

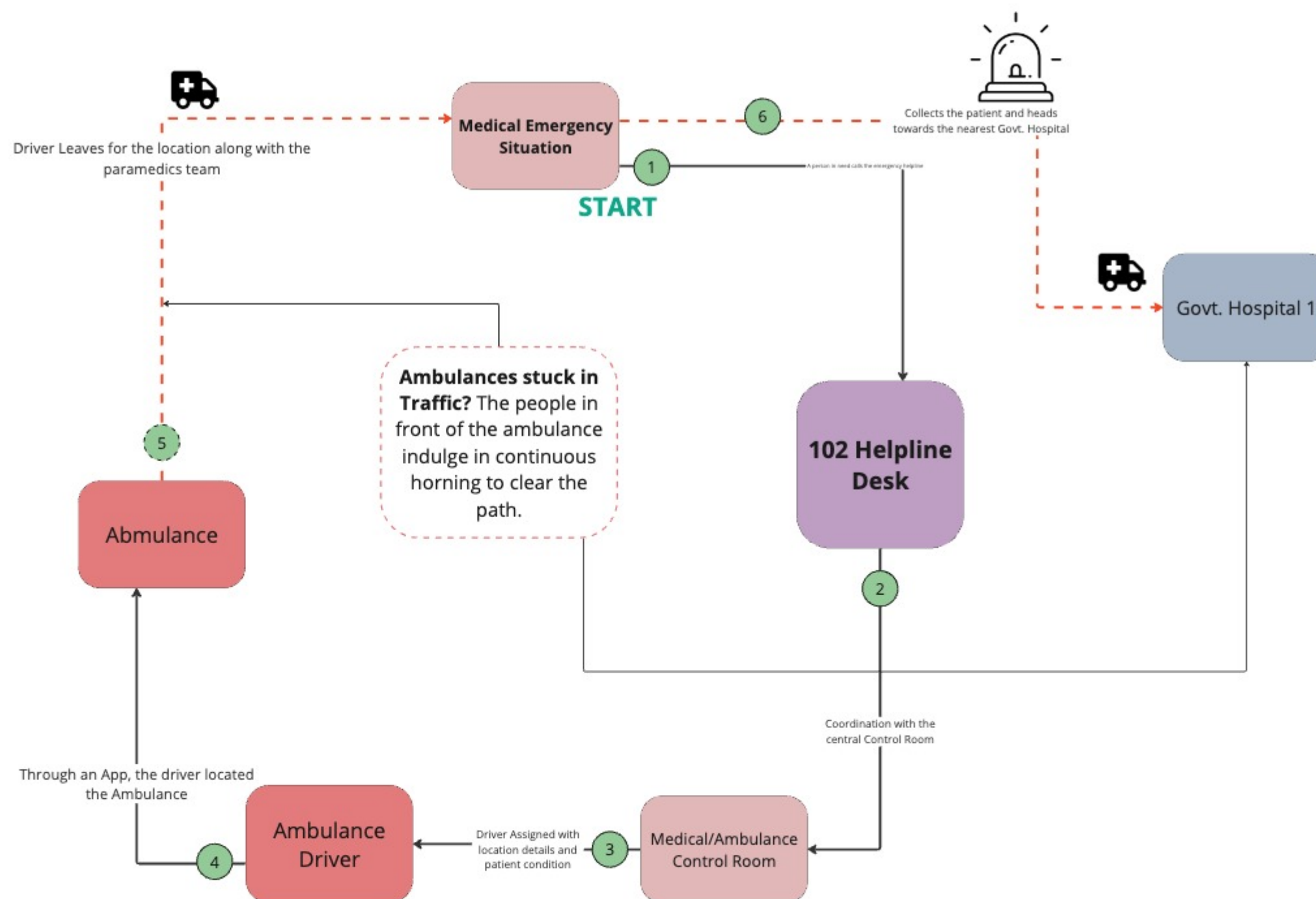
Emergency Medical Transportation



Understanding the Emergency Medical Transportation of Bengaluru

In the growing city of Bengaluru where growth sees its clear reflection, its challenging to predict the lifespan of a product or a service which is in place. In such a case, a crucial service like medical emergency transport seeks continuous advancement.

