

GOVERNMENT OF ARUNACHAL PRADESH  
OFFICE OF THE DIRECTOR GENERAL OF POLICE

PHQ, ITANAGAR

NO.PHQ /RSC/93/BE/2024-25

Dated, Itanagar, the 11<sup>th</sup> March'2025

Tender Notice

1. On behalf of the Governor of Arunachal Pradesh, Director General of Police, Arunachal Pradesh Itanagar invites sealed tenders under 2(two) Bid system (Technical & Financial Bid) from the manufacturers/ authorized dealers /agents /suppliers of reputed/ registered firms of Arunachal Pradesh in view of Govt. policy of Vocal for Local for entering into contract for supply & installation of **Adaptive traffic control system (ATCS)** along with required equipments at various locations in ICR for Traffic & Road Safety purpose in Arunachal Pradesh for the year 2024-25. The sealed tender will be received up to 1030 hrs on 19/03/2025 due to paucity of time for implementation of the scheme. This tender will be opened on the same day at 1130 hrs on 19/03/2025. The tenderers or their representative may remain present themselves at the time of opening of tender.

2. The tender papers containing full details with specifications and terms and conditions may also be downloaded from our website [www.arunpol.nic.in](http://www.arunpol.nic.in). The tender fee @ Rs.1000/- (Rupees one thousand) only (non-refundable) through a bank draft payable at SBI Itanagar in favour of the SP (Road Safety & Traffic) PHQ, Itanagar Arunachal Pradesh be deposited & copy be attached. No other mode of payment will be accepted. The firms registered under MSME are exempted from earnest money deposit. The tenderer must submit copy of registration certificate of MSME & incomplete tenders are liable to be rejected.

Sd/-

Director General of Police  
Arunachal Pradesh  
PHQ, Itanagar.

(Not to be published)

Memo NO.PHQ /RSC/93/BE/2024-25

Copy to:-

Dated, Itanagar, the 11<sup>th</sup> March'2025

1. The Director of Information and Public Relations Govt. of Arunachal Pradesh, Naharlagun for information and wide circulation. He is also requested to pass necessary order for publication of the above Tender Notice in one leading News paper of Arunachal Pradesh published from Itanagar namely "The Arunachal Times" or "Arunachal Front" and one news paper of National daily namely "The Hindu or The Times of India".
2. The In-charge Computer Cell, PHQ, Itanagar may upload the Tender Notice in the website of Arunachal Pradesh Police [www.arunpol.nic.in](http://www.arunpol.nic.in).
3. Notice Board.
4. Office Copy.

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11/3/25  
Superintendent of Police (RS & Traffic)  
Arunachal Pradesh  
PHQ, Itanagar

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Supdt. of Police  
Road Safety & Traffic  
PHQ, Itanagar  
Arunachal Pradesh



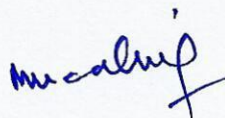
GOVERNMENT OF ARUNACHAL PRADESH  
OFFICE OF THE DIRECTOR GENERAL OF POLICE  
PHQ, ITANAGAR

NO.PHQ /RSC/93/BE/2024-25

Dated, Itanagar, the 1<sup>st</sup> March'2025

**TERMS & CONDITIONS**

1. On behalf of the Governor of Arunachal Pradesh, Director General of Police, Arunachal Pradesh Itanagar invites sealed tenders under 2(two) Bid system (Technical & Financial Bid) from the manufacturers/ authorized dealers /agents /suppliers of reputed/ registered firms of Arunachal Pradesh in view of Govt. policy of Vocal for Local for entering into contract for supply & installation of **Adaptive traffic control system (ATCS)** along with required equipments at various locations in ICR for Traffic & Road Safety purpose in Arunachal Pradesh for the year 2024-25. The sealed tender will be received up to 1030 hrs on 19/03/2025 due to paucity of time for implementation of the scheme. This tender will be opened on the same day at 1130 hrs on 19/03/2025. The tenderers or their representative may remain present themselves at the time of opening of tender.
2. The tender value is Rs. 1.00 crore. (One Crore Only). The tender papers containing full details with specifications and terms and conditions can be downloaded from our website [www.arunpol.nic.in](http://www.arunpol.nic.in). The tender fee @ Rs.1000/- (Rupees one thousand) only (non-refundable) through a bank draft payable at SBI Itanagar in favour of the SP (Road Safety & Traffic) PHQ, Itanagar Arunachal Pradesh be deposited and a copy attached. No other mode of payment will be accepted. The firms registered under MSME are exempted from earnest money deposit. The tenderer must submit copy of registration certificate of MSME. Incomplete tenders are liable to be rejected.
3. All the tenders must be accompanied with Earnest Money deposit of Rs. 4.00 Lakhs (Rupees four lakhs) only and without it, tenders will be summarily rejected. The tenderers are required to pledge NSC/KVP in the form of earnest money security deposit in the name of the SP (Road Safety & Traffic) PHQ, Itanagar Arunachal Pradesh. The tenderers within the state of Arunachal Pradesh should purchase the NSC/KVP from the post office located in Arunachal Pradesh as per Govt. order No.DSS /Accts/2/99-2000 dated 17/3/2011. Bid security (Earnest Money) also may be purchased in the form of account payee, Demand Draft, Fixed Deposit Receipt, Banker Cheque or Bank Guarantee from any of the commercial Banks in an acceptable form located in Arunachal Pradesh.
  1. The Tender Documents must be provided in 02 (two) sealed covers:-  
**Cover-1:-** It shall contain scanned copies of eligibility document as under.
    - i. Technical bid along with its specifications leaflet, brochure, catalogue/literature, if any, of each tendered item.
    - ii. Tender documents duly completed and signed but without indication of the rates "Quoted".
    - iii. Earnest Money must be attached as per above mentioned in SI No.2. For MSME, copy of registration certificate of MSME be attached.
    - iv. Self-attested copy of PAN card/ firm registration/ GST Registration/ Valid Trading license/ Letter of authority in respect of authorized distributors or manufacturer of Adaptive Traffic Signal Controller / dealership etc.



