



## **A FEASIBILITY STUDY ON USE OF AIR AMBULANCE ON EAST COAST ROAD**

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### **ABSTRACT**

Everyone knows the importance of technological development happening day to day in the world. Air transport is one among them. This Air mode of transport has been effectively used by people to save time and cater the needs in long travel distances. As air transport reduces the travel time. It can be used as air ambulance to save life's occurring due to road traffic accidents. Helipads are important for air ambulance by accepting and taking care of patients from remote areas without local hospitals or facilities. The feasibility of Air ambulance in East coast road is discussed in this study.

**Key words:** Air ambulance, East coast road.

### **INTRODUCTION**

The aim of this study is to analyze the Feasibility of using air ambulances for emergency operations during road traffic accidents (RTAs) to reduce the fatalities. During past two decades it has been observed that the RTAs has been increased and leads the list for causing death. Hence it is proposed to use air ambulances in order to reduce the death rate in road traffic accidents. Air ambulance services provides quick transportation and immediate first aid facility for the affected patients which is very much essential for life saving operations

#### **Air ambulance**

Air ambulance services are a critical component of the provincial health care system, providing Emergency life saving treatment and transporting patients across vast distances to the necessary level of care. Air ambulance services shall be established to respond quickly and appropriately to patient demands for emergency care and transportation. To know that it is providing the best services possible with available resources, and to improve Accountability for its performance.

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## ECR

State Highway 49, also known as East Coast Road (ECR) is a two lane highway in Tamil Nadu, India, built along the coast of the Bay of Bengal connecting Tamil Nadu's state capital city Chennai with Cuddalore via Pondicherry. Presently, the ECR has been extended upto Thoothukudi via Chidambaram, Karaikal, Nagore, Nagapattinam, Thiruthuraiipoondi, Muthupet, Adirampattinam, Meemisal, Thondi, Ramnanathapuram. The total length of the road is 690 km from Chennai to Thoothukudi. The expansion of ECR from Tuticorin to Kanyakumari via Tiruchendur and Koodankulam at a cost of ₹ 257 crores sanctioned and is in progress. This Road gives a aesthetic view of Bay of Bengal



Fig. 1: Study area

## Literature review

**Project development and concept design report helicopter landing sites – Bathurst and orange Bloomfield Hospitals – Govt Architect’s by Heli-consultant Private limited (May, 2005)**

Heli-Consultant’s initial brief is to assist the Government Architect’s Office (GAO) with the establishment of design criteria, identification of air safety requirements and advisory material. And consideration of the planning, environmental, fire and safety issues pertinent to developing an helicopter landing site (HLS) at Orange Bloomfield Hospital; and re-developing the existing facility at Bathurst Hospital.

**Striving for quality, Timely and safe patient care: An Audit of Air Ambulance services in British Columbia (March 2013)-Cristal Santos, Peter Nagati. 2007**

BC Ambulance Service (BCAS) appreciates the efforts of the Office of the Auditor General (OAG) in auditing the air ambulance component within our Critical Care Transport (CCT) Program. BCAS was open to the audit and provided information and staff expertise to ensure the findings would be of maximum benefit to patients, our service, staff and the health care system. In short, BCAS accepts the OAG's recommendations and is addressing the report's findings. The audit conclusions are consistent with BCAS's efforts to evolve air ambulance service from being mainly focused on daily operations and 'efforts driven', to one that is focused strategically, actively managing performance, and, 'outcomes driven'.

**State of Washington EMS and Trauma care system Air Medical Service Plan October, 2010-by Community Health Systems.**

Identify strategies that will promote coordination of resources between all air ambulance response agencies in Washington State Develop, adopt and implement air ambulance response protocols utilizing best practices to ensure quality patients care and safety of flight and ground terms.

**Estimation**

The total cost for the design implementation and construction of a rooftop helipad. It is estimated to be on the order of 167,58,00,000. This estimate does not include any seismic upgrades to the main hospital structure. The estimated costs can be further spit up as shown in Tables 1 and 2.

