



Thane Municipal Transportation Undertaking, Thane

Invites Tender for

**Design, Development, Implementation & Management of Intelligent
Transport System (ITS) Central Control Centre (CCC) for Thane
Municipal Transport Undertaking (TMTU)**



Issued To : _____
(Bidder's Name)

Issued By : _____
(Name) (Designation) (Signature)

Cost of TENDER Document : Rs. 11,358/- (Rs. Eleven Thousand Three Hundred & Fifty Eight Only).

Contents

1 TENDER Notice.....	3
2. Overall Scope of the Intelligent Transport System (ITS) Central Control Center (CCC).....	5
3. Pre-Qualification Criteria	6
4. Technical Qualification Criteria (Evaluation Framework).....	8
5. General Conditions of Contract (GCC)	10
5.1 TENDER Document	10
5.2 Cost of Bidding	10
5.3 Amendment of TENDER Document.....	10
5.4 Conditional offers by the Bidder.....	10
5.5 Security Deposit.....	10
5.6 Performance Bank Guarantee.....	10
5.7 Late Tender, Modification and Withdrawal of Offers.....	11
5.8 Prebid Meeting	11
5.9 Opening of Offers.....	11
5.10 Right to reject any offer or all offers.....	11
5.11 Penalty Clause	11
5.12 Schedule.....	11
5.13 Bidders Default Liability	12
5.14 Bankruptcy.....	12
5.15 Damage in transit	12
5.16 Rejection	12
5.17 Extension of Time	13
5.18 Dispute.....	13
5.19 Arbitrator.....	13
5.20 Laws Governing Contract	13
5.21 Warranty and Support.....	13
5.22 Payment Terms	14
5.23 Delayed payment	14
5.24 Costs & Currency	14
5.25 Force Majeure	14
5.26 Resolution of Disputes.....	15
5.27 Service Level Agreement (SLA)	15
5.28 Training for relevant stakeholders in TMT	17
5.29 Infrastructure and support to be provided by TMT.....	17
Annexure A - Price bid.....	18
Annexure B - Scope of services and technical & functional specifications	20
Annexure C - Details of demonstration	33
Annexure D - Consortium AGREEMENT format	34
Annexure E - Performance Bank Guarantee Format	37
Annexure F - Power of Attorney Format	39
Annexure G - Undertaking for Antiblackinglisting format	41

1. Tender Notice No. TMC/Comp/974/2014-15

On line Tender are invited by Thane Municipal Transport Undertaking , Thane for the following work from experienced and registered contractor Blank Tender form are available at T.M.C.'s Website www.thanecity.gov.in or <https://eprocurement.synise.com/tmc> from **02-03-2015 to 26-03-2015**. On Line Tenders shall be accepted on above websites up to 26-03-2015 at 16.00 Hrs. If possible, tender shall be opened on 26-03-2015 at 16.30 hrs in the presence of bidder or their authorized representative

1. Name of work : **Tender for Design, Development, Implementation & Management of Intelligent Transport System (ITS) Central Control Centre (CCC) for Thane Municipal Transport Undertaking (TMTU)**
2. Cost of Each Tender Form: Rs. 11,358/-(Including E-tendering fee + VAT)
3. Earnest Money Deposit: Rs. 6,35,100/-
4. Validity Period: The offer of the contractor shall remain valid for 180 days from the date of opening of financial Bid.
5. The amount of Earnest Money is Rs. 6,35,100/- (Rs. Six Lacs Thirty Five Thousand One Hundred only) and the amount of tender form fee including e-tendering charges is Rs. 11,358/- (Rs. Eleven Thousand Three Hundred Fifty Eight only). The amount for tender form fee & earnest money to submit as per E Tendering Procedure and online receipt for the same should be uploaded with the tender document along with technical bid.

EMD & Cost of Blank Tender shall be payable through one of the following modes ONLY:

1. Net-Banking
2. Debit Card
3. Credit Card
4. RTGS / NEFT.*

* For paying the Document Fees / EMD through the option (4) RTGS / NEFT, please follow the below process:

1. Please mention the following details while making the RTGS/NEFT payment from your Bank:
 - (a) Beneficiary account number - <TMCS+Bidder Code> For example, in case your Bidder Code is 1234, kindly mention TMCS1234 as the beneficiary account number.
(Bidder code shall be available through the E-Tendering portal)
 - (b) Beneficiary bank branch - ICICI Bank, CMS
 - (c) Beneficiary IFSC code - ICIC0000104
2. One day after making the payment, please log in to our portal. While making payment for Document Fee / EMD, please select the RTGS/NEFT payment option at the document fee/ EMD payment screen. Upon doing so, you shall be able to view the funds remitted by you through NEFT/RTGS as available balance.

3. Please proceed to make the payment. Upon doing so, the required amount to be paid through the Document fee/EMD, shall get appropriately deducted from the available balance and payment shall be confirmed real time.
4. A receipt number would also get generated after successful payment.
5. Kindly note that the payment is required to be made one day before you would like to make the document fee/EMD payment through our portal.
Please get in touch with e-procurement support team in case any clarification is required.

Note for Contractors/Bidders:

It will be solely upon the bidder's choice to select any of these payment options best suited to him. It is understood that the bidder is aware of the payment cycle and other technical requirements/ payment process under each of these modes. It is bidder's responsibility to see that the amount of EMD & cost of Blank Tender Form (BTC) are credited (in case of payment by NEFT/RTGS, the payment referred herein above may not mean final submission of EMD/BTC etc to TMC. The EMD/BTC etc shall be paid/ credited to TMC only when the bidder completes the Tender Document and other formalities online and submits the Tender), in the e-Tender System well before the scheduled time and date, to be able to proceed with final submission of his Tender along with the EMD & BTC to TMC. TMC will not be responsible for any failure on part of the bidder in submission of the Tender and/or the EMD/BTC etc. before scheduled time and date, for any reason whatsoever, including, inter-alia, noncredit of said amounts of EMD/ cost of Blank Tender Form, and therefore no claims shall be entertained on these grounds.

Under this online payment system for e-Tendering the Tenders will not be submitted/ received by TMC unless the EMD & Cost of Blank Tender are received/ credited before scheduled time and date. Hence, bidder shall remit the said amount well in advance. It is clarified that the Tenders – both Technical and Financial – will not be considered for opening if EMD and BTC are not received/ credited before schedule time and date, for any reason whatsoever.

ALERT:-For the RTGS/NEFT payment option, considering that the payments are settled by RBI in batches, it is advisable that the bidder completes the leg of transfer of funds, from his bank account to his own User Account in the e-Tendering system, one day before his desired day of submitting his Tender to TMC.

Budget Code	= 2400
Function Code	= 417003
Department Code	= 072

6. Two Bid System: Bids (Technical & commercial) must be submitted giving full particulars online through e-tendering process.

ENVELOPE-I (Technical Bid): Should contain all the Technical specification/Boucher quoted along with all the information asked in the TENDER document which shall be used to consider Technical Qualification of the Bidder. This Envelope should not contain any price information.

ENVELOPE-II (Commercial / Price Bid): The Commercial Offer (C.O) should be in format given in **SCHEDULE B** of Commercial Bid or Price Bid.

2. Overall Scope of Intelligent Transport System (ITS) Central Control Centre (CCC)

The overall scope of the implementation will consist of supply, development/customization, testing, installation and commissioning. The project is planned to cover about 420 buses, the details of which are given hereunder:

- 220 Buses as per JNNURM-2 already fitted with UBS-II compliant ITS kit
- 200 JNNURM-1 buses to be fitted with GPS tracking device as part of this project

All these 420 buses shall be integrated with Central Control Centre (CCC).

The scope of work mentioned below is indicative but not exhaustive:-

The overall scope of ITS solution is:

- Supply, Installation, Testing and commissioning of on-bus GPS tracking system with all fittings & fixtures specified in Annexure-B in 200 JNNURM-1 buses.
- Supply, Installation, Testing and commissioning of on-bus LED monitor for 10 Air-conditioned buses along with hardware to drive the content on these monitors. The specifications are mentioned in Annexure-B.
- Supply, Installation, Testing and commissioning of ITS Central Control Centre (CCC) infrastructure. Details are provided in Annexure-B
- Integration of 420 buses (200 JNNURM1 and 220 JNNURM2) in to single Central Control Centre (CCC)
- Supply, installation, customization and commissioning of Bus tracking application for 420 buses. Detailed requirement is mentioned in Annexure-B
- Supply, installation and commissioning of LED boards or Television screens for buses, bus stops and terminals as specified in Annexure-B.
- Supply of 'Where is my bus' android based mobile app for real time ETA (Expected Time of Arrival) details. Details are provided in Annexure-B.
- Set up cloud based data center and provide cloud based data service to fulfill TMT's ITS requirement for 3 years. Details are provided in Annexure-B
- Providing High Speed Internet connectivity of the required bandwidth to the Central Control Centre (CCC) and payment of all relevant charges, for the entire contract period of 3 years. The bandwidth requirement & backup connectivity requirement has to be worked out by the vendor to meet the SLA and for providing the required services.
- Vendor needs to provide the required communication sub system including procurement & installation of SIM cards in 420 on-bus ITS. Payment of monthly charges for the required GPRS/GSM communication, for the entire contract period of three years. Details provided in Annexure-B.

