

POLICE DEPARTMENT

From

Joint Commissioner of Police,
Traffic (South)
Vepery, Chennai -07.

To

All firms (Enclosed Annexure)

RC.No.Tr.Imp.2(2)/70/63150/2022

Dated:25.03.2022

Sir,

Sub:- Chennai Traffic Police – Rectification of fault Road Traffic Signal under Road Safety Fund - Through Limited Tender – Sealed Quotations Called for – Reg.

The Greater Chennai Traffic Police, has proposed to invite tenders for rectification of faulty Road Traffic Signals followed by three years maintenance after rectification through “Limited Tender” process for the following signals junction:

Sl. No.	Signal No	Name of the junction.	Repaired Equipment as per the technical report											Estimation coast per signals	
			Controller	Aspect	6 mtr pole	EB Box	Junction Box	Road Cutting(M)	12 core cable (m)	7 core cable (m)	3 core cable (m)	Controller cabinet	Controller Remove & Refix		Cantilever Pole Remove & Refix
1	N-37	GNT Road X Kavangarai Jn	1	12	0	0	2	0	0	0	0	0	0	0	1,97,760
2	N-38	Kathirvedu (Defence Colony)	0	8	1	0	0	83	70	86	5	1	1	0	2,99,900
3	N-39	Puzhal Jail Gate - (Union Office)	1	22	1	0	2	52	22	22	32	0	0	0	4,14,111
4	W-22	200 Feet Road & Rettari Jn	0	4	0	1	4	130	137	0	59	0	0	2	3,67,887
			Total											12,79,658	

2. The details of the signal fault and the equipments / accessories etc., required to rectify the above signal faults and the estimation cost for the same is mentioned in the above table. This cost includes any other charges for repair, accessories, if any require during the service period.

3. In this connection, the companies willing to participate in the tender are requested to furnish their quotations in a sealed covers on or before **11.04.2022** at **15.00Hrs.** The sealed cover should be addressed to the Joint Commissioner of Police, Traffic (South), Vepery, Chennai-07 with the name of the signals junctions equipment / product for which quotation is submitted super-scribed as “Quotation for rectification of 4 Nos. of faulty Road Traffic Signal 2022” on the top of the cover. The sealed cover will be opened in the presence of the available tenderers.

4. The tender prepared by the bidder shall comprise the following **Two envelopes:-**

i. TECHNICAL / ELIGIBILITY CRITERIA BID

- a. Technical Bid / Eligibility criteria document of the Tender should be covered in a separate sealed cover superscribed "Technical/Tender Document Bid"
- b. Please note that prices should not be indicated in the Technical Bid.

ii. COMMERCIAL BID

- Commercial Bid of the Tender should be covered in a separate sealed cover super scribed "Commercial Bid"
- iii. The above two sealed envelopes should further be put in a bigger envelop duly superscribed and sealed.

5. If any test certificate required as per the specification, should be submitted by the tenderer at the time of evaluation from authorized Government test lab or equivalent which is obtained within two years of date of tender and the expenditure for testing have to be borne by the tenderers. The Tenderer is also requested to mention the warranty period / Annual Maintenance period and submit the quote for each signal separately. The Technical Specification and the eligibility criteria are enclosed herewith.

6. The tenderers are requested to attend the meeting at chamber of the Joint Commissioner of Police, Traffic (South), 7th floor, New Commissioner of Police building, Vepery, Chennai-07.

Yours sincerely,

B. J. L. 28/03/2022

For Joint Commissioner of Police,
Traffic (South), Chennai-7.

DB
26/03

Copy to: The Addl. Commissioner of Police, Traffic.

Eligibility criteria for participating in the tender

1.	The participating firm should have experience in Annual maintenance of Traffic Signals for 3 years continuously in the last 10 years.
2.	The participating firm should have experience in installed atleast 25 traffic signals in the last 3 years
3.	The firm is not black listed by any Govt./ Quasi govt. agency / Public Sector undertaking for the last 3 years
4.	They should not have any dues for GST payments and should have certificate for GST payment for the last 3 years.
5.	Should furnish the last 3 years turn over details and also to furnish the details of Income tax filed.
6.	Should have the professionals (Engineers/Technicians) of their company along with their bio data and designation and the details of the staff to be put on work (as required in the tender) for the maintenance of signals in Chennai City
7.	Details regarding the number of years the bidder company is in the business of installation/maintenance of Traffic Signals with supporting details at least for the last ten years.

