

Road Safety Assessment using iRAP - Case study of National Highway

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Introduction:

The iRAP is an organisation committed to the worldwide enhancement of road safety. To achieve this aim, the evaluation and improvement of road safety requirements are the important factors. They have been able to perform multiple road safety checks, evaluation reports, produce star ratings and risk maps in over 70 countries, thus allowing countries to obtain a star rating of at least 3 or higher. A "safe system" based on complementary route, vehicle and behavioural actions is a priority of iRAP. Compliance with seat belt rules, speed limits, prohibition of drunk driving, active and passive driver, and car safety as well as self-explanatory and pardoning road systems all work with this secure scheme. iRAP measured safety for the sample road parts in the ten States of India in partnership with the Global Road Safety Facility of the World Bank (GRSF), State Public Works Agencies, local engineering companies and research institutes. The first stage of the iRAP process involved inspecting the road network and conducting road traffic surveys. Road features include road cross-sections and signage, crossing style and form, pavements, extreme roadside threats, and the availability of walkways for disabled road users, etc. are the road attributes considered in the iRAP analysis.

Objectives:

- i) To collect the secondary data from police stations belongs to study area
- ii) To identify the accident blackspots
- iii) To collect the attribute points by filed visit
- iv) To analyse the blackspots using International Road Assessment Plan (iRAP)

v) To obtain the star ratings for accident blackspots

To suggest countermeasures or remedial measures blackspots based on the obtained star ratings.

Methodology:

Step 1: Selection of Study area

National highway 44 is selected for study with a stretch 75 kms from Bagepalli toll plaza to Devanahalli toll plaza, involving 4 lane (divided) from bagepalli toll plaza to avathi flyover 6 lane (divided) from avathi flyover to Devanahalli toll plaza, whose design speed is 100 Kmph, containing mixed type of traffic. National highway 44 previously known as National highway 7.

Step 2: Collection of Data

Secondary data which is FIR reports are collected in www.ksp.karnataka.kar.gov.in website. Seven police stations are belonging to study area and 5 years i.e., from 2018 to 2022 data is collected to identify the accident blackspots.

Step 3: Identification of Accident Blackspot

Road accident blackspot is a stretch of national highway of about 500m in length in which either 5 road accidents took place during the last 3 calendar years or 10 fatalities took place during the last 3 calendar years. After collecting the data identified 16 blackspots in the selected stretch, in that top 10 blackspots are considered for iRAP analysis.

Step 4: Collection of Road Attributes

Road features include road cross-sections and signage, crossing style and form, pavements, extreme roadside threats, and the availability of walkways for disabled road users, etc. are the road attributes considered in the iRAP analysis

Step 5: Obtain star ratings using iRAP analysis

After collecting the road attributes at blackspots, upload each attribute points in iRAP website (VIDA iRAP) and obtain the star ratings of each blackspots.

Step 6: Suggest the Countermeasures

To reduce the road accidents, suggest the countermeasures or remedial measures using iRAP analysis

Results and Conclusions:

- As per the road safety decade plan 2021-2023, all roads should meet with minimum 3 iRAP star ratings.
- After the iRAP analysis we identified that except two blackspots i.e., sadali

and vapasandra flyover remaining all the blackspots are satisfied with 3 iRAP star ratings for Vehicle Occupants & Motorcyclists (4 wheelers and 2 wheelers)

- Doddapaylaburki, Harobande, Honnenahalli, Vapasandra flyover, Agalagurki flyover got single star ratings for pedestrians movements.
- Since these blackspots are not safety for pedestrians movements and so many crashes occurred related to pedestrians at these locations, therefore more concentration is required related to the road safety improvements.
- Aruru gate, Inimichenahalli, Reddygollawarahalli and Hunegal spots are good for bicyclists. Remaining all the spots are not better for bicyclists.

Scope for future work:

In the present study we have done the International Road Assessment Plan (iRAP) analysis at only blackspots of a stretch of 500m. In the future it is proposed that the entire 75 kilometres stretch should divide 100m spans and do the iRAP analysis for better results.