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Studies on Road Accidents on National Highway No.6

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Abstract: Globalization has impacted many developing countries across the world. India is one such country, which benefited the most. Increased, economic activity raised the consumption levels of the people across the country. This created scope for increase in travel and transportation. The increase in the vehicles since last 10 years has put a lot of pressure on the existing roads and ultimately resulting in road accidents. It is estimated that since 2001 there is an increase of 202 percent of two wheeler and 286 percent of four wheeler vehicles with no road expansion. Motor vehicle crashes are a common cause of death, disability, and demand for emergency medical care. Globally, more than 1 million people die each year from traffic crashes and about 20–50 million are injured or permanently disabled. There has been increasing trend in road accidents in Jalgaon over a few years. GIS helps in locating the accident hotspots and also in analyzing the trend of road accidents in Jalgaon.

Keywords: Accidents, Accident Forecasting, Accident Prone Zones.

INTRODUCTION

The process of rapid and unplanned urbanization has resulted in an unprecedented revolution in the growth of motor vehicles worldwide. The alarming increase in morbidity and mortality owing to road traffic incidents (RTI) over the past few decades is a matter of great concern globally. Currently, motor vehicle accidents rank ninth in order of disease burden and are projected to be ranked third in the year 2020. In India, more than 70,000 people get killed due to RTI every year and recently in 2015 near about 1.5 lakhs people died due to road accidents and this needs to be recognized as an important public health issue. The present project aims to examine the magnitude of this major problem in a rapidly developing Jalgaon and analyse the causative factors.

The increasing pressure of the increasing population is putting Jalgaon's Transport system under constant pressure. The rapid rate of urbanization with increased economic activity has encouraged migration to the city, which led to an increase of personal, public, and para (3 and 6 seat autos) transit vehicles, industrial output, and increasing burden on the city's infrastructure.

The need of the hour is a robust system that is dependable, comfortable, affordable and sustainable. Population with an estimation to touch 5.30 lakh by 2021, and the increase in vehicular number has definitely created a crisis in Jalgaon. The increase in the vehicles since last 10 years has put a lot of pressure on the existing roads and ultimately resulting in road accidents. It is estimated that since 2001 there is an increase of 202 percent of two wheeler and 286 percent of four wheeler vehicles with no road expansion. Motor vehicle crashes are a common cause of death, disability, and demand for emergency medical care.

The main reason for road accidents in the city of Jalgaon is attributed to physical characteristics. The study tries to assess the increase in vehicular number and its effect on road accidents, also tries to locate the hotspots of road accidents and its causes.

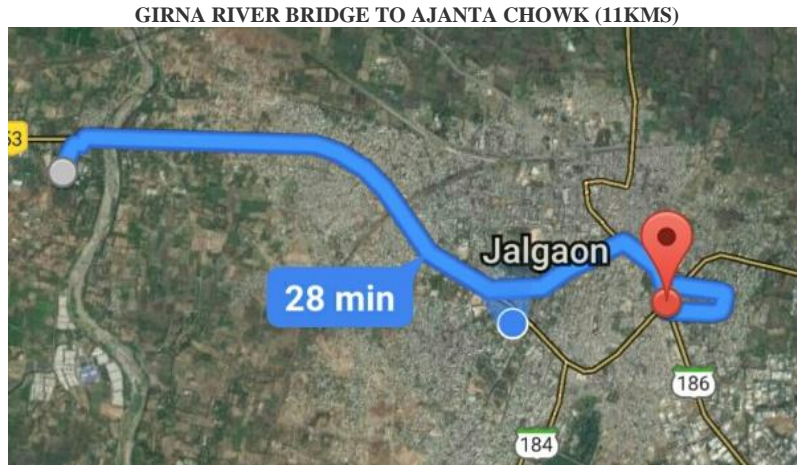
CAUSES OF ROAD ACCIDENT

Road accident is the most unwanted thing to happen to a road user, though they happen quite often. The most unfortunate thing is that we don't learn from our mistakes on road. Most of the road users are quite well aware of the general rules and safety measures while using roads but it is only on part of road users. Which cause accidents and crashes. The main cause of accidents and crashes are due to human errors. Following are the common behavior of humans which results in accidents.

