

A Study on Improvement of Urban Transportation Planning

As a case study of Gandhinagar and area Nearby Ahmedabad

¹Rahul A. Purohit, ¹Mehul V. Gajjar, ²Priyank B. Shah

¹U.G. Student, ²Assistant Professor

^{1,2}Department of Civil Engineering, SVBIT, Gandhinagar, Gujarat

Abstract - Public Transport has an important role in urban development. This research shows the probability for the 'network-planning' approach to the design of public transport to improve patronage of public transport services in Gandhinagar with seven major intersections. Gandhinagar city is the one of the most developed city and it would be the finest smarter city in India in future. For several decades, urban growth in Gandhinagar has been explosive in terms of urban land use and population, and the number of cars on urban roads has grown even faster. In the future development process of Gandhinagar, we try to improve and develop safe, fast, impressive, economical, able to accomplish important purposes of city and less time consuming public transport network in Gandhinagar city including the area, which connects the major routes of Gandhinagar and we also including the area of all sectors, educational places, Hotels, Restaurants, shopping malls, complexes, the area under GUDA (Gandhinagar Urban Development Authority) and some other areas nearer to Gandhinagar, which play important role in the improvement of transportation system. This research ends with the main conclusions and recommendations found in the study to improve the route optimization of urban public transportation.

Index Terms - Transport, improve, optimization.

