



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार)

National Highways Authority of India

(Ministry of Road Transport and Highways, Government of India)

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NHAI/ Policy Guidelines/ Road Safety/ 2024

Policy Circular No.12.36/2024 dated 12th December, 2024

{Decision taken on E-Office File No. RMDIV-21/1/2024-RMD Division (Comp. No. 266572)}

Sub: Amendment to NHAI/ Policy Guidelines/ Strengthening the Incident Management Services/ 2019 Policy Circular No. 12.19 dated the 20th March 2018- reg.

Route Patrolling Operations play a critical role in maintaining Safety and ensuring smooth traffic flow on Highways/Designated Routes. Route Patrol Vehicles (RPVs) are deployed to conduct routine inspections of Highway stretch, monitor and respond to incidents / near-miss incidents and provide immediate assistance to road users in emergency situations. Equipped with trained Manpower, advanced Communication and Safety Tools, these Vehicles are essential for upholding regulatory standards, minimizing traffic disruptions, improving Road Safety and enhancing overall Road User experience along our Highways.

2. The detailed specifications for the Patrol Vehicle have been outlined under Annexure-1 of NHAI/Policy Guidelines/ Strengthening the Incident Management services/2018 Policy Circular No.12.19, dated the 20th March 2018. With the recent Technological Advances and experience gained, it has been decided to update the above-mentioned specifications. Accordingly, the specifications of the Patrol Vehicles deputed on the National Highways stands amended and replaced by the specifications stipulated in **Appendix-I** of this Circular. In consideration of the same:

- i. New Route Patrol Vehicles (RPVs) hired/procured henceforth shall be in accordance with these specifications.
- ii. The existing RPVs undertaking route patrolling tasks across various Highways of NHAI shall be upgraded as per these specifications within a period of six months from the date of issuance of this Circular at no additional cost.
- iii. However, the cost of CAMERA with AI Software, only shall be borne by NHAI.
- iv. Provision for installation of Dashboard Cameras is to be provided in the existing RPV units. The data/ video footage including Road distresses using the Dashboard Camera shall be collected in the presence of concerned Authority Engineer (AE) and a Representative of Project Implementation Units (PIU), NHAI. This Road distresses data must be uploaded by the AE on NHAI One application. Further, this data from the Dashboard Cameras shall be provided by the PIUs to the NHAI HQ on monthly basis. Detailed SOP in this regard shall be issued separately by NHAI HQ.
- v. Approval of these modifications/alterations with respect to CMVR Provisions/RTO Regulations shall be taken at RO Level with concerned State Governments.

Contd...2/-

3. This Policy also outlines the functions of Route Patrolling along our Highways, Details on Components of Route Patrolling including Route Patrolling Vehicle (RPV), Inventory in RPV and Manpower requirements in RPV with their broad Responsibilities are stipulated at **Appendix-II** and **Appendix-III** of this Circular respectively.

4. This issues with the approval of Competent Authority.



(CS. Sanjay Kumar Patel)
General Manager (Coord.)

To:

All Officers of NHAI HQ/ ROs/ PIUs/ CMUs/ Site Offices

Copy to:

1. Hindi Division for translation in Hindi.
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Patrol Vehicle Specifications

Every Route Patrol Vehicle (RPV) should adhere to the minimum specifications as described below:

General Vehicle

Sr. No.	Type	Description
1	Vehicle type	- RPV should be a large size Sport Utility Vehicle (SUV) or Multi Utility Vehicle (MUV) with a seating capacity of minimum 4 people including the driver. - RPV should be able to accelerate from 0km/ h to 80 km/ h within 20s when tested in accordance with IS: 11851-1986. - The Route Patrol Vehicle (RPV) should be capable of maintaining stable and controlled movement in case an emergency situation demands high speed movement. - The RPV should be a new vehicle and should not have covered more than 2000 km (mileage) at the time of procurement. Once a vehicle has either exceeded 3,00,000 kilometers or has been in operation for three years, whichever occurs first, it shall be replaced with new RPV. - Rear or trunk of RPV shall be of closed ceiling with cabinet shelves and dedicated space of each equipment and inventory. The shelves shall be so designed that accessing any equipment shall be quick, easy and with least dependency on any other equipment. Cabinet design with dimensions shall be as shown in Figure 2. It may be noted that, closed cabinet storage-based design has been prepared to accommodate all proposed inventory in RPV and to facilitate easy accessibility during incident handling. It may further be noted that, the dimensions mentioned in Figure 2 are minimum requirements to accommodate the inventory. Improvisation in the shared design / layout arrangement shall not be conducted, unless otherwise approved by the concerning authority based on project specific / region specific requirements.
2	External Appearance	Emblems, Logo, Marking & Colour Scheme: To maintain uniformity across the country, external appearance of RPV shall be as shown in figure 1. - Complete body exterior should be painted with PU base 2K paint, white in colour with red stripe pattern as shown in the image below. The placement, font style, size and overall dimensions of Logo, authority name and emergency number shall be followed as shown in figure 1 and as described below. - RPV should have "RAJMARG SAATHI", "NHAI", "SPV" Logo, texts "NHAI" & "HIGHWAY PATROL UNIT" written on the vehicle as shown in figure 1.

Sr. No.	Type	Description
		○ On the storage cabinet: Diameter of logos (NHAI and RAJMARG SAATHI) shall be 550mm and font height of letter "HIGHWAY PATROL UNIT" shall be 60mm. ○ On the Passenger Doors: Diameter of logos (NHAI and SPV) shall be 500mm. ○ On bonnet: Diameter of "NHAI" logo shall be 550mm. ○ Font Height of "NHAI" written on the trunk body shall be 200mm height. ○ Font style English: "Arial Black" & Font style Hindi: "Krutidev 040". ○ Font colour shall be followed as per the colour scheme shown in the figure 1. • Rear of the vehicle shall be provided with fluorescent yellow and red stripe pattern with reflective paint as shown in the image. The stripes must slope downward and away from the centre line of the vehicle at an angle of 45°. Each stripe must be 6-inches wide and in an alternating pattern of red and yellow. Additionally, retroreflective striping inside vehicle doors is essential to maintain conspicuity and alerting to the passing drivers when the doors are opened.
3	Lighting and Illumination	The RPV shall be equipped with fog lamps, warning lights, a roof-mounted rear bar light and a front LED bar light with siren, in addition to standard vehicle indicators, headlamps, and tail lamps. Warning Lights: The warning light system shall be installed externally as per the specified arrangement, colour, and size detailed in the image provided. These lights shall alternate between red and blue colours, flashing at a rate of 60 to 90 flashes per minute. To help other drivers recognize the RPV's operational status, distinct emergency lighting patterns shall be used to differentiate between a moving and stationary vehicle. This can be achieved through various strobe patterns, light configurations, and colour sequencing. Roof-Mounted Rear Bar Light: The roof-mounted rear bar light shall be programmed to flash at 60 to 90 flashes per minute in alternating red and blue colours. All light assemblies must be made of weatherproof materials to prevent electrolysis and corrosion between the light housing and the vehicle body.
4	Siren with Public Address System	A high-quality combination electronic siren with Integrated Public Addressing System of minimum 100W (PMPO) shall be provided. The siren's controls should have full range volume control and should permit the following sounds: Manual, Wail, and Yelp. The siren sweep rate should be 10-18 cycles per minute. The microphone should be of a noise-cancelling type. Siren/Speakers shall not protrude beyond the face of the bumper or bumper guards if provided in there. The control panel for this system should be fixed at a suitable location in the driver compartment.