Our initial RAW understanding of the setting



24,012

patients die due to delay in getting medical help as ambulances are delayed due to traffic

1,46,113

- According to a report published by Times of India about **146,133** people were killed in road accidents in India
- **30%** of deaths are caused due to delayed ambulance.
- **50%** of heart attack cases reach hospital late

Bengaluru's total vehivular population doubled from 55.2l to 1.1 crores in 10 years

Experts in the city say increase in the personal vehicles will put more pressure on the already stressed road network

Average waiting time for an Ambulance in Bangalore in 40 mins now.

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Is Bengaluru
traffic the
only issue ?

Role of Police

- Traffic junction officers manual turn green lights for approaching ambulances.
- Advanced systems exist where signals communicate and automatically prioritize ambulances.
- Police recommends public to dial 112 or use KSP app to report ambulance needs.
- Existing tracking technology needs government implementation for traffic management.
- Police verify emergencies to prevent misuse of sirens and prioritize genuine cases.
- Agrees to Dopplers effect
- Mentioned that the ambulance drivers or ambulance crew can directly call 112 but they usually call the respective hospital and the hospital has to then call TMC to clear traffic.
- Incase of a very serious emergency, they expect to be informed at the control room by the driver/paramedics.



Service Triangle

Role of Hospital and Ambulance

- Ambulances are equipped with BLS, microphones for use in emergency situations.
- "Nagu Magu" ambulances likely refers to ALS specific ambulance service.
- Ambulance drivers are trained in Basic Life Support (BLS) procedures.
- Government ambulances in India are equipped with GPS tracking systems.
- Ambulance sirens are activated even without a patient on board, if the vehicle is transporting blood.
- Paramedics can contact TMC(Traffic Management Centre) directly by dialling the 10 digit number for traffic clearance in case of congestion.
- Doctors only accompany ambulances in critical situations involving ventilators, breathing difficulties, or severe blood loss.



Role of Public

As per Rule 27 of the Motor Vehicles Regulation Act, when you hear/see an emergency vehicle:

- React quickly, but calmly before pulling over and use your turn signals.
- Wait until the emergency vehicle has passed.
- Stay alert and look for more than one emergency vehicle approaching.
- Never follow or try to outrun an emergency vehicle.
- Pedestrians and cyclists are also required to get out of the way for an emergency vehicle.



KEY OBJECTIVES

The objective is to **IDENTIFY, ASSESS** and **EVALUATE** the existing medical emergency service in an urban context like Bengaluru, with the aim of locating areas for improvement and implementing targeted interventions to enhance the already existing emergency response service.

1. Understanding the existing system.
2. Identification of gaps.
3. Evaluation of the co-existence of the actors in the service.
4. Considering technological interventions if any.

CASE STUDIES



- 1 Traffic jams in Bilaspur, India, have led to at least a **dozen deaths**, particularly affecting patients en-route to hospitals. The Sanjeevni 108 ambulance service struggles due to this, jeopardizing lives. The "Golden Hour" theory underscores the importance of timely medical intervention within the critical first hour after injury.



- 2 The video is a comparison of the "Right of Way" for ambulances between India and foreign countries. It emphasizes that blaming the government for everything isn't constructive unless there's a **change in societal attitudes and mentalities**. In India, there's often a lack of priority given to ambulances on the road, which can lead to delays in emergency medical care. The message underscores the importance of individual responsibility and collective cultural change in ensuring efficient emergency services.

- 3 Six months ago in Bangalore, a two-year-old girl was being rushed in an ambulance from Mysore Road to Manipal Hospital on old Airport Road. The child was suffering from low BP and struggling to breathe. It took more than two-and-a-half hours to cover the 15-km stretch, owing to traffic snarls. When she finally reached the hospital, she was declared '**brought dead**'

COMMENTS: 'Ambulances in India fail to arrive on time and are mostly ill-equipped'.

