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Abstract- Monitoring of rural-urban conversions, land transformations within the planning area of the cities and the study of traffic problems is the need of the hour to ensure safe city traffic movements. It is hence vital to monitor the status of land utilizations within the municipal jurisdiction and understand land use and traffic conflicts by studying its hazards (H), risks(R), vulnerabilities (V) & capacities(C) considering planned implementation of city development plan. This minor project have been attempted to serve the method and the purpose.

GolBazaar area on account of lack of public awareness and willingness. This lack of public willingness has further aggravated the traffic problems in this area resulting total discomfort to the populace and the traffic management along approach roads to Gol-Bazaar, more particularly on festival days and during public rallies.

Keywords- Landuse, Hazard, Risks, Vulnerability, Capacity.

1. Introduction

1.1 Traffic Management

“Road traffic control involves directing vehicular and pedestrian traffic around a construction zone, accident or other road disruption, thus ensuring the safety of emergency response teams, construction workers and the general public. Traffic management constitutes means and methods adopted to utilize the road system of a town to the maximum possible extent.”

i. Safe - Public safety
ii. Rapid - Time value and customer service
iii. Comfortable/Convenient - Level of service
iv. Economical - Social cost
v. Environmental - Clean air and sustainability
vi. Movement -Mobility

1.2 Traffic Engineering

“Traffic Engineering is that phase of engineering which deals with planning and geometric design of streets, highways, abutting lands, and with traffic operation thereon, as their use is related to the safe, convenient and economic transportation of persons and goods”

It is improvement of geometrics of roads, and regulation of traffic for more safe and effective use of pavement.

a) Physical characteristics of road user.
b) Mental characteristics e.g. readiness with ability to understand traffic signals, traffic behaviour and psychology of the road user.
c) Environmental characteristics

I. HRV [5]

H = Hazard
R = Risk
V = Vulnerability
C = Capacity

a) Hazard: -Potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

b) Risk : -The probability of harmful consequences or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interaction between natural or human-induced hazards and vulnerable conditions
RISK = HAZARD X VULNERABILITY

c) Vulnerability: -The conditions physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.

d) Capacity: Capacity with respect to pre-disaster, during disaster and post disaster actions on preparedness, prevention risk assessment and mitigation, DM plan formulation and implementation procedure for evolving schematic risk management and response.

2. Disaster [5]

A catastrophe, mishap, calamity in any area, arising from natural or manmade causes, which results in substantial loss of life or human suffering, damage destruction of property, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area” (DM Act, 2005)

DISASTER = (HAZARD+RISK) X VULNARABILITY

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II. STUDY AREA (GOL BAZAR)

Golbazaar is historic traditional market area which is situated along Jaisthambh to Kotwalichowk section of the Malviya road. It is a predominately commercial area having residential surrounding environment the GOL-bazaar market spontaneously built around circular Gummad. (Octagonal structure).

a) History in brief:- Golbazaar is a famous historical/ traditional market place acting as a landmark of the city. It is characterized by a labyrinth of narrow alleys and innumerable smaller and bigger shops developed in somewhat inorganic manner. At the central core there is an octagonal structure with a domical roof resembling colonial style of architecture.

b) Justification of research work: -To suggest remedial measures to ease out the traffic problems in the central area & the GOL-bazaar using disaster management technique and enhancement of capacities w.r.t. measures on 3Es.

As traffic is the function of land use, it is necessary to understand land use & traffic hazards, risk, vulnerabilities & the existing capacities for suggesting remedial risk sensitive measures along these approach roads & achieve traffic safety using disaster management and 3E’s method.


