

**REQUEST FOR INFORMATION (RFI) FOR
LIGHT ARMoured MULTIPURPOSE VEHICLE (LAMV)**

Reference:- Defence Acquisition Procedure-2020 (DAP-2020)

Appendices:-

Appendix A - Technical Parameters for LAMV Version 1

Appendix B - Technical Parameters for LAMV Version 2

Appendix C - Questionnaire/ Response Form Version 1

Appendix D - Questionnaire/ Response Form Version 2

1. The Indian Army is planning to procure approximate **quantity 800 Light Armoured Multipurpose Vehicle (LAMV)** for Mechanised Infantry and Armoured Corps. This Request for Information (RFI) is being issued with a view to finalise Services Qualitative Requirements (SQRs), decide procurement category and identify probable Indian vendors who are capable to undertake the said project and deliver the said LAMVs within a period of **36** months from date of Award of Contract @ **300** LAMV per year.

2. LAMV is planned to be procured in sync with 'Make in India' and 'Atmanirbhar Bharat' initiative. The **preferred categorisation for the project is Buy (Indian-IDDM)** and accordingly provisions of the ibid category as mentioned in DAP 2020 will be applicable. In case the vendors appreciate that categorisation be any other than Buy (Indian-IDDM), the same be justified in response to the proposed categorization along with certification for 'Indigenous Content' as per provisions of para 21 of Chapter 1 of DAP 2020. The OEMs/ Vendors are requested to forward information only for the product which they can offer.

3. This RFI consists of three parts as indicated below:-

(a) **Part I.** The parameters/ broad specifications as desired in the LAMV including operational characteristics and features that should be met by the equipment. The important technical parameters of the proposed equipment are also mentioned.

(b) **Part II.** The second part of RFI states the methodology of seeking response from the vendors.

(c) **Part III.** Guidelines for Framing Criteria for Vendor Selection/ Pre-Qualification in Buy (Indian-IDDM), Buy (Indian) and Buy & Make (Indian) Cases.

PART-I

4. **Intended Use of Equipment (Operational Requirements).** The LAMV will be employed by Reconnaissance (Recce) & Surveillance Platoons of Mechanised Infantry and Recce Troops of Armoured Corps for Recce & Surveillance tasks. Hence, the proposed LAMV must possess adequate mobility and provide protection for troops on board. In addition, it should be able to carry the battle loads to include weapons, ammunition, surveillance and communication equipment required to carry out mandated operational tasks. The LAMV should be modular in design, thereby offering the scope for future upgrades through simple modifications and to facilitate subsequent development. The proposed LAMV will be employed in following conditions: -

(a) **Terrain Conditions.** LAMV will be employed for on road and cross country (off road) movement in under mentioned terrain conditions: -

(i) Plain and desert terrain as occurring along Western Borders of India.

(ii) High Altitude (up to 5000 meters altitude) / Mountainous terrain including snow bound areas as occurring along Northern Borders (Eastern Ladakh/ North Sikkim) of India.

(b) **Weather Conditions.** LAMV should be operational by day & night and in commonly encountered weather conditions in above terrains.

(c) **Temperature Conditions.** The LAMV including all sub-systems should be operational in following ambient temperature conditions: -

(i) **Plain and Desert Terrain.**

(aa) Minimum Operating Temperature: Between 0° to 05° Celsius.

(ab) Maximum Operating Temperature: Between 40° to 45° Celsius.

(ii) **High Altitude & Mountainous Terrain.**

(aa) Minimum Operating Temperature: Between (-)20° to (-)10° Celsius.

(ab) Maximum Operating Temperature: Upto 40° Celsius.

(d) **Operational Requirements.** The LAMV will be employed in above mentioned terrain and environmental conditions. The following main operational tasks will have to be performed by troops on board the LAMV:-

(i) Carry out silent recce and continuous surveillance of intended area of operations with protected mobility in the battle field and provide early warning & intelligence of hostile elements.

(ii) Usage and carriage of weapons, ammunition, surveillance and communication equipment along with recce and marking stores apart from integrating with dynamic resources viz Drones & Loiter Munitions.

(iii) Observe the intended area through integrated surveillance equipment {in service Battle Field Surveillance Radar (BFSR) and Hand Held Thermal Imager (HHTI)} on a telescopic retractable mast and use Machine Gun (in service 7.62 mm MAG/ 12.7 mm MG) mounted on a hatch for bringing down effective fire.

5. **Important Technical Parameters.** The LAMV should be modular in design, thereby lending itself to future upgrades through simple modifications and to facilitate subsequent development. The preferred technical parameters for **LAMV Version 1** are placed at **Appendix 'A'** and **LAMV Version 2** are placed at **Appendix 'B'** to this RFI.

6. **General Provisions.** Vendors should confirm that the following conditions are acceptable:-

(a) The solicitation of offers will be as per "Single Stage-Two Bid System". It would imply that a "Request for Proposal" would be issued soliciting the technical and commercial offers together, but in two separate sealed envelopes. The validity of commercial offers would be at least 18 months from the last date of submission of offers.

(b) The technical offers would be evaluated by a Technical Evaluation Committee (TEC) to check its compliance with RFP.

(c) The equipment of all TEC cleared vendors would be put through a trial evaluation in India on a '**No Cost No Commitment**' basis. A staff evaluation would be carried out by SHQ to analyse the result of field evaluation and shortlist the equipment for introduction into service.

(d) Amongst the vendors cleared by GS evaluation, a Contract Negotiation Committee would decide the lowest cost bidder (L1) and conclude the appropriate contract.

(e) Vendor would be bound to provide product support for time period specified in the RFP, which includes spares and maintenance tools/ jigs/ fixtures for field and component level repairs.

- (f) The vendor would be required to accept the general conditions of contract given in the Standard Contract Document at Chapter VI of DAP 2020.
- (g) **Offset (if applicable)**. If applicable, the vendor has to undertake "Defence Offsets" as per provisions given in the DAP-2020 (refer Appendix 'D' to Chapter-II of DAP-2020).
- (h) **Earnest Money Deposit**. Earnest Money Deposit is a mandatory requirement in the instant case as per amended provisions of DAP 2020.
- (j) **Performance-cum-Warranty Bond**. Performance-cum-Warranty Bond as per Government instructions inclusive of taxes and duties is required to be submitted after signing of contract.
- (k) **ToT (if applicable)**. GOI is desirous of license production of equipment after acquiring ToT in the case.

PART – II

7. Procedure for Response.

- (a) Interested vendors must fill **Response Form** attached at **Appendix 'C'** for **LAMV Version 1** and at **Appendix 'D'** for **LAMV Version 2** (formulated in questionnaire format on specifications and parameters sought in this RFI). **Additional technical literature** on your product can also be attached with the form.
- (b) Interested Vendors must forward information as per **Vendor Information Proforma** as per Annexure II to Appendix 'A' to Chapter II of DAP-2020.
- (c) Interested vendors are required to intimate their **willingness to participate** in the project **within 07 days** from the date of hosting of the RFI by submitting the Vendor Information proforma through email/ by hand to under mentioned address: -

ADG MECH INF

MECH-7 Section, General Staff Branch
Room Number 531, A-Wing Sena Bhawan, Army HQ,
DHQ PO, New Delhi-110011
Email: silverbullet@nic.in

- (d) Date, time and location for **Pre-Response Vendor Interaction** will be intimated to only those companies who intimate their willingness to participate.
- (e) **One set** of response to this RFI (Response Form) along with Vendor Information Proforma should be submitted in **hard form** and **soft form (CDs)** to the following Directorates: -

- (i) **Additional Directorate General of Mechanised Infantry**
General Staff Branch (Mech-7), Room Number 531, A Wing, Sena Bhawan
Integrated HQ of Ministry of Defence (Army), DHQ PO, New Delhi-110011
Email ID - silverbullet@nic.in
- (ii) **DG CD/ CD-15B Section, General Staff Branch**
Room Number 527B, A-Wing Sena Bhawan, Army HQ,
DHQ PO, New Delhi-110011
- (iii) **Additional Directorate General of Army Design Bureau**
AC & MECH INF Section, General Staff Branch
Room Number 16, C-Wing Sena Bhawan, Army HQ,
DHQ PO, New Delhi-110011

(iv) **ADG Acquisition Technical (Army)/ Land System**

Technical Manager (Land System)
 Acquisition Wing, Ministry of Defence
 Room No 30, D-2 Wing Ground Floor
 Sena Bhawan, New Delhi-110011
 Email: tmls-Mod@nic.in

(v) **Department of Defence Production**

Planning Officer (Land Systems)
 Dte of Plg & Coord, DDP
 Ministry of Defence
 Room No-C-404, DHQ Complex
 KG Marg, New Delhi-110001

(f) Last date of acceptance of RFI Response is **08 weeks** from date of **Pre-Response Vendor Interaction**. The OEMs/ Vendors may approach User Directorate for any additional queries related to LAMV during the above mentioned 08 weeks to assist in formulation of a comprehensive response to the RFI. In case the responses are delivered by courier or through authorised company representatives, it is requested that they be delivered at Gate No 4 Sena Bhawan between 0900 hours and 1700 hours on all working days till the final date of submission of responses. The vendors short listed for issue of RFP would be intimated in due course of time.

8. The Government of India invites responses to this request only from Original Equipment Manufacturers (OEM)/ Authorised Vendors/ Government Sponsored Export Agencies (applicable in the case of countries where domestic laws do not permit direct export by OEMs). The end user of the equipment is the Indian Army.

9. This information is being issued with no financial commitment and the Ministry of Defence reserves the right to change or vary any part thereof at any stage. The Government of India also reserves the right to withdraw it, should it be so necessary at any stage. The acquisition process would be carried out under the provisions of DAP 2020.

PART – III

GUIDELINES FOR VENDOR SELECTION / PRE-QUALIFICATION

10. The Vendor Selection / Pre-qualification for LAMV will be as per Annexure IV to Appendix A to Chapter II of DAP 2020.

CONCLUSION

11. Vendors are requested to provide accurate inputs / responses so as to enable achieving main objectives of this RFI which are as follows:-

- (a) To formulate/ refine/ rationalise the SQRs for LAMV.
- (b) To identify vendor base for development of LAMV.
- (c) To generate inputs for structuring the RFP.
- (d) To aid in deciding the acquisition category for LAMV.
- (e) To determine the indicative budgetary and cost implications.
- (f) To aid in deciding the desired maintenance philosophy i.e. whether to procure MRLS or opt for other modes of maintenance support like AMC/ CAMC etc.
- (g) To seek inputs for formulating Draft Trial Methodology.
- (h) Any other inputs for progressing the case.

Appendix A

(Refer to Para 5 of Additional Directorate General of Mechanised Infantry Letter No A/36765/LAM /GS/Mech-7 dated 30 Jun 2022)

IMPORTANT TECHNICAL PARAMETERS : LAMV VERSION 1**1. Operational Parameter.**

(a) **Configuration of Vehicle** LAMV Version 1 should be a 4x4 Right Hand drive vehicle with protection of STANAG-I Level all around the vehicle to include its underbelly, doors, windscreen and window glasses. It should be able to integrate surveillance equipment (in service BFSR and HHTI) on a telescopic retractable mast and Machine Gun (in service 7.62 mm MAG) mounted on a hatch/ cupola (with 360° traversing capability) for bringing down effective fire. LAMV Version 1 should have modular racks/ brackets for effective stowage of battle and personal loads of crew. **The shelf life of vehicle should not be less than 10 years/ 1,00,000 km.**

(b) **Seating Capacity.** Not less than 4 including driver.

(c) **Mobility.**

(i) **Payload.** Should be able to carry payload of not less than **1.25 Tons.**

(ii) **Ground Clearance.** Not less than 400 mm without payload.

(iii) **Cruising Range.** Should have cruising range of minimum 400 Km on road and 200 Km in cross country (off road).

(iv) **Speed.** Should be able to move on road at 80 to 100 kmph and 35 to 45 kmph in cross country (off road).

(v) **Acceleration.** 0 kmph to 60 kmph in not more than 12 seconds on road with full payload.

(vi) **Obstacle Crossing.** When fully laden should be able to negotiate obstacles as under:-

(aa) Gradient - $\geq 30^\circ$.

(ab) Side Slope - $\geq 17^\circ$.

(ac) Fording - Not less than 0.75m without preparation.

(ad) Approach/ Departure angle- Not less than 35° .

(d) **Self Recovery.** A self-recovery winch, capable of recovering the fully laden LAMV must be provided in front of the vehicle with a cable of minimum 15 meter length and a suitable hook.

(e) **Transportability.** The LAMV Version 1 must be air transportable by IL-76, C-17 & C-130 aircrafts or any other transport aircrafts of the Indian Air Force and broad-gauge railway military bogie.

(f) **Accesses to vehicle.** Two doors each on either side for troops compartment & door/ tail board for access to cargo compartment.

2. Technical Parameters. The following technical parameters are preferred:-

(a) **Dimensions (Excluding all Detachments).**

(i) **Length.** Not more than **5.25 meters.**

(ii) **Height.** Not more than **2.4 meters** excluding BFSR (Short Range) Mast.