1. Over Speeding
2. Drunken Driving
3. Distractions to Driver

4. Red Light Jumping
5. Avoiding Safety Gears like Seat belts and Helmets.

ROUTE OF ANALYSIS

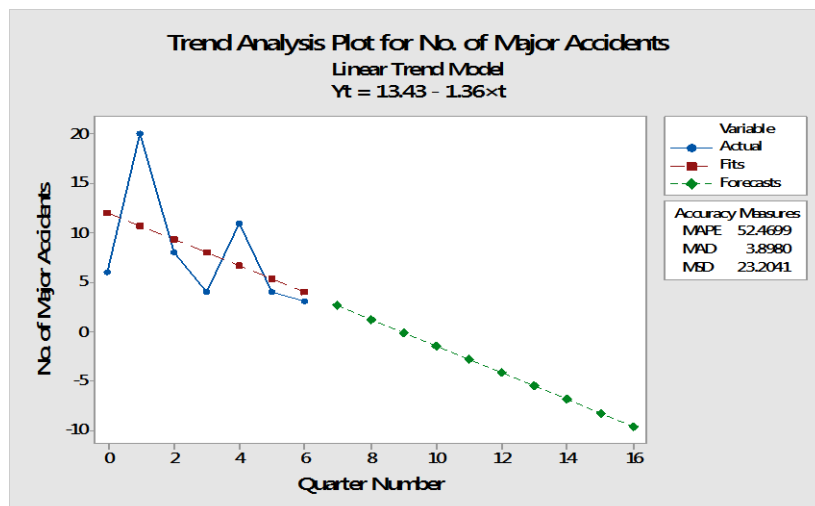


DATA COLLECTION AND REPRESENTATION

The data used in this project is secondary data. Mainly data are taken from the website of National Crime Records Bureau (NCRB). It is police recorded data which has been obtained through State/UT Police. All precautions have been taken to ensure that the data is statistically consistent. NCRB has only compiled and collated the data and presented it in the form of a report. It is mentioned that NCRB shall not be responsible for the authenticity of this information.

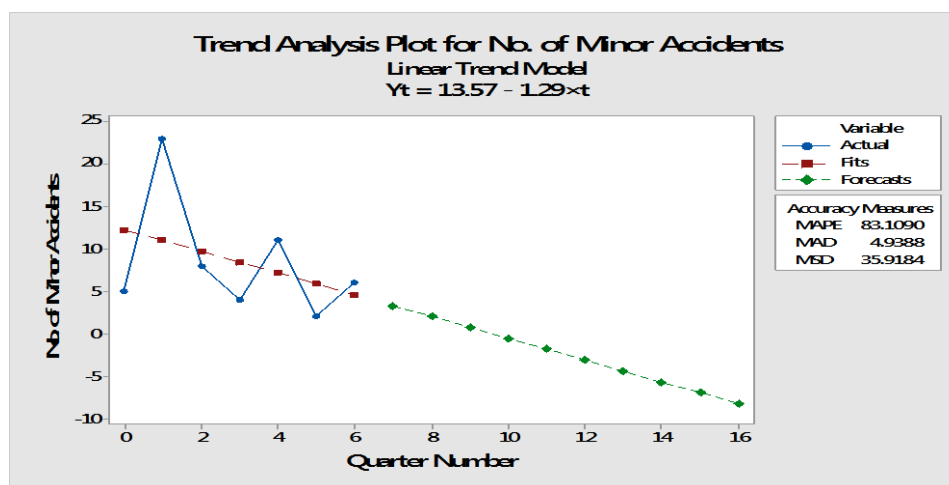
We have the following table showing the Number of major accidents in Jalgaon-NH-6

Data Obtained			Data Forecasted	
Quarter	Quarter NO.	No. of Major Accidents	Quarter	No. of forecasted Major Accidents
Jan-April-2015	1	6	May-Aug-2017	2.5~3
May-August-2015	2	20	Sept-Dec-2017	1.21~1
Sept-Dec-2015	3	8	Jan-April-2018	0.14~0
Jan-April-2016	4	4	May-Aug-2018	1.5~2
May-August-2016	5	11	Sept-Dec-2018	2.85~3
Sept-Dec-2016	6	4	Jan-April-2019	4.21~4
Jan-April-2017	7	3	May-Aug-2019	5.57~6
Note: Data been obtained from local Police Stations.			Sept-Dec-2019	6.92~7



We have the following table showing the Number of major accidents on Jalgaon-NH-6