- Comprehensive warranty of Central Control Centre (CCC) application and Android application for 3 years. Details are mentioned in Annexure-B
- Comprehensive warranty of all the command center hardware and software 3 years.
- Complete implementation and making the project successful by running it for warranty, support and maintenance period of 3 years details are in Annexure-B.

3. Pre-Qualification Criteria

The bidder can be a company in the business of having exposure in IT/ GIS technologies including GPS /GPRS vehicle tracking, VTMS application.

Sr.No	Particular	Proof
1	The Company should be a Registered Company under Companies Act / Certificate of Incorporation (if Consortium then both Bidders)	Attach Documentary Evidence
2	The bidder (if Consortium then Lead Bidder) should have Turnover of minimum Rs. 25 Crore per year in the last three financial years.	Attach Documentary Evidence
3	The Bidder can be a company or a consortium of companies. In case of a consortium, the same shall not consist of more than two companies and shall be formed under a duly stamped consortium agreement. It is hereby clarified that such consortium agreement shall be approved by the TMT Manager. (Format shared as part of tender).	Attach Documentary Evidence
4	The Bidder (if Consortium then Lead Bidder) should have experience in designing, development, Implementation & Maintenance of Vehicle Tracking Management Solution (VTMS) with online monitoring systems with PIS display boards, for a minimum of 100 vehicles (buses, trucks) to a Government / private organisation.	Attach Documentary Evidence
5	Sales/Services Tax Registration Certificate	Attach Certificate
6	Original Tender document duly signed towards acceptance of tender terms & Conditions (if consortium then both the Bidders should sign)	Attach Documentary Evidence
7	Earnest Money Deposit	Attach Receipt (Photocopy)
8	Tender Fee	Attach Receipt (Photocopy)
9	ISO 9001 - 2008 certification (if consortium then any one of the bidder)	Attach Documentary Evidence
10	Undertaking for Anti-blacklisting (if consortium then both bidders)	As per Annexure - G
11	Undertaking for supply of spares & Services under warranty period from OEM & bidder (if consortium then both bidders)	Attach Documentary Evidence

Prior to the detailed evaluation of the Technical Bids, TMT shall determine whether each bid is (a) complete, (b) is accompanied by the required information and documents and (c) is substantially responsive to the requirements set forth in the TENDER document. Only Bidders, who fulfill all the qualifications mentioned in the section “**Pre-Qualification criteria**” of the tender, shall be scrutinized further to rate the Bidder as per the Evaluation Framework given below.

Bidders should obtain minimum **70%** (should score minimum 140 out of 200) in the technical bid evaluation to qualify for opening of the Commercial Bid. TMT’s evaluation in this regard shall be final and binding on the Bidder. TMT may at its sole discretion, waive any minor informality or nonconformity or irregularity in a Bid Document, which does not constitute a material deviation, provided such a waiver does not prejudice or affect the relative ranking of any Bidder.

4. Technical Qualification Criteria:

Technical bid and commercial bids of Bidders who have qualified as per the Qualification Criteria of this Tender document shall be evaluated and scored by the TMT, assessing each bidder's ability to satisfy the requirements set forth in the Tender Document. Broad criteria for the evaluation are as follows:

A. Technical Bid Evaluation Framework:

#	Evaluation parameter	Scoring indicators	Score
1	Lead Bidder's Turnover Documentary Proof - CA Certificate - Audited Balance Sheets	Greater than 100 Crores 50 – 100 Crores 25 – 50 Crores Less than 25 Crores	20 10 5 0
2	Experience of implementing Automatic Vehicle Tracking/Locating System Documentary Proof - Purchase Orders - Completion certificates for completed projects	3 or more similar projects 2 projects 1 project No Such Experience	20 10 5 0
3	Experience of implementing Automatic Vehicle Tracking/Locating System for no of vehicles (fleet of vehicles) Documentary Proof - Purchase Orders - certificates for completed projects for no of vehicles	Above 1000 vehicles 501 to 1000 vehicles 201 to 500 vehicles 100 to 200 vehicles No Such Experience	30 20 10 5 0
4	Software Platform Expertise – Experience of developing/implementing/upgrading web based software for government of India/State Government/PSU in India. Documentary Proof - Purchase orders - Completion certificates for completed projects or self-signed certificates for on-going projects	For 3 or more projects For 2 projects For 1 project No Such Experience	30 20 10 0
5	Organisations who have implemented mobile apps on any mobile platforms for Vehicle tracking / locating System or similar type of work.	For 3 or more projects For 2 projects For 1 project No Such Experience	30 20 10 0
6	Organisations who has experience of implementation & monitoring of LED boards / screens / TVs (of vehicles & other locations) from central system	Above 200 devices 101 to 200 devices 51 to 100 devices Up to 50 devices No Such Experience	30 20 10 5 0
7	Organisations who has similar type of (Vehicle tracking / locating System) LIVE projects operating since last 3 years	For 3 or more projects For 2 projects For minimum 1 project	20 10 5
8	Live Demonstration of ITS Central Control Centre (CCC) features (refer Annexure-C)		20
TOTAL			200

B Commercial Bid Evaluation

- a) The Commercial Bids of technically qualified bidders which have scored **140 out of 200 (70%)** in technical evaluation criteria will be opened on the prescribed date in the presence of bidder representatives.
- b) Errors & Rectification: If there is any discrepancy between words and figures in the commercial bid, the lowest amount will be considered.
- c) The firm quoting the Lowest Price (L1) will be declared as Successful bidder and will be invited for contract Negotiation & finalization.

5. General Conditions Of Contract (GCC)

5.1 TENDER Document

TENDER is to be submitted as per enclosed format only. Attach the certificates, brochures & other relevant documents asked for in the TENDER document.

5.2 Cost of Bidding

The Bidder shall bear all costs associated with the preparation and submission of its bid and TMT shall in no event or circumstance be held responsible or liable for these costs, regardless of the conduct or outcome of the bidding process

5.3 Amendment of TENDER Document

At any time before the deadline for submission of bids, TMT may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the TENDER Document by amending, modifying and/or supplementing the same.

All prospective Bidders shall be notified of any amendments through proper notices and such amendments shall be binding on them without any further act or deed on TMT's part.

In the event of any amendment, TMT reserves the right to extend the deadline for the submission of the bids, in order to allow prospective Bidders reasonable time in which to take the amendment into account while preparing their bids.

5.4 Conditional offers by the Bidder

The Bidder should abide by the terms and conditions specified in the TENDER Document. If bidder submit conditional offers it shall be liable for outright rejection.

5.5 Security Deposit

The successful Bidder within 15 days of the intimation to this effect will have to sign an Agreement Contract with TMT and to Submit 5 % of accepted tender cost in favor of THE TRANSPORT MANAGER, THANE MUNICIPAL TRANSPORT UNDERTAKING, THANE or on form of Bank Guarantee by Nationalized / Scheduled Banks in enclosed form and complete the contract documents failing which his earnest money will be forfeited to TMT, Thane.

All compensation or other sums payable by the Contractor under the terms of this contract or any other agreement or any account may be deducted from his security deposit or from any sums which may be due to him or may become due to him by TMT, Thane, on any account and in the event of the security being reduced by reason of any such above noted deductions the Contractor shall within 10 days of receipt of notice of demand from THE TRANSPORT MANAGER, TMT Thane make good the deficit.

There shall be no liability on the TMT, Thane, to pay any interest on the security deposited by or recovered from the Contractor.

The security deposit shall be refunded after completion of tender period for this contract.

5.6 Performance Bank Guarantee

The performance bank guarantee of 5% of the contract value, from the Nationalized / scheduled Bank, valid for tender period for this contract, after the successful live run, shall be required to be given to TMT after acceptance of the application of software. As per format provided by the Tender Document - Annexure E

The proceeds of the performance bank guarantee shall be payable to TMT as compensation for any loss / penalties / liquidated damages resulting from the Bidders failure to complete its obligations under the contract for post implementation support. The performance guarantee shall be discharged by TMT to the Bidder within 60 days of the expiry of the warranty period.

5.7 Late Tender submission, Modification and Withdrawal offers

Any tender offer received by TMT after the deadline for submission of tender offer prescribed by TMT, pursuant to the clause above, will be summarily rejected. Modification or Withdrawal of Offers is not permissible after its submission. If the offer is withdrawn before the validity period, the EMD will stand forfeited.

5.8 Pre-bid Meeting

Any query regarding bid document needs to be submitted only through email on thanetmt@gmail.com up to 10-03-2015, 5.00 pm. Queries submitted post this date & time will not be considered for discussion in pre-bid meeting which will be held on 17-03-2015 at Thane Municipal Corporation, Head Quarter, Panchpakhadi, Thane.