Cont/2

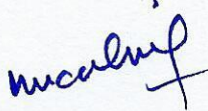


- v. Latest financial Soundness /Bank Solvency certificate or C.A. certificate. Bidder should be authorized distributor or manufacturer of Adaptive Traffic Signal Controller (CDAC Technology) & having at least 10 years' experience in traffic signal work (Enclose-PAN No./TIN No. & work order copies), bidder should be ISO Certified Company).
- vi. Bidder should have a team of at least 2 Traffic Signal Engineer (Electronic/Electrical) during installations in Arunachal Pradesh for operation and maintenance of traffic control system and better sales service. Tenderer should be authorized distributor/manufacturer for Govt. approved urban traffic Control system technology and equivalent.
- vi. OEM must have government license in manufacturing and supply & installation of CDAC technology, UTCS technology for traffic control system in India. And any other relevant document which the firm wishes to submit.
- viii. OEM should have a service centre and ISO certification. The items should not be of Chinese origin in any way and preference will be given for "Make in India" products.
- ix. TOT agreement with CDAC for traffic controller.
- x. The DGP AP reserves the right to cancel the tender / contract at any time without assigning any reason thereof. Further there can be an increase or decrease in quantity of intersections.
- xi. Bidder should submit the Affidavit (Non- Judicial Stamp paper of Rs. 100) stating that the bidder shall supply & install the adoptive traffic control system, if required by the concerned department at the same rate & term & conditions up to next 2 (Two) years. An undertaking should also be provided stating that neither the bidder nor the OEM/ Manufacturer/ Principal supplier has been debarred/ blacklisted by any State/ Board/Corporation /Central Govt. Department/PSU/Autonomous Bodies at the time of submitting the tender. The Affidavit/ declaration is to be submitted in the technical bid.

**Cover-2:-** It shall contain documents on "Financial Bid" and shall be opened only of those bidders who have been declared technically qualified by the committee. The criteria for eligibility and qualifications are to be met by the bidders such as minimum level of experience/past performance (if any), facilities and financial position etc. The date of opening of "Financial Bid" will be intimated to the firms which are found technically qualified in due course of time or as per board direction.

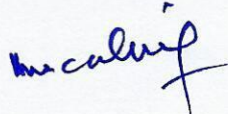
**GENERAL INSTRUCTIONS:**

1. The tenders received after scheduled date & time will not be entertained. The tenderers or their representative may remain present at the time of opening of tenders.
2. Rates must be clearly written items wise seperately in figures as well as in words.
3. There should not be any cutting/over writing.
4. The firms will have to submit self-attested documents and when required submit original documents including EMD, cost of the tender documents in the office of the Superintendent of Police (RS & Traffic), Police Headquarters, Itanagar, Arunachal Pradesh on 19/03/2025 at 1030 hrs. The experience certificate (if any) must contain name designation, address, Phone No., e-Mail ID of issuing officer. The certificate should be countersigned by concerned office & head of dept.





5. In case tender opening day is declared as holiday or bandh call at Itanagar, the tenders shall be received up to next working day till 1030 hrs and opened on the same day at 1130 hrs. The bidders should keep checking the website for any addendum/corrigendum to the notice/bidding documents till the date of submission of bids and the bidder should incorporate the same in his bid documents.
6. Conditional bids of tenderers/firms and the bids not meeting the qualifying criteria on the date of receipt of bids shall be summarily rejected. Bids will be opened as per time & schedule mentioned.
7. Before submission of bids, bidders must ensure that scanned copy of all the necessary documents have been attached with bid. The department will not be responsible for delay in submission due to any reasons. All the required information for the bid must be filled up and submitted.
8. The details of EMD and other documents specified in the tender documents should be same as submitted (scanned copies), otherwise tender will be summarily rejected. Technical compliance statement should be enclosed along with technical bid clearly specifying deviation if any, for all specifications mentioned in the tender.
9. Successful tenders will be required to deposit 5% of the total value of the articles to be supplied as security money within 10 days from the date of issue of letter of acceptance of tender or bid security may be kept for said purpose. The successful tenderers will have to enter in to a "DEED OF AGREEMENT" stipulating the Terms & conditions of the contract. Security money will be subject to forfeiture in case of non-fulfilment of any or all the Terms & conditions of contract. Earnest Money of the successful tenderers will be forfeited to the Government in case of failure to furnish security money and execution of "DEED OF AGREEMENT".
10. Successful tenderers will have to provide supply, Installation & commissioning of Traffic Signal light system in ICR within 45 days from the date of issue of supply order with survey of the suitable location for said purpose as per direction of the authority of the concerned department. In case of failure to do so, the firm is liable to be blacklisted.
11. Any breakages or loss of any item(s) in route or in transit will be at the supplier's risk. If any item is found damaged or otherwise unacceptable at the time of delivery / inspection, the suppliers will be required to remove the same from RSC Store, PHQ, Itanagar Arunachal Pradesh at their own cost within 15 days. Rate should be quoted F.O.R. RSC store PHQ/ designated location at Itanagar, Arunachal Pradesh by Road Transport (freight paid) with complete installation. Rates quoted other than F.O.R. RSC store, PHQ, Itanagar; Arunachal Pradesh shall not be accepted. No packing or forwarding charges will be allowed. Any Entry Tax/Custom duty charge (where or as applicable) may be charged by the tenderers & shown separately along with tendered rate of the article. Tenders will remain valid up to 31/03/2026.
12. The GST will be mentioned against each item as applicable for further action as required. Payment will be made to the supplier directly on completion of supplies/installation and on receipt of items in stores.
13. Tenders should be addressed to the undersigned by designation and not by name. The sealed envelope containing the tender should be subscribed as "Tender for supply/ installation/ commissioning of Adoptive Traffic Control System for Road Safety & Traffic, Arunachal Pradesh Police for the year 2024-25" and be sent by registered post or be put in the tender box kept in the office of RSC, PHQ, Itanagar during the office hours.