Sr. No.	Type	Description
5	Cameras for Intelligent Support	A Dashboard camera with GPS with AI video analytics fixed on the front dashboard positioned to capture the view of the highway, and identify road defects like cracks and potholes respectively shall be installed in the RPV. It should possess advanced capabilities beyond mere recording. Dashboard camera to be equipped with AI-powered object detection and classification algorithms to automatically identify and categorize various elements of the road environment, including vehicles, pedestrians, road signs, and infrastructure. Minimum Specifications for Cameras: • 2Megapixel, 1920x1080 at 30fps, FOV (D:125, H:105, V:58). • Operating Environment: Temperature: -20 to +70 degrees Celsius, humidity: 10% to 90%, atmospheric pressure: 860mbar to 1080mbar. • Memory Storage: minimum 256GB. • Support: Wifi, 4G (minimum), GPS, 2GB RAM, G-sensor (3axis acceleration sensors). • Camera shall support IR capabilities. This data can then be used to create a comprehensive inventory database of road features, aiding in infrastructure management, route planning, and hazard identification.
6	Route Patrol Personnel	Recognition of personnel All PV Personnel should wear brilliant blue color uniform including brilliant blue color jackets required in winters with reflective stripes, authority name, logo (NHAI & RAJMARG SAATHI logo). Safety garments for PV personnel should conform to at least ISO 14116:2008. Steel-toe Safety Boots to protect against impact and falling objects with slip resistant sole and ankle support shall be used at all times. Uniforms should be clean, well-maintained and free of tears or excessive wear for a professional appearance. Avoid Loose or Dangling Accessories: Minimize wearing any loose items that could catch on equipment or pose a safety risk.

The branding and recognition pattern of RPV described above should resemble with the one shown in the sketches below:



Figure 1: Side and Rear view of the RPV

1033

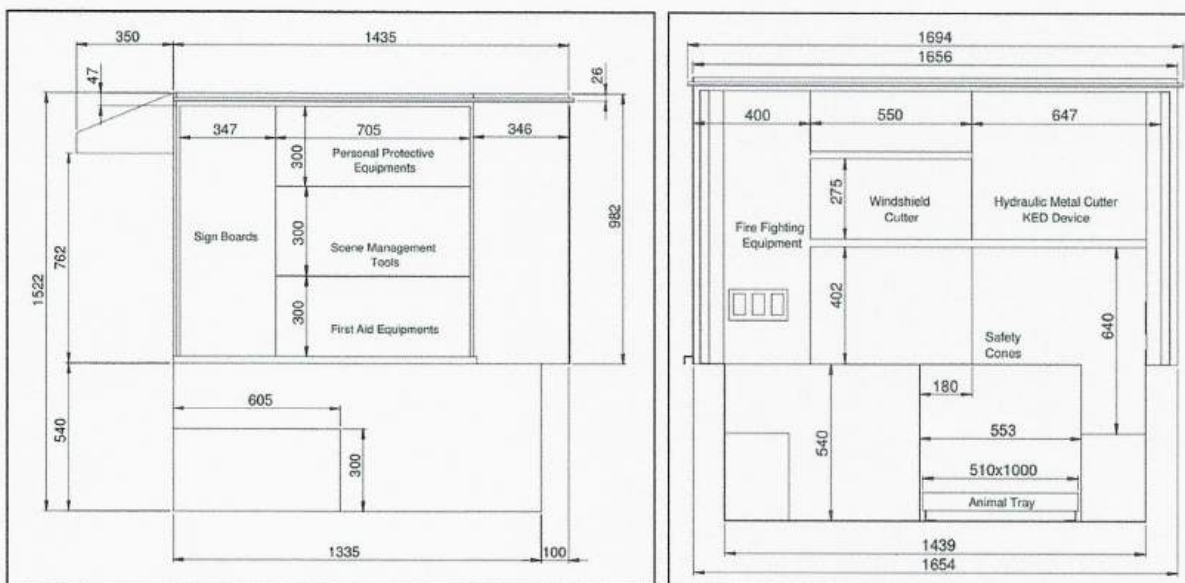
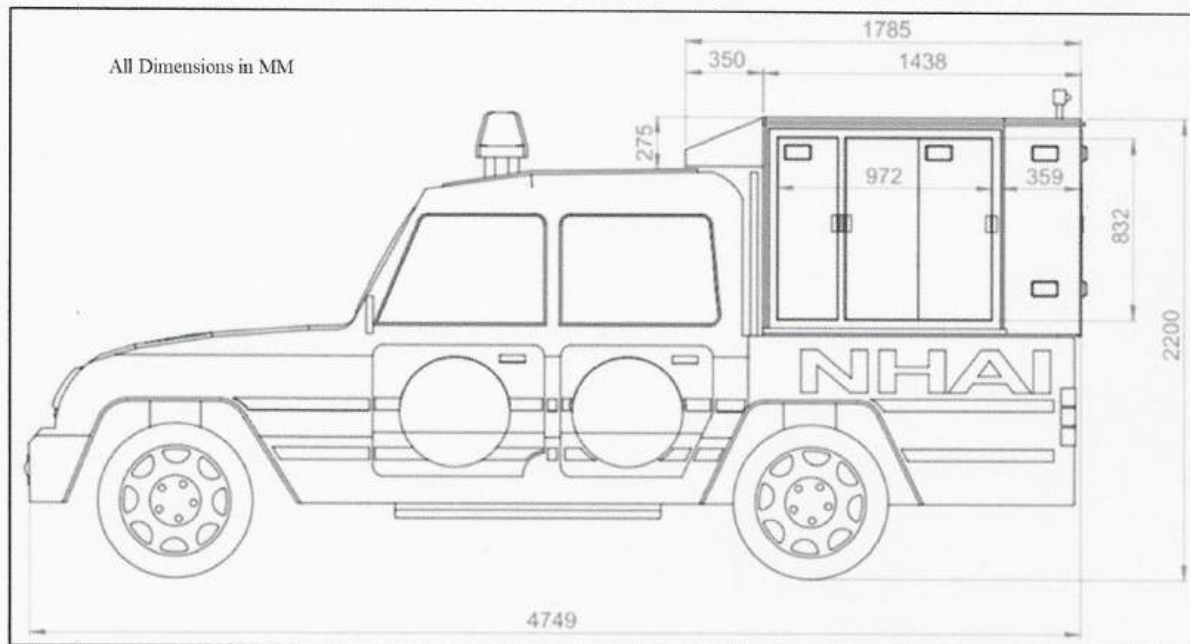