5.9 Opening of Offers

Offers received within the prescribed closing date and time will be opened on 26-03-2015 at 5.00 pm at the E-Tendering Cell, First Floor, Thane Municipal Corporation, in the presence of Bidder or their representatives who choose to attend the opening of the tender. The Bidder's representatives present shall sign a register of attendance.

5.10 Right to reject any offer or all offers

The Commissioner, TMC, reserves the right to accept or reject any tender offer, and to annul the tendering process and reject all tenders at any time prior to award of control, without thereby incurring any liability to the affected Bidder(s) or any obligation to inform the affected Bidder(s) of the grounds for the Commissioner's action.

5.11 Penalty Clause

For any delay or to complete the contracting work, TMT will charge penalty Rs. 5000/- per week or Transport Manager may deem fit part thereof, subject to a maximum of 5%of contracted amount.

On the breach of any terms and condition of this contract by the company and as a consequence of any amount becomes due to the TMT by the Bidder then the municipal commissioner shall be entitled to forfeit the security deposit and to realize and retain the same as damages and compensation for the said breach. Retention of security Deposit shall be made without prejudice to the right of The Commissioner to recover any sums as damages as per the contract from any sum due or which may become due to the Bidder or the TMT.

5.12 Schedule

Sr No	Milestone	Time Line
1	Acceptance of the Order and signing of contract	T1
A	Central Control Centre (CCC):	
2	Project Plan	T1+3 weeks
3	System Study and Documentation	T1+4 weeks
4	Submission of the hardware plan	T1+4 weeks
5	Pilot trials on 5 buses using cloud servers and PC monitors	T1+8 weeks
6	Procure, Size, Supply, Install, Commission, Configure, Test, Integrate and Implement all required Hardware and Software.	T1+12 weeks
7	Central Control Centre (CCC) and On-bus ITS configuration, route configurations	T1+16 weeks
8	Completion of Training of TMT's Manpower & Go Live (Start of comprehensive support period of 3 year for hardware & software)	T1+20 weeks
9	Operational Acceptance of Intelligent Transport System (ITS) Central Control Centre (CCC)	T1+24 weeks

There will be 1 month's SLA holiday period given to vendor to stabilize the system after operational acceptance. SLA will be applicable after this 1 month period.

5.13 Bidders Default Liability

- a) The Commissioner, may upon written notice of default to the Bidder terminate the Contract in circumstance detailed hereunder :-
 - i) If in the judgment of The Commissioner, the Bidder fails to make delivery of the hardware, within the time specified in the Contract agreement or within the period for which extension has been granted by the TRANSPORT MANAGER to the Bidder.
OR
 - ii) If in the judgment of the TRANSPORT MANAGER, the bidder fails to comply with any of the other provisions of this Contract.
- b) In the event the Thane Municipal Transport Undertaking, terminates the Contract in whole or in part :
 - i) The Commissioner, reserves the right to purchase up to such terms in such a manner as he may deem appropriate, the hardware Supply , similar to those terminated and the bidder will be liable to the Thane Municipal Corporation, for any additional costs for such similar hardware, increased by 10 % (10) to cover administrative charges.

5.14 Bankruptcy

If the Contractor shall become bankrupt or have a receiving order made against him or compound with his creditors, or being a Corporation commence to be wound up not being a voluntary winding up for the purpose only of amalgamation or reconstruction, or carry on its business under a receiver for the benefit of its creditors or any of them, The Commissioner, shall be at liberty:

i) To terminate the Contract forthwith by notice in writing to the Contractor or to the Liquidator or Receiver or to any person in whom the Contract may become vested and to act in the manner provided in tender Document.

OR

ii) To give such Liquidation, Receiver or other person the option of carrying out the Contract subject to his providing a guarantee for the due and faithful performance of the Contract up to an amount to be determined by The Commissioner.

5.15 Damage in transit

If the Hardware / Devices or any portions thereof are damaged or lost during transit, the TRANSPORT MANAGER shall given notice to the bidder setting forth particulars of such the Hardware/Devices damaged or lost. The replacement of such the Hardware / Devices shall be effected by the Bidder within a reasonable time to avoid unnecessary delay. The replacement shall be made free of cost by the Bidder. Insurance during the transit will be responsibility of vendor.

5.16 Rejection

In the event any of the equipment supplied by the Bidder is found defective in design, material or workmanship or otherwise not in conformity with requirements of the Contract Specification, the TRANSPORT MANAGER shall either reject the same or request the Contractor in writing to rectify the same.

5.17 Extension of Time

If the completion of the delivery of the project is delayed due to reasons beyond the control of the bidder, the bidder shall without delay given notice to The Commissioner in writing of his claim for an extension of time. The Commissioner on receipt of such notice may agree to extend the Contract delivery date as may be reasonable but without prejudice to other terms & conditions of the Contract.

5.18 Dispute

i) Except or otherwise specifically provided in the Contract all disputes concerning question of facts arising under the Contract shall be decided by TRANSPORT MANAGER subject to a return appeal by the Contractor to the TRANSPORT MANAGER whose decision shall final to the parties hereto.

ii) Any disputes a difference including these considered as such by only one of the parties arising out of or in connection with this contract shall be the extent possible settle amicably between the parties.

If amicable, settlement cannot be reached then all disputed issues shall be settled by Arbitration.

5.19 Arbitrator

In the event any dispute arising under these conditions or in connection with the Contract (except as to any matter the decision of which is specially provided for in this conditions) the same shall be referred for final decision to the THANE MUNICIPAL COMMISSIONER or to the officer for the time being acting for him and his decision shall be final and binding upon the Contractor.

5.20 Laws Governing Contract

The Contractor shall be governed according to and subject to the Laws of India & jurisdiction of Courts of Thane.

5.21 Warranty and Support

- 1) Hardware and Software supplied should be with warranty of 3 year and complete support to be provided by vendor for these 3yearsfrom the date of supply. Warranty shall cover all the manufacturing defects, functional defects, support and upgrade. It will be responsibility of vendor to make the replacement/repair available. Vendor should include the comprehensive support, maintenance, operations cost for 3 years in the price.

5.22 Payment Terms

TMT will make payment in parts as follows:

1) Payment for supply and installation of hardware and software:

Sr. No	Description	Payment Milestone
1	Successful supply of Central Control Centre (CCC) hardware and VTS devices	30% work order value
2	Successful installation of Central Control Centre (CCC) hardware and VTS devices	20% work order value
3	Successful installation of Central Control Centre (CCC) software	10% work order value
4	Integration of all the buses with Central Control Centre (CCC) and acceptance by TMT official	5 % work order value
5	Successful operations for 3 months after acceptance by TMT	5 % work order value
6	Successful completion of support for 1 year after go live	10% work order value
7	Successful completion of support for 2 year after go live	10% work order value
8	Successful completion of support for 3 year after go live	10% work order value

- a) Payment will be released as per the invoice submitted by the bidder as per above schedule.
- b) If the successful installation and commissioning of the units is delayed as per Scope of Work and Technical Specifications, the Authority shall be entitled, by reasonable notice, to forfeit the Performance Security.
- c) The payments shall be made, subject to the Authority's right to deduct payments if any, towards any damages, unsatisfactory services, delays etc as per the provisions of the Tender.
- d) Payment shall be made in Indian Currency.
- e) Foreign exchange risk if any shall be managed and born by the Service Provider.
- f) All bills shall be addressed to - TMT Manager, Wagle depot, Wagle Estate, Thane (W) and should be accompanied copy of Challan and acceptance letter to ensure prompt payment.
- g) Bill along with delivery Challan and acceptance letter should be submitted.

5.23 Delayed payment

No claims for interest will be entertained by the TMT in respect of any moneys or balance, which may be in the his hands owing to any dispute, or differences or misunderstanding between the TMT or the Engineer's on the hand & the Contractor on the other.

5.24 Costs & Currency

The offer must be made in Indian Rupees only including All Taxes and levies as applicable at the time of submission of bids.

5.25 Force Majeure

The Bidder shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that its delay in performance or other failure to perform its obligations under the contract is the result of an event of force Majeure. For purposes of this Clause, "Force Majeure" means an event beyond the control of the Bidder and not involving the Bidder's fault or negligence and not foreseeable. Such events may include, but are not limited to, Acts of God or of public enemy, acts of Government of India in their sovereign capacity, acts of war, either in fires, floods, strikes, lock-outs and freight embargoes.

If a Force Majeure situation arises, the Bidder shall promptly notify the Transport Manager, TMT, in writing of such conditions and the cause thereof within twenty calendar days. Unless otherwise

directed by the Commissioner in writing, the Bidder shall continue to perform its obligations under the Contract as far as it is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

In such a case, the time for performance shall be extended by a period(s) not less than the duration of such delay. If the duration of delay continues beyond a period of three months, TMT and the Bidder shall hold consultations with each other in an endeavor to find a solution to the problem.