? The question, is whether India has an effective and accessible emergency care system in place, starting with the first necessity, ambulances.

INITIATIVES/SYSTEMS



Four months after launch, bike ambulances in Bengaluru attend to a dozen calls a day
Bike ambulances were introduced in Bengaluru to ensure that victims of accidents or other emergencies get timely medical help. Since April, these ambulances have responded to over 700 calls in the city.



Adaptive signals to soon help ambulances tackle Bengaluru traffic
With the help of sensors, the technology will open the signals for ambulances detecting the vehicle from as far as 200 meters, said the senior traffic police officer.

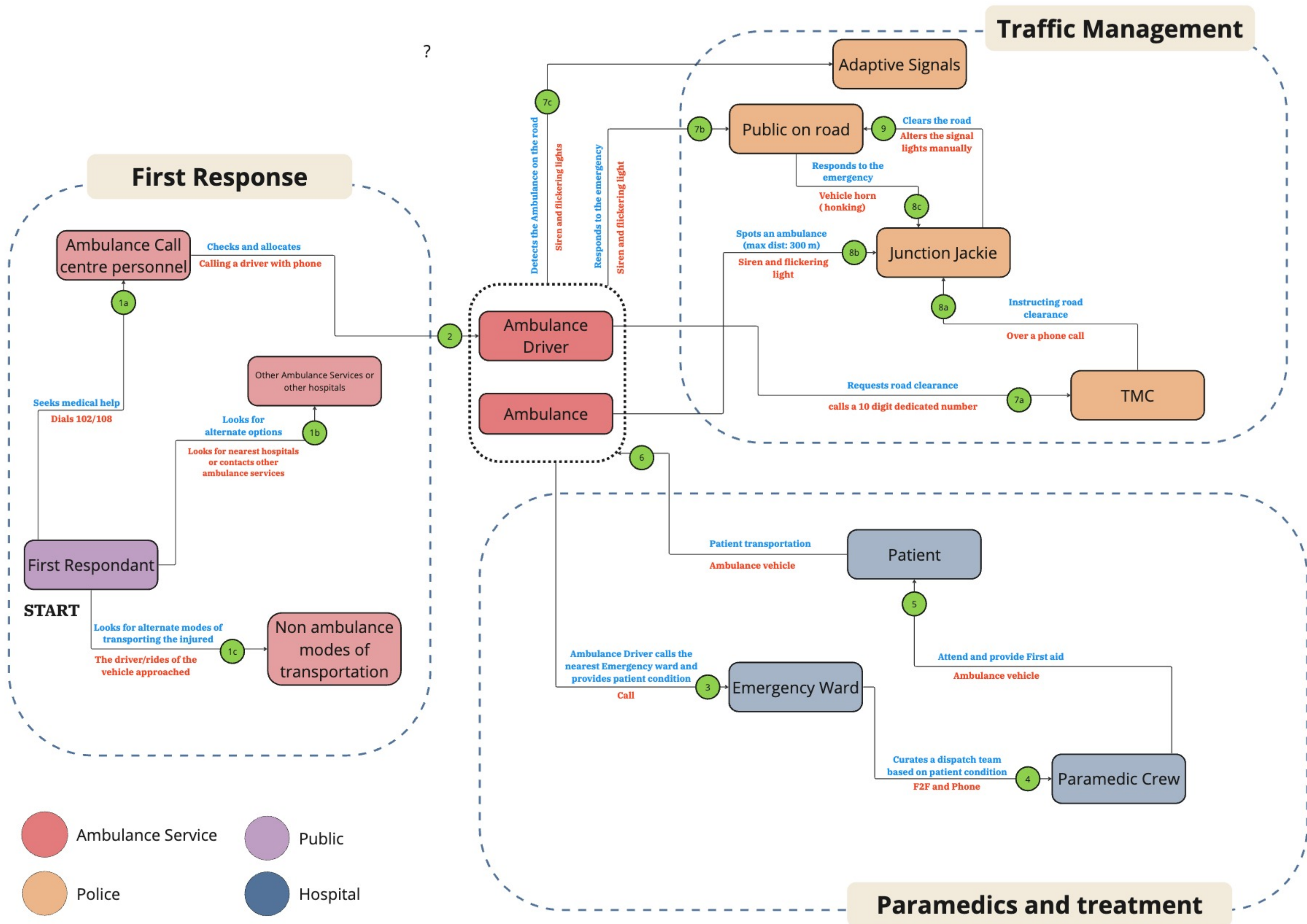


Countdown begins for 51 adaptive signals
KRDCL has floated a tender for installation, and maintenance of automated traffic signals at 51 new junctions



Emergency Response Redefined: Ambulance in India
Emergency Response Redefined: Ambulance in India

- 1 Bangalore launched a pilot program with 18 **bike ambulances** to respond to emergencies faster, especially in heavy traffic. These bikes carry medical equipment and are driven by trained paramedics. They mostly handle minor injuries and stabilize patients until a four-wheeler ambulance arrives if needed. The program has been well-received by the public and has responded to over 700 calls in Bangalore alone, with an average response time of 5-10 minutes. While there are plans to expand the program, finding paramedics with driving licenses is currently a challenge.
- 2 Bangalore traffic police are getting new **adaptive signal lights** to help ambulances navigate through busy intersections. Currently, a police officer has to manually override the signals, but these new sensors will detect ambulances from 200 meters away and automatically turn the light green. This project aims to save lives during critical "golden hours" by reducing ambulance wait times. The technology can also be used to adjust traffic signals based on traffic volume in the future. This initiative is part of a larger effort to improve Bangalore's traffic management, following concerns from investors and industrialists.