(iii) **Width.** Not more than **2.4 meters.**

- (b) **Engine.**
- (i) Contemporary Turbocharged Diesel Engine.
 - (ii) **Engine Service Life.** At least 1,00,000 km or 10 years.
 - (iii) **Cold Starting.** LAMV Version 1 should be provided with a suitable system for starting in low temperatures up to (-) 20°C.
- (c) **Transmission.** Automatic Transmission with minimum Four Forward, One Reverse, Neutral and Parking gears. The transmission should have provision in driver's cabin to select 4x4/ 4x2 with 'Shift on the Fly' system.
- (d) **Power to Weight Ratio.** Not less than 25 KW/ ton (fully laden weight with AC on).
- (e) **Suspension.** Independent suspension for all four wheels.
- (f) **Steering.** Electric Power Steering.
- (g) **Braking System.** Dual Fail-safe brakes with Anti-Skid Lock Braking System, Hill Hold Assist & Parking Brake.
- (h) **Tyres.** All terrain suitable tyres with 'Run Flat' and 'Central Tyre Inflation System (CTIS)'. The tyres should be indigenous.
- (i) **Run Flat Tyre System** Provided for all wheels including spare wheel. The vehicle should be able to run a minimum distance of 05 km on level unmetalled roads on flat tyres with full load.
 - (ii) **Central Tyre Inflation System.** The vehicle must have a **Tyre Pressure Monitoring System with Indicator** and **CTIS**. Inflation/ Deflation of tyre should be undertaken in static and mobile state from cabin itself.
- (j) **Gunner's Hatch.** Roof Mounted Traversing Gunner's Hatch with a traverse of 360° with following additional facilities:-
- (i) A mount for fitment of Machine Gun (in service 7.62mm MAG) on hatch with an ability to elevate up to +45° and depress up to -05°.
 - (ii) The hatch should be provided with detachable plate to cover frontal arc of 120°. The hatch and detachable plate should be of STANAG Level-I
- (k) **Protection.** The LAMV Version 1 should have adequate structural integrity to meet the requisite safety standards. The following protection should be provided:-
- (i) Side walls, Doors & Underbelly - STANAG Level I.
 - (ii) Wind Screen, Side & Rear Glasses - STANAG Level I.
- (l) **Communications.** Adequate ergonomics inside troops compartment to integrate and operate Two In Service Radio Sets {Buyer Furnished Equipment (BFE)}.
- (m) **Navigation.** Combined satellite and inertial navigation system, compatible with IRNSS, GPS and GLONASS satellite navigation systems with Navigation data to be displayed on Visual Display Unit in form of digital maps.

(n) **Power Backup.**

- (i) An additional battery of minimum 110 AH capacity other than main vehicle battery to be provided in the engine compartment. Both batteries should be indigenous.
- (ii) Both the batteries must be charged from alternator (with rectifier) and be provided with over voltage, over charge and short circuit protection.
- (iii) Should provide variable charge by four points comprising of two standard 12 Volt charging points and two 05 ampere 220 Volt points.
- (iv) Provision of charging batteries (BFE) of in service BFSR and Radio Sets.

(o) **Environmental Control Unit.** The vehicle must be provided with Heating, Ventilation and Air Conditioning (HVAC) environmental control unit so as to maintain the cabin temperature between **20°C to 25°C**.

(p) **Telescopic Retractable Mast with Multipurpose Mounting Bracket.** A telescopic retractable mast which should be pneumatic/ electrically operated (from inside the cabin) extendable upto a minimum height of 3 meter above vehicle roof with a capability to mount payload upto 50 kg (in fully extended condition). The mast should have 360° swivel capability.

(q) **Stowage.** The vehicle must be provided with modular Racks/ Brackets to carry BFE (individual and group battle loads) in secured position during vehicle movement for following categories:-

(i) **Troops Compartment:-**

- (aa) Two in service Radio sets.
- (ab) Four ammunition boxes and 1500 rounds of belted ammunition of in service Machine Gun (7.62mm MAG).
- (ac) One in service HHTI along with it's case.
- (ad) One in service 84mm Rocket Launcher (RL) and three 5.56mm INSAS Rifle.
- (ae) Haversacks of minimum four personnel.

(ii) **Cargo Compartment:-**

- (aa) 01 x One KVA Generator Set.
- (ab) In service BFSR with carriage bags.
- (ac) Six rounds of RL ammunition.
- (ad) Marking Poles and Camouflage Net with poles.
- (ae) Recce Stores, FOL Jerrycans and Administrative stores.
- (af) Two brackets for mounting Ground Position Antenna (one on each side of LAMV Version 1) with a provision to connect in service Radio Sets stowed inside troops compartment.

(r) **Water Storage.** Not less than 120 liters of drinking water storage capacity in two water tanks (60 liters each) with a water tap on each.

(s) **Lighting Arrangements.**

(i) **Front.** Two each of Head lights, Fog lights, Turn Signal Indicators and convoy lights.

(ii) **Rear.** Two each of tail Lights, Brake lights, Turn signal indicators, Reverse lights, parking indicators and convoy lights.

(iii) **Body.** Outer wall two parking indicators and inside cabin compartment one light in front (in between driver & co-driver seat) and two in center (in between driver and passenger seats).

(iv) **Inspection Lamp with Extendable Cable.** One each for engine compartment and under the vehicle.

(v) **Map Reading Lights.** Two Map reading lights with extendable arm for reading maps (one on the front commander seat and other on the left side rear seat).

(vi) **Blackout Arrangements.** Provision of a blackout switch to turn off all lights less convoy lights and map reading lights. A mechanism must be provided to ensure that the switch is not inadvertently engaged or disengaged.

(t) **Display Unit for Driver.** A suitable display unit for driver to display speed, odometer, trip meter, tyre pressure monitoring system, engine temperature, hand brake engage warning, Built-in Test Equipment (BITE) system and display input from various sensors.

(u) **Visual Information Display Unit.** Display system with sound output and speakers to integrate and display navigation system and connect with Laptop/ Smart Phones/ Tablet.

(v) **Other equipment & Facilities.** The following other equipment and facilities should be provided with the LAMV Version 1:-

(i) One spare wheel and tyre.

(ii) Minimum two fire extinguishers of one liter capacity each.

(iii) Brackets/ clamps on outer wall of vehicle for in service pickaxe and shovel.

(iv) First Aid Kit.

(v) Towing hooks at front and rear with a suitable tow bar and chain.

(vi) Two internally adjustable side view mirror and one rear view mirror.

(vii) Windscreen wiper with intermittent, low and high speed.

(viii) External blower/ other arrangements to remove sand/ dust from windscreen.

(ix) Tool Box with Jack.

3. **Maintainability.** Modular systems and sub-systems to be provided to enable quick replacement and repairs at field workshop level. Aspects such as accessibility & colour-coding layout needs to be incorporated for ease of maintenance.

(a) Maintenance, Repair and Overhaul (MRO) philosophy should be aligned to following levels of repairs :-

(i) **Unit (Organisational 1 (O1)) Level.** Repairs carried out in the unit holding the equipment, involving replacement of minor components/ sub-assemblies, which do not require any Special Maintenance Tools (SMTs).

(ii) **Field (Organisational 2 (O2) Level.** Repairs by a field workshop, involving replacement of components/ major sub-assemblies, which may require Special Maintenance Tools (SMTs) supported by diagnostics using Special Test Equipment (STEs)/ Test Jigs/ Built In Test Equipment (BITE) facility.

(iii) **Intermediate (I) Level.** Repairs beyond the scope of field workshop, which require sophisticated Special Test Equipment (STEs)/ Test Jigs for diagnostics. These include repairs to rotables/ sub-assemblies through repairs/ replacements of Printed Circuit Boards (PCBs)/ modules/ components.

(iv) **Base (Depot (D)) Level.** Base repair capability is established to avoid dependence on manufacturer in terms of factory repairs. These repairs include component level repairs of rotables/ assemblies, which may be Major Unit Assembly (MUA)/ modules/ PCBs.

(b) **Built in Test Equipment (BITE).** Artificial Intelligence based built in diagnostic facility for all major systems and critical sub assemblies should be provided.

(c) **Emission Norms and Noise levels.** Emission norms and noise levels to be compliant with Central Motor Vehicle Rules (CMVR) norms in vogue at the time of trials.

4. **Quality Assurance.** LAMV Version 1 and all system should be robust in construction & comply with Quality Assurance aspects as mentioned below:-

(a) **QA Parameters.** JSS:55555.

(b) **EMI/ EMC Parameters.** Military Standard 464C & 461 E/ F as applicable.

5. **Training Aids.** The following training aids should be planned to be provided (scale will be given in RFP):-

(a) Training of personnel to include operational and maintenance training.

(b) Sectionised working models and cut models with annotated charts and diagrams of all major and minor assemblies.

(c) AR/ VR and Computer Based training packages for honing skills to operate, maintain and repair all automotive sub-systems.

(d) Operators manual, illustrated diagrams, list of spares, list of special tools and SMTs, preservation instructions, TOTE and all other associated literature be provided.

(e) Any other suitable training aid as recommended by the vendor.

Appendix B

(Refer to Para 5 of Additional Directorate General of Mechanised Infantry Letter No A/36765/LAM /GS/Mech-7 dated 30 Jun 2022)

IMPORTANT TECHNICAL PARAMETERS : LAMV VERSION 2**1. Operational Parameter.**

(a) **Configuration of Vehicle.** To fulfill the operational role as mentioned above, LAMV Version 2 should be a 4x4 Right Hand drive vehicle with protection of STANAG-II Level all around the vehicle to include its underbelly, doors, windscreen and window glasses. It should be able to integrate new generation surveillance and targeting equipments like Integrated Surveillance and Targeting System and Continuous Tied Surveillance System and provide Remote Control Weapon System(RCWS)(for in service 12.7 mm MG) mounted on a hatch/ cupola (with 360° traversing capability) for bringing down effective Anti aircraft and Ground fire . LAMV Version 2 should have modular racks/ brackets for effective stowage of battle and personal loads of crew. **The shelf life of vehicle should not be less than 10 years/ 1,00,000 km.**

(b) **Seating Capacity.** **Not less than 4 including driver.** Two in Crew compartment and two in Cargo compartment.

(c) Mobility.

(i) **Payload.** Should be able to carry payload of not less than **2.0 Tons.**

(ii) **Ground Clearance.** Not less than 400 mm without payload.

(iii) **Cruising Range.** Should have cruising range of minimum 400 Km on road and 200 Km in cross country (off road).

(iv) **Speed.** Should be able to move on road at 80 to 100 kmph and 50 to 70 kmph in cross country (off road).

(v) **Acceleration.** 0 kmph to 60 kmph in not more than 12 seconds on road with full payload.

(vi) **Obstacle Crossing.** When fully laden should be able to negotiate obstacles as under:-

(aa) Gradient - $\geq 35^\circ$.

(ab) Side Slope - $\geq 20^\circ$.

(ac) Fording - Not less than 1.0 m without preparation.

(ad) Approach/ Departure angle - Not less than 35° .

(d) **Self Recovery.** A self-recovery winch, capable of recovering the fully laden LAMV Version 2 must be provided in front of the vehicle with a cable of minimum 15 meter length and a suitable hook.

(e) **Transportability.** The LAMV Version 2 must be air transportable by IL-76, C-17 & C-130 aircrafts or any other transport aircrafts of the Indian Air Force and broad-gauge railway military bogie.

(f) **Access to vehicle.** One door each on either side for crew and cargo compartment & door/ tail board for access to cargo compartment.

2. **Technical Parameters.** The following technical parameters are preferred:-

(a) **Dimensions (Excluding all Detachments).**

- (i) **Length.** Not more than **5.5 meters.**
- (ii) **Height.** Not more than **2.5 meters.**
- (iii) **Width.** Not more than **2.4 meters.**

(b) **Engine.**

- (i) Contemporary Turbocharged Diesel Engine.
- (ii) **Engine Service Life.** At least 1,00,000 km or 10 years.
- (iii) **Cold Starting.** LAMV Version 2 should be provided with a suitable system for starting in low temperatures up to (-) 20°C.

(c) **Transmission.** Automatic Transmission with minimum Four Forward, One Reverse, Neutral and Parking gears. The transmission should have provision in driver's cabin to select 4x4/ 4x2 with 'Shift on the Fly' system.

(d) **Power to Weight Ratio.** Not less than 25 KW/ ton (fully laden weight with AC on).

(e) **Suspension.** Independent suspension for all four wheels.

(f) **Steering.** Electric Power Steering.

(g) **Braking System.** Dual Fail-safe brakes with Anti-Skid Lock Braking System, Hill Hold Assist & Parking Brake.

(h) **Tyres.** All terrain suitable tyres with 'Run Flat' and 'Central Tyre Inflation System (CTIS)'. The tyres should be indigenous.

(i) **Run Flat Tyre System** Provided for all wheels including spare wheel. The vehicle should be able to run a minimum distance of 50 km on level unmetalled roads on flat tyres with full load.