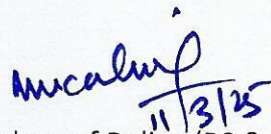


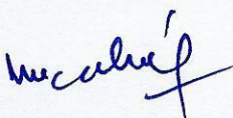


14. Consignment will be dispatched by the firm after payment of freight charges at source. Freight to pay consignment will not be accepted. The tenders must also accompany with attested copy of Tax Registration Certificate with TIN and valid attested trading license issued by the competent authority of Arunachal Pradesh for the items tendered and rates quoted by them. Tenders must be legible and clear in all respect or else the tender shall be liable to be rejected.
15. Name of the articles with their description and specifications are enclosed herewith at Annexure-A. The letter of authority in respect of authorized distributors/dealership must be furnished along with the tender as applicable. The Director General of Police of Arunachal Pradesh shall have the right to ask the firms to demonstrate their items before the items are accepted.
16. Tenders accompanied with more than two varieties of items and rates for each item shall not be entertained. Once the item is approved no change of shade, pattern or quality specifications will be entertained even on the plea of non- availability of raw materials or alternative offers of the same quality.
17. Supply, installation and commissioning of the equipments on warranty for a period of 02 (Two) years from the date of acceptance.
18. In case of any query the tenderers may contact In-charge Road Safety Cell, PHQ, Itanagar Arunachal Pradesh mobile no 7005642553.
19. Pre bid meeting will be held on 15/03/2025 at 1130 hours in the office chamber of the chairman at PHQ, Itanagar.
20. Graded liquidated damages for delay in delivery of all or any good or performance of services will be liable for as under
  - a. For first 30 days @ 1% of value of the goods.
  - b. For next 60 days @ 2% of value of the goods.
  - c. For delay above two months/ over & up to 4 months @ 4% of value of the goods.
  - d. Beyond 4 months and up to 6 months @ 5% of value of the goods & on expiry of 6 months the contract would automatically get nullified & security money deposit would be forfeited.
21. The Director General of Police, Arunachal Pradesh, and Itanagar reserves the right to reject the lowest or all or any of the tenders without assigning any reason thereof. In case of any dispute, legal jurisdiction will be at Itanagar, Arunachal Pradesh.

**Note:-** A Pre- Bid meeting will be held on 15/03/2025 at 1130 hours in the official chamber of the Inspector General of Police (Admn) PHQ, Itanagar.

Please be advised that only those firms who attend this Pre-Bid meeting will be eligible to participate in the tender for procurement/Installation of required items for interceptor vehicles. Firms that do not attend the meeting will be disqualified from the tender process.

  
Superintendent of Police (RS & Traffic)  
Arunachal Pradesh  
PHQ: Itanagar





## TECHNICAL SPECIFICATIONS

## Installation of Automated Traffic Signal System

## I. Technical Specification Traffic Signal Controller

Automatic Traffic Controller (Master)

- \* Solar Power Compatible 12V/24V DC
- \* Micro controller Based
- \* Display 20 X 4LCD
- \* Special function for VIP / Emergency Rescue Operations
- \* Master Slave Controllers Automatic Communication
- \* Programmer Hand Held Keypad
- \* Memory NVRAM /SREPROM
- \* Possible to program for one year.
- \* Communication Port RS232 / RS 485, or 2 wire communication Networking with Any other manufactures controller.
- \* Facility for Synchronization through RS 232 bus or Cable less synchronization using Global Positioning System (GPS) Optional.
- \* Power ON checks for software & data validity.
- \* Conditional phase transition
- \* Communication with up to 4 slave Control unit

Slave Control Unit

- \* Solar Power Compatible
- \* Micro controller Based
- \* Communication with master Controller
- \* No Data received conditions Amber/Red Aspect Blinking (automatically switch to blinking mode)
- \* Conflict monitoring