B.J.L. 28/03/2022
For Joint Commissioner of Police,
Traffic (South), Chennai
28/03

TECHNICAL SPECIFICATION FOR ROAD TRAFFIC SIGNAL

Sl. No	Specification	Description
1	CPU	16/32 Bit Micro-processor/Micro-Controller clocked at min. 20MHz. Single CPU controlling complete functionality of controller.
2	Protection	Over current protection with Auto startup on power restoration.
3	Controller Output	AC or DC output (Tendered to specify)
4	Power supply	230V AC 50 HZ single phase
5	Operating Temperature	0° to 55° C
6	Program Memory:	Min.128K Bytes on chip program Flash 16K Byte on chip SRAM Min.32K Bytes external Data flash Provision for future expandability of program and data memory has to be provided.
7	Real Time Clock:	Integrated Real Time Clock with Battery Backup, Accuracy better than +/-1 second per month.
8	Input/Outputs	<p>a) Signal Group Outputs: Minimum 16 Signal Groups, each configurable as vehicular (RAG) or pedestrian (PR/PG) Signal group. Desired: Controller shall be modular with provision for minimum 8 signal Groups and maximum 16 signal groups, which can be added in multiples of 4 signal groups.</p> <p>b) Signal Group Drive Capacity: Each signal Group shall be capable of driving maximum 4 LED Aspects, as per standard LED Aspect current settings. Provision shall be available for AC and DC drive voltages.</p>
9	Communication Ports	RS 485/RS232 Port.
10	Junction Data Programming	All junction Data Parameters shall be field programmable with self powered, hot insert & detachable Hand held terminal.
11	Features	Inter and Intra conflict sense: It shall be possible to detect real time Intra group and inter group green conflict conditions. Controller shall switch on to fall back mode in such case. Controller shall provide facility of programming inter group conflict conditions or auto detect the same based on junction data programmed. System shall maintain log of such conditions with details about conflicting signal groups. System shall employ necessary de-bounce and minimum threshold conditions detection methods to avoid false triggering of such conditions. Controller shall auto restart on removal of such conflict causing conditions. Hardware and software conflict monitoring for Inter and Intra groups.
12	Power fluctuation	<p>Auto shutdown on power fluctuation beyond limits and auto start up on restoration with battery back up for RTC/ critical data.</p> <p>Easy and flexible programming facility ensures effective traffic control on any type of intersections</p> <p>The controller should be able to handle bigger junction and Urban and rural Traffic Management system Interface</p> <p>Over current and over voltage protection unit with Auto startup on power restoration.</p>

13	Cabinet Construction	MS powder coated with IP 54 protections. (Both Aspect & Controller box)
14	Controller Enclosure	Controller Housing –the traffic signal controller must be an integrated system with all necessary control, communications, input/output and termination facilities located within the one base mounted or Pole Mounted cabinet.
15	Additional features	Tenderer may specify any Additional features if any

II. Specifications for Traffic Signal Aspect :-

Sl. No	Specification	Description
1	Polycarbonate LED Signal aspects :	Polycarbonate signal aspects of impact resistance, U-V stabilized, unbreakable, rust and rain proof and anti corrosive polycarbonate with single wall construction and textured non reflective from front surface, HDPE detachable sun visors and LED based lamps for giving balanced light output intensity, within specified limits and with 300mm diameter clear LED should be housed in an IP-65 enclosure. THE aspects shall have backing board with a retro – reflective tape and field replaceable parts. Dimensions: 340 X 340 X 50mm – visor Length 290mm. (± 5mm may be acceptable)
LED aspect Specifications:		
2	Vehicular Red LED Signal aspect LED Viewing Angle LED forward current Total Nos. of LEDs Intensity of LED aspect Total Power Consumption	23° to 30° 20Ma 190 Nos.(Minimum) 260Cd(Minimum) Maximum 10 W
3	Vehicular Green LED Signal aspect LED Viewing Angle LED forward current Total Nos. of LEDs Intensity of LED aspect Total Power Consumption	23° to 30° 20Ma 190 Nos.(Minimum) 380Cd(Minimum) Maximum 10 W
4	Vehicular Green arrow LED Signal aspect LED Viewing Angle LED forward current Total Nos. of LEDs Intensity of LED aspect Total Power Consumption	23° to 30° 20Ma 66 Nos.(Minimum) 100Cd(Minimum) Maximum 4 W
5	Vehicular Amber LED Signal aspect LED Viewing Angle (mm) LED forward current Total Nos. of LEDs Intensity of LED aspect Total Power Consumption	23° to 30° 20Ma 190 Nos.(Minimum) 380 Cd(Minimum) Maximum 10 W
6	Pedestrian Red LED Signal aspect LED Viewing Angle (mm) LED forward current Total Nos. of LEDs Intensity of LED aspect Total Power Consumption	23° to 30° 20Ma 48 Nos.(Minimum) 65Cd(Minimum) Maximum 4 W