Figure 2: Cabinet-Storage Based Route Patrolling Vehicle Arrangement

102

Appendix-II

Equipment and Inventory in Route Patrolling Van

Following are the list of equipment and specification of each to be kept in working condition in every RPV:

S. No.	Type	Description
1	Tracking Equipment	Automatic vehicle tracking system with GPS technology for tracking vehicle's current location; GPS Technology shall be in accordance with AIS-140 requirement of Vehicle Tracking System (VTS) of NHAI
2	Communication Equipment	• 1 Mobile communication device with camera and internet connectivity. • 1 Two- way radio device with antennae or better technology for mobile communication, for communication with on-road control room units. It should have a sufficient range to communicate in the entire section with sufficient battery life (12 hours+). This is mandatory along highways having telephonic blackspot locations. • 1 Siren with Public Address System as mentioned in the vehicle description in the table above. • Dashboard camera with GPS and AI video analytics fixed on the front dashboard.
3	General Surveillance Equipment	• White color high intensity torch lights with two set of spare batteries (2Nos) • Orange color reflective safety jacket and Gum boots (3 Nos sets, 1 for each attendant) • Helmet with whistle attached on side (3 Nos sets, 1 for each attendant) • Rain suit with reflective strips (3 Nos, 1 for each attendant) • 5L capacity liquid containers for carrying fuel along with a funnel (2 Nos, one for each: petrol and diesel) • Drinking Water container with 5L capacity (1No) • Rope of minimum 20 m length (1Nos) (suitable to tow LMV) • Red color reflective flags made of santoon fabric, dimension of 600x900mm (5Nos) • Baton lights, red and green color, 21inch length and 1.25-inch diameter (2Nos)