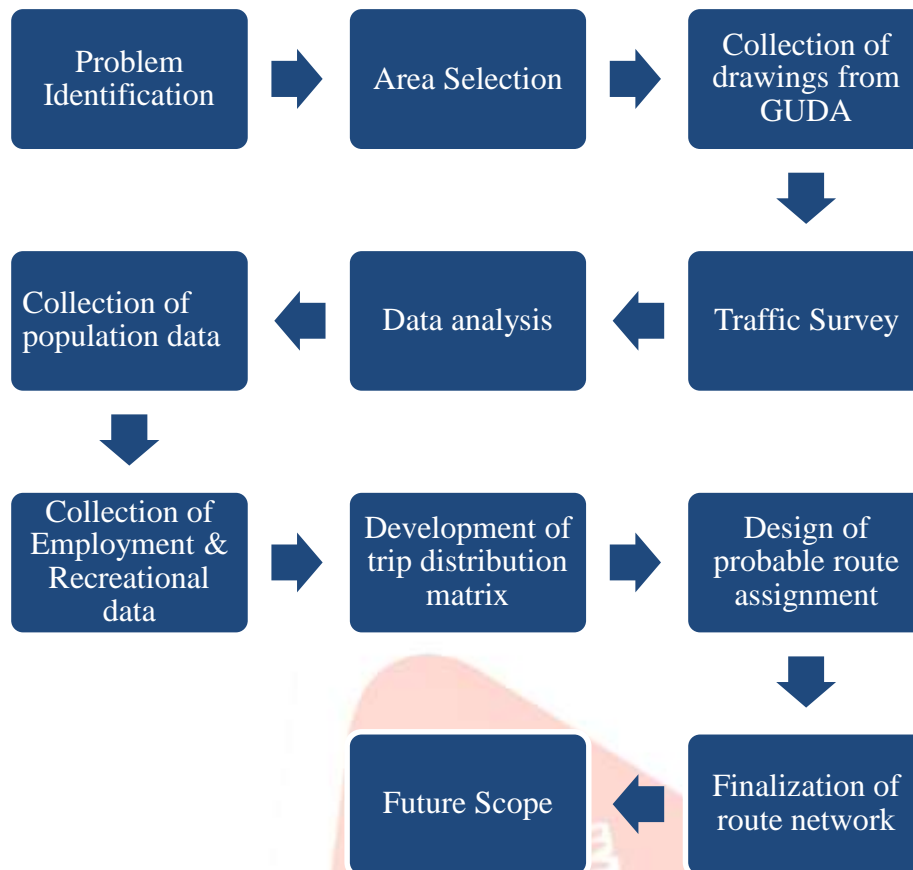
I. INTRODUCTION

Urban population growth does not only mean that there will be more people that living and working in, but also mean that there will be more loading of passenger and freight travel in the urban transport network. Mobility is becoming increasingly essential in large cities as a consequence of its impact on social, economic and geographic development. In fact, transportation potentially affects the nature of the urban area itself. Transportation can be characterized by hip frequency, travel distance, modal choice, route choice etc. In absence of the implementation of proper planning measures, it also leads to increased additional cost for transportation infrastructure and its operation, while at the same time, creating many environmental, economical and social problems. In such urban environments, transport effectiveness and efficiency not only affect local and regional productivity rates, they also have an impact on citizens' quality of life. The development and growth of an urban center largely depends on the efficiency of prevailing transport system. The contribution of this research relies on the fact that, to our knowledge, this is the first study attempting to explain urban transportation systems of Gandhinagar city including important area of Ahmedabad which are nearer to Gandhinagar. There are much more objectives of this research study on public transportation planning.

II. OBJECTIVES

- To develop a first class street and road network that meets the short and long-term needs of Gandhinagar. Design streets and road network that are safe, efficient and effectively move vehicular traffic.
- Create a bikeway/sidewalk/greenway network that is an integral part of the transportation system and provides an alternative means of transportation and recreation.
- Identify and address the needs of minority and low-income populations in making transportation decisions.
- Promote land use patterns and transit-oriented design standards that support walking, bicycling and public transit and reduce the number and length of automobile trips.
- Facilitate connection between modes. To provide efficient sign & signals to reduce accidents and control traffic problems.
- To satisfy the current and future travel demand. To preserve and improve the environment

III. METHODOLOGY



Location Selection

Locations are selected from Gandhinagar(Gujarat) and area nearby Ahmedabad

- Gh-3
- Gh-6
- K-7
- Vayusena Intersection
- Visat Intersection
- CH-0
- Sargasan Intersection
- Indira Bridge Intersection

