ID
 - (iv) Contact Address
 - i) For further clarifications, the colleges may contact Mr. Shaheem S, Principal Scientist, NATPAC, 9895714825, shaheems@yahoo.co.in.
 - j) This document is also available on the website – <https://www.natpac.kerala.gov.in>
 - k) The college should submit all the related data and extracted documents within 15 days from the date of issue of work order
 - l) Experience certificate will be issued from NATPAC to the faculty and the students involved in the work on successful completion.
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IV. KEY TOR FOR CONDUCT OF VOLUME COUNT AT MIDBLOCK

Survey Type	Volume Count at midblock
Location	Thiruvananthapuram, Kollam and Alappuzha (Section-VIII)
Est. Quantity (Indicative)	At 14 midblock locations
Proposed Scope	<p>Duration: These surveys shall be conducted at the points identified for a continuous period of <i>three days (24 hrs duration on weekdays)</i></p> <p>Surveying:</p> <p>Data collection using video graphic method.</p> <p>Extraction of data by counting of vehicles classified by the type of vehicle during the specified duration.</p> <p>At each identified point, both directional counts shall be carried out by vehicle type i.e, cars/ jeeps, buses, trucks, Multi-Axle Vehicles (MAVs), Light Carrier Vehicles (LCVs), tractors, motorized two-wheelers, slow-moving vehicles etc. (Format of Survey Data sheets attached)</p> <p>The survey shall be conducted as per the guidelines in IRC 09-1972, Traffic Census on Non-Urban Roads</p>
Deliverables	<p>Survey data duly filled in format (as mutually finalized) in MS Excel format</p> <p>Video data collected at the specified locations for the duration specified.</p> <p>Filled in survey formats(hardcopies)</p> <p>Time-stamped site photographs from the site while surveying</p>
Proposed payment terms	100% payment upon satisfactory acceptance of Deliverables
<i>NATPAC shall facilitate in obtaining any permissions if required.</i>	

V. KEY TOR FOR CONDUCT OF TURNING MOVEMENT COUNT

Survey Type	Turning Movement Counts at midblock
Location	Thiruvananthapuram, Kollam and Alappuzha (Section-VIII)
Est. Quantity (Indicative)	At 21 intersections
Proposed Scope	<p>Duration: These surveys shall be conducted at the points identified for <i>one day for 16 hrs duration (6:00 am – 10:00 pm) on a representative weekday.</i></p> <p>Surveying:</p> <p>Data collection using video graphic method.</p> <p>Extraction of data by counting of vehicles covering all turning movements classified by the type of vehicle (i.e. cars/ jeeps, buses, trucks, Multi-Axle Vehicles (MAVs), Light Carrier Vehicles (LCVs), tractors, motorized two-wheelers, slow-moving vehicles etc.) during the specified duration at each identified point (Format of Survey Data sheets attached).</p> <p>The survey shall be conducted as per guidelines of IRC 09-1972, Traffic Census on Non-Urban Roads</p>
Deliverables	<p>Survey data duly filled in format (as mutually finalized) in MS Excel format</p> <p>Video data collected at the specified locations for the duration specified.</p> <p>Filled in survey formats (hardcopies) and soft copies</p> <p>Time-stamped site photographs from the location while surveying</p>
Proposed payment terms	100% payment upon acceptance of Deliverables
<i>NATPAC shall facilitate in obtaining any permissions if required.</i>	

VI. GENERAL INSTRUCTIONS FOR SURVEYS

1. General instructions

- a) The college should conduct the survey at specified locations in the specified procedure given by NATPAC.
- b) All survey data sheets and videos shall be provided to NATPAC upon completion of the survey in the agreed format. The analyzed data and videos extracted shall be provided to NATPAC as per format enclosed in Annexure. The quality of videos should be ensured by using camera confirming to the specifications as described below:
 - (i) 5MP Color Vu Bullet Camera
 - (ii) 5MP fulltime color Bullet Camera
 - (iii) Infrared Camera
 - (iv) 24*7 full color imaging
 - (v) Warm supplemental light with 30 m range
 - (vi) Clear imaging even against strong back lighting due to 130 Db true WDR technology 3D DNR technology delivers clean and sharp images
- c) NATPAC representatives visiting the site shall be extended full cooperation and they shall be explained about the methodology adopted and shall be appraised about the measures adopted for ensuring the accuracy of work.
- d) The schedule of surveys should be informed in advance and to be approved by NATPAC before the commencement of the survey.
- e) The quoted rates shall be inclusive of all expenses for conduct of survey and data extraction including the cost of labour, materials, equipment, transport, extraction of data in the prescribed format, preparation of analysis reports etc. No other charges whatsoever shall be entertained in any circumstances.
- f) The number of survey locations is tentative and is subjected to change.
- g) The college at their cost should arrange for lighting and other survey site facilities or any other equipment required for the survey and NATPAC shall hold no responsibilities in this regard.