**Table 1: Planning and design**

<b>Phase I- Planning and design</b>	
Project design	13,80,000
Environmental review	21,00,000
Permitting/Approvals	72,00,000
Reimbursement	15,00,000
Contingency/Other	60,00,000
<b>Subtotal</b>	<b>3,70,80,000</b>

**Table 2: Constructions**

<b>Phase II- Construction</b>	
Helipad	2,40,00,000
Ramp to Elevator	48,00,000
Elevator Access	37,80,000
Life safety/Security	21,00,000
Contingency/Other	34,00,000
<b>SUBTOTAL</b>	<b>13,05,00,000</b>

**Total estimated costs = 167,58,00,000**

### **Data collected**

The following data's were collected in the study:

- Traffic volume count
- Accident data with respect to fatalities and non-fatalities
- Black spot data
- Treatment of Accident cases

### **Data analysis**

The collected data were analyzed in the following criteria's

- Black spot
- Traffic intensity (2012april-2013march)
- Fatal cases per year (2012-2013)
- Reason for accidents (2012-2013)
- Vehicle population (2012-2013)
- Frequently used hospital for RTAs (2012-2013)
- Death Ratio

### Black spot

An accident black spot is a term used in road safety management to denote a place where road traffic accidents have historically been concentrated. It may have occurred for a variety of reasons, such as a sharp drop or corner in a straight road, so oncoming traffic is concealed, a hidden junction on a fast road, poor or concealed warning signs at cross-roads. For some decades treatment of accident black spots (e.g. by signage, speed restrictions, improving sightlines, straightening bends, or speed cameras) was a mainstay of road safety policy, but current thinking has it that the benefits of these interventions are often overstated. Effects such as regression to the mean, risk compensation and accident migration combine to reduce the overall benefit. Helipad locations were earmarked as shown in the Fig. 2.



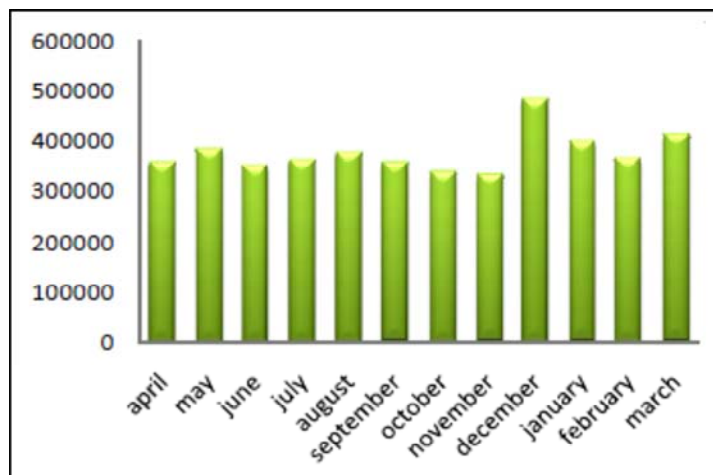
Fig. 2: Black spot

### Traffic intensity

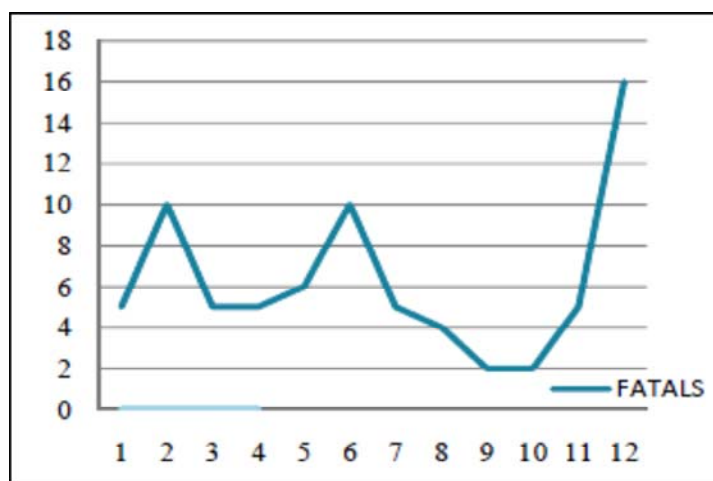
Traffic intensity for the financial year of 2012-2013 was collected. The intensity was high in the month of December and less in the month of November. The traffic intensity is shown in Fig. 3 below.

### Fatalities

The fatal accidents occurred in the study area during the financial year 2012-2013 is shown Fig. 4 below.