Notwithstanding above, the decision of the Commissioner, TMC, shall be final and binding on the Bidder.

5.26 Resolution of Disputes

TMT Manager and the Bidder shall make every effort to resolve amicably, by direct informal negotiation, any disagreement or dispute arising between them under or in connection with the contract. If after thirty days from the commencement of such informal negotiations, TMT Manager and the Bidder have been unable to resolve amicably a contract dispute, the matter will be referred to the Commissioner, TMC, and his decision will be final and binding on both the parties.

5.27 Service Level Agreement (SLA)

SLA is the contract between TMT and the successful bidder. SLA defines the terms of the Successful bidder's responsibility in ensuring the timely delivery of the deliverables and the correctness of the same based on the agreed Performance Indicators as detailed in the Agreement. This section defines various Service Level Indicators which will be considered by TMT in the Service Level Agreement with Successful bidder.

The successful bidder has to comply with all Service Level Agreements (SLAs) defined below to ensure adherence to project timelines, quality and availability of services.

Implementation SLA:

Definition	Timely Delivery of Deliverable Items would comprise of all type of Hardware, Connectivity & Networking Equipment, ITS Application Software after UAT and Documents that are to be submitted as part of the project deliverables or submission of documents as per the defined time frame.
Service Level Requirement	All the deliverables defined in the contract has to be submitted on time on the date as mentioned in the contract with no delay.
Measurement of Service Level Parameter	To be measured in number of weeks of delay from the date of submission as defined in the project contract.
Penalty for non-achievement of SLA Requirement	Delay of every week would attract a penalty per week as per the following — For Each Hardware, Connectivity & Networking Equipments = 2 X Per Week Penalty For ITS Application Software = 2 X Per Week Penalty For Each Document = 1 X Per Week Penalty The total penalty would be generated by the product of the above and the number of weeks delay. The Penalty per Week is Rs. 200/- . Note: 6 working days shall be calculated as one week.

Post Implementation SLA:

The successful bidder would get an initial period of SLA holiday, i.e., a time period for which SLAs will not be applicable. This time should be utilized by the successful bidder to stabilize the system and to ensure adherence to the performance standards laid down by the SLAs. The SLA holiday period is one month after successful completion of ITS Central Control Centre (CCC) installation, commissioning and acceptance by TMT official. The successful bidder is supposed to maintain all hardware, software and connectivity at the level of data center and control center in fully functional modes for the entire project period.

Daily/weekly/fortnightly/monthly/yearly reports shall be generated by the successful vendor and to be handed over to concerned staff at TMT.

A. RESOLUTION TIME

Definition	Time in which a complaint / query is resolved after it has been reported by SNT to the Contractor								
Service Level Requirement	<p>Any query after being given a response should be classified for resolution in following three categories.</p> <ul style="list-style-type: none"> (i) Resolution Level 1 (R1): Queries regarding issues which has the greatest impact wherein the user is not able to perform his/her regular work; For example, unable to login to the system due to errors in software, online module not working etc. (ii) Resolution Level 2 (R2): Queries regarding issues which has medium impact wherein the user is partially able to perform his/her regular work; For example, user is able to login and perform most of his normal work, but can't export a certain document. (iii) Resolution Level 3 (R3): Queries regarding issues which have the least/no impact involving cosmetic changes. For example bus is not visible on the map etc. The Contractor should provide service as per the following standards – <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Type of query</th> <th>Resolution time</th> </tr> </thead> <tbody> <tr> <td>R1</td> <td>1 Day</td> </tr> <tr> <td>R2</td> <td>3 Days</td> </tr> <tr> <td>R3</td> <td>5 Days</td> </tr> </tbody> </table>	Type of query	Resolution time	R1	1 Day	R2	3 Days	R3	5 Days
Type of query	Resolution time								
R1	1 Day								
R2	3 Days								
R3	5 Days								
Measurement of Service Level Parameter	The service level would be defined in the number of days calculated from the date of logging the call/raising the request with the Contractor excluding holidays.								
Penalty for non achievement of SLA Requirement	<p>Delay of every day would attract a penalty per day as per the following –</p> <p>For R1 = 3 X Per day Penalty For R2 = 2 X Per day Penalty For R3 = 1 X Per day Penalty</p> <p>The total penalty would be generated by the product of the above and the number of Business days Delay. The Penalty per day is Rs. 350/-</p>								

B. DATA CENTRE UP TIME:

The bidder shall ensure that the services at Central Cloud Server/Data Center are up and functional 24x7 both in terms of hardware as well as application software. For the purpose of service level assurance, the downtime hours shall be calculated on monthly basis. The overall up time of Central Server/Data Center services should maintain a minimum of 98.5% or more

on monthly basis. The table below shows the calculation for the down time in hours and applicable penalty in term of percentage (%)

Srl	Uptime of Central Server/Data Center	Downtime in hours	Per month Penalty in % on total monthly payable amount
1	98.5% or more	Up to 10.8 hours	NIL
2	>=98.5% to < 97%	> 10.8 to < 21.6 hours	2%
3	>=97% to < 95%	> 21.6 to < 36 hours	4%
4	>=95% to < 93%	> 36 to < 50.4 hours	6%
5	>=93% to < 91%	> 50.4 to < 64.8 hours	8%
7	<91%	>64.8 hours	10%

The consolidated maximum penalty amount should not exceed 20% of the total monthly payable cost at any time during complete project period of 5 years otherwise the contract may be terminated, duly forfeiting the security deposit. The notice of termination shall specify that termination is due to the reason that the bidder is unable to meet the primary objective of providing information to the stakeholders, the extent to which the contract is terminated and the date upon which such termination becomes effective.

5.28 Training for relevant stakeholders in TMT

The successful bidder shall organize training program about the complete functioning of the ITS i.e. all operations, reporting, monitoring etc to designated officials of TMT initially.

5.29 Infrastructure and support to be provided by TMT

- TMT will be providing the secure space with furniture, power supply and Air-conditioning to operate the Central Control Centre (CCC).
- TMT will arrange required documentation and support from bus OEM and on bus ITS provider to interface with Central Control Centre (CCC).

Annexure A –Price bid
Tender Notice No.TMC/Comp/974/2014-15

(COMMERCIALBID OR PRICE BID)

To,
The Transport Manager,
Thane Municipal Transport Undertaking,
Administrative Building, Road No.27/34,
Wagle Depot, Wagle Estate,
Thane (W) – 400 604

Sir,
As per Terms & Conditions of tender documents,
I/We _____ Address _____

Furnish the following rates for the Supply, Development and Implementation of Intelligent Transport System (ITS) for TMT

Pricing format for hardware & software

Sr. No.	Particulars	No. of units	Amount (In INR)		
			Rate per unit (inclusive of taxes)	Total	
1	VTS (GPS) devices (JnNURM-1) (includes supply, installation and commissioning)	200			
2	21" LCD TV Monitor for 10 AC Buses (JnNURM-1)	10			
3	Vehicle tracking and monitoring, Command centre application and mobile app (including AVLS, PIS management, Vehicle health monitoring, Duty management, MIS, VHMD, Mobile app & any other required components)	1			
4	Vehicle tracking server (CPU, monitor, mouse, keyboard, OS)	2			
5	Database server(CPU, monitor, mouse, keyboard, OS)	1			
6	RDBMS software- enterprise version	1			
7	32" LED TV monitors for display on bus stops (130 Nos)	OR	LED display board for bus stops (1800x200 mm)	120	
			4 line LED display board for bus stops (3.5 ft x 2.5 ft)	10	

8	Video wall 65" screen or above	1		
9	Computer for control room (including OS, antivirus, peripherals and licensed softwares as per requirement)	5		
10	Network Printer- A4 black and white laser	1		
11	Networking of command and control center (including cabling, switches, routers, firewall, GPRS and broadband connectivity, UPS & any other required components)	1		
TOTAL				
Total In Words :				