- h) The college at their cost shall ensure all safety measures and adherence to prevailing protocols of pandemic and NATPAC will not hold any responsibilities in this regard.
- i) The Director of NATPAC has the right to change/ modify/ update/ terminate the agreement with the college at any stage without any reason/ notice.

2. Duration

Survey data shall be submitted by the college in the agreed format within 15 days from the date of issue of work order.

3. Deliverables

- a) All field survey videos, hard copy of survey sheets and soft copy entered in excel format, observations, drawings, extracted excel sheet, data analysis reports and other documents related to the survey shall be handed over to NATPAC in the specified format given and the college shall have no claim or use whatsoever. The college shall not reproduce any data collected from the work in any form.
- b) The college should submit the deliverables at any stage of the survey as per the requirement of the client.

4. Effecting Payment to the College

- a) The payment due to the college shall be paid only if deliverables are submitted on agreed timelines and based on quality of deliverables.
- b) If the services of colleges are required for any work, not covered under this assignment, the scope and payment for the same shall be decided on mutually acceptable terms.
- c) No other payment shall be made towards out of pocket expenses.

5. Penalty

- a) NATPAC will check the accuracy of the data and document submitted by the college by selecting random samples. In case of inaccurate document submission or the breach of an obligation under the contract, NATPAC has the right to terminate the contract without any further notice.
- b) In case of delay of submission of deliverables,

- The college has to pay a penalty as mentioned in the work order to NATPAC within a specified period mentioned.
- The penalty shall be deducted from the consultancy fee.

6. Deduction

All payments to the college under the terms of engagement are subject to tax deduction at source under Income Tax Act and any other enactment that may be in force from time to time. The client will also be entitled to deduct from the payment due to any dues payable by the college to the client.

7. Progress of Appraisal

The college shall keep the client informed about the progress of work on daily basis.

8. Ownership of Copyright

Any deliverable prepared as part of this assignment shall be the intellectual property of the client. The videos, specifications, documents and reports, survey formats, filled data sheets etc. prepared as instruments of survey shall be the property of client whether the project, for which they are made, is executed or not. NATPAC shall retain copies of the 'colleges' videos, specifications and other documents for information and use in connection with the projects.

9. Arbitration

All disputes or differences which may arise between NATPAC and the college concerning the meaning or interpretation or things done in pursuance of executed work-order, such disputes and the difference shall be resolved mutually and if required and called for the same shall be referred for arbitration, which shall be conducted as per the provisions of the Arbitration and Conciliation Act 1996. Any dispute submitted to arbitration shall be considered by a mutually acceptable sole arbitrator. In case the Parties are unable to agree & decide on a sole arbitrator, then the dispute shall be considered by three arbitrators one to be appointed by NATPAC and one to be appointed by college and the third arbitrator to be appointed jointly by the arbitrators of the Client and the college. Each Party shall bear their respective cost to be incurred on the arbitration proceedings. The decision and award of the arbitrator shall be final and binding on the college and the Client. The place of arbitration shall be Thiruvananthapuram, Kerala.

10. Indemnity

In case of any dispute, controversy, litigation, public agitation etc. connected with the services rendered/being rendered by Engineering college or arising out of any matter connected with or incidental to the services provided/or being provided by college or for any other reason, the college shall indemnify and keep indemnified and hold NATPAC, its employees, authorized representatives, agents harmless from and against all costs, claims, damages, proceedings, liability, including fees paid to legal counsels etc. in this behalf.

11. Confidentiality

The college shall not disclose to anyone either during carrying out the services or during or after completion of this assignment, any confidential or proprietary information relating to the Project or the NATPAC's business affairs or operations without the prior written consent of NATPAC.

VII. FORMAT FOR SUBMISSION OF QUOTES

Format for submission of quotes for the Link Volume Survey is given in Table 2 and format for submission of quotes for the Turning Movement Count is given in Table 3.