(ii) **Central Tyre Inflation System (CTIS).** The vehicle must have a **Tyre Pressure Monitoring System with Indicator** and **CTIS.** Inflation/ Deflation of tyre should be undertaken in static and mobile state from cabin itself.

(j) **Gunner's Hatch.** Roof Mounted Traversing Gunner's Hatch with a traverse of 360° with following additional facilities:-

(i) A mount for fitment of Remote Control Weapon System (in service 12.7mm MG) on hatch with an ability to elevate up to +60° and depress up to -05°.

(ii) The hatch should be provided with detachable plate to cover frontal arc of 120°.

(k) **Protection.** The LAMV Version 2 should have adequate structural integrity to meet the requisite safety standards. The following protection should be provided:-

- (i) Side walls, Doors & Underbelly - STANAG Level II.
- (ii) Wind Screen, Side & Rear Glasses - STANAG Level II.

(l) **Communications.** Adequate ergonomics inside crew compartment to integrate and operate Two In Service Radio Sets {Buyer Furnished Equipment (BFE)}.

(m) **Navigation.** Combined satellite and inertial navigation system – IRNSS and GPS satellite navigation systems compatible with Defense Series Maps (DSM) series with Navigation data to be displayed on Visual Display Unit in form of digital maps.

(n) **Power Backup.**

(i) Provision for charging upto four batteries of minimum 110 AH from alternator (with rectifier) in Engine ON condition, apart from vehicle battery and be provided with over voltage, over charge and short circuit protection.

(ii) Should provide variable charge by four points comprising of two standard 12 Volt charging points and two 05 ampere 220 Volt points.

(iii) Provision of 01 x One KVA Generator Set as Auxiliary Power Unit.

(o) **Environmental Control Unit.** The vehicle must be provided with Heating, Ventilation and Air Conditioning (HVAC) environmental control unit so as to maintain the cabin temperature between **20°C to 25°C**.

(p) **Integrated Surveillance and Targeting System.** Integrated Surveillance and Targeting system integrated on LAMV Version 2 must be provided as a combination of Surveillance Drone and Loiter Munition which will be inherent part of the vehicle with storage in the cargo compartment and controls with Commander in crew compartment. The range of surveillance drone should be minimum 15 kms (one way) with an endurance of minimum 90 minutes. The range of loiter munition should be minimum 15 kms (one way) with an endurance of minimum 60 mins.

(q) **Continuous Unmanned Tied Surveillance System.** Continuous Unmanned Tied Surveillance System integrated on LAMV Version 2 must be provided as a combination of a Surveillance Drone and Portable Ground Control Station which will be housed in the cargo compartment with controls with Commander in crew compartment. Continuous Unmanned Tied Surveillance System should have an endurance of 12 hours in tethered mode and 60 minutes in untethered mode, also it should have a ceiling height of 100 meters and mission range in untethered mode of not less than 05 Km.

(r) **Anti Thermal Anti Laser Smoke Grenade Launchers(AT AL SGL).** Provision of four 81 mm AT AL SGL on outer body each side of LAMV Version 2 along with ammunition to provide smoke screen during operations of minimum height 10 meters and width 30 meters and duration of smoke screen 20 seconds.

(s) **Stowage.** The vehicle must be provided with modular Racks/ Brackets to carry BFE (individual and group battle loads) in secured position during vehicle movement for following categories:-

(i) **Crew Compartment:-**

(aa) Two personnel weapons.

(ab) Haversacks for two personnel.

(ii) **Cargo Compartment:-**

(aa) Brackets for housing two in service Radio sets with provision of hand set / Head gear to commander, operator and spare crew compatible with in service Radio sets.

(ab) 01 x One KVA Generator Set.

(ac) Marking Poles and Camouflage Net with poles.

(ad) Recce Stores, FOL Jerrycans and Administrative stores.

(ae) Two brackets for mounting Ground Position Antenna.

(af) One Integrated Surveillance and Targeting System along with ammunition - **Control with Commander in Crew Compartment.**

(ag) One Continuous Unmanned Tied Surveillance System - **Control with Commander in Crew Compartment.**

(ah) Two personnel weapons.

(aj) Four ammunition boxes and 1500 rounds of belted ammunition of in service Machine Gun (12.7 mm MG) and ammunition of SGL.

(ak) Haversacks for two personnel.

(t) **Water Storage.** Not less than 120 liters of drinking water storage capacity in two water tanks (60 liters each) with a water tap on each.

(u) **Lighting Arrangements.**

(i) **Front.** Two each of Head lights, Fog lights, Turn Signal Indicators and convoy lights.

(ii) **Rear.** Two each of tail Lights, Brake lights, Turn signal indicators, Reverse lights, parking indicators and convoy lights.

(iii) **Body.** Outer wall two parking indicators and inside cabin compartment one light in front (in between driver & co-driver seat) and two in center (in cargo compartment between the crew).

(iv) **Inspection Lamp with Extendable Cable.** One each for engine compartment and under the vehicle.

(v) **Map Reading Lights.** Two Map reading lights with extendable arm for reading maps (one on the front commander seat and other on the operator seat in cargo compartment).

(vi) **Blackout Arrangements.** Provision of a blackout switch to turn off all lights less convoy lights and map reading lights. A mechanism must be provided to ensure that the switch is not inadvertently engaged or disengaged.

(v) **Display Unit for Driver.** A suitable display unit for driver to display speed, odometer, trip meter, tyre pressure monitoring system, engine temperature, hand brake engage warning, Built-in Test Equipment (BITE) system and display input from various sensors.

(w) **Visual Information Display Units.** Display system with sound output and speakers to display navigation system output, connect with Radio Sets (for data display), and compatibility to display Identification of Friend and Foe (IFF) system output (when provisioned). A detachable Remote Vehicle Terminal with display of feed from Continuous Unmanned Tied Surveillance System and Integrated Surveillance and Targeting System.

(x) **Other equipment & Facilities.** The following other equipment and facilities should be provided with the LAMV Version 2:-

- (i) One spare wheel.
- (ii) Minimum two fire extinguishers of one liter capacity each.
- (iii) Brackets/ clamps on outer wall of vehicle for in service pickaxe and shovel.
- (iv) First Aid Kit.
- (v) Towing hooks at front and rear with a suitable tow bar and chain.
- (vi) Two internally adjustable side view mirror and one rear view mirror.
- (vii) Windscreen wiper with intermittent, low and high speed.
- (viii) External blower/ other arrangements to remove sand/ dust from windscreen.

3. **Maintainability.** Modular systems and sub-systems to be provided to enable quick replacement and repairs at field workshop level. Aspects such as accessibility & colour-coding layout needs to be incorporated for ease of maintenance:-

(a) Maintenance, Repair and Overhaul (MRO) philosophy should be aligned to following levels of repairs :-

(i) **Unit (Organisational 1 (O1)) Level.** Repairs carried out in the unit holding the equipment, involving replacement of minor components/ sub-assemblies, which do not require any Special Maintenance Tools (SMTs).

(ii) **Field (Organisational 2 (O2)) Level.** Repairs by a field workshop, involving replacement of components/ major sub-assemblies, which may require Special Maintenance Tools (SMTs) supported by diagnostics using Special Test Equipment (STEs)/ Test Jigs/ Built In Test Equipment (BITE) facility.

(iii) **Intermediate (I) Level.** Repairs beyond the scope of field workshop, which require sophisticated Special Test Equipment (STEs)/ Test Jigs for diagnostics. These include repairs to rotables/ sub-assemblies through repairs/ replacements of Printed Circuit Boards (PCBs)/ modules/ components.

(iv) **Base (Depot (D)) Level.** Base repair capability is established to avoid dependence on manufacturer in terms of factory repairs. These repairs include component level repairs of rotables/ assemblies, which may be Major Unit Assembly (MUA)/ modules/ PCBs.

(b) **Built in Test Equipment (BITE).** Artificial Intelligence based built in diagnostic facility for all major systems and critical sub assemblies should be provided.

(c) **Emission Norms and Noise levels.** Emission norms and noise levels to be compliant with Central Motor Vehicle Rules (CMVR) norms in vogue at the time of trials.

4. **Quality Assurance.** LAMV Version 2 and all system should be robust in construction & comply with Quality Assurance aspects as mentioned below:-

- (a) **QA Parameters.** Relevant JSS:55555 Tables.
- (b) **EMI/ EMC Parameters.** Military Standard 464C & 461 E/ F as applicable.

5. **Training Aids.** The following training aids should be planned to be provided (scale will be given in RFP):-

- (a) Training of personnel to include operational and maintenance training.
- (b) Sectioned working models and cut models with annotated charts and diagrams of all major and minor assemblies.
- (c) Augmented Reality/ Virtual Reality (AR/VR) and Computer Based training packages for honing skills to operate, maintain and repair all automotive sub-systems.
- (d) Operators manual, illustrated diagrams, list of spares, list of special tools and SMTs, preservation instructions, TOTE and all other associated literature be provided.
- (e) Any other suitable training aid as recommended by the vendor.

Appendix 'C'

(Refers to Paragraph 7(a) of Additional Directorate General of Mechanised Infantry Letter No A/36765/LAM /GS/Mech-7 dated 30 Jun 2022)

VENDOR RESPONSE FORM / QUESTIONNAIRE : LAMV VERSION 1

Q No	Questionnaire	Response
1.	Can you confirm that conditions mentioned at Paragraph 6 of RFI are acceptable?	Yes / No
2.	Can you indigenously design, develop & manufacture LAMV Version 1 as per technical parameters given in RFI with a minimum of 50% Indigenous Content (IC) as per provisions of para 21, Chapter 1 of DAP 2020 for procurement under Buy (Indian-IDDM) ?	Yes / No
3.	In case Buy (Indian-IDDM) category is not possible, can you provide LAMV Version 1 as per technical parameters given in this RFI under Buy Indian category of DAP-2020?	Yes / No
4.	What is your desired procurement categorisation for this Project along with justification ?	
5.	Do you have a LAMV Version 1 prototype readily available for Trials?	Yes/ No
6.	How much time is required for design and development of LAMV Version 1 prototype if it is not readily available?	___ months
7.	Can you supply Quantity 800 LAMV @300 per year within 03 years of signing of contract?	Yes / No
8.	What will be your production capacity (numbers per year) and likely delivery schedule for quantity 800 LAMV from the date of signing contract?	_ Yrs @__/Yr
9.	Does your company possess Industrial License to carry out production of LAMV Version 1 in India?	Yes/ No
10.	Will your company be in a joint venture with a Foreign OEM?	Yes/ No
11.	Please provide List & Cost of systems & components that are likely to have Foreign Content .	
12.	Please specify Scope, Depth & Range of ToT for LAMV Version 1 that will be available from Foreign OEM for: -	
	(a) Design/ Development (if applicable).	
	(b) Manufacture of systems, sub-systems, assemblies, components, materials etc.	
	(c) List of Critical Technologies & Military Materials for which ToT is <u>not</u> likely to be provided by foreign partners	
13.	Does the company guarantee indigenous spares and maintenance support till end of life of LAMV Version 1?	Yes / No

14.	Indigenous Military Material. Based on volume of utilisation (<i>at production stage</i>), please provide details of systems & sub-systems where military material will be used from indigenous sources for LAMV Version 1 under following heads:-				
	S No	System	Sub-System	Indigenous Military Material will be Used	Reasons for Not Using Indigenous Military Material
	(a)	Material for Armour		Yes / No	
	(b)	Chassis		Yes / No	
	(c)	Automotive Systems		Yes / No	
	(d)	Hatches with mounting platform for weapons		Yes / No	
	(e)	Electronics and Battery		Yes / No	
	(f)	Tyres, Rubber Seals & Parts		Yes / No	
	(g)	Plastic / Composite		Yes / No	
	(h)	Any other System		Yes / No	
15.	Indigenous Software. Please provide details of systems, sub-systems & equipment which can use indigenous software for running applications in LAMV Version 1:-				
	S No	System	Sub-System	Applications which will use Indigenous Software	Reasons for Not Using Indigenous Software
	(a)	Vehicle Information System with Built in Test Equipment (BITE) for Automotive Diagnostics		Yes / No	
	(b)	Tyre Pressure Monitoring System		Yes / No	
	(c)	Odometer, Trip Metre and Engine Temperature		Yes / No	
	(d)	Navigation		Yes / No	
	(e)	Any other		Yes / No	
16.	Please provide tentative Basic Cost (separately for Quantity 400 and Quantity 800) in ₹ without any taxes and duties of following:-				Cost in ₹
	(a)	One LAMV Version 1 (separately for Quantity 400 and Quantity 800)			
	(b)	Cost of ESP/ AMC/ CAMC.			
	(c)	Cost of MRLS.			
	(d)	Cost of SMT.			
	(e)	Cost of STE .			
	(f)	Cost of 01 x set of Training Aggregates (including cut model of LAMV Version 1).			
17.	Please provide list of accredited laboratories (Indian/ International) that have certified your prototype/ systems/ sub systems (if any).				
18.	Have you supplied your vehicle to any foreign country, if yes, please provide the name of the country.				
19.	Para wise response on technical characteristics of LAMV Version 1 be submitted as per questionnaire of Annexure I to this Appendix.				