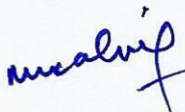
Police Control Panel

- \* Emergency/ Rescue Operation with manual Operation
- \* Auto / Manual / Next
- \* Forced Blinker
- \* ON / OFF

## Technical Specification of Traffic Signal Controller

Sl. No	SPECIFICATION	Description	Compliance Yes or No
1.	CPU	32 / 64bit Micro-controller Advance controller	
2.	PROGRAM MEMORY	Minimum of 512K Flash and 128K RAM	
3.	REAL TIME CLOCK (RTC)	Onboard RTC with 10 Years of Battery Backup and tolerance of +/- 1 sec per day.	
4.	CONTROLLER TYPE	Adaptive Traffic Signal Controller	
5.	USER INTERFACE ( DISPLAY & SWITCH)	<ul style="list-style-type: none"> <li>• Minimum of 4 Line X 20 Character LCD Display for showing the current working status and to view the Configured parameters</li> <li>• Minimum of a single Push button Switch for Navigating to the next page for displaying Configured Traffic Plan parameters.</li> <li>• By Default, controller displays current running status page on display</li> <li>• Keypad must have minimum 0-9 numeric keys for entering the values, up/down/left/right keys for moving on next/previous page/next/previous options, menu, exit and enter key.</li> </ul>	

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Sl. No	SPECIFICATION	Description	Compliance Yes or No
6.	CONTROLLER OUTPUT SWITCHING	<ul style="list-style-type: none"> <li>12/ 24 V DC 5A MOSFET based</li> <li>Common Negative and positive switching (both in same controller without any change.</li> </ul>	
7.	NO OF OUTPUTS	Each Slave Card must have minimum 20 output for light driving and, Master Controller must be configured minimum 4 Slave Card (80 outputs).	
8.	POLICE CONTROL PANEL KEYS	<ul style="list-style-type: none"> <li>Lamp OFF</li> <li>Forced Flash</li> <li>Manual Operation</li> <li>Hurry call</li> <li>Auto/Manual</li> </ul>	
9.	WORKING VOLTAGE	12V DC / 24 V DC +-10%	
10.	OPERATING MODES	<ul style="list-style-type: none"> <li>Pre-timed (TOD)</li> <li>Lamps OFF</li> <li>Forced Flash</li> <li>Manual</li> <li>Auto</li> <li>VA Mode</li> <li>Pelican</li> </ul>	
11.	CYCLE TRANSITIONS	Minimum of 32 cycle transitions per day in Pre-timed mode	
12.	SAFETY FEATURES	<ul style="list-style-type: none"> <li>Inter/Intra Lamp Group Conflict Monitoring</li> </ul>	
13.	USB PORT	<ul style="list-style-type: none"> <li>Uploading / Downloading programme in Controller</li> </ul>	
14.	SELF DIAGNOSTIC	<ul style="list-style-type: none"> <li>RTC check</li> <li>Memory check</li> <li>Plan validity check</li> </ul> <p>If any of the above check got failed system should halt the operation and indicate the failure on LCD display</p>	
15.	MODE OF COMMUNICATION	<ul style="list-style-type: none"> <li>Master and Slave Controller can communicate on wire and wireless mode without making any change/add on in the Controller.</li> <li>2-Wire communication</li> <li>Wireless communication on RF</li> </ul>	
16.	CABINET CONSTRUCTION	<ul style="list-style-type: none"> <li>MS powder coated with industrial gray colour and IP 65 protections or Polycarbonate housing</li> <li>Pedestal or Pole Mountable</li> </ul>	
17.	ENVIRONMENTAL CONDITIONS	<ul style="list-style-type: none"> <li>Temperature : 0°C to +55° C</li> <li>Relative Humidity: 95%</li> <li>RH Non- condensing at +40 degree C</li> </ul>	
18.	CERTIFICATION	OEM ISO 9001, CE and applicable standard	
19.	CLOUD BASED SOFTWARE	Cloud based Web application for operate, monitor, and manage the traffic Controller.	
20.	MAKE	GOVERNMENT APPROVED	

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## II. ROAD TRAFFIC SIGNAL ASPECTS (Vehicular and Pedestrian)

**1. LEDs based Road Vehicular Traffic Signal Aspects** is consisting of three components – Polycarbonate Signal head including power LED retrofit Kit with sun visor. Traffic Signal Aspects is an optical system which produces a light pattern of specified size, color and shape for providing control information to vehicle drivers. Road Vehicular Traffic Signal Aspects shall be energy efficient Traffic Signal aspect and compliance with European and Indian Standard.

**2. LEDs based Pedestrian Signal Aspects** is consisting of three components – Polycarbonate Signal head including power LED retrofit Kit with sun visor. Pedestrian Signal Aspects is an optical system which produces a light pattern of specified size, color and shape for providing control information to Pedestrian. Pedestrian Signal Aspects shall be energy efficient Pedestrian Signal aspect and compliance with European and Indian Standard.