- 3 **RED.health ambulances** in India offer a comprehensive emergency response system with a wide range of features. Their fleet of over 5,000 red ambulances covers 550+ cities, aiming for fast response times. They boast advanced life support equipment like defibrillators and ventilators in many vehicles, staffed by trained medical personnel. RED.health offers additional features:
 - 5G connectivity:** Real-time data sharing and remote consultations.
 - Telemedicine integration:** Immediate medical advice before the ambulance arrives.
 - 24/7 availability:** Guaranteeing access around the clock.
 - Multiple service types:** Catering to emergencies, non-emergencies, inter-facility transfers, and even disaster relief.



Govt and Pvt Hospital

- Despite various types of sirens indicating the severity of the situation, public awareness of their meanings is lacking, highlighting the need for Basic Life Support (BLS) training for the general population.
- Ambulance drivers use a microphone to make announcements for clearing traffic during emergencies, but there's limited use of the tracking system and GPS installed in ambulances to mitigate traffic congestion.
- Government hospitals receive accident cases but often lack adequate infrastructure to handle various emergencies, contributing to healthcare challenges.
- Emergency services in Bilaspur dispatch ambulances promptly upon receiving calls, typically within 5-10 minutes, with a team comprising a driver, housekeeping staff, nursing staff, and doctor, equipped with necessary medicines and both Basic Life Support (BLS) and Advanced Life Support (ALS) capabilities.

Ambulance control Room

- The 108 call center in Basaveshwara Nagara serves all of Karnataka for medical emergencies.
- Ambulances are dispatched based on their proximity to the emergency location.
- Call center personnel cannot assess patient criticality to assign Basic Life Support (BLS) or Advanced Life Support (ALS) ambulances.
- ALS ambulances are provided upon request by the caller.
- If an ambulance encounters traffic congestion, the caller or ambulance crew can contact the Traffic Management Center (TMC) for assistance.
- When the nearest ambulance is unavailable or unsuitable (BLS for ALS requirement), the call center seeks the next closest option.
- If the nearest available ambulance is a BLS unit and an ALS unit is needed, the ambulance driver guides the call center personnel to the next nearest available ALS ambulance.