Annexure I

(Refers to Para 19 of Appendix 'C')

INFORMATION ON TECHNICAL CHARACTERISTICS OF PRODUCT OFFERED

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 1</u>	<u>Response</u>														
1.	Can you supply LAMV Version 1 as per all technical parameters given at Appendix 'A' to the RFI?	Yes/No														
Note: Even if your reply to Question-1 above is 'YES', response to all questions below is mandatory.																
2.	(a) Briefly give out the configuration and description of your product as LAMV Version 1 along with technical literature and photographs / sketches / CAD drawings including layout of seating arrangement & location of troops, layout of cargo compartment, hatch, placement of weapons, ammunition, stores etc.															
	(b) What service/operational life can be offered in LAMV Version 1 without any repair intervention / over haul?	__ Years														
	(c) Can your LAMV Version 1 perform operational tasks in the Plains and Desert in weather and temperature conditions mentioned in the RFI?	Yes/No														
	(d) Can your LAMV Version 1 perform operational tasks in High Altitude/ Mountain terrain including snow bound areas in weather and temperature conditions mentioned in the RFI?	Yes / No														
	(e) <u>Configuration of LAMV Version 1</u> Is your LAMV Version 1 a 4x4 Right Hand Drive Vehicle?	Yes / No														
	(f) <u>Transportability</u> (i) Is the LAMV Version 1 air transportable by all in-service aircrafts of Indian Air Force to include IL-76, C-17 & C-130 aircrafts? (ii) Is the LAMV Version 1 transportable in underslung position by Boeing CH-47 Chinook Class Helicopter? If No, reasons for the same. (iii) Is the LAMV Version 1 transportable by broad-gauge railway military bogey?	Yes / No Yes / No Yes / No														
	(g) <u>Dimensions.</u> Please mention the dimensions of your LAMV Version 1 in the following format:-															
	<table border="1"> <thead> <tr> <th>Name of Your LAMV Version 1</th> <th>Length (mm)</th> <th>Width (mm)</th> <th>Height less Retractable Mast and Hatch in Open Condition (mm)</th> <th>Payload Capacity (kg)</th> <th>Ground Clearance (mm)</th> <th>Troops Strength</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name of Your LAMV Version 1	Length (mm)	Width (mm)	Height less Retractable Mast and Hatch in Open Condition (mm)	Payload Capacity (kg)	Ground Clearance (mm)	Troops Strength								
Name of Your LAMV Version 1	Length (mm)	Width (mm)	Height less Retractable Mast and Hatch in Open Condition (mm)	Payload Capacity (kg)	Ground Clearance (mm)	Troops Strength										

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 1</u>	<u>Response</u>
(h)	<u>Mobility.</u> Provide following details of your proposal for LAMV Version 1:-	
(i)	<u>Weight.</u> Please specify the Gross vehicle weight.	__ Ton
(ii)	<u>Carrying Capacity (Combat Load).</u> Can your vehicle carry full combat load of 1.25 tons?	Yes/No
(iii)	<u>Power to Weight Ratio.</u> What Power to Weight ratio can be offered in your LAMV Version 1 in plains?	__ KW/Ton
(iv)	How much Power to Weight Ratio can be achieved in High Altitude Terrain?	__ KW/Ton
(j)	<u>Speed.</u> What <i>max speed</i> can be achieved by your LAMV Version 1 in following parameters:-	
(i)	Max speed on road.	__ kmph
(ii)	Max speed on road in reverse gear.	__ kmph
(iii)	Max speed off-road / cross country in plain terrain.	__ kmph
(iv)	Max speed off-road / cross country in desert terrain.	__ kmph
(v)	Max speed off-road / cross country in reverse gear.	__ kmph
(vi)	Acceleration on plain hard ground in terms of 0 to 60kmph in __ seconds of your product.	__ kmph
(k)	<u>Obstacle Crossing Capability.</u> What <i>max obstacle crossing capability</i> can be achieved:-	
(i)	Max gradient climbing on hard surface (concrete / stone).	__ degrees
(ii)	Max gradient climbing off-road in hard plain terrain.	__ degrees
(iii)	Max gradient climbing off-road in desert terrain (sand).	__ degrees
(iv)	Max side slope negotiation on hard surface (concrete / stone).	__ degrees
(v)	Max vertical step climbing on hard surface (concrete / stone).	__ meters
(vi)	Approach and Departure angle.	__ degrees
(vii)	Fording capability without preparation.	__ meters
(viii)	Will it be able to negotiate in-service Bridge Laying Tank (BLT)?	Yes/No
(l)	<u>Cruising Ranges.</u> What Cruising Ranges can be offered in your LAMV Version 1 in following parameters:-	
(i)	Max range that can be travelled on level road in plain terrain.	__ km
(ii)	Max range that can be travelled off-road / cross country in plain terrain.	__ km
(iii)	Total Fuel Capacity of Fuel Tank(s).	__ Litres
(iv)	Average Speed that is being considered for calculating Max Cruising Range.	__ kmph

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 1</u>	<u>Response</u>
(m)	Engine. What Engine Specifications can be offered in your LAMV Version 1 in following parameters:-	
(i)	Design, type & technical details of engine that will be provided for LAMV Version 1.	
(ii)	Name of original manufacturer of engine.	
(iii)	Max Engine Service Life (in kilometers and years).	__ Km & Year
(iv)	Min operating temperature (in degrees Celsius).	__ ° Celsius
(v)	Max operating temperature (in degrees Celsius).	__ ° Celsius
(vi)	What is life expectancy of engine without any repair intervention?	__ hours
(vii)	What is Mean Time Between Failure (MTBF)?	__ hours
(viii)	Can a suitable system be provided for starting of LAMV Version 1 in low temperatures up to (-) 20°C?	Yes / No
(ix)	Max Power output in terms of Kilowatt per Ton (KW/T).	__ KW/T
(x)	Types of Fuel that can be used (mention grades).	
(xi)	Type of Fuel Injection System & Engine Cooling System being used.	
(xii)	Details of lubricants / oils and its grade.	
(xiii)	What is the proposed location of engine exhaust pipe?	
(xiv)	What measures can be provided to reduce thermal & acoustic signatures of the engine?	
(n)	Transmission System. What specifications of Transmission System can be offered in your LAMV Version 1:-	
(i)	Can you provide fully automatic transmission system?	Yes / No
(ii)	Design, type & technical details of Transmission System that will be provided.	
(iii)	Name of original manufacturer of Transmission System.	
(iv)	Torque. Considering that LAMV Version 1 is supposed to fulfil a role entailing cross country movement and carriage of heavy loads, please provide Torque available at various gear ratios and engine speed.	
(v)	Can you provide 'Shift on the fly' system for engaging 4x4 High/ Low gear with specification of minimum speed for engaging High/ Low gear ratios?	
(vi)	Gear ratios with speed for all forward & reverse gears.	
(vii)	Details & grades of Lubricants / oils.	
(viii)	What is the life expectancy without any repair intervention?	__ hours
(ix)	What is Mean Time Between Failure (MTBF) for your transmission system?	__ hours

Question	Questionnaire based on RFI for LAMV Version 1	Response
	(o) Steering System. What specifications of Steering System can be offered in your LAMV Version 1 in following parameters:-	
	(i) Design, type, technical details of Power Steering System that will be provided for LAMV Version 1.	
	(ii) Name of original manufacturer of Steering System.	
	(iii) Can an adjustable (Tilt / Telescopic) steering be provided?	__ mm
	(iv) What turning radius (in mm) will be offered in your LAMV Version 1?	__ mm
	(p) Suspension System. Specifications of Suspension System that will be offered in your LAMV Version 1:-	
	(i) Design, type, technical details of Suspension System.	
	(ii) What alternate suspension system can be offered?	
	(q) Braking System. What specifications of Braking System can be offered in your LAMV Version 1 in following parameters:-	
	(i) Design, type, technical details of Braking System that will be provided.	
	(ii) What alternate system is being provided for achieving braking in case the main system fails.	
	(iii) What Braking Distance can be achieved by your product at Gross Weight & 80 kmph on road.	__ m
	(iv) Will Main Brakes function when engine gets switched off while vehicle is still moving.	Yes/No
	(v) Can the Brakes hold LAMV Version 1 with gross weight on at least 30° gradient.	Yes/No
	(vi) Is it feasible to provide audio & visual warnings to indicate manual / parking brake is engaged.	Yes/No
	(vii) Can you provide Hill Hold Assist System for LAMV Version 1?	Yes/No
	(r) Self Recovery	
	(i) Can you provide a self-recovery winch in front of the vehicle with a cable of minimum 15 meter length and a suitable hook capable of recovering the fully laden vehicle?	Yes / No
	(ii) If no then specify the capability of your self-recovery mechanism?	
	(s) Tyres. What specifications of Tyres can be offered in your LAMV Version 1 in following parameters:-	
	(i) Design, type & technical details of Tyres that will be provided in LAMV Version 1.	
	(ii) What is the life of tyres before replacement would be due.	__ kms
	(iii) Can mechanism for automatic tyre pressure monitoring system be provided.	Yes / No
	(iv) How many spare tyres will be provided per LAMV Version 1.	__ qty
	(v) Can tyres be replaced by troops in field conditions without any workshop support.	Yes / No
	(vi) What provision can be provided for Run Flat Tyre System.	
	(vii) Can you provide Central Tyre Inflation System (CTIS) (to be operated from cabin itself)?	Yes / No

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 1</u>				<u>Response</u>
	(viii) How much time will be required for inflation/ deflation of all four tyres through CTIS?				__ Minutes
	(ix) <u>Non Skid Chain.</u> (aa) Can Non-skid Chains be fitted on the tyres to facilitate plying of the vehicle in snow bound conditions? (ab) Will you be able to provide the Non-Skid Chains as applicable?				
3.	<u>Armament.</u> In your proposal for LAMV Version 1:-				
	(a) Can you provide a roof mounted 360° rotatable Gunner's Hatch accessible from inside the troops compartment?				Yes / No
	(b) What provisions can be provided for fitment of in service 7.62 mm MAG on Gunner's Hatch?				
	(c) What maximum elevation and depression can be provided for in service 7.62 mm MAG once mounted on hatch?				__ Degree
	(d) What is the provision or mechanism used to open hatch?				
	(e) Can you provide a detachable STANAG Level-1 plate to cover frontal arc of 120°?				Yes / No
	(f) Can you provide the hatch cover with STANAG Level-1?				Yes / No
	(g) Please specify the diameter of the hatch being provided.				
4.	<u>Protection.</u> Provide details of protection being provided in your proposal for LAMV Version 1 under following heads:-				
	(a) <u>Armour Protection Levels.</u>				
	(i) Please provide details of Armour Protection Levels that can be offered:-				
	S No	Vehicle Arc	STANAG Protection achieved using Integral Armour	Can Indigenous Material be Used	If No, Provide Justification
	(aa)	Front		Yes / No	
	(ab)	Sides		Yes / No	
	(ac)	Top		Yes / No	
	(ad)	Rear		Yes / No	
	(ae)	Underbelly		Yes / No	
	(af)	Side & Rear window glasses		Yes / No	
	(ag)	Windshield		Yes / No	

Question	Questionnaire based on RFI for LAMV Version 1	Response
	(b) Water Protection. Provide details of Protection from water during fording that can be offered in your LAMV Version 1:-	
	(i) How much fording capability can be provided by your LAMV Version 1?	
	(ii) Will any water enter into LAMV Version 1 from vehicle floor or sides when all doors are shut?	Yes / No
	(iii) Any restriction / limit in terms of time of continuous exposure to water after which water proofing is likely to fail.	Yes / No
	(c) Protection Against Fire. Provide details of Protection against Fire/ Flame that can be offered in your LAMV Version 1:-	
	(i) Numbers of fire extinguishers that can be provided in the LAMV Version 1.	
	(ii) Capacity of each fire extinguisher.	
	(iii) What types of fire extinguishers will be provided.	
	(iv) What will be the method of operation of fire extinguishers.	Yes / No
	(v) Type of gas/ chemical used for fire suppression.	
	(vi) Passive Measures. Can fire resistant/ retardant material be used on surface of all internal & external systems, sub-systems & parts of LAMV Version 1 including fabric, plastic, rubber etc.	Yes / No
	(d) Engine and Sub-Assemblies Protection. Will you be able to provide steel/hardened front & rear bumpers and rock sliders for protection of engine and sub-assemblies at front and rear given the rugged employment of the vehicle?	Yes / No
	(e) Structural Strength. What arrangements can be provided for providing structural strength to the vehicle and safety of personnel and equipment stowed in the LAMV Version 1?	
5.	Communication System. Provide details of integration of Communication System in your LAMV Version 1	
	(a) Can Quantity two 'In-Service' Radio Sets (BFE) be fitted inside troops compartment of your LAMV Version 1?	Yes / No
	(b) Where will you place the secondary batteries (BFE) for the Radio Sets?	
	(c) Can you provide two external brackets (one on each side) for housing Ground Position Antennas?	Yes / No
	(d) How will you connect antennas with radio sets?	
6.	Navigation System. Provide details of Navigation System that can be offered in your LAMV Version 1:-	
	(a) Can navigation system as per RFI be provided?	Yes / No
	(b) If not then provide capability of navigation system being installed.	
	(c) How will instructions be fed into your navigation system?	
	(d) Can navigation data including route and related information be displayed on existing Visual Information Display Unit?	Yes / No

