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GIS BASED TRAFFIC STUDY FOR ONION MARKET.

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ABSTRACT

Traffic engineering uses engineering methods and techniques to achieve thr safe time efficient movement of peoples and goods on road way. The safe and time efficient movement of people and goods is dependent on traffic flow which is directly connected to traffic characteristics. The three application main parameter of traffic flow are volume, speed , and density. In recent time , the geographic Information System for Transportation (GIS-T) has gain prominence in the research and management of real world transportation problems such as urban traffic congestion, especially in the developed countries. In developing countries, however constraining such as initial prohibitive cost and inadequate expertise have limited to the widespread of GIS-T. Consequently a comparatively cost effective and simple GIS-T method of congestions data generation known as the traditional stopwatch and traffic congestion registration technique. This technique use of the global positioning system recieiver digitally formatted table, among others, to generate travel time data analytical purpose.

Keyword : -*GIS Software1 , Traffic Management2,Onion Market3, etc….*

1. Introduction

G.I.S is a computer-based tool for mapping and analyzing geographic phenomenon that exist, and events that occurs 0n earth. In general sense, the term describes any information system that integrates stores, edits, analyzes, shares, and displays geographic information.

1 Components of GIS

1. Hardware

2. Software

3. Data

4. Methods

5.People

Fig 1.1.1.:- Components of G.I.S

1. Hardware – Hardware is a computer on which a GIS operates. GIS software runs on a wide range of hardware types, from centralized computer servers to desktop computers used in stand-alone or networked configurations.

2. Software – GIS software provides the functions and tools needed to store, analyze and display geographic information.

3. Data – Possibly the most important component of a GIS is a data. Geographic data and related tabular data can be collected in house or purchased from a commercial data provided.

4. People – GIS technology is of limited value without the people who manage the system and develop plan for applying it to real world problems. IS users range for technical specialists who design and maintain the system to those who used its to help the perform there every day work.

5. Methods or Application – A successful GIS operates according to a well-designed plan and business rules, which are the models and operating practices unique to each organization.

Examples of G I S software's

1) Arc GIS
2) QGIS
3) GRASS

4) MapInfo etc.

1.1 Introduction of study

The rapid growth in population and recent trends in urbanization have led to traffic management related issues and environmental deterioration If there is an accident in any spots the vehicular traffic queue built up also due to increase in number of vehicles travelling speeds decreased and passage is not clear,therefor such road traffic is not safe and careful consideration for planning is necessary.

Traffic engineering uses engineering methods and techniques to achieve the safe and time efficient movement of people and goods on roadways. The safe and time efficient movement of the people and goods is dependent on Traffic flow, which is directly connected to the traffic characteristics. The three main parameters of a traffic flow are **volume, speed** and **density**. In the absence of effective planning and traffic management of the city, the current road infrastructure cannot cater the future needs of the city. Pedestrian and vehicle volumes have increased significantly in the last decade due to the change of the economics of the middle-class families. The current work studies traffic characteristics in the city of Dhaka at one selected priority junction. In this work emphasis was given on traffic volume and the analysis was carried out through primary traffic flow surveys at AUST-Flyover junction to Shatrasta Junction in Dhaka city. Traffic flow is studied by manual methods. For better understanding of the present status of traffic flow at the junction, traffic survey is conducted. Calculation of Passenger Car Units (PCU's) for different vehicle types was provided by our respected course co-coordinators of the course CE452. With the help of the data collection, an attempt had been made to understand the traffic patterns during different time periods. Traffic control at that junction is also dependent on the traffic flow characteristics. Hence the results from the present study are helpful in controlling the traffic at the intersection and also in suggesting some of the remedial measures to improve the traffic safety in the region. Remedial measures such as widening the road, changing 4-lane to 6-lane or by providing more public transport can be recommended based on the outcome of the Transport   infrastructure management system starts form the premise that the road network is an asset which need to be maintained and improved so as to secure the best performance and value for money and the maximum service life (Transport Research Laboratory, 1998). They went on to say that the aims of road managers are to enable the network and surface to withstand the damage cause by wear and tear, to prevent substandard conditions from development, and to ensure that traffic can continue to travel, in a manner which is safe, efficient, reliable and which causes the list damage to the environment. These aims are achieved through a series of works and activities which depend for their effective management on the maintenance of up-to-date information about the features and surface condition of the road network.

1.2 Origin and Destination Survey

O & D survey can be carried out for following three purposes as follows,

1. Planning of the road network and other facilities for vehicular traffic.

2. Planning the schedule of different modes off transportations.

3. Determination of number of vehicular traffic, their origin and destination in each zone.

Types Of Origin And Destination Survey –

1.   Home interview method
2.   Road-side interview method
3.   Return post card method
4.   License plate method
5.   Tag on car method
6.   Work spot interview method

2. METHODOLOGY-2

2.1 Data Collection

In the present study we are selected five talukas of Nashik districts and accordingly five zones are created.