### 3. Technical Specifications of Road Traffic Signal Aspects [ Vehicular and Pedestrian]

SL. No	Technical specs	RED	AMBER	GREEN Arrow	GREEN Ball	P.RED	P. GREEN	Compliance Yes or No
	OPTICAL CHARACTERISTICS							
1	Technology	LEDs						
2	TYPE	Dot Matrix				Hi Brite Animated	Hi Brite Animated	
3	Color	Red	Amber	Bluish Green	Bluish Green	Red	Bluish Green	
4	Color Wave length	615 – 635nm	580 – 595nm	490 – 500nm	490– 500nm	615 – 635nm	490 – 500nm	
5	LED Aspect diameter	300mm diameter						
6	Minimum luminous Intensity of LED Aspects	400cd						
		TECHNICAL CHARACTERISTICS						
7	Operating Voltage	230V AC +/- 10% / 12V DC / 24V DC						
8	Operating Frequency	50Hz ± 5%						
9	Maximum power consumption	< 25 Watt						
10	LED Operating Temperature	0°C to +60° C						
11	LED module ingress	IP 65						
12	Constructional integrity	Comply						
		GENERAL						
13	Signal head color	BLACK / Grey or as required by customer						
14	Signal head Material	Ultra Violet stabilized molded Poly Carbonate or Mild Steel as required by Customer						
15	Lens	Ultra Violet stabilized molded Poly Carbonate						
16	Dimming	Auto dimming (Optional) on demand						
		TEST, DECLARATIONS & MARKING						
17	LED manufacturer and Signal head manufacturer	ISO 9001 : 2015 Certificate						
18	Marking and labeling	CE marking (EN 12368) Certificate						
19	LED Module	IP65 Test Report						
20	MAKE	GOVERNMENT APPROVED						

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### III. Count Down Timer

1. **Vehicular Count Down Timer** shall be digital 199seconds display capacity to show remaining time in reverse counting to alert motorist in better way. It shall be configurable with vehicular traffic signal Aspects in such a way that it can automatically sense and self-learn timings.

2. **Pedestrian Count Down Timer** shall be digital 199seconds display capacity to show remaining time in reverse counting to alert motorist in better way. It shall be configurable with Pedestrian Signal Aspects in such a way that it can automatically sense and self-learn timings.

#### 3. Technical Specifications of Vehicular Count Down Timer [ Vehicular and Pedestrian]

S. No.	Technical specs	Dual Color Count Down Timer	Compliance Yes or No
<b>OPTICAL CHARACTERISTICS</b>			
1	Technology	LEDs	
2	TYPE	Graphical	
3	Color	Dual Color	
4	Display	199seconds (Max).	
5	Message	STP/GO	
6	Size	300mm dia	
<b>TECHNICAL CHARACTERISTICS</b>			
7	Operating Voltage	230V AC +/- 10% / 12V DC / 24V DC	
8	Operating Frequency	50Hz ± 5%	
9	Maximum power consumption	< 25 Watt	
10	LED Operating Temperature	0°C to +60°C	
11	LED module ingress	IP 65	
12	Constructional integrity	Comply	
<b>FUNCTIONAL CHARACTERISTICS</b>			
13	Operating Mode	Self-Learning – Count down timer is equipped with micro controller. It automatically senses traffic signals, and learn timing, verify and display reverse counting from 3 <sup>rd</sup> cycle on ward unless there is no change in timings or switched OFF traffic signals.	
<b>GENERAL</b>			
14	Enclosure color	BLACK / Grey or as required by customer	
15	Enclosure Material	Mild Steel with black color powder coating for outdoor application or Polycarbonate housing	
16	Lens	Clear lens,	
17	Dimming	Auto dimming (Optional) on demand	
<b>TEST DECLARATIONS &amp; MARKING</b>			
18	Count Down Timer Manufacturer	ISO 9001 : 2015 Certificate	
19	Marking and labeling	CE marking (EN 12368) Certificate	
20	Count Down Timer	IP65 Test Report	
21	MAKE	GOVERNMENT APPROVED	

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#### iv. Poles for Traffic Signals

There are two types of Poles being considered for Traffic Control systems i.e. Standard Pole and Cantilever Pole.

##### a. Technical Specifications of Standard Pole

Sl. No.	Material		Compliance Yes or No
1	Material	GI Class 'B' Pipe	
2	Standard	ISI mark	
	Dimensions		
3	Height	5000mm	
4	Diameter	114mm	
5	Wall thickness	4.5mm +/- 10%	
	Base plate		
6	Size	300mm x 300mm	
7	Wall thickness	12mm	
	Color		
8	Color	Yellow color recommended or as per client's requirement.	
9	Paint	Spray paint (Outdoor application) with two coats of primer	
	Foundation		
10	Foundation type	Surface mount on RCC foundation	
11	Foundation Accessories	J Bolt 4 x 500 mm	
12	MAKE	GOVERNMENT APPROVED	

##### b. Technical Specifications of Cantilever Pole

Sl. No	Material		Compliance Yes or No
1	Material	GI Class 'B' Pipe	
2	Standard	ISI mark	
	Dimensions		
3	Height	6000mm – 7500mm	
4	Diameter	141mm	
5	Wall thickness	4.5mm +/- 10%	
6	Overhang Arm Length	3000 – 4500mm	
7	Overhang Arm Diameter	115mm	
	Base plate		
8	Size	500mm x 500mm	
9	Wall thickness	15mm	
	Color		
10	Color	Yellow color recommended or as per client's requirement.	
11	Paint	Spray paint (Outdoor application) with two coats of primer	
	Foundation		
12	Foundation type	Surface mount on RCC foundation	
13	Foundation Accessories	J Bolt 6 x 750mm	
14	MAKE	GOVERNMENT APPROVED	