Question	Questionnaire based on RFI for LAMV Version 1	Response
7.	Miscellaneous Technical Specifications. Provide details of following that can be offered in your LAMV Version 1:-	
	(a) Sub-systems & Assemblies.	
	(i) Which systems & sub-systems would be modular with easy accessibility to ensure quick replacement of faulty modules/sub assemblies?	
	(ii) Can all instructions/ markings inside LAMV Version 1 be provided in English and instructions in manuals and literature be provided in English & Hindi language?	Yes / No
	(b) Environmental Control Unit (ECU).	
	(i) Give technical specifications to include power consumption and performance parameters.	
	(ii) Will desired temperature at ambient temperature ranges mentioned in RFI be provided?	Yes / No
	(iii) What will be the source of electric & mechanical power for functioning of the System?	
	(iv) Give out max & min ambient temperatures under which ECU will provide desired temperatures.	_° & _°
	(v) Will you be able to provide a defogger & demister for windscreen and glasses (connected to ECU)?	
	(c) Power Backup.	
	(i) Please provide Technical Specifications of your Power backup	
	(ii) Will power backup ensure seamless working of all on board electrical systems as defined in RFI when engine is switched off?	Yes / No
	(iii) Will you be able to provide an additional battery of minimum 110 AH capacity other than main vehicle battery in the engine compartment?	
	(iv) Can you provide suitable means of charging batteries (BFE) of in service BFSR and Radio Sets?	
	(v) Will you be able to provide variable charging facility by four points comprising of two standard 12 Volt charging points and two 05 ampere 220 Volt points?	
	(d) Ergonomics.	
	(i) How much leg room will be provided to each passenger (in mm)?	__ mm
	(ii) What will be the orientation for each personnel while seated in relation to front?	
	(iii) What ergonomic comforts / facilities will be provided to personnel which facilitates 72 hours continuous seating under operational conditions?	
	(e) Seats.	
	(i) What will be the seating capacity of LAMV Version 1?	
	(ii) Can height adjustable seats with head rest be provided for personnel?	Yes / No

Question	Questionnaire based on RFI for LAMV Version 1	Response
	(iii) What type of seat belts will be provided to ensure comfort & safety?	
	(iv) Will you be able to provide ventilated seats?	
	(f) <u>Accesses to Vehicle or Entry/Exit for Personnel.</u>	
	(i) Can individual doors be provided for entry/exit of each personnel?	Yes / No
	(ii) Type & Quantity of doors being provided on both sides and rear of vehicle?	
	(iii) Can these doors be operated from inside and outside the LAMV Version 1?	Yes / No
	(g) <u>Stowage Facility.</u> Provide material and dimension details for modular & directly accessible stowage facility in forms of Racks/ Brackets/ Clamps provided for following in LAMV Version 1:-	
	(i) Minimum four ammunition boxes & 1500 rounds of 7.62mm ammunition in belted condition	Dimensions
	First-aid kit	Dimensions
	(ii) Minimum two in-service Radio Sets	Dimensions
	(iii) One in-service HHTI with carriage case	Dimensions
	(iv) One 1 KVA Generator Set	Dimensions
	(v) Haversacks of minimum four personnel	Dimensions
	(vi) In-service Marking Poles and Camouflage Net with poles	Dimensions
	(vii) One in-service 84mm RL and minimum three 5.56mm INSAS rifle	Dimensions
	(viii) BFSR (SR) with its carriage bags	Dimensions
	(ix) Stowage boxes for Recce Stores and Administrative stores including FOL Jerrycans.	Dimensions
	(x) Spares Parts, Tools and Accessories (SPTA)	Dimensions
	(xi) In-service pickaxe and shovel	Dimensions
	(xii) Provision for mounting of Inservice Ground Position Antenna on each side	Dimensions
	(h) <u>Water Storage.</u>	
	(i) How much drinking water can be stored on your LAMV Version 1?	Yes / No
	(ii) Number of water tanks with their capacity and location on LAMV Version 1	
	(iii) Can food grade material be used for inner layer of water tanks and plumbing?	Yes / No
	(iv) Can taps on water tanks and facility to drain water for cleaning tank be provided?	Yes / No
	(v) Can inlets for quick filling of water in tanks be provided?	Yes / No
	(j) <u>Tow Hooks.</u>	
	(i) What provision can you provide for towing of LAMV Version 1?	

Question	Questionnaire based on RFI for LAMV Version 1	Response
	(ii) Where will you place the tow hooks for recovery of LAMV Version 1?	
	(iii) How many tow hooks will be provided on front and rear?	
	(iv) How many Tow Bar and Chains will be provided?	
	(v) If your LAMV Version 1 can be carried in underslung position by Boeing CH-47 Chinook Class Helicopter, how many hooks will be provided for the same?	
	(k) <u>Lighting Arrangements.</u>	
	(i) Can Lighting arrangements be provided as per technical parameters of RFI?	Yes / No
	(ii) Will you be able to provide LED or Projector Headlamps?	Yes / No
	(iii) Can the brightness of Visual Information Display Unit & Driver Display Unit be dimmed?	Yes / No
	(iv) Will facility for blackout arrangements as specified in technical parameters of RFI be provided?	Yes / No
	(v) What will be the wattage of each lighting arrangement?	
	(l) <u>Telescopic Retractable Mast with Multipurpose Mounting Bracket.</u> Provide following details of Retractable Mast to be provisioned in your LAMV Version 1:-	
	(i) What is the method of operation of Mast?	
	(ii) What is the height of Mast in extended position from ground and from vehicle roof?	__mtr
	(iii) What is the height of Mast in retracted position from ground and from vehicle roof?	__mtr
	(iv) How much payload can be placed on Mast in fully extended position?	__ Kg
	(v) What is the method used for securing of mast in extended and retracted position?	
	(vi) Will indigenous material be used in construction of mast?	Yes/ No
	(vii) Can it swivel in 360° (controlled from inside the cabin)?	Yes/ No
	(m) <u>Miscellaneous fitments on LAMV Version 1.</u>	
	(i) How many internally adjustable side view and rear view mirrors will be fitted on LAMV Version 1 and their method of adjustment?	
	(ii) What is the dimension of Windscreen or windshield fitted on LAMV Version 1	Dimension
	(iii) How many windscreen wipers with intermittent, low and high speed are provided on LAMV Version 1	
	(iv) How many External blower/ other arrangements to remove sand/ dust from windscreen are provided on LAMV Version 1?	
	(v) Can you provide a 360° Camera with display on Visual Information Display Unit?	

Question	Questionnaire based on RFI for LAMV Version 1	Response
(n)	Reliability. What will be the Maximum Mean Time Between Failure (MTBF) of under mentioned systems:-	
	(i) Engine and Transmission System (in hrs)	__ hrs
	(ii) Electrical Assemblies / sub-assemblies (in hrs)	__ hrs
	(iii) Visual Information Display Unit	__ hrs
(o)	Maintainability.	
	(i) Will modular systems to enable quick replacement & repair at field workshop level be provided?	Yes / No
	(ii) What is your MRO philosophy?	Yes / No
	(iii) Will MRO philosophy be aligned to levels of repairs as sought in RFI?	Yes / No
	(iv) Please provide details of repairs which can be undertaken at following levels:-	
	(aa) Unit (Organizational 1 (O1)) Level.	
	(ab) Field (Organizational 2 (O2)) Level.	
	(ac) Intermediate (I) Level.	
	(ad) Base (Depot (D)) Level.	
	(v) Will you provide 'Engineering Support Package (ESP)' for lifetime sustenance of equipment for various echelons of repairs to include following:-	
	(aa) Special Machine Tools (SMT) for maintenance and repair related tasks.	Yes / No
	(ab) Special Test Equipment /Test Jigs for diagnostics to support maintenance & repair tasks.	Yes / No
	(ac) Inspection gauges to check serviceability standards/ tolerances.	Yes / No
	(ad) Spares, to include sub-assemblies as well as spares for Component Level Repairs (CLR).	Yes / No
	(ae) Technical Literature to include Illustrated Spare Part List (ISPL) and manuals covering all aspects related to operation, maintenance, diagnostics and repair at various echelons.	Yes / No
	(af) Training aggregates/aids for operator, quality assurance & maintenance personnel.	Yes / No
	(ag) Inspection standards to ascertain serviceability of equipment as well as its modules/ components.	Yes / No
	(ah) Does the vendor have major repair & overhaul facility for assemblies & component level repairs?	
	(aj) Are you willing to undertake Annual Maintenance Contract (AMC) for the Special Test Equipment (STEs)? If yes, what is the indicative cost in terms of percentage of cost of Special Test Equipment (STEs)?	Yes / No ____%

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 1</u>	<u>Response</u>
	(ak) How many sub vendors are involved in manufacturing of LAMV Version 1? Is product support from all sub vendors also assured for the same period as committed by you? Will the ESP be provided by OEM itself or will it be outsourced from sub vendors?	
	(al) What is the period for which you commit the product support for sustenance of equipment in terms of supply of spares/ AMC/ calibration etc?	
	(vi) What Class of Interactive Electronic Technical Manual (IETM) will be provided by you for technical literature mentioned above?	
	(vii) Can class room trainer & Computer/AR/VR based Training Packages for Maintenance Personnel be provided?	Yes / No
	(viii) Is there a requirement of periodic calibration of any Special Machine Tools/ Special Test Equipment's (SMTs/ STEs)/ Gauges (Ground Support Equipment / Ground Handling Equipment / Bay Servicing Equipment)? If yes, will you provide capability to undertake calibration, as part of Engineering Support Package?	Yes / No
	(p) <u>Built in Test Equipment (BITE).</u>	
	(i) Does your LAMV Version 1 have BITE to support diagnostics and repair through modular replacement?	
	(ii) Will your product or any of its sub system have counter to display cumulative usage to facilitate usage based preventive/ periodic maintenance?	Yes / No
	(iii) Which systems & sub-systems can have built in diagnostic facility?	
	(iv) Can diagnostic data & warnings be displayed on Visual Information Display Unit?	Yes / No
	(v) Will you provide any Automatic Diagnostic Tools with LAMV Version 1?	Yes / No
	(q) <u>Quality Assurance (QA).</u>	
	(i) Can you provide LAMV Version 1 as per QA standards mentioned in RFI?	Yes / No
	(ii) Mention systems & sub-systems which cannot be compliant to Military Standard 464C & 461E/F.	
	(iii) Mention details of systems which cannot be compliant to JSS-55555.	
	(r) <u>Training Aids.</u>	
	(i) Can training of personnel to include operational and maintenance training as asked in RFI be provided?	Yes / No
	(ii) Can AR/ VR and computer based training packages as asked in RFI be provided?	Yes / No
	(iii) Can sectionised working models and cut models as asked in RFI be provided?	Yes / No
	(iv) Can you provide a simulator for conducting training of driver of LAMV Version 1?	Yes/ No

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 1</u>	<u>Response</u>								
	(ab) All data to identify equivalent products available in India.									
	(ac) Will you provide all required Oils / Lubricant / Greases for life time maintenance?	Yes / No								
	(g) <u>Cooling System</u>									
	(i) What is the ideal operating temperature of LAMV Version 1?									
	(ii) What Type of cooling system will be provided?									
	(h) <u>Horn.</u> What type of horn will be provided?									
	(j) <u>Camouflage of LAMV Version 1.</u> Provide the following details :-									
	(i) Keeping the terrains specified in RFI, will you be able to provide different colour patterns to assist camouflage of LAMV Version 1 with the surroundings?									
	(ii) Can you provide anti thermal paint on outer surface of LAMV Version 1?									
	(k) <u>Software.</u>									
	(i) List of systems & sub-systems that will use software									
	(ii) Which software will not be indigenous?									
	(iii) Which software cannot be restored / reinstalled in field in case of any fault?									
	(iv) Will all softwares be up-gradable?	Yes / No								
	(v) Will license for all software be available with you?	Yes / No								
	(vi) <u>Software Security.</u> How is the software security being assured and what will be the debugging procedures?									
	(vii) <u>Artificial Intelligence (AI).</u> Is there any AI module incorporated in LAMV Version 1? If yes, give details.									
	(l) <u>Evaluation by Simulations & Certifications.</u> List out various parameters of LAMV Version 1 that can be evaluated through simulation/certification so as to enable incorporation of this aspect in the SQRs.									
	<table border="1" data-bbox="443 1184 1787 1294"> <thead> <tr> <th data-bbox="443 1184 551 1238"><u>S No</u></th> <th data-bbox="551 1184 875 1238"><u>RFI Parameters</u></th> <th data-bbox="875 1184 1346 1238"><u>Evaluation by Simulation</u></th> <th data-bbox="1346 1184 1787 1238"><u>Evaluation by Certification</u></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	<u>S No</u>	<u>RFI Parameters</u>	<u>Evaluation by Simulation</u>	<u>Evaluation by Certification</u>					
<u>S No</u>	<u>RFI Parameters</u>	<u>Evaluation by Simulation</u>	<u>Evaluation by Certification</u>							
	(m) Any other additional features/ relevant information that can be offered to make the LAMV Version 1 operationally more effective as per the operational parameters specified in the RFI									

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 1</u>	<u>Response</u>
9.	<u>Vendor Selection Criteria / Pre Qualification.</u>	
	(a) Is the Applicant Entity an Indian Company as defined under Companies Act 2013?	
	(b) Has the Applicant Entity or any of its allied entities ever been banned or suspended by MoD / SHQ of any Government Department or Organisation? Details of vigilance action viz ongoing investigations by any Department / agency of Central Government may be provided.	
	(c) Is the Applicant Entity a Manufacturing Entity or System Integrator or Trading Company?	
	(d) Does your Company have any previous experience / expertise in this field? Specify the field of expertise / experience of your company and duration of experience in years.	
	(e) Specify the turnover and net worth of your company in the last three (03) years.	
	(f) Is your Company under insolvency resolution as per Indian Bankruptcy Code?	
	(g) What is the Credit Rating of your Company equivalent to CRISIL rating?	
	(h) Does your Company qualify under Start Up or MSME Category?	