IV. TRAFFIC SURVEY METHOD

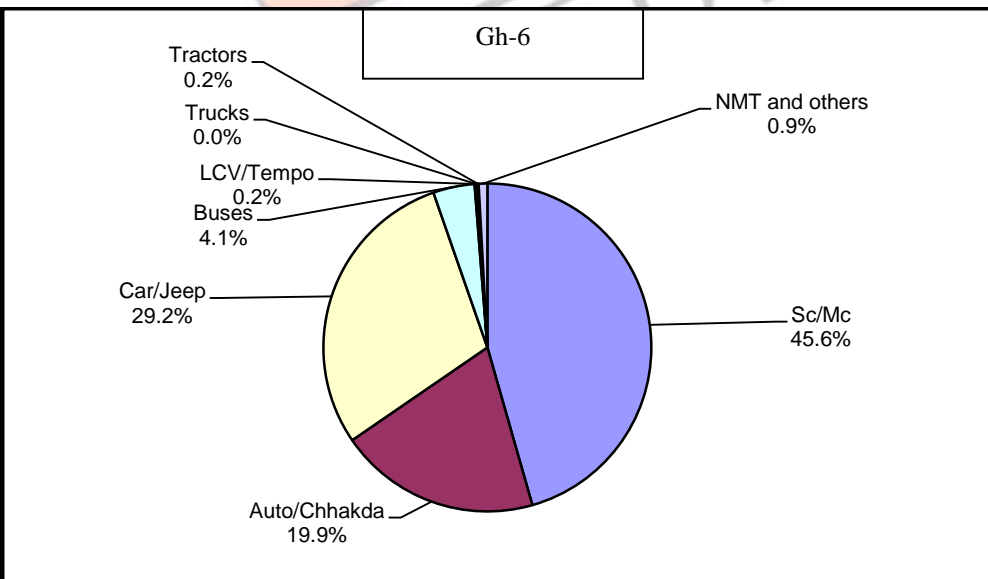
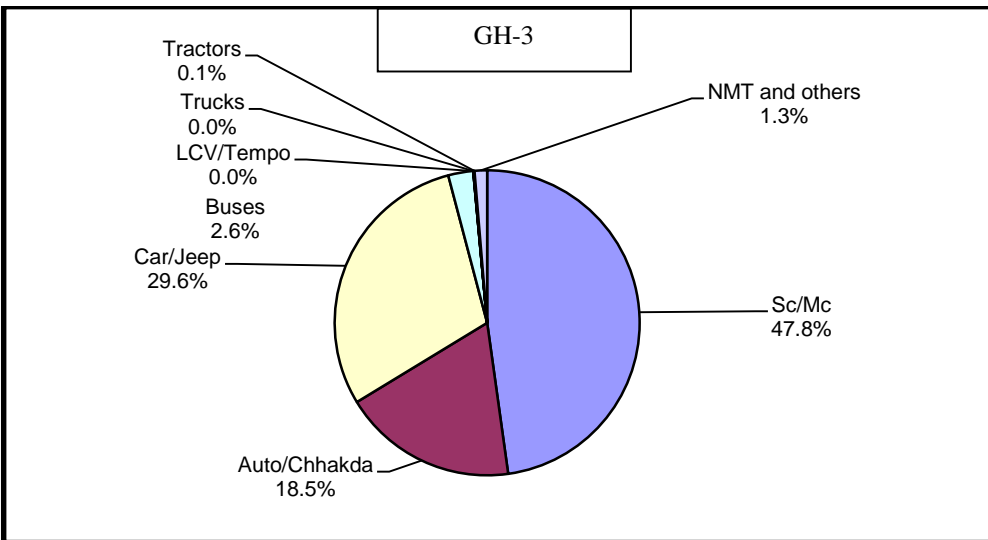
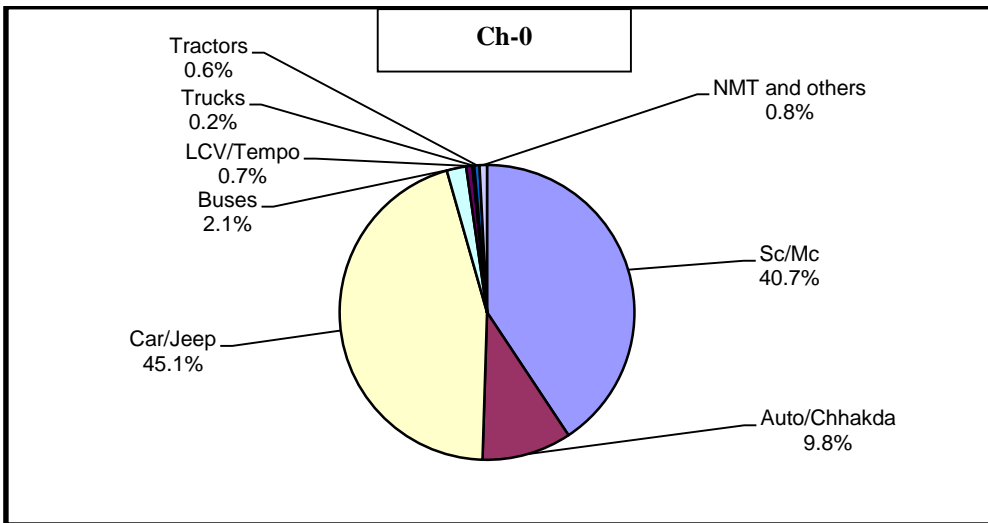
Traffic volume studies are conducted to determine the number and classification of roadway vehicle at the given locations. This data can help to identify the number of trip generation, trip distribution, traffic volume and traffic density. In this method, the length of the sampling period mainly depends on the type of counting base period. For example, this data can identify the peak period of traffic by taking the base period of 15 minutes for 7 hours.