**Fig. 3: Traffic intensity**



**Fig 4: Fatal accidents**

**Reasons for accidents**

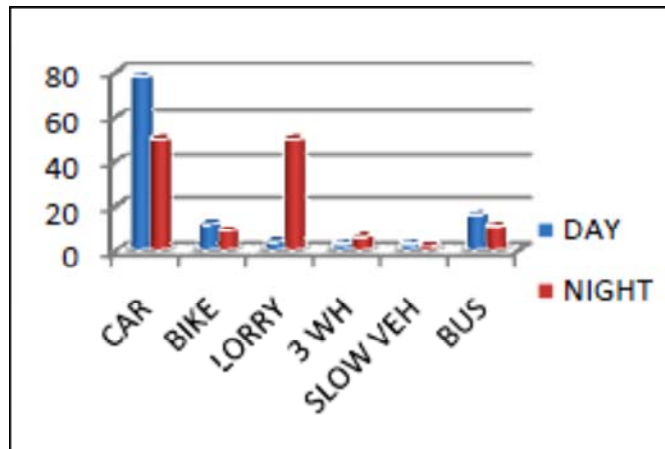
There were various reasons for the accidents taking place. They are drunken driving, Over speeding, Vehicle out of control, Rain and Poor visibility. The percentile for reason of accidents are shown in Table 3 below.

**Vehicle composition**

The vehicle populations according to the categories are listed in the Fig. 5. Car counts are more in number when compared to other vehicles.

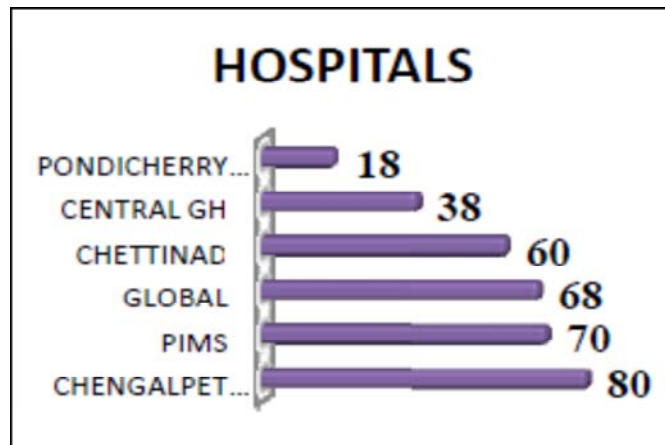
**Table 3: Reason for accidents**

Reason	Percentage
Drunken driving	10
Over speeding	64
Vehicle out of control	20
Rain	2
Poor visibility	3



**Fig. 5: Vehicle composition**

**Hospitals for treatment**



**Fig. 6: Data analysis**

## Death ratio

Totally 604 road traffic accidents (RTAs) were held in ECR (2012-13). In that 70 accidents are fatal cases. 534 are non fatal cases. Out of 534 non fatal accidents 267 cases die due to long traveling time to hospital by road. With enquiry with Doctors of Government hospitals, they expressed that trauma cases can be saved if the victim reaches the hospital within 15 to 20 minutes in these cases the reaching time was beyond control and hence it has caused the death of the patients. If faster mode of transport would have been used these life would have been saved.

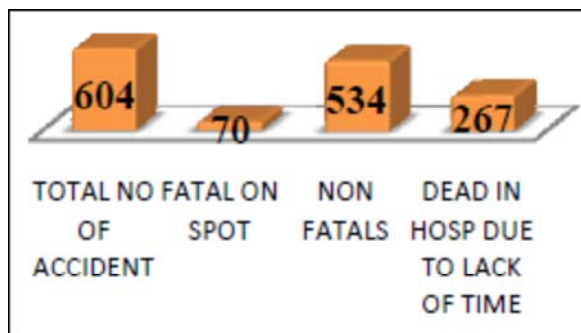


Fig. 7: RTAs cases in 2012-13

## CONCLUSION

- It has been reported that in the year (2012-2013) and with the previous datas 267 cases were caused death due to non availability of faster mode of transporting victims to hospital in time. Hence on an average 300 lives are being lost due to road accidents.
- The total project cost was worked out as 167.6 Crores.
- Assuming that the estimated project works for the minimum period of twenty years the total lives saved will be 6000.
- Hence it can be concluded that the cost for saving one life is 27, 930. This cost is un comparable to once life. Hence it is suggested that this project shall be implemented by government in all express ways.

## Recommendation

- Through our observation and case studies we are recommending that the helipads can be located as specified in the blackspots.



- As per collected data maximum number of reported accident have been admitted in chengalpet GH therefore so we suggest roof top helipad in chengalpet GH, Rajiv Gandhi General Hospital ,Chennai and Chettinad health city, Kelambakam for landing and takeoff of helicopters in hospital.

## **REFERENCES**

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