Appendix 'D'

(Refers to Paragraph 7(a) of Additional Directorate General of Mechanised Infantry Letter No A/36765/LAM /GS/Mech-7 dated 30 Jun 2022)

VENDOR RESPONSE FORM / QUESTIONNAIRE : LAMV VERSION 2

<u>Q No</u>	<u>Questionnaire</u>	<u>Response</u>
1.	Can you confirm that conditions mentioned at Paragraph 6 of RFI are acceptable?	Yes / No
2.	Can you indigenously design, develop & manufacture LAMV Version 2 as per technical parameters given in RFI with a minimum of 50% Indigenous Content (IC) as per provisions of para 21, Chapter 1 of DAP 2020 for procurement under Buy (Indian-IDDM) ?	Yes / No
3.	What is your desired procurement categorisation for this Project along with justification ?	
4.	Do you have a LAMV Version 2 prototype readily available for Trials?	Yes/ No
5.	How much time is required for design and development of LAMV Version 2 prototype if it is not readily available?	___ months
6.	Can you supply Quantity 800 LAMV @ 300 per year within 03 years of signing of contract?	Yes / No
7.	What will be your production capacity (numbers per year) and likely delivery schedule for quantity 800 LAMV from the date of signing contract?	_ Yrs @__/Yr
8.	Will your company possess Industrial License to carry out production of LAMV Version 2 in India?	Yes/ No
9.	Will your company be in a joint venture with a Foreign OEM?	Yes/ No
10.	Please provide List & Cost of systems & components that are likely to have Foreign Content .	
11.	Please specify Scope, Depth & Range of ToT for LAMV Version 2 that will be available from Foreign OEM for: -	
	(e) Design/ Development (if applicable).	
	(f) Manufacture of systems, sub-systems, assemblies, components, materials etc.	
	(g) List of Critical Technologies & Military Materials for which ToT is <u>not</u> likely to be provided by foreign partners	
12.	Does the company guarantee indigenous spares and maintenance support till end of life of LAMV Version 2?	Yes / No

13.	Indigenous Military Material. Based on volume of utilisation (<i>at production stage</i>), please provide details of systems & sub-systems where military material will be used from indigenous sources for LAMV Version 2 under following heads:-				
	S No	System	Sub-System	Indigenous Military Material will be Used	Reasons for Not Using Indigenous Military Material
	(a)	Material for Armour		Yes / No	
	(b)	Chassis		Yes / No	
	(c)	Automotive Systems		Yes / No	
	(d)	Hatches with mounting platform for weapons		Yes / No	
	(e)	Electronics and Battery		Yes / No	
	(f)	Tyres, Rubber Seals & Parts		Yes / No	
	(g)	Plastic / Composite		Yes / No	
	(h)	Any other System		Yes / No	
14.	Indigenous Software. Please provide details of systems, sub-systems & equipment which can use indigenous software for running applications in LAMV Version 2 :-				
	S No	System	Sub-System	Applications which will use Indigenous Software	Reasons for Not Using Indigenous Software
	(a)	Vehicle Information System with Built in Test Equipment (BITE) for Automotive Diagnostics		Yes / No	
	(b)	Tyre Pressure Monitoring System		Yes / No	
	(c)	Odometer, Trip Metre and Engine Temperature		Yes / No	
	(d)	Navigation(IRNSS and DSM Compatible)		Yes / No	
	(e)	Any other		Yes / No	
15.	Please provide tentative Basic Cost (separately for Quantity 400 and Quantity 800) in ₹ without any taxes and duties of following:-				Cost in ₹
	(a)	One LAMV Version 2 (separately for Quantity 400 and Quantity 800).			
	(b)	Cost of ESP/ AMC/ CAMC.			
	(c)	Cost of MRLS.			
	(d)	Cost of SMT.			
	(e)	Cost of STE .			
	(f)	Cost of 01 x set of Training Aggregates (including cut model of LAMV Version 2).			
16.	Please provide list of accredited laboratories (Indian/ International) that have certified your prototype/ systems/ sub systems (if any).				
17.	Have you supplied your vehicle to any foreign country, if yes, please provide the name of the country.				
18.	Para wise response on technical characteristics of LAMV Version 2 be submitted as per questionnaire of Annexure I to this Appendix.				

Annexure I

(Refers to Para 18 of Appendix 'D')

INFORMATION ON TECHNICAL CHARACTERISTICS OF PRODUCT OFFERED

Question	Questionnaire based on RFI for LAMV Version 2	Response														
3.	Can you supply LAMV Version 2 as per all technical parameters given at Appendix 'B' to the RFI?	Yes/No														
Note: Even if your reply to Question-1 above is 'YES', response to all questions below is mandatory.																
4.	(a) Briefly give out the configuration and description of your proposed LAMV Version 2 along with technical literature and photographs / sketches / CAD drawings including layout of seating arrangement & location of troops, layout of cargo compartment, hatch, placement of weapons, ammunition, stores etc.															
	(b) What service/operational life will be offered in proposed LAMV version 2 without any repair intervention / over haul?	__ Years														
	(c) Will proposed LAMV Version 2 perform operational tasks in the Plains and Desert in weather and temperature conditions mentioned in the RFI?	Yes/No														
	(d) Will proposed LAMV Version 2 perform operational tasks in High Altitude/ Mountain terrain including snow bound areas in weather and temperature conditions mentioned in the RFI?	Yes / No														
	(e) Configuration of LAMV Version 2. Will proposed LAMV Version 2 be a 4x4 Right Hand Drive Vehicle?	Yes / No														
	(f) Transportability															
	(i) Will the proposed LAMV Version 2 be able to meet requirements of air transportability by all in-service aircrafts of Indian Air Force to include IL-76, C-17 & C-130 aircrafts?	Yes / No														
(ii) Will the proposed LAMV Version 2 be transportable in underslung position by Boeing CH-47, Chinook Class Helicopter? If No, reasons for the same.	Yes / No															
(iii) Will the proposed LAMV Version 2 be transportable by broad-gauge railway military bogey?	Yes / No															
(g) Dimensions. Please mention the dimensions of proposed LAMV Version 2 in the following format:-																
	<table border="1"> <thead> <tr> <th>Name of Your LAMV Version 2</th> <th>Length (mm)</th> <th>Width (mm)</th> <th>Height less Retractable Mast and Hatch in Open Condition (mm)</th> <th>Payload Capacity (kg)</th> <th>Ground Clearance (mm)</th> <th>Troops Strength</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name of Your LAMV Version 2	Length (mm)	Width (mm)	Height less Retractable Mast and Hatch in Open Condition (mm)	Payload Capacity (kg)	Ground Clearance (mm)	Troops Strength								
Name of Your LAMV Version 2	Length (mm)	Width (mm)	Height less Retractable Mast and Hatch in Open Condition (mm)	Payload Capacity (kg)	Ground Clearance (mm)	Troops Strength										

Question	Questionnaire based on RFI for LAMV Version 2	Response
(h)	Mobility. Provide following details of your proposal for LAMV Version 2:-	
(i)	Weight. Please specify the Gross vehicle weight.	__ Ton
(ii)	Carrying Capacity (Combat Load). Will the proposed vehicle be able to carry full combat payload of 2.0 tons?	Yes/No
(iii)	Power to Weight Ratio. What Power to Weight ratio will be offered in your LAMV Version 2 in plains?	__ KW/Ton
(iv)	How much Power to Weight Ratio will be achieved in High Altitude Terrain?	__ KW/Ton
(j)	Speed. What <i>max speed</i> would be achieved by your LAMV Version 2 in following parameters:-	
(i)	Max speed on road.	__ kmph
(ii)	Max speed on road in reverse gear.	__ kmph
(iii)	Max speed off-road / cross country in plain terrain.	__ kmph
(iv)	Max speed off-road / cross country in desert terrain.	__ kmph
(v)	Max speed off-road / cross country in reverse gear.	__ kmph
(vi)	Acceleration on plain hard ground in terms of 0 to 60kmph in __ seconds of your product.	__ kmph
(k)	Obstacle Crossing Capability. What <i>max obstacle crossing capability</i> would be achieved:-	
(i)	Max gradient climbing on hard surface (concrete / stone).	__ degrees
(ii)	Max gradient climbing off-road in hard plain terrain / mountainous region.	__ degrees
(iii)	Max gradient climbing off-road in desert terrain (sand).	__ degrees
(iv)	Max side slope negotiation on hard surface (concrete / stone).	__ degrees
(v)	Max vertical step climbing on hard surface (concrete / stone).	__ meters
(vi)	Approach and Departure angle.	__ degrees
(vii)	Fording capability without preparation.	__ meters
(viii)	Will it be able to negotiate in-service Bridge Laying Tank (BLT)?	Yes/No
(l)	Cruising Ranges. What Cruising Ranges will be offered in your LAMV Version 2 in following parameters:-	
(i)	Max range that can be travelled on level road in plain terrain.	__ km
(ii)	Max range that can be travelled off-road / cross country in plain terrain.	__ km
(iii)	Total Fuel Capacity of Fuel Tank(s).	__ Litres
(iv)	Average Speed that is being considered for calculating Max Cruising Range.	__ kmph

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 2</u>	<u>Response</u>
(m)	Engine. What Engine Specifications will be offered in your LAMV Version 2 in following parameters:-	
(i)	Design, type & technical details of engine that will be provided for LAMV Version 2.	
(ii)	Name of original manufacturer of engine.	
(iii)	Max Engine Service Life (in kilometers and years).	__ Km & Year
(iv)	Min operating temperature (in degrees Celsius).	__ ° Celsius
(v)	Max operating temperature (in degrees Celsius).	__ ° Celsius
(vi)	What will be the life expectancy of engine without any repair intervention?	__ hours
(vii)	What will be Mean Time Between Failure (MTBF)?	__ hours
(viii)	Will a suitable system be provided for starting of LAMV Version 2 in low temperatures up to (-) 20°C?	Yes / No
(ix)	Max Power output in terms of Kilowatt per Ton (KW/T).	__ KW/T
(x)	Types of Fuel that can be used (mention grades).	
(xi)	Type of Fuel Injection System & Engine Cooling System that will be used.	
(xii)	Details of lubricants / oils and its grade.	
(xiii)	What will be the proposed location of engine exhaust pipe?	
(xiv)	What measures will be provided to reduce thermal & acoustic signatures of the engine?	
(n)	Transmission System. What specifications of Transmission System will be offered in LAMV Version 2 :-	
(i)	Will you provide fully automatic transmission system?	Yes / No
(ii)	Design, type & technical details of Transmission System that will be provided.	
(iii)	Name of original manufacturer of Transmission System.	
(iv)	Torque. Considering that LAMV Version 2 is supposed to fulfil a role entailing cross country movement and carriage of heavy loads, please provide Torque that will be available at various gear ratios and engine speed.	
(v)	Will you provide 'Shift on the fly' system for engaging 4x4 High/ Low gear with specification of minimum speed for engaging High/ Low gear ratios?	
(vi)	Gear ratios with speed for all forward & reverse gears.	
(vii)	Details & grades of Lubricants / oils.	
(viii)	What will be the life expectancy without any repair intervention?	__ hours
(ix)	What will be Mean Time Between Failure (MTBF) for your transmission system?	__ hours