7	Pedestrian Green LED Signal aspect LED Viewing Angle LED forward current Total Nos. of LEDs Intensity of LED aspect Total Power Consumption	23° to 30° 10 – 20Ma 48 Nos.(Minimum) 45Cd(Minimum) Maximum 4 W
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III. Specifications for Traffic Signal Pole:-

S.No	Specification	Description
Specification of Cantilever Pole Dimension		
1	Length Over Hang Material	9.0 Meters 3.5 Meters Mild Steel (M.S) Tubular pipe (B-Class) as per IS - 1239
2	Base Plate The system should be mounted on cantilever pole with supporting necessary stand to be fitted on a concrete base with bolt and screw for easy relocating, if necessary.	Size 400mm X 400mm X 14mm thick welded to the bottom of the signal pole
3	M.S. Junction Box	Additional junction box mounted on pole for proper entry of cable & terminal block for cable termination
4	Paint	Pole painted with two coats of primer and in addition bituminous painting for bottom 1.5M Portion of pole.
5	Pole foundation	size-60cmx60cm x1.2 meter deep pit Ratio of concrete – 1:1.5:3 Coping -30 cm dia
6	Painting of pole	Two coats of synthetic enamel paint of approved colour.
II Specification of Normal Pole Dimension		
1	Length Inner Diameter Material	6 meters 100 mm Mild Steel(M.S) Tubular pipe (B-Class)as per IS- 1239
2	Base Plate	Mild 200mm X 200mm X 10mm thick welded to the bottom of the signal pole.
3	M.S. Junction Box	Additional junction box mounted on pole for proper entry of cable & terminal block for cable termination
4	Paint	Pole painted with two coats of primer and in addition bituminous painting for bottom 1.5M Portion of pole.
5	Pole foundation	size-60cmx60cm x1.2 meter deep pit Ratio of concrete – 1:1.5:3 Coping -30 cm dia
6	Painting of pole	Two coats of synthetic enamel paint of approved colour.

IV. Hume pipes

Sl. No	Specification	Description
Specification for supply of RCC/HUME pipe:-		
1	Specification for supply &	Road cutting and laying of suitable dia NP2 class

	laying of RCC/G1/DWC below road carriageway	RCC/DWC pipes in feet deep trenches from road surface, for drawing of cable, and refilling the same with the excavated materials.
2	Excavation of Trench	Trenches of earth size 60cm wide x .75 meter deep for laying of cable under pavement and soft surface, laying of sand & bricks for cable protection and laying of cable and refilling and leveling the trenches with the excavated materials.
3	Controller foundation	Ratio of concrete 1:2:4 Height above ground level -1.5 mtr. Or above

V. Specification for Dual Colour Countdown Timer (DCCDT)

Sl. No	Specification	Description
1	CPU	8 Bit Micro Controller
2	Input signal	Lamp drive input (Red, Amber and green) derived from main signal group of fixed time traffic controller
3	Input Sensing Time	2 Cycles
4	Sensing Sequence	Activated only at the start of green signal stage, with Red stage as reference. Recording of signal stage timing in first cycle, confirmation of timing in second cycle & display of balance timing in third cycle.
5	Output Display	Balance time in seconds, for individual signal stage (Red, Amber, Green) Steady "---" during initial 2 cycles or plan change or All Red or startup Flash Mode.
6	Display type	2½ Digit, 8" digit height, LED display comprising of high bright RED LEDs.
7	Input Voltage	Derived from lamp drive inputs of a fixed time Traffic controller.
8	Size (W x H x D)	610 x 375 x 135 mm (or) Tenderer may specify the size +/- 5 %.
9	Operating Temp	0° C to 55° C,