3E’s measures means:-

a) ENGINEERING
b) ENFORCEMENT
c) EDUCATION

Engineering Applications is first aspect of traffic management. It includes following things:-

(1) Road design
(2) preventive maintenance of vehicles
(3) Before and after studies?
(4) Road lighting

b) Enforcement

The various measure of enforcement that may be useful to prevent accidents at spots prone to accidents are enumerated here. The motor vehicle rules are revised from time to time to make them more comprehensive.
(1) Speed control
(2) Traffic operating devices eg. Traffic Signs; Signals, Zebra-Crossing Roads/Foot-Over-Bridges etc.
(3) Training and supervision
(4) Medical checkup
(5) Special precaution for commercial vehicle

c) Education

Education is most important measure for traffic management to educate/aware people on the laws/ordinances/rules and regulations of traffic management. It has two importance parameters –

(1) Education of road user
(2) Traffic safety drive

III. FIGURES AND TABLES

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<thead>
<tr>
<th>ROADS</th>
<th>BLOCKS OF ROAD</th>
<th>WIDTH IN METER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) MALVIYA ROAD</td>
<td>• SHIDHARTH CHOWK TO BHUDHA PARA CHOWK</td>
<td>67</td>
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<tr>
<td></td>
<td>• BHUDHA PARA CHOWK TO KOTWALI</td>
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<td></td>
<td>• KOTWALI TO JAISTHAMBH</td>
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<td>• ELECTRICITY OFFICE TO MALVIYA ROAD</td>
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<td>3) BAIJNATH ROAD</td>
<td>• MALVIYA ROAD TO MOTIBAG</td>
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<td>4) AMARDEEP TALKIES ROAD</td>
<td>• MALVIYA ROAD TO COFFEE HOUSE</td>
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FIG. 2- existing land use sheets from town & country planning

FIG3. Traffic Hazard map of study area
4. Analysis

Traffic is the function of Land use “Economic function of Land use generates the functional traffic. The predominant commercial land use at GOL bazaar has a mixed land use functional traffic and its associated hazards resulted on account of lack of willingness & enforcement measures along its approach road environ.”

We analysed the field data and found that the approach roads around Gol bazaar cracker shop (a Fire hazard) has 2-way traffic operation and the road widths are very narrow and causing discomfort for smooth traffic movement and this triggering event (Fire) when strike will eventually register huge economic losses i.e. loss of livelihood, lives, property etc.as responders/community do not have coping mechanism (risk-sensitive land use plan) to avert the possibilities of fire as it happens. The fire tender, though nearby within 10 minutes of response, will need additional time to reach the core of Gol Bazar having narrow approach roads.In Gol Bazaar area the temporary/leased shops along the spontaneously developed approach roads has encroachments by shopkeepers along these roads resulting bottlenecks.

5. Conclusion

After the study of GOL-bazaar area we conclude that the area is highly vulnerable and do not have sufficient capacities to promote easy movement of vehicles and pedestrian traffic, result a conflicting situation. The existing inefficient parking facility in this area is a major concern. The existing width of these approach roads is shorter than proposed vide Raipur Development (Master) Plan, 2021. We need to resolve these traffic and land use related conflicting issues by inducting or implementing planned /risk sensitive land use of the GOL-bazaar mixed-land use environ.

6. Acknowledgment

It gives us immense pleasure to express the deepest sense of gratitude and sincere thanks to our respected esteemed guide Prof. N. V. Deshpande, & Mrs. Shubha Vaghmare (HOD of Civil Engg.), M.M. College of Technology, Raipur (C.G.) for his revered guidance throughout our dissertation work, which made this task a pleasant job. It was real pleasure to work under his guidance. We are indebted to Dr. Shamita Chakraborty, Director, MMCT Raipur for giving us an opportunity carves out research zeal within us to show how we work as a team.

We show our heartfelt gratitude and special thanks to Mr. S. S. Bajaj, Director Town and Country Planning, Govt. of Chhattisgarh for permitting and access to avail physically surveyed land use maps and this soft copy of the existing and proposed land use (Raipur Development Plan, 2021) plan of central area & its environ, Raipur, We also show our heartfelt gratitude and thanks to Mr. Sandeep Banged, Joint Director Town and Country Planning, Raipur (C.G.) and his team for providing beneficial support.

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