Note:

- In order to become eligible for consideration, a minimum of 3 locations in Link Volume Survey and 3 locations in Turning Movement Count shall be quoted but shall be limited to maximum 7 locations in Link Volume Counts and 9 locations in Turning Movements Count.
- The quote should be submitted on agencies'/institutes' letter head duly signed by the competent authority and shall have the following contact information:
 - (i) Contact Person Name
 - (ii) Contact Mobile No
 - (iii) Contact email ID
 - (iv) Contact Address
- A project walkthrough meeting shall be conducted on 18.08.2021
- The EOI for engaging in traffic surveys shall be submitted on or before 25.08.2021
- EOI received after the last date or in a different format or mailed to any other address will not be accepted

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Table 2. Locations for the submission of quotes for the Link Volume Survey

District	SL No	Major Stretch	Minor Stretch	LINK SURVEY VOLUME		Incentives
				Chainage	Location	
Thiruvananthapuram	1	Thiruvallam-Shanghumugham-Veli	Shanghumugham-Veli Jn	30+000	Kannanthura	19150
	2	Onnampalam-Kappil	Vettor-Varkala	64+000	Vettor	19150
	3	Onnampalam-Kappil	Kurakkanni-Edava	71+000	Kurakkanni	19150
Kollam	1	Pozhikkara- Thaani	Mayyanad-Thanni	6+000	Mayyanad Beach	19150
	2	Thaani - Kollam beach	Eravipuram -Kollam beach	13+500	Mundakkal Beach	19150
	3	Kollam beach-Neendakara	Kollam beach-Thangassery	16+800	Thangassery beach road	19150
	4	Kollam beach-Neendakara	Thirumullavaram-Neendakara	24+900	E Church Road	19150
	5	Neendakara-Edappallikkotta (NH)	Puthanthura-Edappallikkotta	30+000	Puthanthura	19150
	6	Panickarkadavu-Valiyazheekkal	Cheriyazheekkal-Azheekal	47+000	Panakkada	19150
	7	Panickarkadavu-Valiyazheekkal	Cheriyazheekkal-Azheekal	50+000	Azheekal	19150
Alappuzha	1	Valiyazheekal-Thottappally	Valiyazheekal-Thrikkunnappuzha	9+000	Arattupuzha	19150
	2	Valiyazheekal-Thottappally	Thrikkunnappuzha-Thottappally	21+000	Pallana	19150
	3	Payikkulangara - Alappuzha Bypass		38+000	Punnapra	19150
	4	Alappuzha Bypass SH crossing- South	Thumboli -Arthungal	57+000	Maraikulam	19150

Note: The incentives given in the above table against each location are inclusive of the contingencies and honorarium payable to persons involved.

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Table 3. Locations for the submission of quotes for the Turning Movement Count

District	SL No	Major Stretch	Minor Stretch	No of TMC locations	TURNING MOVEMENT COUNT (TMC)		No. of legs	Incentives
					Chainage	Location		
Thiruvananthapuram	1	Poovar-Adimalathura-Kovalam	Mukkola-Vizhinjam	1	11+900	Mukkola	3	16800
				2	13+500	Vizhinjam	5	16800
	2	Thiruvallam-Shanghumugham-Veli	Poonthura-Valiyathura	3	23+100	Poonthura	3	11400
			Valiyathura Jn-Airport Jn	4	26+200	Valiyathura jn	4	16800
			Airport Jn-Shanghumugham	5	27+700	Airport jn	3	16800
			Shanghumugham-Veli Jn	6	28+900	Shanghumugham	4	19500
				7	33+300	Veli jn	3	14100
	3	Onnampalam-Kappil	Vettor-Varkala	8	67+500	Varkkala jn	3	16800
			Kurakkanni-Edava	9	73+600	Edava jn	3	14100
Kollam	1	Pozhikkara-Thaani	Mayyanad-Thanni	10	8+600	Thanni jn	4	11400
	2	Thaani - Kollam beach	Eravipuram - Kollam beach	11	11+300	Eravipuram Bridge	4	16800
				12	14+550	Kollam beach	4	16800
	3	Kollam beach-Neendakara	Kollam beach-Thangassery	13	17+900	Thangasseery	3	14100
				14	26+000	Neendakara	4	16800
	4	Neendakara-Edappallikkotta (NH)	Puthanthura-Edappallikkotta	15	-	Edappallikkotta	3	16800
5	Panickarkadavu-Valiyazheekkal	Cheriyazheekkal-Azheekal	16	40+700	Cheriyazheekkal	3	12750	
Alappuzha	1	Valiyazheekkal-Thottappally	Valiyazheekkal-Thrikkunnappuzha	17	15+100	Thrikkunnappuzha jn	4	16800
			Thrikkunnappuzha-Thottappally	18	22+600	Thottappally	3	12750
	2	Alappuzha Bypass SH crossing- South	Thumboli - Arthungal	19	48+700	Thumboli road jn	3	12750
			Arthungal-Chellanam	20	64+900	Arthunkal Church jn	3	11400
				21	79+758	Chellanam	3	11400

Note: The incentives given in the above table against each location are inclusive of the contingencies and honorarium payable to persons involved.