S. No.	Type	Description
4	Vehicle Repairing Equipment	• Leather gloves (3Nos, 1 for each attendant) • Rubber gloves (3Nos, 1 for each attendant) • 20-ton hydraulic jack, should be able to attain a maximum height of at least 300 mm (1No), shall also be suitable for cars as well as for medium / large trucks • Heavy duty steel towing chain of minimum 1.5 m length (1 Nos) • Portable tyre inflator pump with tyre gauge capable of filling tires up to a pressure of 50 psi; should be able to inflate tires of cars, buses and light trucks (1No), Tyre Sealant (500ml) • Starter leads with multi-meter: For making connections with external power source (1 pair) • Tow bar for towing purposes, 1.3m long (1Nos) • Mechanical toolkit with equipment like hammer, fencing pliers, mallet, ratchet wrench set, screwdriver set, battery brush, etc. • Tow hook in the front as well as rear
5	Extrication & First Aid Equipment	• 1 Hydraulic/electric portable hand cutter and spreader combined tool should be able to cut off vehicle parts, metal structure, steel plate. Should have maximum cutting force > 250 KN, spreading force > 25KN with opening distance of Blades > 150 mm • 4 wooden wedges - 4 rectangular wooden blocks of minimum dimensions 150 * 120 * 60 mm for stabilizing light and heavy vehicles • Woollen blankets (2Nos) • First aid kit (1No) ○ 24 small sterilised dressings, 12 medium size sterilized dressings, 12 large size sterilized dressings, 12 large size sterilized burn dresses. 12 (15 cm) packets of sterilized cotton, wool. ○ (200 ml) bottle of certimide solution (I) or suitable antiseptic solution, 1 (200ml) bottle of mercurochrome (2%) solution in water, 1(120ml) bottle of sal- volatile having the doses and mode of administration indicated on the label. ○ A pair of scissors. ○ 1 role of adhesive plaster (6 cm into one meter), 2 role of adhesive plaster (2 cm into one meter). ○ Twelve pieces of sterilized eye pads in separate sealed packets. ○ A bottle containing hundred tablets (I each of 325 mg) of aspirin or any other analgesic.

S. No.	Type	Description
		○ Twelve roller bandages 10 cms wide. Twelve roller bandages 5cms wide. ○ 1 tourniquet. ○ a supply of suitable splints, 3 packets of safety pins. ○ Kidney tray. ○ A snake bite lancet. ○ 1 (30ml) bottle containing potassium permanganate crystals. ○ 1 copy of first aid leaflet issued by the Directorate General. ○ 6 triangular bandages. ○ 2 pairs of suitable sterilized latex hand gloves. ○ Burn Gel Packets, Sterile Burn Dressings ○ Sufficient number eye wash bottles filled with distilled water or suitable liquid clearly indicated by a distinctive sign which shall be visible at all times. ○ 4% xylocaine eye drops and boric acid eye drops and soda by carbonate eye drops. ○ CPR Face Shield, Pocket Mask, Disposable Gloves ○ Hand Sanitizer ○ Tweezers, Thermometer (Digital), Instant Cold Packs ○ Pain Relievers (Ibuprofen, Acetaminophen or likes), Antihistamine Tablets (For allergic reactions), Aspirin
6	Scene Management Equipment	• Minimum 20 Reflective cones of 750 mm each, should be orange in colour with retro-reflectors white band and a heavy rubber base with minimum possibility of being displaced by wind/vehicular traffic • 4 kg dry Powder Fire Extinguisher ISI marked & conforming to BE: 13849-1993 or latest) (2 Nos) • Hard bristle broom (1Nos) • Shovel (1 No) • Signboard with chevron arrows on both side and Mechanism to stand by itself. (6Nos) as shown in Figure-3. (Size - 900mm*900mm) • 2 numbers of foldable tripods to raise the height of first signboard, depending on traffic characteristics along the highway. • 6 numbers of flashing light for fixing on each signboard to improve visibility whenever signboard is installed while handling the incident Solar/ battery-based flashing LED light along with clamp / magnetic arrangement for fixing on to signboard (minimum 12 hours backup and minimum visibility distance of 500m). Few images for reference are shown alongside. 