Namely,

1.   Yeola – ZO1
2.   Niphad – ZO2
3.   Chandwad – ZO3
4.   Sinner – ZO4
5.   Dindori – ZO5

Then the based maps or zone maps are formed around the study area for the selected talukas.

Fig 3.1.1 Base Maps

2.2 Data Analyse

Each talukas having various villages,they are code systematically for study and are shown in Table 3.2.1 to Table 3.2.5

For example –

1. Y001 – ADGAONCHOTHVA ,Village under yeola taluka in ZO1
2. N001 – PIMPALGAON BASAVANT,Village under niphad taluka in ZO2
3. C001 – COCOADGAON, Village under chandwad taluka in ZO3
4. S001 – ADWADI, Village under sinner taluka in ZO4
5. DOO1 – AHIWANTWADI, Village under dindori taluka in ZO5

VILLAGE CODE	VILLAGE NAME	V.C	VILLAGE NAME
N001	PIMPALGAON BASAVANT	N046	DAVACHWADI
N002	NOPHAD	N047	MUKHED
N003	VINCHUR	N048	VADALINAJIK
N004	CFHANDORI	N049	SHIVARE
N005	KASABE SUKANE	N050	KOTAMGAON
N006	SAIKHADE	N051	JALGAON

Table -2.2.1: Niphad Taluka Villages with coded.

2.3 Area estimation and their cropping pattern

Area estimation of all villages under study are taken from www.maharashtra village code area.com

The culturable command area are assumed as 75% of gross command area.

3.3.1 Area estimation of Lasalgaon taluka and their yields

In this zone following are the major crops are taken ,

1.   Onion
2.   Grapes
3.   Maize
4.   Soyabin
5.   Vegetables
6.   Pomegranate
7.   Other

In Niphad Taluka have 135 villages and two main market such as Lasalgaon Onion market and Pimpalgaon Baswant onion Market. In Niphad Taluka Have a major crop are listed above and we calculate the crop distribution of each and every villages under niphad taluka in below table no. 3.3.1 – Niphad Taluka Crop Distribution Based on crop acreage.

VILLAGE CODE	AREA Ha.	C.C.A 75%	Onion 50%	Maize 15%	Soyabin 2%	Others 5%	Vegetables 20%	Pomegranate 8%
N001	852	639	319.50	95.85	12.78	31.95	127.80	51.12
N002	221	165.75	82.88	24.86	3.32	8.29	33.15	13.26
N003	250.39	187.79	93.90	28.17	3.76	9.39	37.56	15.02
N004	427.39	320.54	160.27	48.08	6.41	16.03	33.11	25.64
N005	218.23	163.67	81.84	24.55	3.27	8.18	32.73	13.09

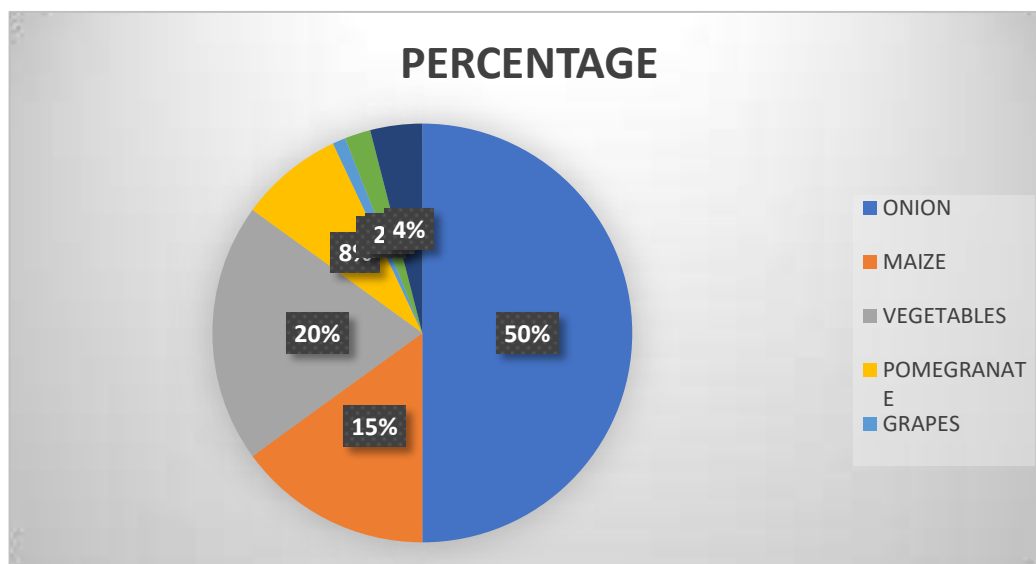**Table no. 3.3.1** – Niphad Taluka Crop Distribution Based on crop acreage.