Question	Questionnaire based on RFI for LAMV Version 2	Response
	(o) Steering System. What specifications of Steering System will be offered in your LAMV Version 2 in following parameters:-	
	(i) Design, type, technical details of Power Steering System that will be provided for LAMV Version 2.	
	(ii) Name of original manufacturer of Steering System.	
	(iii) Will an adjustable (Tilt / Telescopic) steering be provided?	__ mm
	(iv) What turning radius (in mm) will be offered in your LAMV Version 2?	__ mm
	(p) Suspension System. Specifications of Suspension System that will be offered in your LAMV Version 2:-	
	(i) Design, type, technical details of Suspension System.	
	(ii) What alternate suspension system will be offered?	
	(q) Braking System. What specifications of Braking System will be offered in your LAMV Version 2 in following parameters:-	
	(i) Design, type, technical details of Braking System that will be provided.	
	(ii) What alternate system will be provided for achieving braking in case the main system fails.	
	(iii) What Braking Distance will be achieved by your product at Gross Weight & 80 kmph on road.	__ m
	(iv) Will Main Brakes function when engine gets switched off while vehicle is still moving.	Yes/No
	(v) Will the Brakes hold LAMV Version 2 with gross weight on at least 35° gradient.	Yes/No
	(vi) Will you be able to provide audio & visual warnings to indicate manual/parking brake is engaged.	Yes/No
	(vii) Will you be able to provide Hill Hold Assist System for LAMV Version 2?	Yes/No
	(r) Self Recovery	
	(i) Will you provide a self-recovery winch in front of the vehicle with a cable of minimum 15 meter length and a suitable hook capable of recovering the fully laden vehicle?	Yes / No
	(ii) If no then specify the capability of your self-recovery mechanism?	
	(s) Tyres. What specifications of Tyres will be offered in your LAMV Version 2 in following parameters:-	
	(i) Design, type & technical details of Tyres that will be provided in LAMV Version 2.	
	(ii) What will be the life of tyres before replacement would be due.	__ kms
	(iii) Will mechanism for automatic tyre pressure monitoring system be provided.	Yes / No
	(iv) How many spare tyres will be provided per LAMV Version 2.	__ qty
	(v) Will tyres be able to be replaced by troops in field conditions without any workshop support.	Yes / No
	(vi) What provision will be provided for Run Flat Tyre System.	
	(vii) Will you provide Central Tyre Inflation System (CTIS) (to be operated from cabin itself)?	Yes / No

Question	Questionnaire based on RFI for LAMV Version 2	Response
	<p>(b) Water Protection. Provide details of Protection from water during fording that can be offered in your proposed LAMV Version 2 :-</p> <p>(i) Will the proposed LAMV Version 2 be able to ford without preparation?</p> <p>(ii) Will any water enter into LAMV Version 2 from vehicle floor or sides when all doors are shut?</p> <p>(iii) Any restriction / limit in terms of time of continuous exposure to water after which water proofing is likely to fail.</p> <p>(c) Protection Against Fire. Provide details of Protection against Fire/ Flame that will be offered in your proposed LAMV Version 2:-</p> <p>(i) Numbers of fire extinguishers that will be provided in the LAMV Version 2.</p> <p>(ii) Capacity of each fire extinguisher.</p> <p>(iii) What types of fire extinguishers will be provided.</p> <p>(iv) What will be the method of operation of fire extinguishers.</p> <p>(v) Type of gas/ chemical used for fire suppression.</p> <p>(vi) Passive Measures. Can fire resistant/ retardant material be used on surface of all internal & external systems, sub-systems & parts of LAMV Version 2 including fabric, plastic, rubber etc.</p> <p>(d) Engine and Sub-Assemblies Protection. Will you be able to provide steel/hardened front & rear bumpers and rock sliders for protection of engine and sub-assemblies at front and rear given the rugged employment of the vehicle?</p> <p>(e) Structural Strength. What arrangements will be provided for providing structural strength to the vehicle and safety of personnel and equipment stowed in the LAMV Version 2?</p>	<p>Yes / No</p> <p>Yes / No</p> <p>Yes / No</p> <p></p> <p></p> <p></p> <p>Yes / No</p> <p></p> <p>Yes / No</p> <p>Yes / No</p>
5.	<p>Communication System. Provide details of integration of Communication System in proposed LAMV Version 2</p> <p>(a) Can Quantity two 'In-Service' Radio Sets (BFE) be fitted inside cargo compartment of proposed LAMV Version 2?</p> <p>(b) Where will you place the secondary batteries (BFE) for the Radio Sets?</p> <p>(c) How will you connect antennas with radio sets?</p>	<p>Yes / No</p> <p></p> <p></p>
6.	<p>Navigation System. Provide details of Navigation System that will be offered in proposed LAMV Version 2:-</p> <p>(a) Can navigation system as per RFI be provided?</p> <p>(b) Will the navigation system be compatible with IRNSS and DSM?</p> <p>(c) How will instructions be fed into your navigation system?</p> <p>(d) Will navigation data including route and related information be displayed on Visual Information Display Unit?</p>	<p>Yes / No</p> <p>Yes / No</p> <p></p> <p>Yes / No</p>

Question	Questionnaire based on RFI for LAMV Version 2	Response
7.	Miscellaneous Technical Specifications. Provide details of following that will be offered in proposed LAMV Version 2:-	
	(b) Sub-systems & Assemblies. (i) Which systems & sub-systems would be modular with easy accessibility to ensure quick replacement of faulty modules/sub assemblies?	
	(ii) Can all instructions/ markings inside LAMV Version 2 be provided in English and instructions in manuals and literature be provided in English & Hindi language?	Yes / No
	(b) Environmental Control Unit (ECU).	
	(vi) Give technical specifications to include power consumption and performance parameters.	
	(vii) Will desired temperature at ambient temperature ranges mentioned in RFI be provided?	Yes / No
	(viii) What will be the source of electric & mechanical power for functioning of the System?	
	(ix) Give out max & min ambient temperatures under which ECU will provide desired temperatures.	_° & _°
	(x) Will you be able to provide a defogger & demister for windscreen and glasses (connected to ECU)?	Yes / No
	(c) Power Backup.	
	(i) Will you be able to provide Technical Specifications of your Power backup	
	(ii) Will power backup ensure seamless working of all on board electrical systems as defined in RFI when engine is switched off?	Yes / No
	(iii) Will you be able to provide charging system to charge minimum four 110 AH capacity batteries in ENGINE ON condition other than main vehicle battery ?	Yes / No
	(iv) Will you be able to provide variable charging facility of four points comprising of two standard 12 Volt charging points and two 05 ampere 220 Volt points?	Yes / No
	(v) Will you be able to provide silent 1 KVA generator with capability to provide charging for Radio set batteries as well as other batteries of Integrated Surveillance and Targeting System and Continuous Unmanned Surveillance Tied System and provide power to Continuous Unmanned Surveillance Tied System directly.	
	(d) Ergonomics.	
	(i) How much leg room will be provided to each passenger (in mm)?	__ mm
	(ii) What will be the orientation for each personnel while seated in relation to front?	
	(iii) What additional ergonomic comforts / facilities will be provided to personnel which facilitates 72 hours continuous seating under operational conditions?	

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 2</u>	<u>Response</u>
(e)	<u>Seats.</u>	
(i)	Will height adjustable seats with head rest be provided for personnel?	Yes / No
(ii)	What type of seat belts will be provided to ensure comfort & safety?	
(iii)	Will you be able to provide ventilated seats?	Yes / No
(f)	<u>Accesses to Vehicle or Entry/Exit for Personnel.</u>	
(iv)	Will individual doors be provided for entry/exit of each personnel?	Yes / No
(v)	Type & Quantity of doors being provided on both sides and rear of vehicle?	
(vi)	Will these doors be able to be operated from both inside and outside the LAMV Version 2?	Yes / No
(g)	<u>Stowage Facility.</u> Provide material and dimension details for modular & directly accessible stowage facility in forms of Racks/ Brackets/ Clamps provided in cargo compartment for following in LAMV Version 2:-	
	(xiii) Minimum four ammunition boxes & 1500 rounds of 12.7mm ammunition in belted condition First-aid kit and provision for stowage of ammunition of 81 mm AT AL SGL.	Dimensions
	(xiv) Minimum two in-service Radio Sets	Dimensions
	(xv) One in-service HHTI with carriage case	Dimensions
	(xvi) One 1 KVA Generator Set	Dimensions
	(xvii) Haversacks of minimum four personnel	Dimensions
	(xviii) In-service Marking Poles and Camouflage Net with poles	Dimensions
	(xix) Minimum four personnel weapon	Dimensions
	(xx) Provision of Remote Control Weapon System	Dimensions
	(xxi) Stowage boxes for Recce Stores and Administrative stores including FOL Jerrycans.	Dimensions
	(xxii) Spares Parts, Tools and Accessories (SPTA)	Dimensions
	(xxiii) In-service pick axe and shovel	Dimensions
	(xxiv) Provision for mounting of Inservice Ground Position Antenna	Dimensions
	(xxv) Provision for storage and mounting of Integrated Surveillance and Targeting System along with ammunition of the system	Dimensions
	(xxvi) Provision for storage and mounting of Continuous Unmanned Surveillance Tied System	Dimensions

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 2</u>	<u>Response</u>
(h)	<u>Water Storage.</u>	
(i)	Will the water tanks be modular or fixed?	
(ii)	Number of water tanks with their capacity and location on LAMV Version 2	
(iii)	How will the water tanks be cleaned / drained?	Yes / No
(iv)	What will be the mode of filling of water in the tanks?	
(j)	<u>Tow Hooks.</u>	
(vi)	What provision will you provide for towing of LAMV Version 2?	
(vii)	Where will you place the tow hooks for recovery of LAMV Version 2?	
(viii)	How many tow hooks will be provided on front and rear?	
(ix)	How many Tow Bar and Chains will be provided?	
(x)	If proposed LAMV Version 2 be able to be carried in underslung position by Boeing CH-47 Chinook Class Helicopter, how many hooks will be provided for the same?	
(k)	<u>Lighting Arrangements.</u>	
(vi)	Will Lighting arrangements be provided as per technical parameters of RFI?	Yes / No
(vii)	Will you be able to provide LED or Projector Headlamps?	Yes / No
(viii)	Can the brightness of Visual Information Display Unit & Driver Display Unit be dimmed?	Yes / No
(ix)	Will facility for blackout arrangements as specified in technical parameters of RFI be provided?	Yes / No
(x)	What will be the wattage of each lighting arrangement?	
(l)	<u>Miscellaneous fitments on LAMV Version 2.</u>	
(vi)	How many internally adjustable side view and rear view mirrors will be fitted on LAMV Version 2 and their method of adjustment?	
(vii)	What is the dimension of Windscreen or windshield fitted on LAMV Version 2?	Dimension
(viii)	How many windscreen wipers with intermittent, low and high speed are on LAMV Version 2?	
(ix)	How many External blower/ other arrangements to remove sand/ dust from windscreen are provided on LAMV Version 2?	
(x)	Can you provide a 360° Camera with display on Visual Information Display Unit?	
(m)	<u>Reliability.</u> What will be the Maximum Mean Time Between Failure (MTBF) of under mentioned systems:-	
(i)	Engine and Transmission System (in hrs)	__ hrs
(ii)	Electrical Assemblies / sub-assemblies (in hrs)	__ hrs
(iii)	Visual Information Display Unit	__ hrs

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 2</u>	<u>Response</u>
	(n) <u>Maintainability.</u>	
	(i) Will modular systems to enable quick replacement & repair at field workshop level be provided?	Yes / No
	(ii) What will be your MRO philosophy?	Yes / No
	(iii) Will MRO philosophy be aligned to levels of repairs as sought in RFI?	Yes / No
	(iv) Please provide details of repairs which can be undertaken at following levels:-	
	(aa) Unit (Organizational 1 (O1)) Level.	
	(ab) Field (Organizational 2 (O2)) Level.	
	(ac) Intermediate (I) Level.	
	(ad) Base (Depot (D)) Level.	
	(v) Will you provide 'Engineering Support Package (ESP)' for lifetime sustenance of equipment for various echelons of repairs to include following :-	
	(aa) Special Machine Tools (SMT) for maintenance and repair related tasks.	Yes / No
	(ab) Special Test Equipment /Test Jigs for diagnostics to support maintenance & repair tasks.	Yes / No
	(ac) Inspection gauges to check serviceability standards/ tolerances.	Yes / No
	(ad) Spares, to include sub-assemblies as well as spares for Component Level Repairs (CLR).	Yes / No
	(ae) Technical Literature to include Illustrated Spare Part List (ISPL) and manuals covering all aspects related to operation, maintenance, diagnostics and repair at various echelons.	
	(af) Training aggregates/aids for operator, quality assurance & maintenance personnel.	
	(ag) Inspection standards to ascertain serviceability of equipment as well as its modules/ components.	Yes / No
	(ah) Does the vendor have major repair & overhaul facility for assemblies & component level repairs?	
	(aj) Are you willing to undertake Annual Maintenance Contract (AMC) for the Special Test Equipment (STEs)? If yes, what is the indicative cost in terms of percentage of cost of Special Test Equipment (STEs)?	Yes / No ____%
	(ak) How many sub vendors are involved in manufacturing of LAMV Version 2? Is product support from all sub vendors also assured for the same period as committed by you? Will the ESP be provided by OEM itself or will it be outsourced from sub vendors?	