##### v. Cables for Traffic Control Systems

**No's of core:** 6 and 12 core 1.5 sq. mm 3 Core 2.5 sq. mm

**Materials :** PVC insulated and PVC sheathed armoured cable with copper conductor of suitable size as specified in BOQ

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**Certification** : ISI Marked

**Standards** : Indian Electricity Act and Rules

**IS: 1554** : PVC insulated electric cables (heavy duty)

**a. Technical Specification of Cables 3 core x 2.5sq. mm Copper armoured**

Cables are ISI Marked and as per ISI specifications for Power Supply Cables

Sl. No	Type	3 core 2.5 sq. mm, Copper, Armoured, underground cable	Compliance Yes or No
1	Conductor material	Bare Copper	
2	Insulating material	PVC type – A	
3	Insulation thickness	0.80 mm	
4	No. Of cores/pairs/triads	as per requirement	
5	Maximum outer diameter	16.40 mm + /- 1.00 mm	
6	Tolerance	+/- 05 % of the ordered Length	
7	Test & applicable standards	IS:8130,is:5831,is:3975 & IS:1554 part1	
8	Sp. Information/ highlights	C.R. at 20 deg.C:<12.1 ohm/km	
9	Other details	Insulation res:>100 mega ohm/km	
10	MAKE	Industrial grade, ISI Mark	

**b. Technical Specifications for 1.5 Sq. mm un armoured Control Cables**

Sl. No	Type	1.5 sq. mm Multicore (2, 4, 6, & 12), Copper, unrmoured, underground cable	Compliance Yes or No
1	Conductor material	Bare Copper	
2	Insulating material	PVC type – A	
3	Insulation thickness	0.80 mm	
4	No. Of cores/pairs/triads	as per requirement	
5	Maximum outer diameter	16.40 mm + /- 1.00 mm	
6	Tolerance	+/- 05 % of the ordered Length	
7	Test & applicable standards	IS:8130,is:5831,is:3975 & IS:1554 part-1	
8	Sp. Information/ highlights	C.R. at 20 deg. C:<12.1 ohm/km	
9	Other details	Insulation res:>100 mega ohm/km	
10	MAKE	Industrial grade, ISI Mark	

**vi. High Density Polyethylene (Hdpe) Pipe And Fittings**

This specification includes but is not limited to high density polyethylene, primarily intended for use of electrical cable laying either buried or above grade.

Sl. No	Technical Specifications		Compliance Yes or No
1	Material Grade	HDPE DWC	
2	Size	63 mm OD	
3	Color	Black	
4	Surface Finishing	Color Coated	
5	Test & applicable standards	ISI Mark, IS4984/2016	
6	Sp. Information/ highlights	PE63, PN4 Polyethylene (PE) pressure Pipe	
7	Other details	Supplied in Coil length	
8	Make	Industrial grade, ISI Mark	

**vii. Mild Steel Junction Box**

This specification includes but is not limited to Mild Steel Junction Box, primarily intended for use of for cable termination and connection.

CONT/7

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Sl. No.	Technical Specifications		Compliance Yes or No
1	Material		Mild Steel
2	Type	Pole mounting	
3	Color	Black / as required	
4	Surface Finishing	Color Coated	
5	Size	250mm x 200mm x 110mm (Maximum) or compact better design	
6	Sp. Information/ highlights	Cable Glands	
7	Other details	Label / Marking for Cable termination	
8	Make	Industrial grade, ISI MARK	

#### viii. Solar Photovoltaic Systems

This specification includes but is not limited to Solar Photovoltaic Systems, primarily intended for use of solar power generation for operation of traffic signal and charge the battery bank.

Sl. No.	Technical Specifications		Compliance Yes or No
1	Material	Solar Photovoltaic Panel MNRE approved	
2	Working Volt	12V DC / 24V DC	
3	Capacity	Series of Solar Panel 400Wp / 600Wp / 800Wp	
4	Type	Aluminum mounting frame	
5	Mounting Arrangement	Mild Steel mechanically designed mounting structure for movable 360 degree and pole mounting fixtures	
6	Color of Structure	Zinc coated primer and double coat of grey paint	
7	Size	As per capacity building	
8	Sp. Information/ highlights	Over voltage and reverse current protection	
9	Other details	Label / Marking for Cable termination	
10	MAKE	MNRE approved make	

#### ix. Battery Bank

This specification includes but is not limited to Battery Bank, primarily intended for use of operation of traffic signal at location

Sl. No	Technical Specifications		Compliance Yes or No
1	Type	Sealed Maintenance Free Battery	
2	Working Volt	12V DC / 24V DC	
3	Capacity	Series of Battery 100Ah / 160Ah / 200Ah / 300Ah / 400Ah	
4	Enclosure	Mild Steel Enclosure rain and dust proof	
5	Mounting Arrangement	Pedestal or Pole fixing arrangement	
6	Color of Structure	Zinc coated primer and double coat of grey paint	
7	Size	As per capacity building	
8	Sp. Information/ highlights	Over voltage and reverse current protection	
9	Other details	Label / Marking for Cable termination	
10	Make	Industrial grade	

#### x. Camera based Vehicle Detector

Camera based vehicle detector detect vehicle presence and also count and classify. It is also used for traffic monitoring video surveillance solution. It detects the vehicle and give input to the controller and control shall adjust the green signal time as required on real time basis.