Figure no. – 3.3.1- Percentage for crop distribution of Niphad Taluka

3. DEMOGRAPHIC SURVEY

We conducted demographic survey for this market. In this survey the details about the coverage area, objectives of government markets and demographic information is generally studied.

Demographic details for lasalgaon as shown below,

3.1 Demographic details -1

Lasagaon`s lattudinal place 20 x07 north and horizontal space is 74 x14 . Lasalgaon Darkha. On the face of the Western ghats I at the distance are the Shadri mountain ranges. 590 m from sea level there is a planin area of 46 meters.

Annual average rainfall is 476.43 meter. There are 83% . It was from June to September. the town of lasalgaon is situated on the edge of shivanadi .

Population of lasalgaon 24,240. dua to natural factors favorable, lasalgaon is being developed and developed.

3.2 Coverage of market committee –

The cover Lasalgaon market is playing a central place, the agricultural produce market Committee has created its own main and secondary impact. Main impact area Comprises of 114 villages, dhule , galgaon , Aurangabad , in the suburbs Madanagar and Nasik dist.

In this area 59 villages in Niphad taluka and Yeola taluka, 27 villages are in the mangrove area , 473.49 sq.kimometer of Niphad taluka 209.13 km of chandwad taluka in the Yeratala particle 904.93 sq.km. area is under the influence of 1,60,983 population of three lanes is 194.93 chandwad these two blocks were. Maharashtra govt. taganva markets .

Objective of government market –

1] The purpose of the market community should be to give proper market value to the farmers in the market, and they should be well organized to sell their goods and they should not befinancially fraudulent and unfairness form different types of soil, and increasing unauthorized rituals and suits.

2] The right weight should be weighted and the cash should be paid by the cash should be paid by the cash or through the NERT/RTGS service or by check.

3] Market committee was formed for the purpose of tracking the interst of the relevant constituents.

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Sr. No.	Taluka	Market	Total Village	Coverage Village	Total Coverage Village	Uncoverage Village	Village Coverage Percentage
1.	Niphad						
	a)	Lasalgaon	133	65	107	26	80.45
	b)	Pimpalgaon baswant		42			
2.	Yeola						
	a)	Yeola	124	41	66	58	53.22
	b)	Andarsul		25			
3.	Sinner						
	a)	Sinner	126	30	58	68	46.03
	b)	Doki kh.&Nandur Shigoti		28			
4.	Dindori	Dindori	129	59	59	70	45.73
5.	Chandwad	Chandwad	108	54	54	54	50

Table no 4.1.1 – Market coverage area

4. CONCLUSIONS

1) Existing cropping pattern acreage of various villages under study area of Yeola , Niphad , Chandwad, etc. is estimated .
2) Crop yield has been estimated based on crop acreage And Yield per Acreage.
3) It is found that the maximum production is for onion crop in an talukas under study area.
4) GIS based buffer analysis for 10 km & 20 km radius has been carried out and it's observed that some of the villages are uncovered.
5) To reduce transportation cost ,
   a) Villages can approach the nearest market within 10 km radius.
   b) Villages covered under 10 km & 20 km radius have option to choose another market.
   c) Uncovered villages are pay more transportation cost, Hence it's proposed to an some more market to reduce transportation cost.
      Eg. In Dindori Taluka Have One More market At Charose village for covering more villages in Dindori Taluka**.**

5. ACKNOWLEDGEMENT

6. REFERENCES

1) Mazloh Al- Enazi-"*Traffic congestion Evaluation using GIS Case study Jeddah City*" (March -2016)

2) Anitha S D Sevlasofia, Prince G Arulraj.-"*accident and Traffic Analysis using GIS*" (August-2016)

3) Maryam Ahmadi, Ali Valinejadi et all.- "*GIS capabilities in traffic accidents information management: a quality to approach*".Electronic Physician .(June 2017)

4) Amudapuram Mohan Rao-"*Managing Traffic Congestion with GIS*" (March-2013)

5) Martin Staudinger, Thomas Woltron, et.al.- " *Design of a GIS Traffic Forcast Information System*"Department of information system Austria. (May 2007).

6) Martin Loidl, Gudrun Wallentin et.al.-"*Gis And Transport Modeling- Strengthening The Spatial Perspective*" international journal Geo-Information. (April-2016)

7) Ernest Agyemang-"*A Cost Effective G I S For Transportation Application For Traffic Congestion Analysis In The Developing World*" Ghana journal of Geography vol.5 2013

8) Junaid Abdul Razzak ,Uzma Rahim Khan Et All. –" *Application Of GIS For Mapping Road Traffic Injuries Using Existing Source Of Data In Karachi ,Pakistan*" . Department Of Emergency Medicine,Aga Khan University Karachi Pakistan.(2011)

9) P Anusha,m anvesh kumar – *Ttraffic volume and spot speed analysis on busy corridor*". International journal of research in advanced engineering and technology vol. 2 (March 2016)
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