Ambulance Service

- Ambulance sirens are activated even without a patient on board if the vehicle is transporting blood.
- Ambulances are equipped with microphones for intimating the public.
- Paramedics contact to TMC through 10 digit mobile number to request traffic clearance if needed.
- Drivers are trained in Basic Life Support (BLS) procedures.
- Doctors only accompany ambulances in critical situations involving ventilators, breathing difficulties, or severe blood loss.
- Ambulances are equipped with GPS tracking systems.
- Despite having this technology, the tracking system is not utilised for clearing traffic congestion.

Traffic Management Center

- Ambulances rely on a separate phone number to contact traffic police
- In cases requiring urgent traffic assistance, ambulances can directly contact traffic police for intervention
- "Adaptive Signals" are acknowledged as ineffective during emergency situations, emphasizing the necessity of human intervention despite technological advancements.
- An app "Astra" provides real-time updates every 15 minutes, indicating roads with severe and moderate traffic, facilitating immediate traffic police intervention.
- Hospitals coordinate organ transplant procedures with the health department, which then informs the Traffic Management Center (TMC) and Bangalore Traffic Police (BTP) via Whatsapp groups.
- Bangalore's urban infrastructure is organized in concentric circles, differing from the grid system in the US.
- TMC engages with the public through social media platforms such as Facebook, allowing citizens to tag TMC and report accidents or other incidents for prompt response.

Police Stations

- Utilization of walkie-talkies for communication between traffic police officers to notify about ambulance movements.
- Limited effectiveness of adaptive traffic signals in managing emergency situations, highlighting the necessity of human intervention.
- Traffic police prioritize giving way to ambulances and coordinating with other traffic police units to ensure smooth traffic flow.
- More adaptive traffic signals and improved traffic management technology to prioritize emergency vehicles effectively.

Probing the Public

- In order to decipher the level of understanding and awareness with regards to the actions which needed to be taken as general public during a medical or fire emergency, a probe was considered.
- Unlike an oral questioning/interviewing this probe makes use of a visual cue to facilitate better relate-ability in the context this project is set on.

On Field Policeman

The public have minimum road sense, their urgency to reach somewhere surpasses all rules which needs to be followed.

Emergency Ward Nurse

The public are very insensitive these days, they film the incident and the injured rather than saving them in the first place.

Traffic Management Centre

1. When stuck in traffic, people can call 112 and let us know the location of the jam
2. Also, by just following traffic rules half the congestion on road may be avoided.
3. Awareness on the usage of public transport, reduce the load on the road.

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Scenario 1:

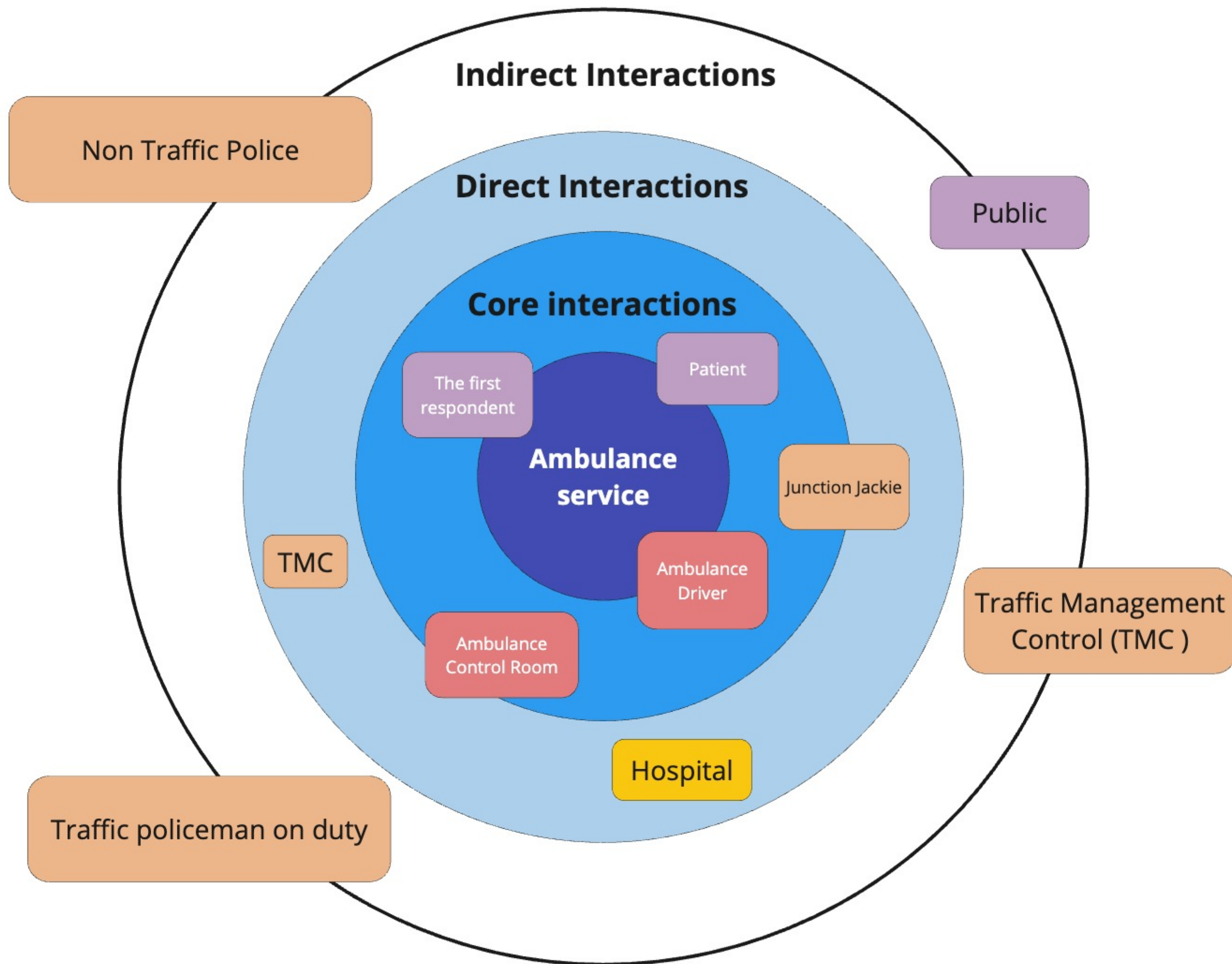
If you witness an accident on road what will you do as a first responded to the location?