**SIGNATURE & RUBBER SEAL OF THE
BIDDER**

Annexure-B

Scope of services and technical & functional specifications

1. On bus VTS (GPS) devices:

- VTS shall consist of a GPS receiver with inbuilt GPS Antenna, GSM/ GPRS receiver, to enable services such as vehicle tracking and control in connection with a backend control center system. SOS button to be provided.
- VTS should be mountable inside the vehicle and shall be vibration & shock resistant, heat resistant, dust resistant and water / rain splash resistant and shall be tamper proof. It should not be inferior to relevant Indian or International standards.
- VTS software should be upgradeable/ configurable over the air (OTA)
- VTS should have at least IP65 or higher protection classification.
- VTS shall work on 12V DC or 24 DC Battery. Device should be powered by vehicle battery and not ignition.
- VTS application should generate tampering alerts.
- VTS unit must be free of any electronic interference.
- Operating temperature:-10 to +65°C
- Supply voltage range: 8 to 38V DC
- Current consumption during transmission be minimum as per industry standards.
- Device should have internal battery (6-8 hours backup) to support.
- Rating:22 tracking/66 acquisition minimum
- Tracking sensitivity :-160 dBm typ
- Navigation sensitivity ; -148 dBm typ
- Update rate 1 Hz (configurable to 10 Hz)
- Time to first fix cold acquisition 35 seconds typ
- Hot acquisition 1 second typ.
- Navigation accuracy 3M horizontal
- GSM/GPRS SMT dual band and UMTS (2G)
- NMEA protocol
- Large Flash memory: To store records up to 7 days in case of lost connection.
- Digital/Analog inputs and outputs: depending upon our present and future requirement as given in the tender.
- Uninterrupted service while disconnection of main power supply.
- 3 years comprehensive warranty and support
- Vendor's responsibility is to maintain all the on bus ITS components in good condition.
- Replace and repair of non-working components
- To inform TMT authority in case of tempered or stolen components from bus. Once confirmation from TMT authority, the tempered/stolen component to be replaced. TMT will pay for such component.
- Its vendor's responsibility to maintain inventory of spares. Vendor needs to meet SLA criteria

2. 21" LCD/LED TV Monitor for 10 AC Buses and required hardware to drive the content

- 21" LCD monitor with all the fittings and brackets to install on 10 air-conditioned buses
- Inputs– VGA, HDMI, USB, DVI-D
- 3 years onsite warranty

3. Vehicle tracking and monitoring, Central Control Centre (CCC) application and mobile app (whereIsMyBus)

- Vendor shall provide the following software modules
- It will be responsibility of vendor to customize, install, commission and configure the system and make it live
- All the initial route configuration on buses and Central Control Centre (CCC) software shall be carried out by installation team and once the system go live it will be responsibility of operators provided by vendor to carry out this functions as and when required
- The Supplier shall provide annual maintenance support for 3 years.
- The Supplier will make available, during Business Hours, a telephone and email helpdesk facility for the purposes of:
 - Assisting the Customer with the proper use of the Software;
 - Determining the causes of errors in the Software; and/or
 - Fixing errors in the Software
 - All the upgrades, issue resolutions and support for Command centre system and bus stop LEDs
- In case of critical and unresolved issues vendor shall provide in person support at TMT site.
- The supplier shall provide copies of upgrades to the TMT promptly following the general release of the relevant upgrade to the TMT
- In case if TMT request for additional functionality addition the Supplier shall provide development services for the purpose of creating new functionality for the Software at apt cost
- The working hours for ITS operation shall be 4:30 AM in the morning to 12.30 AM night (20 Hrs), the bidder shall consider 3 shift duty rolling for computation of Manpower requirement.
- There should be technical support staff (depending on the requirement as per work load) available in general shifts on all 7 days of week. Except general shift, technical support should be available as & when required during any shift to make sure the operations are running smoothly in all shifts without affecting routine work.
- The technical support staff shall be graduate/diploma holder with minimum 1 year of experience in similar area
- The operations manager shall be minimum graduate in computer science or similar field with minimum 3 years of experience in similar area
- The role of the vendor at the Central Control Centre (CCC) includes, but not limited to:
 - Enter the duty for driver, conductor and bus in the system as per the duty details provided by TMT staff
 - Update the routes and trips in the system whenever changes brought by TMT

- Monitor and track the movement of vehicles
- Monitor the schedule adherence and alerts
- Inform the staff concerned in case of any unexpected event or alert
- Inform the emergency services/ police in case of any incident
- Create required reports and provide it to concern authorities in TMT as and when required as well as weekly, monthly and quarterly basis.
- Update the duty allocation information and route information in the system, received from depots and allocate on respective buses
- Keeping a watch on the health of the system to ensure minimum downtime of each of the components.
- Maintaining and upgrading the software components of the system.
- Informing the staff concerned, in case of any component failure
- Make sure smooth operation of Central Control Centre (CCC)
- Inform Data center support team and get resolved all the data center related issues.

A. Automated Vehicle Locator System (AVLS):

The Central Control Centre (CCC) needs to integrate with AVLS system at:

- 1) On-bus ITS of JNNURM-2 buses
- 2) GPS system of JNNURM-1 buses

The software shall be web based and utilizes high resolution digital map to show real-time position of the vehicles. The software shall provide map based tracking and transit route line based tracking of vehicles by the control centre operators. The software is expected to have enterprise capabilities which enables multiple user type to be enabled to carry out various functions like, Alarm Management, Vehicle Schedule Tracking, Speed Management, Stoppage management, Route replays, bus tracking dashboard etc as a standard functionality. The software shall enable control centre management staff quick decision making capability, which shall be achieved by providing graphical tools for visualization. The software shall enable TMT to drill and analyze information and online data in a multidimensional manner. Comprehensive analysis and reporting capabilities are expected to be part of the application delivery which matches the world standard capabilities of AVLS systems. The software should have capability to have a screen based tracking system, so as to enable tracking staff to quickly analyze activities and have a better insight into operational data of all activities within the system.

Following are the features of AVLS:

- 1) Real time vehicle location to be shown on digital map with user defined refresh rate
- 2) Geo-fencing provision for alarm if vehicle goes out of defined area. The threshold value of the fencing should be selectable
- 3) Indicate start route in real time on map
- 4) The AVLS shall be able to give ETA at next bus stops in realtime based on speed and distance measurement. The ETA at bus stops should be updated on all PIS accordingly.
- 5) Register a bus on unscheduled route or change the route of scheduled bus from backend on real time basis
- 6) Provision to create new routes
- 7) Alerts will need to be generated in case of deviations from the authorized route and recorded in all cases for reporting and review.

- 8) Alerts on all other pre-configured parameters such as non-stoppage at designated points, unauthorized stoppages, vehicles stopping for long duration, not meeting the ETA and ETD schedules etc., and logged into journey details of the bus for each trip.
- 9) Licensed static map Google or equivalent with periodic map update
- 10) Details of Depots, Bus stops, platforms, places and other units of TMT should be shown on the map
- 11) Information elements that needs to be captured at the minimum shall include longitude, latitude, and physical location, driver id & name (if provided by TMT) when hovered over the vehicle on the map.
- 12) The Control Room operator shall be able to drill down to the exact location of the event by clicking on the alert

B. Passenger Information System (PIS):

The Central Control Centre (CCC) needs to integrate with PIS system at:

- 1) On-bus PIS of JNNURM-2 buses which includes in bus LED displays, voice announcement system
- 2) Android mobile application which will show real time bus location, schedule and ETA details
- 3) Interface with Bus stops LED boards to show route no, destination, STA and ETA

Following are the features of PIS:

- 1) It shall manage the content on all the on bus LEDs in JNNURM-2 buses
- 2) It shall send the route files and schedule details from Central Control Centre (CCC) to on bus PIS
- 3) It should have provision to show advertisement on in-bus passenger facing display along with audio from speakers installed in bus.
- 4) It shall have provision to show bus number, route and key stops on the route on outfacing side, front and rear display of the bus.
- 5) It shall manage the next stop announcements in in-bus passenger facing display along with audio from speakers based on GPS location received from AVLS system
- 6) It shall have provision to change the message on outfacing displays whenever required directly from Central Control Centre (CCC). For example in case while unwanted incident or crime is happening inside the bus and to alert nearby vehicles or people on the road.
- 7) It shall have provision to integrate with 'Where is my bus' mobile application which will show bus route, schedule, real time bus location and ETA details
- 8) It shall show Bus number, route, schedule and ETA on LED screens at bus stops. The ETA should be calculated and refreshed at selectable refresh rate.
- 9) It should have provision to show advertisement on LED displays on bus stops

C. Vehicle Health Monitoring and Diagnostics:

The Central Control Centre (CCC) shall integrate with the VHMD system in JNNURM-2 buses through on-bus ITS. The vehicle health data should be logged, monitored and action shall be taken by CCC whenever required. Following are the features of VHMD:

- 1) It shall capture the vehicle health data coming from on-bus ITS and log it
- 2) The alert shall be shown in case of health data is crossing the threshold limit. The threshold limit should be selectable easily.
- 3) The parameters which should be captured for Vehicle health should be selectable by TMT. TMT shall select the parameter for which alert should be generated at CCC and for rest only logging of event shall happen.
- 4) The parameters should include but not limited to:
 - a. Fuel /Oil level/ Pressure
 - b. Braking pedal position
 - c. Accelerator pedal position and kick down
 - d. Brake pad condition and brake pedal temperature (in case of electronically controlled disc brakes)
 - e. Door interlock
 - f. Vehicle speed (torque),
 - g. Diagnostic message (engine specific)
 - h. Engine CAN status
 - i. Engine coolant temperature,
 - j. Engine speed in RPM,
 - k. Engine oil level
 - l. Engine oil pressure
 - m. Crankcase pressure
 - n. Coolant pressure
 - o. Coolant level
- 5) The Central Control Centre (CCC)operator shall inform the immediate authority from TMT in case of VHMD alarm of high priority
- 6) The fuel theft alarm shall be displayed at CCC in case of fuel level of the bus goes down suddenly while on trip