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Sl. No.	Minimum Specifications		Compliance (Yes/No)
1	Video Compression	H.264/H.264+/H.265/H.265+/MJPEG (Dual stream)	
2	Video Bit rate	32 Kbps –16 Mbps	
3	Audio standard	G.711	
4	Audio Bit Rate	64Kbps(G.711)/16Kbps(G.722.1)16Kbps(G.726)/32-192Kbps(MP2L2)	
5	Processor	ARM 9, 400 MHZ, 128MB RAM or equivalent	
6	Frame Rate Support	Minimum 25FPS	
7	Connectivity with controller	5 wire input with 2 wires for Power Supply and 3 wires for RS-485	
8	Configuration	local/ Laptop	
9	Current Consumption	< 375mA @ 24VDC (< 417mA @ 24VDC peak at start-up).	
10	PC Tool for Set-Up	vCAM Configuration Tool (vCAM)	
11	Power Consumption	≤ 9W (≤ 10W peak at start-up)	
12	Output contacts	4 optically coupled dry contacts per camera	
13	Field of View	Horizontal: 114° Vertical: 62° & 135°(DIAG)	
14	Focal Length	4mm	
15	Resolution	QVGA (336 x 256)	
16	Type	CMOS Type 1/2.9 colour High Dynamic Range	
17	Day/Night	IR cut filter with auto switch	
18	Input Voltage	12VDC/24VDC+20%	
19	Width of Detection	Minimum up to 4 lanes	
20	IR Detection Range	Minimum up to 100 meters	
21	Make	Industrial grade	

#### xi. Smart Pelican Control Unit

Pelican Control Unit is designed to provide the facility to pedestrian to cross the Intersection. Smart Pedestrian is equipped with human detection sensor, pedestrian push button and audio notification systems.

Sl. No	Parameters	Technical Specifications	Compliance Yes or No
1	Product Type	Smart Human Detection Sensor	
2	Detection Area	Up to 6m	
3	Pedestrian push button	Momentary Push button	
4	Audio Notification	5 Watt Speaker	
5	Push Button	Watertight Push Button, Visual Feedback for button press.	
6	Casing	IP65 rated for housing.	
7	Button diameter	40mm Max (-/+10%)	
8	IP Rating	IP 65	
9	Mechanical Impact Resistance	IK09	
10	Switch activating Force	3.5 lbs (15.6 N)	
11	Button Material	Stainless steel	

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Sl. No	Parameters	Technical Specifications	Compliance Yes or No
12	Housing Material	Mild steel	
13	Mounting	Adjustable Pole mount	
14	Working Volt	12V DC / 24V DC	
15	Power	≤ 15W	
16	Operating Temp	-10°C~+50°C approx	
17	Control Way	Mechanical Switch / Inductive Switch	
18	Weight	< 5 Kg	
19	Optional	buzzer, acoustic, touchless sensor	
20	Make	GOVERNMENT APPROVED	

#### PEDESTRIAN VOICE NOTIFICATION

Sl. No	Conditional Parameter	Pedestrian signal status	Recoded voice notification	Compliance Yes or No
1	Human detection	Red pedestrian	Hindi – savdhaan, sadak paar karne ke liye pedestrian button ko dabayein English – attention please, press pedestrian button to cross the road	
2	When pedestrian button pressed	Red pedestrian	Hindi – kriya vahan ke rukne ka intjaar kare english – please wait for vehicles stoped	
3	Green pedestrian	Green pedestrian	Hindi – yadi vahan ruk gaaye hai, savadani se sadak paar kare english – if vehicles are stopped, please cross the road carefully.	

#### Estimate For Supply, Installation And Maintenance Of Road Traffic Signal Control Systems.

Sl. No.	Item Description	UoM (Quantity)	
		3 Way Junction	4 Way junction
	<b>Section - A [ AUTOMATIC MULTI-PROGRAM TRAFFIC CONTROL SYSTEM]</b>		
1	SITC of Galvanized MS Tubular Cantilever Pole 7.5mtrs vertical with overhang arm 3-4 mtrs Top Dia – 114 mm, Bottom Dia –165 mm Sheet Thickness – 4 mm with Base Plate - 320 X 320 X 15 including foundation accessories and other related activities. Country of Origin: India		
2	SITC of Galvanized MS tubular Standard Pole 5mtrs 114mm OD ISI mark, Sheet Thickness – 3 mm including foundation accessories and other related activities. As per Technical specification sheet. Base Plate - 200 X 200 X 12 mm. Country of Origin: India		
3	SITC of 300mm dia LED Traffic Signal Aspect set of 4 (four), Red, Amber, Green Straight and Green Right turn in polycarbonate moulded compact & slim designed signal head housing including components & wiring and all other related parts as per technical data sheet, Compliance EN12368 and IP 65 rating. Country of Origin: India		
4	SITC of 300mm dia LED Pedestrian Signal Aspect set of 2 (two), Red Man Standing and Green Man Walking Animation in polycarbonate moulded compact & slim designed signal head housing including components & wiring and all other related parts as per technical data sheet, Compliance EN12368 and IP 65 rating. Country of Origin: India		