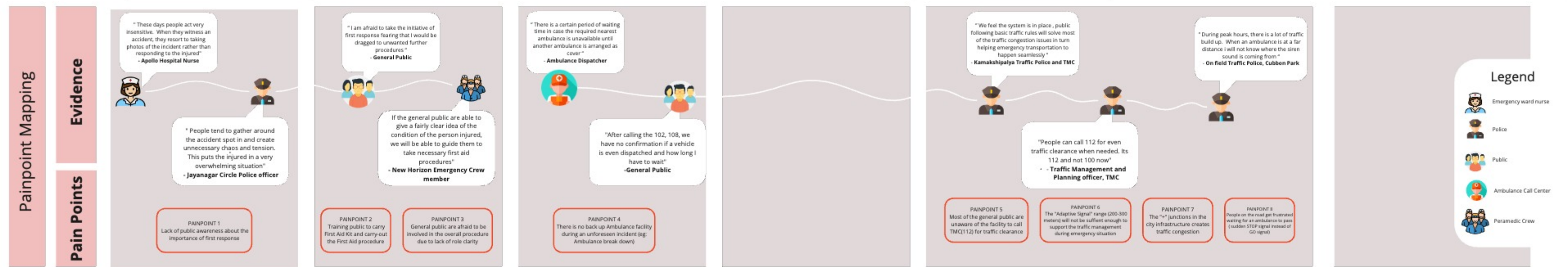
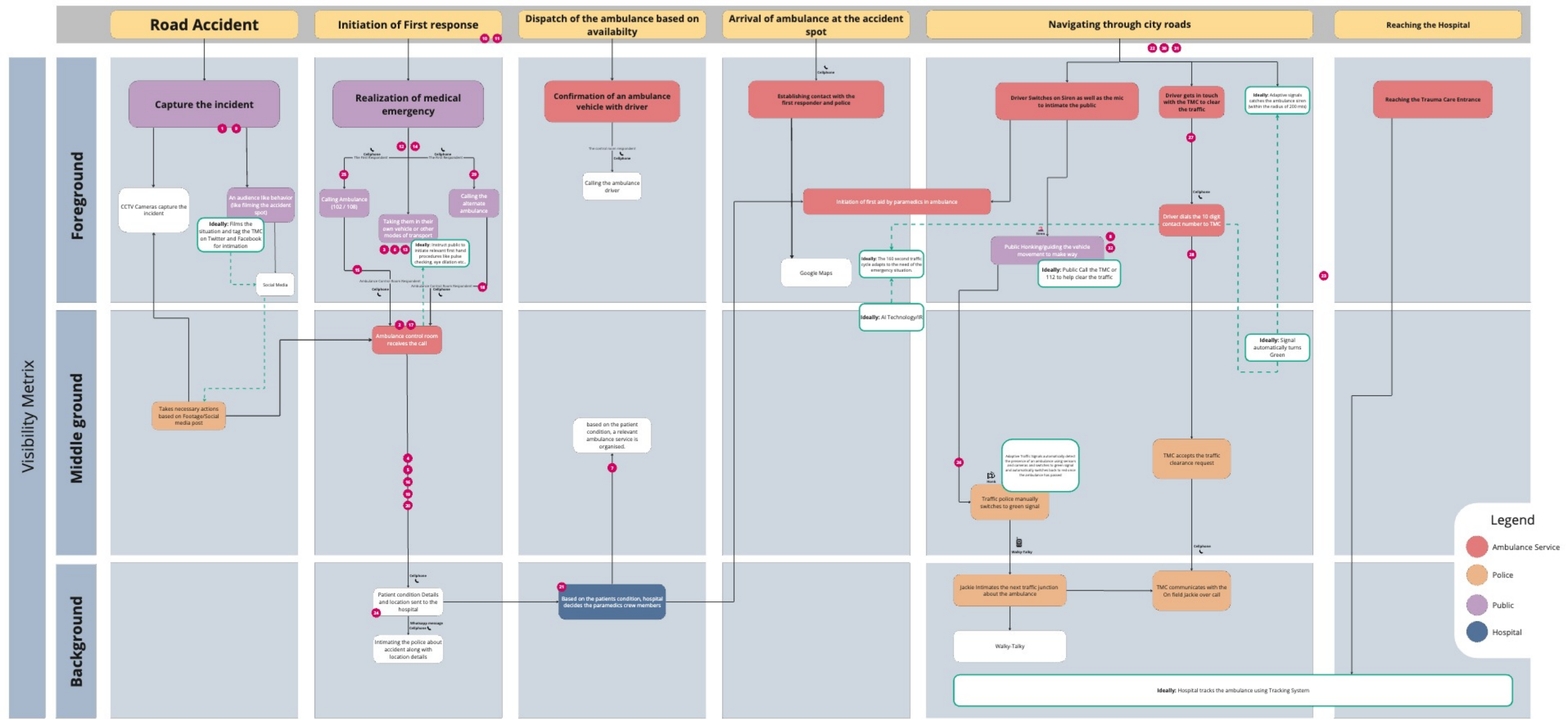
Scenario 2:

You are heading to the office for an interview in your personal vehicle . You sight an ambulance which is also waiting for the traffic to clear . What steps do you take ?

INSIGHTS

- Use of emergency number 108 to call for medical assistance.
- In case of unavailability of immediate ambulance response, individuals resort to searching for nearby hospital contacts through Google.
- Some individuals prioritize providing immediate assistance to the injured and, if possible, transport them to the nearest medical facility using alternative means such as auto-rickshaws or personal vehicles.
- Limited awareness about alternative emergency contact numbers such as TMC or 112 during traffic congestion.
- Proactive measures such as providing first aid, contacting medical services, and ensuring the injured receive timely medical attention.





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Read more at:

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