D. Fleet management

The Central Control Centre (CCC) should be able to:

- 1) System should have list of all the buses, routes, drivers & conductors available for duty allocation
- 2) Enter duty for driver, conductor and buses and shall be able to assign to all JNNURM-2 buses.
- 3) It shall have provision to send SMS to respective driver and conductor about their duty.
- 4) It shall have provision to create report for the vehicles available for duty, under maintenance and on casual duty to manage the fleet effectively

- 5) It shall keep records of kilometer run of bus to monitor and create & submit the report to TMT officials to plan the maintenance of the bus after certain run. The system should have provision to manually set the kilometer in system if required.
- 6) There shall be provision to alter driver and conductor duty in system and in such scenario immediate SMS should go to driver and conductor about the change in their duty

E. Reports

The system as a minimum shall be delivered with capability to generate following reports, a comprehensive list of reports further than the mentioned below shall be finalized at the time of requirement finalization stage:

- 1) KMPL report- driverwise, bus wise, route wise, depotwise, daily, weekly, monthly, quarterly and yearly
- 2) Trip report- dead run, start time, incidents (alerts, breakdowns, cancellations etc.), delays, end time, fuel consumption, idle time, distance travelled, driver name, conductor name, time at each bus stop, Alerts for each trip
- 3) Bus Equipment Fault Summary
- 4) Driver scorecard- KMPL, Harsh acceleration, harsh breaking, over speeding, skipped stops, adherence to schedule, excessive idling, gear to speed ratio, over revving, attendance, complaints, average speed. The system should provide various views of driver scorecard to compare different drivers of different parameters.
 - a. Different drivers on same route or same bus
 - b. Drivers comparison of different parameters
 - c. Driver performance on weekly, monthly, quarterly and yearly basis
- 5) Bus maintenance report- bus wise and engine wise report of maintenance schedule based on kilometer run.
- 6) Dashboard for Transport manager and Depot manager- Productive km, dead km, total km(leased+own buses), fuel consumption (leased+own buses),KMPL (diesel+CNG), no. of buses on road (shiftwise)/total, no. of extra trips (shiftwise), no. of canceled trips (shiftwise), actual no. of trips/scheduled, no. of breakdowns (shiftwise), Actual Duty Allocation Vs Planned
- 7) Deadrun report- bus wise, depotwise, daily, monthly, quarterly, yearly

The above state reports are only indicative, actual list could be discussed and signed off with selected bidder at requirements finalization stage. The Service provider shall provide TMT a GRAPHICAL DASHBOARD to have visual view of all / some key reports/ parameters enabling quick decision making.

F. Alerts management

The system as a minimum shall be delivered with capability to generate following alerts at Central Control Centre (CCC), a comprehensive list of alerts further than the mentioned below shall be finalized at the time of requirement finalization stage:

- 1) Over speeding
- 2) Station skipped
- 3) Non adherence to schedule
- 4) Panic message
- 5) Unexpected stoppage and long halt
- 6) Alerts based on geo-fencing
- 7) Engine related VHMD alerts
- 8) Sudden fuel level drop
- 9) Alert in case of damage to on-bus ITS
- 10) Provision of sending emails and SMS from Central Control Centre (CCC) to defined users in case of defined alerts

The system shall have provision to change and select the threshold value of the parameter for alerts.

G. User management:

- 1) Must provide centralized administration of user-ids and password management.
- 2) Must provide a central directory of users, their real-world business information, their accounts, and their access rights across the enterprise without requiring changes to end-systems.
- 3) Must support enforcement of a centrally-defined security policy, e.g. for access rights, password lengths
- 4) Role-based Administration. Role Based & Rule Based User Provisioning.
- 5) Must provide advanced Web support, to allow for smooth access and personalization of the user interface for each user. Once a user has been authenticated to the sign on system, access to all authorized Web applications and resources must be handled by this system.
- 6) Must provide access to only those applications/resources that the user/customer has authority to.
- 7) Web access management system should support single sign-on across security domains.
- 8) Administrator should be able to create policies that perform comparative tests on each user's directory profile information.

H. 'Where is My Bus' Android app:

- 'Where is my Bus' application shall give access to real-time bus schedules.
- Query based GUI
- It shall give following information:
 - Scheduled and expected time of arrival at each stop along with bus route no. and route name
 - Stops names for each route name and route no.
 - Running information of bus
- This app shall be designed to be used on android based smart phones.

4. BUS STOP LED Board (single line):

Size	single line: 200x1800 mm
Pitch	13 mm (H) * 13 mm (V)
Colour	Amber colored LED
Minimum & maximum viewing distance and angle of viewing	Viewing distance minimum 30 meters Character height
Length of the message for a particular route; information that needs to be displayed in English & Marathi	Route No.: The vehicle Route identity Destination STA, ETA
Vibration standard AIS 012/AIS:062 -10g	2g
Storage capacity inside the Display	20 Route Information
Communication protocol	GPRS
Controller and antenna	Inbuilt
Environmental specifications	(a) Temperature: 0 to +55 deg C (b) Thermal cycling: 5 Deg C/mt (c) Humidity: 5% to 95% RH (d) Sealing: IP 65 (e) Drop: 1 mt on all faces
Minimum life	30,000 Hrs
Data format	Bitmap or Unicode
Power supply	90 V to 250 V AC; 50 VA
Frequency	5~50Hz and return to 5Hz at a linear sweep period of 1 minute/complete sweep Cycle
Excursion	1.6 mm peak to peak over the specified frequency range

5. BUS STOP LED Board (four line):

Sr. No.	Parameter	Minimum requirement
1	Minimum & maximum viewing distance and angle of viewing	Viewing distance 3 - 30 meters Minimum 150°V – 60°H
2	Resolution in terms of number of pixels (X by Y) and the pitch between pixels for the display character	Pitch of 4.76 mm. Character height 3". (21 characters in a line.)
3	Length of the message for a particular route; information that needs to be displayed in English & local language	· Route No.: The vehicle Route identity · Destination · STA, ETA
4	Maximum width & length available at the bus stop / station / terminals and the quantity	Approx.3.5ft x 2.5ft.
5	Display colour	Single colour – Amber colour
6	Vibration standard	2g
7	Storage capacity inside the Display	20 Route Information.
8	Update of display	Real time (configurable refresh rate)

9	Communication protocol between the display unit and the central server	GPRS
10	Controller & antenna	Built –in
11	Power supply	90 V to 250 V AC; 50 VA
12	Environmental specifications	Temperature: a) 0 to +55 deg C b) Thermal cycling: 5 Deg C/mt c) Humidity: 5% to 95% RH d) Sealing: IP 65 e) Drop: 1 mt on all faces
13	Minimum life of the display System	30,000 Hrs.
14	Data format	Bit map or Unicode
15	Display format	Multimedia content, text in hindi, english and local language with presentation in tables, fixed and scrolling text
16	Frequency	5~50Hz and return to 5Hz at a linear sweep period of 1 minute/complete sweep Cycle
17	Excursion	1.6 mm peak to peak over the specified frequency range
18	Compliance	IS /IEC 60947-1:2004 in conjunction with IS/IEC 60529:2001– ‘PIS signs’ IP66, ‘SCU’ IP 65,

6. BUS STOP 32” LCD TV:

Size	Minimum 32” LED/LCD Display
Resolution	Full HD
Connectivity	HDMI, VGA
Internet connectivity	GPRS and Wifi (inbuilt or through additional unit)
Security	-Enclosure with IP65 front and IP 56 back cover -Louvers in Back, Left, Right side
Brackets	Wall mounting or ceiling mounting
Min & max viewing distance and angle of viewing	Viewing distance 30 meters Minimum 60°V – 110°H
Environmental specifications	Temperature: 0 to +55 deg C; Humidity: 95% RH
Minimum life of the display system	100,000 hours
Power supply	90 V to 250 V AC
Storage capacity inside the Display	20 Route Information(inbuilt storage or through additional unit)
Warranty	Comprehensive 3 years
installation	Including complete installation and commissioning at bus stops with required standard protective material to function in all weather conditions