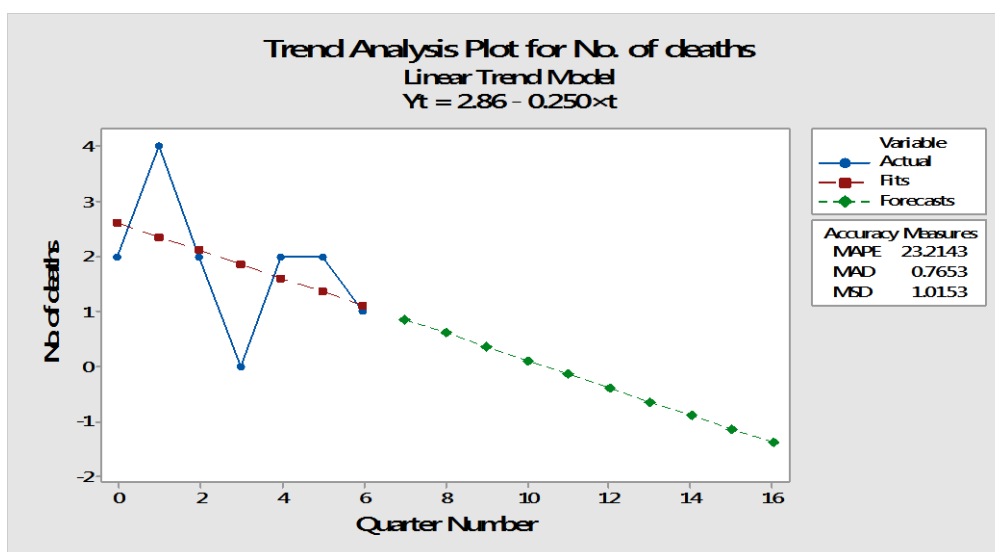
Data obtained			Data forecasted	
Quarter	Quarter NO.	No. of Minor Accidents	Quarter	No. of forecasted Minor Accidents
Jan-April-2015	1	5	May-Aug-2017	3.28~3
May-August-2015	2	23	Sept-Dec-2017	2
Sept-Dec-2015	3	8	Jan-April-2018	0.7~1
Jan-April-2016	4	4	May-Aug-2018	0.5~1
May-August-2016	5	11	Sept-Dec-2018	1.8~2
Sept-Dec-2016	6	2	Jan-April-2019	3.14~3
Jan-April-2017	7	6	May-Aug-2019	4.4~4
Note: Data been obtained from local Police Stations.			Sept-Dec-2019	5.71~6



We have the following table showing the Number of Deaths due to accidents in Jalgaon-NH-6

Data Obtained			Data Forecasted	
Quarter	Quarter NO.	No. Of Deaths Due To Accidents	Quarter	No. Of Forecasted Deaths by Accidents
Jan-April-2015	1	2	May-Aug-2017	0.85~1
May-August-2015	2	4	Sept-Dec-2017	0.60~1
Sept-Dec-2015	3	2	Jan-April-2018	0.357~0

Jan-April-2016	4	0	May-Aug-2018	0.10~0
May-August-2016	5	2	Sept-Dec-2018	0.14~0
Sept-Dec-2016	6	2	Jan-April-2019	0.39~0
Jan-April-2017	7	1	May-Aug-2019	0.69~1
Note: Data been obtained from local Police Stations.			Sept-Dec-2019	1.85~2



Note: The above-forecasted values are calculated under the condition that certain physical and climatic conditions of the area of interest remained the same over the time period.

REMIDIAL MEASURES TO AVOID ACCIDENTS

1. Use of 3-Dimensional speed breaker should be taken into account.
2. Shoulders across the Highway should be in Level.
3. Subways should be constructed at Shiv Colony Chowk and Ajintha Chowk for safer travel of pedestrians.
4. General Awareness about Road Safty and control.
5. Speed Limit of vehicles should be followed and monitored by Authorities.
6. Traffic Rules should be strictly followed and action should be taken by Authorities if someone violets the Rules.

CONCLUSIONS

1. The number of Major Accidents Forecasted for the Year MAY 2017- APRIL 19 is **26**.
2. The number of Minor Accidents Forecasted for the Year MAY 2017-April 19 is **22**.
3. The traffic flow is goes on increasing year to year in the present study corridor.
4. In the urban area (Jalgaon city) maximum accidents are caused due to Tempos and Auto rickshaws.
5. Number of accident observed at 9 a.m. to 11 a.m. and 10 p.m. to 12 a.m. duration because in that time more buses are travels between villages and city.
6. Shiv Colony area stands first among all the places in the study area in the number of accidents. More crowds are present in that area so it became an accident prone zone.
7. Out of the all the police stations maximum cases of both major and minor accidents are registered in Ramanand Police station. Because the Ramanand police station covers more length of NH in the present study corridor.
8. The accidents caused by faulty road geometry are very less in the city and the accidents causing by faulty road geometry in rural highway portion.

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