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Sl. No.	Item Description	UoM (Quantity)	
		3 Way Junction	4 Way junction
	<b>Section - A [ AUTOMATIC MULTI-PROGRAM TRAFFIC CONTROL SYSTEM]</b>		
5	SITC of 300mm dia LED Graphic Count Down Timer Dual color Red and Green, capable to show message and reverse counting, compatible with all OEM traffic controller in polycarbonate moulded compact & slim designed signal head housing including components & wiring and all other related parts as per technical data sheet, Compliance EN12368 and IP 65 rating. Country of Origin: India		
6	SITC of Smart Traffic Signal Controller 32 / 64 bit microcontroller based UTCS type automatic electronic controller conforming to IRC guidelines for traffic signal control, capable to work on wire/wireless communication, Multi-programmable work as per time of day and day of the week and date of the year; and also configure to control traffic as peak hours and off peak hours traffic demand; Master Control Unit within built hand held terminal and following operation mode; • 32 Signal Group • 32 Cycle plans • Fixed time mode • Vehicle Actuated mode • Auto mode • Manual mode • Blinking mode • Temperature- 5°C - 55°C Relative Humidity 95% at 40°C With Mild Steel / Polycarbonate housing IP 65 rating having provision to pole mounting / pedestal fixing including components & wiring and all other related parts. As per technical data sheet, Country of Origin : INDIA		
7	SITC of Slave Traffic Control Unit 16 bit / 32-bit microcontroller based electronic control for switching the traffic signal light and timer as per command received from Master Control Unit, capable to work on wire/wireless communication and solar power compatible 12V DC / 24V DC including components & wiring and all other related parts. As per technical specification sheet. SLAVE UNIT., Country of Origin : INDIA		
8	SITC of Smart Pelican Contorl unit with inbuilt human detection sensor and pedestrian push button along with audio notification at three levels. 1st level, while Pedestrian is detected. - Motivate Pedestrian to press push button. 2nd level. when push button is press. notification-wait for your turn, 3rd level. when Pedestrian Signal is Green. notification - once vehicle stopped., cross road safely. including components & wiring and all other related parts. As per technical specification sheet. Country of Origin : INDIA		
9	P & F of Mild Steel Signal Aspect Mounting Brackets (riveted or welded) finished with two coat of red oxide and enamel paint including cutting, welding, holes and provision to mounting with hoseclip on any size of Pole. Country of Origin: INDIA		
10	P & F of Traffic Signal Junction Box made out of Mild Steel / Polycarbonate having inbuilt terminal Block Connector having 12 pins (Max) connecting block with two ends, in one sided end points are for terminating wire coming from traffic signal control unit and on the opposite side end points are connected with wires of aspects, timer mounted on Traffic Pole. Country of Origin : India		
11	P & F of Solar powered Hybrid Inverter cum UPS 2KVA with Solar SMF Battery 160Ah with temperature control Mild Steel Cabinet with exhaust fan, IP 65 rating, Country of Origin: India		

Cont/11



Sl. No.	Item Description	UoM (Quantity)	
		3 Way Junction	4 Way junction
	<b>Section - A [ AUTOMATIC MULTI-PROGRAM TRAFFIC CONTROL SYSTEM]</b>		
12	P/Laying P.V.C/XLPE insulated & P.V.C sheathed cable of 1.1 KV grade with Copper conductor of IS: 1554 P-I/IS: 7098 P-I in ground as per IS: 1255 including excavation. as required of size. 1.5 Sq.mm Armoured 12 Core. ISI MARK, Country of Origin: India		
13	P/Laying P.V.C/XLPE insulated & P.V.C sheathed cable of 1.1 KV grade with Copper conductor of IS: 1554 P-I/IS: 7098 P-I in ground as per IS: 1255 including excavation. as required of size. 1.5 Sq.mm Armoured 6 Core. ISI MARK, Country of Origin : India		
14	Supplying and Laying of PVC insulated & sheathed solid/ stranded copper conductor multi core control cable ISI marked (IS:1554) of 1.1 kV grade as required. 1 sq. mm. unarmoured 6 core. Country of Origin : India		
15	Providing, lowering, laying and jointing in trenches standard lengths HDPE ISI marked Pipes as per IS-4984: 1995 (amended upto date) straight length in 6 M/12 M. HDPE PE-100 PN-10 (In coils or piece) 90 mm dia, ISI MARK, Country of Origin: India		
16	Road Cutting or trenchless boring or manual molling up to 500mm depth (as per site feasibility) by digging by Bogie including all layers of crust for laying pipe line etc. and making good to original condition (excluding cost bitumen)		
17	Electrical, Engineering, testing and comissioning and programing of the complete traffic signal control system as per traffic movement-peak hours/off peak hours / blinking / pedestrian movement and / or any specific requirement of the site.		
	<b>Total</b>		
	<b>Section - B [ Comprehensive Annual Maintenance Cost]</b>		
18	Comprehensive Annual Maintenance Cost (CAMC) including time to time servicing, cleaning, troubleshooting, programming, changing in the functionalities, electrical work, coordination with traffic police for ensuring the systems be useful to control the traffic, covering manufacturing defects, malfunction excluding accidental damages, physical damages. Warranty as per OEM' Warranty policy		
19	Comprehensive Annual Maintenance Cost (CAMC)		
20	Comprehensive Annual Maintenance Cost (CAMC)		
	<b>Grand Total with 3 year AMC</b>		

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