VI. Specification for Controller Cables:

Sl. No	Specification	Description
1	Cables	Multicore Copper underground cable of suitable core size confirming to IS 1554
2	Size of Control Cable	12 Core cable, 1.5 sq mm 7 Core cable, 1.5 sq.mm
3	IS standard	IS 1554
4	Type	Multi core Armored cable
5	Conductor Material	Solid core copper conductor
6	Insulating Material	PVC Insulated & sheathed

VII. Specification for power supply Cables:

Sl. No	Specification	Description
1	Cables	3 core, 1.5 sq.mm armored Copper cable confirming to IS 1554 Part-1
2	Type	Multi core Armored cable
3	Conductor Material	Solid core copper conductor

4	Insulating Material	PVC Insulated & sheathed
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VIII. INSTALLATION AND COMMISSIONING

Sl. No	Specification	Description
1	Installation, Testing Commissioning of Traffic Signal	The job will involve Traffic signal control in the junction at various time in the working day and holiday. And then prepare the day plan of the signal accordingly. The job involves repairing to police department and implementing the suggestions of them accordingly. The job also involves maintaining the system during warrantee period and setting the timings of different roads as & when required.
2	Controller Assembly Time:	The cabinet shall be supplied with all fixtures and fittings to mount internal equipment and to fix it to the base plinth. All fittings and fixtures supplied like LED Retrofit, Door frames Terminal block, Hood and other contains of signal Aspect with the cabinet shall be protected against corrosion.
3	Installation	Access to all internal equipment shall be via a single front opening door hinged at three positions, top middle and bottom. The cabinet shall be convection ventilated with air entry through a channel at the base of the door, and air exit around the top cover. The standard cabinet shall provide field wiring terminals for up to 16 signal Groups, in multiples of 4 Signal Groups.
4	Installation	Appropriate Controller Locking facilities shall be provided at the top and bottom of the door. Appropriate Cable clamp facility shall be provided for all incoming and outgoing cables. Appropriate Cabinet earthing facilities shall be provided.
5	Installation	Mains Power Supply Termination – Provision shall be made within the controller cabinet for the mains cable termination to the live/neutral/earth termination points (4 to 10Sq.mm wire).

VIII A. Traffic Signal Lamp Heads:-


Traffic Signal Lamp Head:					
1	No.of Signal Group	:	16 Signal Groups with each programmable as either vehicular or pedestrian group		
2	Group "Sequence	:	Vehicular	:	Green – Amber – Red Green– Amber – Red – Amber Green – Green Flash – Off Green – Green Flash – Red Green – Off – Off
3			Pedestrian	:	Green – Red Flash – Red Green – Green Flash – Red
4	No.of Phases	:	16		
5	No. of Signal Plans	:	16 Fixed Time/Cable Less Plan 16VA Signal Plans 0 As Flash Plan 4 Auxiliary Signal Plans		
6	No. of Weekdays Plans	:	7 Weekday 4 Auxiliary Weekday		
7	No. of Signal Plan Switching in each weekday plan	:	32		
8	Minimum Number of plan Transition	:	48		


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9	Time Resolution	:	0.1 Seconds
10	Pedestrian Wait outputs	:	16
11	Pedestrian Inputs	:	16

VIII B. Programmable Parameters:-

No	Parameter	Min	Max	Type
1A	Minimum Green	1 Sec	99 Sec	Global
1B	Minimum Green per Group	Global Min.Green	99 Sec	Specific
2A	Amber Time	1 Sec	10 Sec	Specific
2B	Amber Time per Group	Global Amber Time	10 Sec	Specific
3	Pedestrian Flash Time	Global Amber Time	10 Sec	Specific
4	All Red Time	01 Sec	10 Sec	Global
5	Start Up all Red Time	01 Sec	10 Sec	Global
6	Start up flash time	05 Sec	10 Sec	Global
7	Cycle Time	01 Sec	250 Sec	Global
8	Cycle Time per plan	Global Cycle Time	250 Sec	Specific


 28/03/2022
 Joint Commissioner of Police,
 Traffic (South), Chennai-7.


 28/03