7. Videowall:

- 65” or above LED videowall (display screen)– 1unit

Panel	Panel	-	A+
	Backlight source	-	Edge-lit LED
	Resolution	[Pixel]	1920 x 1080
	Brightness	[nit]	500
	Dynamic contrast ratio	-	1000000:1
Connectivity	HDMI input	-	4
	Radio frequency input (RF)	-	1
	Component / Y Pb (Cb) Pr (Cr)	-	1
	Audio L/R for component input	-	1
	AV input	-	1
	USB interface (Video, Audio, Images)	-	3
	VGA input	-	1
	Audio L/R for VGA input	-	1
	Optical audio output	-	1
	Video RCA output	-	1
Network	RJ45 LAN	-	1
	Wireless IEEE 802.11N	-	Yes
Image control	Zoom function with: 4:3, 16:1, Auto, Zoom 1, Zoom 2	-	Yes
	1:1 Pixel mapping	-	Yes
	Still image	-	Yes
	Motion enhancement and compensation (MEMC)	-	Yes
Sound	Audio power output per channel	[Watt]	10 + 10
	Dolby Surround (stereo)	-	Yes
	Automatic volume level (AVL)	-	Yes
	Audio equalizer	-	Yes
Power	Input Power	AC	220V ~ 240V AC 50/60Hz
	Environmental Condition - temperature	-	5°C ~ 45°C
	Environmental Condition - humidity	-	20% to 80% RH
	Power Consumption	[Watt]	275
	Stand By Power	[Watt]	0.5

8. Computer specifications for CCC:

- Screen Size Inch : 15 inches
- RAM : 4 GB DDR3
- Processor : Intel Core i5
- Hard Disk Capacity : Minimum 500 GB
- Operating System : Windows 8
- Peripherals:
 - Optical scroll Mouse
 - USB keyboard
 - DVD writer
- Installed licensed softwares:
 - Microsoft office 2010
 - Antivirus
- 3 years comprehensive warranty

9. Network printer- A4 black and white laser (All-in-one)

- Resolution (black): Minimum 600 x 600 dpi
- Connectivity: 1 Hi-Speed USB 2.0; 1 Gigabit Ethernet; 2 External Host USB (1 walk-up and 1 external accessible); 2 internal Host USB 2.0-like ports (for 3rd party connection); 1 Hi-Speed USB 2.0 HIP (for 3rd party connection)
- A4, Letter, Legal
- Windows 7, Windows 8 compatible
- Ports: 1 Hi-Speed USB 2.0; 1 Gigabit Ethernet; 2 Host Hi-Speed USB 2.0; 1 Hardware Integration Pocket (HIP)
- Minimum 400 MHz processor
- Minimum 128 MB standard memory
- Power consumption less than 600 W
- Monthly volume of 5000 copies of A4 size prints
- Monochrome speed up to 25 A4 ppm
- The toner shall be of standard size, off-the-shelf and easily available in the local computer market
- 3 Years warranty period

10. Networking of Central Control Centre (CCC) and control centre

- Vendor shall carry out the required complete cabling for Central Control Centre (CCC)
- All the required network components (including 24 port switch, routers, Firewall etc.) to be supplied by vendor
- All the required Hardware and software components for data security to be provided by supplier
- Warranty of 3 years of complete Central Control Centre (CCC) setup

A. UPS specifications for CCC:

- General
 - 5KVA UPS
 - UPS shall be free from workmanship defects, sharp edges, nicks, scratches, burs, etc. All fasteners shall be fixed properly. The equipment shall be complete with all parts and all parts shall be functional.
 - By-pass facility shall be provided for maintenance of UPS.

- UPS shall supply output power and charging current at the same time.
- KW rating of the UPS shall be 0.70 times the KVA rating.
- Input (as applicable)
 - 160V-260V, 50 +/-3% Hz single phase AC or
 - 300V-450V, 50 +/-3%Hz three phase AC
- Output (as applicable)
 - 230V +/-1% (with alternative setting for 220V +/-1%) 50 +/-0.5Hz, single phase.
 - 400V +/-1% (with alternative setting for 380V +/-1%) 50 +/-0.5Hz three phase. Voltage regulation from no load to full load shall be within +/-1% in both the cases. UPS shall also have facility for operation in synchronous mode in which output frequency shall be same as that of mainsfrequency.
 - Total harmonics distortion at output : 2% maximum for UPS up to 5KVA and 3% maximum for UPS above 5 KVA on resistive load. If total input harmonics are less than or equal to 10%.
 - Efficiency (at rated output KVA Rating, rated Pf ,rated voltage and frequency)
 - Overall efficiency (minimum) : 90%
 - UPS power factor at rated load : better than 0.9 lagging at input side .
 - Over load : UPS shall withstand 20% overload for 10 minutes and 50% over load for oneminute.
- Protections :

Following protection shall be provided in UPS:

 - Over voltage, short circuit, and overload at UPS output terminal.
 - Under voltage at battery terminal.
 - Over shoot and under shoot shall not be greater than 4% of rated voltage for duration of 40msec. (maximum)
- Indicators and meters

Following indicators shall be provided:-

 - Mains presence.
 - Battery charging and discharging
 - Output overload
 - Low battery voltage.
- Battery bank:
 - UPS shall be supplied with SMF VRLA battery only.
 - Batteries for UPS shall be of the following makes:-
 - Reputed make battery like Exide, Panasonic, Amar Raja, Global, Rocket, Base,Okaya.CSB, RITAR, Luminous make or DGS&D registered batteries.
 - The UPS shall be complete with Trolley for battery bank and the firms shall also connect the batteries with UPS and commission the same.
- Warranty
 - Three years comprehensive for on UPS and battery bank

B. Connectivity infrastructure:

- Secured connectivity setup between buses and Central Control Centre (CCC) with all the data security measures
- Central Control Centre (CCC) – High speed minimum 6Mbps secured broadband connectivity with required firewall and networking infrastructure
- Connectivity for depots- High speed minimum 2Mbps secured broadband connectivity with firewall and required networking infrastructure
- Backup connectivity should be considered to meet the SLA requirement.
- Buses- Data plan for on bus hardware supporting 3G
 - SIM cards for GPRS data plan
 - SMS Service

- Bus stop - Data plan for on bus stop hardware supporting 3G
- The GPRS/GSM data connectivity would be seamless while moving from one cell site to other cell site.
- Vendor shall make sure the network coverage of telecom provider & need to change the provider if required during the period to confirm the smooth functioning of the system.
- All the connectivity charges to be paid by vendor for 3 years

11. Cloud based or local data centre

Below mentioned requirement is minimum and can be changed as per the solution/requirement of the bidder to meet the SLA.

- Data Size:
 - AVL, VHMD and PIS data to be stored (at actual, as per the requirement)
 - 1 year for data retrieval and 3 year to be archived
- Servers on cloud (considering redundant servers):
 - Proxy Server (1) – Quad core, 4 GB RAM, 100 GB X 2 HDD
 - Data acquisition servers (2) – Quad core, 8 GB RAM, 200 GB X 2 (raid mirroring) HDD
 - Data storage servers(2) - Quad core, 16 GB RAM, 1 TB X 2 (raid mirroring) HDD
 - Application servers (2) - Quad core, 16 GB RAM, 500 GB X 2 (raid mirroring) HDD
 - 100 % redundancy for all servers – fail safe
 - Data and Transactions should be secured
 - 24*7 backend support
 - Scalability to increase servers in case of more buses added
- Software:
 - Enterprise OS with support
 - Maps – considering 10 simultaneous users
 - Web Server - on two machines
 - Reporting Server
 - Database servers with support
- Load Balancer – Configurable load balancer that ensures that load is distributed evenly across all of the web server instances.
- All the cloud data service charges to be paid by vendor for 3 years

Annexure-C

Details of demonstration

DETAILS OF DEMONSTRATION/TRIAL OF ITS Central Control Centre (CCC) application:

The demonstration/trial of ITS Central Control Centre (CCC) will be given by the firms, who meets the all other eligibility criteria of Technical Bid. The firm will show the demonstration at its own cost. The valid firms will be provided with two JNNURM-2 buses of TMT and show the following features of vehicle tracking. Below are the minimum required criteria which bidder has to demonstrate during demo failing which no marks will be given.

1. Real time location of vehicle to be shown on map.
2. Panic alarm should be shown at Central Control Centre (CCC) when panic button is pressed on bus by driver
3. Message shall be sent from Central Control Centre (CCC) to bus. The message should be displayed on in-bus passenger facing LEDs of both the buses at the same time
4. Trip report - The report should be generated showing total distance travelled in a trip, start time, end time, delay and vehicle health report

Vendor can also show any other additional features.

Annexure D

Format for Consortium AGREEMENT

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

THIS Consortium Agreement executed on this..... day ofTwo thousand..... between..... (Prime Bidder) and having its Office at..... (Hereinafter called the "Party 1", which expression shall include its successors, executors and permitted assigns)

And

..... (Other Consortium Member) and having its Office at..... (Hereinafter called the "Party 2", which expression shall include its successors, executors and permitted assigns) and for the purpose of submitting a Proposal for Selection of System Integrator for the Project (Supply, Development, Implementation, Operation and Maintenance of Intelligent Transport System (ITS) for TMT)

NOW THEREFORE, THIS INDENTURE WITNESSTH AS UNDER:

In consideration of the above premises and agreement all the parties in this Consortium do hereby mutually agree as follows:

In consideration of the selection of the Consortium as the System Integrator of Supply, Development, Implementation, Operation and Maintenance of Intelligent Transport System (ITS) for Thane Municipal Transportation Undertaking, Thane (TMT) by a) The Commissioner to Thane Municipal Transportation Undertaking, Thane (TMT), we the Members of the Consortium do hereby unequivocally agree that M/s..... (Insert name of the Prime Bidder), shall act as the Prime Bidder as defined in the Proposal documents for self and agent for and on behalf of (the names of all the Other Consortium Members of the Consortium to be filled in here)

The Prime Bidder is hereby authorized by the Other Consortium Members and parties to the Consortium Agreement to bind the Consortium and receive instructions for and on behalf of the Other Consortium Members.