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S. No.	Type	Description
		• Red colour Reflective tape of 4-inch width (1role), Caution Tape (1 role) • 3 pairs of safety glasses and masks for protection of safety officers from glass debris/ airborne dust. • 10 kg sealed bucket with lime or cement inside • 5kg Sandbag to handle oil spills on the highway • Animal hook, 1.3m long (1No) • Rock Salt bag of 5kg, with cool box, dead body cover / bag for smaller dead animals of weight up to 50kg

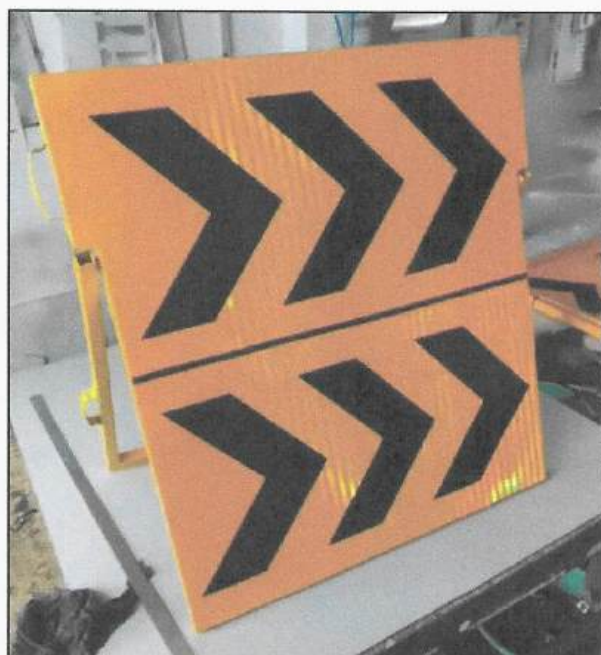


Figure 3: Modular sign board with Front and Back view

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Manpower in Route Patrolling Team along with Broad Responsibilities

Route Patrolling essentially consists of regular surveillance along highways to provide following functions towards Highway Asset Management and Road User Response Services -

1. Monitoring and Surveillance along the Highway

- a. Road Property Management - Identify, Record, Report and Coordinate to Resolve encroachments, hazards and incidental damage to Road Asset caused by vehicles, floods, storms or other random
- b. Identify, Report Issues related to Engineering, Education and Enforcement Implementations along the Highway

2. Incident Management and Roadside Assistance / Emergency Response to Road Users

- a. Identify, Report and Resolve hazards impacting Smooth and Safe Traffic Movement e.g.- vehicle breakdowns, unauthorized parking, hazardous material spill along highway, visibility obstructions, dead animal removals, traffic violations, etc.
- b. Identify, Report and Facilitate Emergency Response to Road Users during Incidents / Accidents including coordination with enforcement, medical agencies and authorities

The manpower and training requirements for the smooth operation of RPVs to perform above functions shall be as stipulated in the table below:

S. No.	Manpower Details	Broad Responsibilities
1	Highway surveillance in- charge	
	• 1 Highway surveillance in-charge should be appointed per shift per vehicle • The employee appointed should have a minimum of 2 years of relevant experience in route patrolling and traffic management. • The employee appointed should be able to read/write and maintain logbooks. • Employee appointed should undergo trainings including fields such as ○ Vehicle use and maintenance ○ Safety policies	• Patrol the corridor to ensure obstruction free flow as per shift standards. • To report to police and assist injured at accident scene and remove all obstructions from road when the vehicles are cleared. • To provide first aid to injured, contact control room and ambulance service if needed, assist police. • Record and report all incidents to control room (damaged or missing signage, barriers, or guardrails, accidents, debris, any anomalies activities observed on highway) • To ensure safety of traffic with minimal delay at accidents. • To assist motorists on broken down vehicles and to ensure that they do not obstruct free