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 2</u>	<u>Response</u>
	(al) What is the period for which you commit the product support for sustenance of equipment in terms of supply of spares/ AMC/ calibration etc?	
	(vi) What Class of Interactive Electronic Technical Manual (IETM) will be provided by you for technical literature mentioned above?	
	(vii) Can class room trainer & Computer/AR/VR based Training Packages for Maintenance Personnel be provided?	Yes / No
	(viii) Is there a requirement of periodic calibration of any Special Machine Tools/ Special Test Equipment's (SMTs/ STEs)/ Gauges (Ground Support Equipment / Ground Handling Equipment / Bay Servicing Equipment? If yes, will you provide capability to undertake calibration, as part of Engineering Support Package?	Yes / No
	(o) <u>Built in Test Equipment (BITE).</u>	
	(vi) Will your LAMV Version 2 have BITE to support diagnostics and repair through modular replacement?	
	(vii) Will your product or any of its sub system have counter to display cumulative usage to facilitate usage based preventive/ periodic maintenance?	Yes / No
	(viii) Which systems & sub-systems will have built in diagnostic facility?	
	(ix) Will diagnostic data & warnings be displayed on Visual Information Display Unit?	Yes / No
	(x) Will you provide any Automatic Diagnostic Tools with LAMV Version 2?	Yes / No
	(p) <u>Quality Assurance (QA).</u>	
	(i) Will you provide LAMV Version 2 as per QA standards mentioned in RFI?	Yes / No
	(ii) Mention systems & sub-systems which cannot be compliant to Military Standard 464C & 461E/F.	
	(iii) Mention details of systems which cannot be compliant to JSS-55555.	
	(q) <u>Training Aids.</u>	
	(i) Can training of personnel to include operational and maintenance training as asked in RFI be provided?	Yes / No
	(ii) Can AR/ VR and computer based training packages as asked in RFI be provided?	Yes / No
	(iii) Can sectionised working models and cut models as asked in RFI be provided?	Yes / No
	(iv) Can you provide a simulator for conducting training of driver of LAMV Version 2?	Yes/ No

Question	Questionnaire based on RFI for LAMV Version 2	Response
	<p>(r) Visual Information Display Units(VIDU).</p> <p>(i) Will you be able to provide two separate VIDU in the crew compartment, One VIDU with sound output and speakers to display navigation system output, IFF display and connect with Radio sets(for data display) alongwith separate VIDU for commander giving inputs of Continuous Unmanned Surveillance Tied System and Remote Vehicle Terminal of Integrated Surveillance and Targeting System.</p> <p>(ii) Provide technical specifications of VIDU including sound output.</p> <p>(iii) Will VIDU be integrated to display navigation system on screen?</p> <p>(iv) Is touch screen facility being provided?</p> <p>(v) Will video feed / display on VIDU be in real time with zero latency?</p> <p>(vi) Will VIDU display HD coloured images / videos?</p> <p>(vii) Will VIDU be able to connect to Laptop/ Smart Phone/ Tablet?</p> <p>(viii) Will VIDU be able to integrate Identification of Friend and Foe(IFF) technology in future to transmit & update own navigation data to other LAMVs Version 2 and receive, display & update location of other LAMVs Version 2?</p> <p>(ix) Will one VIDU be able to integrate feed from Integrated Surveillance and Targeting System and Continuous Surveillance Tied System?</p>	<p>Yes / No</p> <p></p> <p>Yes / No</p>
8.	<p>Additional Questions</p> <p>(a) Comprehensive AMC. Are you willing to undertake Comprehensive Annual Maintenance Contract (CAMC) ? If yes, what is the indicative cost in terms of percentage of cost of per unit LAMV Version 2</p> <p>(b) Bharat Stage Compliance. Which Bharat Stage specifications will LAMV Version 2 be compliant ?</p> <p>(c) Procurement of Spares on GeM. Will the spare parts and services be provided on GeM?</p> <p>(h) Warranty and Free Services. How many years / kms warranty is being offered. How many free services are being offered during warranty period?</p> <p>(e) Upgrades. Can the LAMV Version 2 be upgraded? If yes then, which all technological/ performance enhancement upgrades can be provided?</p> <p>(f) Fuel, Oils & Lubricants. Following details to be provided:-</p> <p>(i) Details of oils, lubricants and greases required along with their scales & periodicity of change</p> <p>(ii) IS specification of oils, lubricants and greases that will be utilised in your LAMV Version 2</p> <p>(iii) In case IS specification of any product is not available, then can you manufacture it in India?</p>	<p>Yes / No _ %</p> <p></p> <p></p> <p></p> <p>Yes / No</p> <p></p> <p></p> <p>Yes / No</p>

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 2</u>	<u>Response</u>								
	(iv) Which systems & sub-systems cannot use existing grades of oils, lubricants and greases that are being utilised / procured by Indian Army?									
	(v) In case Propriety / Brand Specific Products are recommended, then please provide:-									
	(aa) Details of original manufacturer along with full address and rates of items.									
	(ab) All data to identify equivalent products available in India.									
	(ac) Will you provide all required Oils / Lubricant / Greases for life time maintenance?	Yes / No								
	(g) <u>Cooling System</u>									
	(i) What will be the ideal operating temperature of LAMV Version 2?									
	(ii) What Type of cooling system will be provided?									
	(h) <u>Camouflage of LAMV Version 2.</u> Provide the following details :-									
	(i) Keeping the terrains specified in RFI, will you be able to provide different color patterns to assist camouflage of LAMV Version 2 with the surroundings?									
	(ii) Can you provide anti thermal paint on outer surface of LAMV Version 2?									
	(j) <u>Software.</u>									
	(i) List of systems & sub-systems that will use software									
	(ii) Which software will not be indigenous?									
	(iii) Which software cannot be restored / reinstalled in field in case of any fault?									
	(iv) Will all softwares be up-gradable?	Yes / No								
	(v) Will license for all software be available with you?	Yes / No								
	(vi) <u>Software Security.</u> How is the software security being assured and what will be the debugging procedures?									
	(vii) <u>Artificial Intelligence (AI).</u> Is there any AI module incorporated in LAMV Version 2? If yes, give details.	Yes / No								
	(k) <u>Evaluation by Simulations & Certifications.</u> List out various parameters of LAMV Version 2 that can be evaluated through simulation/certification so as to enable incorporation of this aspect in the SQRs.									
	<table border="1" data-bbox="443 1302 1787 1414"> <thead> <tr> <th data-bbox="443 1302 548 1358">S No</th> <th data-bbox="548 1302 871 1358"><u>RFI Parameters</u></th> <th data-bbox="871 1302 1341 1358"><u>Evaluation by Simulation</u></th> <th data-bbox="1341 1302 1787 1358"><u>Evaluation by Certification</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="443 1358 548 1414"></td> <td data-bbox="548 1358 871 1414"></td> <td data-bbox="871 1358 1341 1414"></td> <td data-bbox="1341 1358 1787 1414"></td> </tr> </tbody> </table>		S No	<u>RFI Parameters</u>	<u>Evaluation by Simulation</u>	<u>Evaluation by Certification</u>				
S No	<u>RFI Parameters</u>	<u>Evaluation by Simulation</u>	<u>Evaluation by Certification</u>							

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 2</u>	<u>Response</u>
	(b) Please provide tentative Basic Cost in ₹ without any taxes and duties of following:-	Cost in ₹
	(i) One Continuous Unmanned Surveillance Tied System.	
	(ii) Cost of ESP/ AMC/ CAMC.	
	(iii) Cost of MRLS.	
	(iv) Cost of SMT.	
	(v) Cost of STE.	
	(vi) Cost of 01 x set of Training Aggregates.	
	(c) <u>Maintainability.</u>	
	(i) Will the system conform to MIL Standards and JSS – 55555 2012 Revision 3 Standards (as applicable to the equipment)? Applicability of these standards and permissible variations will be mutually agreed during development.	
	(ii) Will it conform to applicable EMI/EMC tests?	Yes / No
	(iii) Are the software developed for the system be upgradable to address obsolescence issues?	Yes / No
	(iv) Will the system be repairable in an acceptable timeframe under field conditions?	Yes / No
	(d) <u>Dimensions and Wt.</u>	
	(i) Provide the basic dimensions of Continuous Unmanned Surveillance Tied System fitted inside LAMV Version 2.	Dimension
	(ii) Provide the weight of Continuous Unmanned Surveillance Tied System.	__Ton
	(e) <u>Integration with LAMV Version 2.</u>	
	(i) Provide details of Integration of Continuous Unmanned Surveillance Tied System alongwith LAMV Version 2.	
	(ii) Provide details of provision of controls and feed of Continuous Unmanned Surveillance Tied System.	
	(iii) Provision of controls and feed of Continuous Unmanned Surveillance Tied System to be provided with the commander in the crew compartment.	
	(iv) Provide details of stowage of Continuous Unmanned Surveillance Tied System.	
	(v) Will you be able to provide a common display for Continuous Unmanned Surveillance Tied System and controls of Remote Vehicle Terminal of Integrated Surveillance and Targeting System.	Yes / No

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 2</u>	<u>Response</u>
11.	<u>Integrated Surveillance and Targeting System.</u> Will you be able to provide an Integrated Surveillance and Targeting System alongwith LAMV Version 2 with following details:-	Yes / No
	(a) Will you be able to provide Integrated Surveillance and Targeting System along with the following details:-	
	(i) Will it be able to operate in Day and night operation modes with EO/ IR sensors.	Yes / No
	(ii) Will the system be able to operate in Fully autonomous mode with option for mission planning control by the pilot from the LAMV Version 2.	Yes / No
	(iii) Will the system be able to transmit high resolution live feed observed in real time.	Yes / No
	(iv) Will the system be able to transmit accurate coordinates and data of targets identified during the flight.	Yes / No
	(v) <u>Range & Flight Endurance.</u> Will the range of surveillance drone be minimum 15 kms (one way) with an endurance of minimum 90 minutes.	Yes / No
	(vi) Will the system able to be launched and controlled from within the LAMV Version 2.	Yes / No
	(vii) <u>Operating Altitude.</u> Will the system able to operate in both plains and High Altitude Area at altitudes of up to 5500 mtr Above Mean Sea Level.	Yes / No
	(viii) <u>Artificial Intelligence Enabled Target Identification.</u> Will the surveillance drone and loiter munition system have AI enabled target identification algorithms suitability integrated in the architecture?	Yes / No
	(ix) <u>Recovery.</u> Will both drone & loiter munition be able to return post the mission or under adverse conditions and be able to be recovered and reused subsequently?	Yes / No
	(x) <u>Loiter Munition System.</u> Will the Integrated Surveillance and Targeting System alongwith LAMV Version 2 have Loiter munition with capability of a tube launched system with capability to observe, identify and destroy non line of sight targets with control duly incorporating the inputs received from surveillance drone?	Yes / No
	(xi) Will the munition be tube launched with tubes fitted on the LAMV Version 2 as one tube in one system?	
	(xii) <u>Control Unit.</u> Will a ruggedized and compact GCS be carried / fitted on the LAMV Version 2 for the commander?	
	(xiii) <u>Security.</u> Will the system have suitable anti jamming / spoofing features both for GPS navigation and secure communication link? Will the system be able to operate in a GPS degraded/denied environment?	

<u>Question</u>	<u>Questionnaire based on RFI for LAMV Version 2</u>	<u>Response</u>
	(b) Please provide tentative Basic Cost in ₹ without any taxes and duties of following:-	Cost in ₹
	(i) One Integrated Surveillance and Targeting System.	
	(ii) Cost of ESP/ AMC/ CAMC.	
	(iii) Cost of MRLS.	
	(iv) Cost of SMT.	
	(v) Cost of STE .	
	(vi) Cost of 01 x set of Training Aggregates.	
	(c) <u>Maintainability.</u>	
	(i) Will the system conform to MIL Standards and relevant JSS – 55555 2012 Revision 3 Standards (as applicable to the equipment)? Applicability of these standards and permissible variations will be mutually agreed during development.	
	(ii) Will it conform to applicable EMI/EMC tests?	Yes / No
	(iii) Will the software developed for the system be upgradable to address obsolescence issues?	Yes / No
	(iv) Will the system be repairable in an acceptable timeframe under field conditions?	Yes / No
	(d) <u>Dimensions and Weight</u>	
	(i) Provide the basic dimensions of Integrated Surveillance and Targeting System.	Dimension
	(ii) Provide the weight of Integrated Surveillance and Targeting System along with ammunition.	__Ton
	(e) <u>Integration with LAMV Version 2.</u>	
	(i) Provide details of Integration of Integrated Surveillance and Targeting System alongwith LAMV Version 2.	
	(ii) Provide details of provision of controls and feed of Integrated Surveillance and Targeting System(to be provided with commander in crew compartment).	
	(iii) Provide details of stowage of Integrated Surveillance and Targeting System along with ammunition inside LAMV Version 2.	
	(iv) Will you be able to provide a common display for Continuous Unmanned Surveillance Tied System and controls of Remote Vehicle Terminal of Integrated Surveillance and Targeting System?	Yes / No