The Prime Bidder shall be liable and responsible for ensuring the individual and collective commitment of each of the Members of the Consortium. Each Consortium Member further undertakes to be individually liable for the performance of its part of the obligations without in any way limiting the scope of collective liability envisaged in this agreement.

It is expressly understood and agreed between the Members that the responsibilities and obligations of each of the Members shall be as delineated as annexed hereto as Annexure D (to be provided by the Prime Bidder) forming integral part of this Agreement. It is further agreed by the Members that the above sharing of responsibilities and obligations shall not in any way be a limitation of joint and several responsibilities and liabilities of the Members, with regards to all matters relating to the Project.

It is clearly agreed that the Prime Bidder shall ensure performance in all respect under the Contract and if one or more Consortium Members fails to perform its/ their respective obligations under the Contract, the same shall be deemed to be a default by all the Consortium Members.

This Consortium Agreement shall be construed and interpreted in accordance with the Laws of India and courts at Thane alone shall have the exclusive jurisdiction in all matters relating thereto and arising there under.

It is hereby agreed that if the Bidding Consortium is qualified to submit a Proposal, the Prime Bidder shall submit the Bid Security, as stipulated in the Proposal documents, on behalf of the Consortium Members.

It is hereby agreed that in case of selection of Bidding Consortium as the successful bidder, the parties to this Consortium Agreement do hereby agree that Prime Bidder shall submit the Performance Bank Guarantee as mentioned in the RFP documents, on behalf of the Consortium Members.

It is further expressly agreed that the Consortium Agreement shall be irrevocable and shall form an integral part of the Proposal and shall remain valid till the completion of the Project. The Prime Bidder is authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the Consortium Members respectively from time to time in response to the Proposal and for the purposes of the Assignment.

It is hereby expressly agreed between the Members to this Consortium Agreement that neither Member shall assign or delegate its rights, duties or obligations under this Agreement except with prior written consent of TMT.

This Consortium Agreement

- a) has been duly executed and delivered on behalf of each Member hereto and constitutes the legal, valid, binding and enforceable obligation of each such party,
- b) sets forth the entire understanding of the parties hereto with respect to the subject matter hereof;
- c) shall not be amended or modified except in writing signed by each of the Member and with prior written consent of The Commissioner, TMT

IN WITNESS WHEREOF, the parties to the Consortium Agreement have, through their authorized representatives, executed these present and affixed Common Seals of their respective companies on the Day, Month and Year first mentioned above.

For and on behalf of Prime Bidder (Party 1)

M/s.....

(Signature of authorized representative) Name:

Designation: Place:

Date:

WITNESS

1.

(Signature)

Name Designation.....

2.

(Signature)

Name Designation.....

Common Seal of..... has been affixed in my/our presence

For and on behalf of Consortium Member (Party 2)

M/s.....

(Signature of authorized representative) Name:

Designation: Place:

Date:

WITNESS

1.

(Signature)

Name Designation.....

2.

(Signature)

Name Designation.....

Common Seal of..... has been affixed in my/our presence

Attested: (Signature) (Notary Public) Place:

Date:

Annexure E

**Performance Bank Guarantee Format
(On Bank's letterhead with adhesive stamp)**

Date:

To,
The Transport Manager,
Thane Municipal Transport Undertaking (TMTU),
Administration Building, Wagle Depot,
Wagle Estate, Thane (w) 400602.

Dear Sir,

Subject : Request for bid to "**Design, Development, Implementation & Management of Intelligent Transport System (ITS) Central Control Centre (CCC) for Thane Municipal Transport Undertaking (TMTU)**" in TMTU.

KNOW ALL PEOPLE, by these presents that we..... of (Name & Address of bank) having our registered office at (hereinafter called "The Bank") are bound on to, Thane Municipal Transport undertaking (TMTU) (hereinafter called "The Owner") in the sum of Rs. (Rupees only) for which payment will and truly to be made to the said owner, the bank binds itself, its successors and assigns by these present.

Whereas the letter of acceptance no Dt..... has been issued by Thane Municipal Transport undertaking (TMTU) to (Name of Service) (herein called the "Service Provider") for execution of Design, Development, Implementation & Management of Intelligent Transport System (ITS) Central Control Centre (CCC) for Thane Municipal Transport Undertaking (TMTU)

AND WHEREAS the service provider is required to furnish a bank guarantee for a sum of Towards performance guarantees for said Design, Development, Implementation & Management of Intelligent Transport System (ITS) Central Control Centre (CCC) for Thane Municipal Transport Undertaking (TMTU)

AND WHEREAS (Name of Bank) have, at the request of service provider, agreed to give this guarantee as herein after contained without demur.

We further agrees as follows:

- A. That the guarantee herein before contained shall be affected by any change in constitution of our bank or in the constitution of the service provider.
- B. That any account settled between the owner & the service provider shall be conclusive evidence against us of the amount due hereunder and shall not be questioned by us.
- C. That this guarantee commences from the date hereof and shall remain in force for a period of three (3) years from the date of go live.
- D. That the expression 'The service provider and the bank' herein used shall, unless such as interpretation is repugnant to the subject of context, include their respective successor and assigns.

The conditions on this obligation are:

- A. If the service provider fails or refuses to enter into agreement within the time limit specified in the letter of acceptance
- B. If the service provider fails to perform his obligations under the agreement to be entered into between TMTU and service provider, pursuant to issuance of letter of acceptance by TMTU to service provider.

We undertake to immediately pay to the owner the above amount upon receipt of his first written demand, without the owner having substantiate his demand provided that in his demand the owner will note that the amount claimed by him is due to him owing to the occurrence of the any one or more of conditions about A & B mentioned above, specifying the occurred condition or conditions.

SIGNATURE OF WITNESS

NAME OF WITNESS

ADDRESS OF WITNESS

SIGNATURE OF AUTHORISED OFFICIAL OF THE BANK

NAME OF IOFFICIAL -----

DESIGNATION -----

DATE -----

PLACE-----

STAMP / SEAL OF BANK

Annexure F

Power of Attorney Format

(On Non-judicial stamp paper of Rs 100/- or such equivalent document duly attested by notary public)

Power of Attorney

Know all men by these presents, We,.....(name of firm and address of the registered office) do hereby irrevocably constitute, nominate ,appoint and authorize Mr./ Ms (Name), son /daughter /wife ofand presently residing at, who is presently employed with us and holding the position of, as our true and lawful attorney (hereinafter referred to as the "Attrney") to do in our name and on our behalf ,all such acts, deeds and things as are necessary or required inconnection with or incidental to submission of our Bid for the "Selection of Bidder for" Design, Development, Implementation & Management of Intelligent Transport System (ITS) Central Control Centre (CCC) for Thane Municipal Transport Undertaking (TMTU) " in TMTU in response to TENDER issued by TMTU of all applications , bids and other documents and writings, participate in bidders and other conferences and providing information / responses to TMTU, representing us in all matters before TMTU, signing and execution of all contracts including the Contract Agreement and undertakings consequent to acceptance of our bid , and generally dealing with TMTU in all matters in connection with or relating to or arising out of our bid for the said project and /or upon award thereof to us and /or till the entering into of the Contract Agreement.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts , deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and all acts ,deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE ,....., THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THISDAY OF2015...

For.....
(Signature, name, designation and address)

Witness:
1.....
2.....

Accepted

Notarized

(Signature, name, designation and address of the Attorney)

Notes:

1. The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.

2. Wherever required, the bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders resolution / power of Attorney in favor of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the bidder.
3. For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the power of attorney is being issued. However, the power of attorney provided by the bidders from countries that have signed the Hague Legislation Convention, 1961 are not required to be legalized by the Indian embassy if it carries a confirming apostil certificate.
4. In case the bid is signed by an authorized director of bidder (lead member, in case of consortium), a certified copy of the appropriate resolution / document conveying such authority may be enclosed in lieu of power of attorney.

Annexure G

Undertaking for Anti-blacklisting

Ref: _____

Date

To,

The Transport Manager,
Administrative Building Road No. 27 & 34
Wagle Depot, Wagle Estate,
Thane (W) 400 604.

In response to the RFP No _____ dated _____ of Ref. _____ as an
owner / Partner / Director of _____ I /we hereby declare that our Company _____
is having unblemished past record and was not declared ineligible for corrupt and fraudulent
practices either indefinitely or for a particular period of time.

Name of the bidder :

Signature

Seal of the Organization