S. No.	Manpower Details	Broad Responsibilities
	○ Radio and communication procedures ○ Public relations/ customer service ○ Public relations/customer service ○ Traffic Management ○ Vehicle recovery procedures ○ Victim extrication procedures ○ Extinguishing vehicles fires ○ Basic first aid training ○ Work side protection ○ Minor vehicle repairs • Employee appointed should time to time undergo certified trainings declared by the Authority related to Incident Management within the given stipulated timelines to continue his/her services	flow. Report in Control Room for arranging tow-away cranes or suitable help for the same. • Maintain relations with all emergency services, and local safety councils. • To report condition of drainage, ROW plantations, median plantation etc along the Highway. • Check on encroachment irregularities taking place within ROW and prevent unauthorized entry into the corridor. • Prevent theft of assets. Identify and report any such thefts of highway assets along highway. • Attend to urgent maintenance for safety requirements. • Remove poster, advertisement from sign boards, RE Wall, arrest garbage dumping adjacent or within ROW. • Conduct awareness campaign at villages, schools adjacent to highway and carry out enforcement drives at identified blackspot locations with the help of local authorities. • Conducting Dry run and mock drills for the patrolling team. All times, the Route Patrol In-Charge should have with him a list of telephone numbers and address of all concerned stakeholders in providing the road users services.
2	Driver cum helper	
	• 1 driver/ helper should be appointed per shift per vehicle • Employee appointed should have a valid license to drive a SUV vehicle. • Employee appointed should be able to read/write & maintain logbooks.	• Regularly check and maintain the patrol vehicle, ensuring it's in good working condition (fuel levels, engine condition, tire pressure, lights, horn (forward and reverse) wipers etc.). • Report any vehicle issues or required repairs to supervisors promptly.

S. No.	Manpower Details	Broad Responsibilities
	- Basic training of employee should include fields such as - Vehicle driving along multiple shifts - Minor repairing of vehicle - Vehicle and equipment use and maintenance - Radio and communication - Defensive driving - Extinguishing vehicles fires - Work site protection - Employee appointed should time to time undergo certified trainings declared by the Authority related to Incident Management within the given stipulated timelines to continue his/her services	- Offer basic assistance, such as jump-starting stranded vehicles and assisting with flat tires, fuel etc. - Assist emergency responder and highway surveillance in-charge in route patrol activities.
3	Emergency Responder	
	1 Emergency responder should be appointed per shift per vehicle Basic qualification shall be 12th pass with 2 years' experience in basic first aid and CPR a certified course in Basic First Aid and CPR, such as those offered by organizations certified organizations Basic training of employee should include fields such as - Vehicle and equipment use and maintenance - Basic First Aid Training (wound care, bleeding control, burn treatment, fracture and sprain management) & CPR - Basic life support skills Training in techniques like the recovery position, assessing vital signs, and supporting an individual's	- Assist Highway surveillance in-charge and helper to carry out route patrol activities. - Ensure all necessary patrol equipment (e.g., cones, first aid kit, emergency lights) is stocked, functional, and readily accessible in the vehicle. - Respond promptly to accidents or incidents, providing initial assistance and securing the area to prevent further risks, alert oncoming traffic and create a safe zone around the incident. - Perform minor maintenance on highway infrastructure, such as clearing debris, removing obstacles impacting safe traffic movement and needs immediate rectification, or replacing small items like reflectors. - Report emergency repairs, such as damaged barriers, sign board etc and ensure road conditions are safe.

S. No.	Manpower Details	Broad Responsibilities
	breathing. Ability to identify life-threatening situations (such as heart attacks, strokes, or choking) and provide immediate support. • Emergency scene management and assisting public to maintain order • Basic personal safety training, protecting themselves from bloodborne pathogens and other hazards during medical assistance (using gloves, masks, etc.) • Victim extrication from a crashed/damaged vehicle • Extinguishing vehicles fires • Employee appointed should time to time undergo certified trainings declared by the Authority related to Incident Management within the given stipulated timelines to continue his/her services	• Document and report daily patrol logs, including any observations, incidents handled, and maintenance activities performed. Take photos or record details as required for official documentation of incidents.