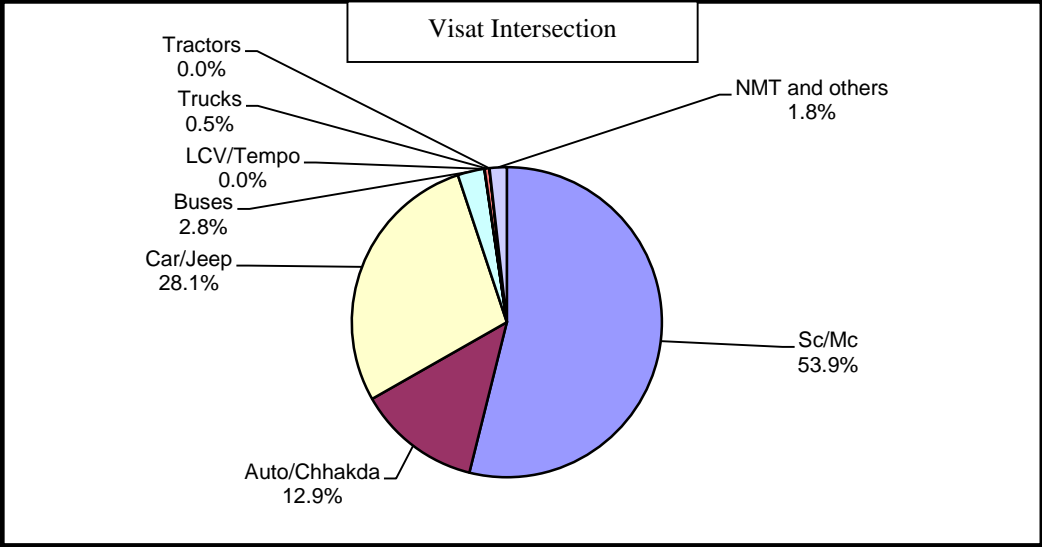
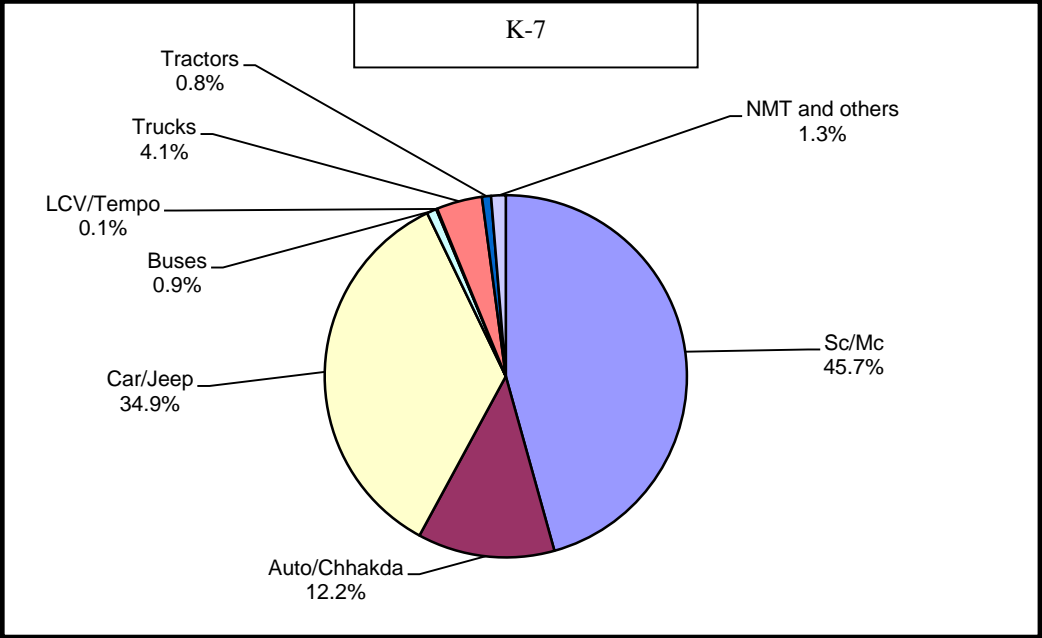
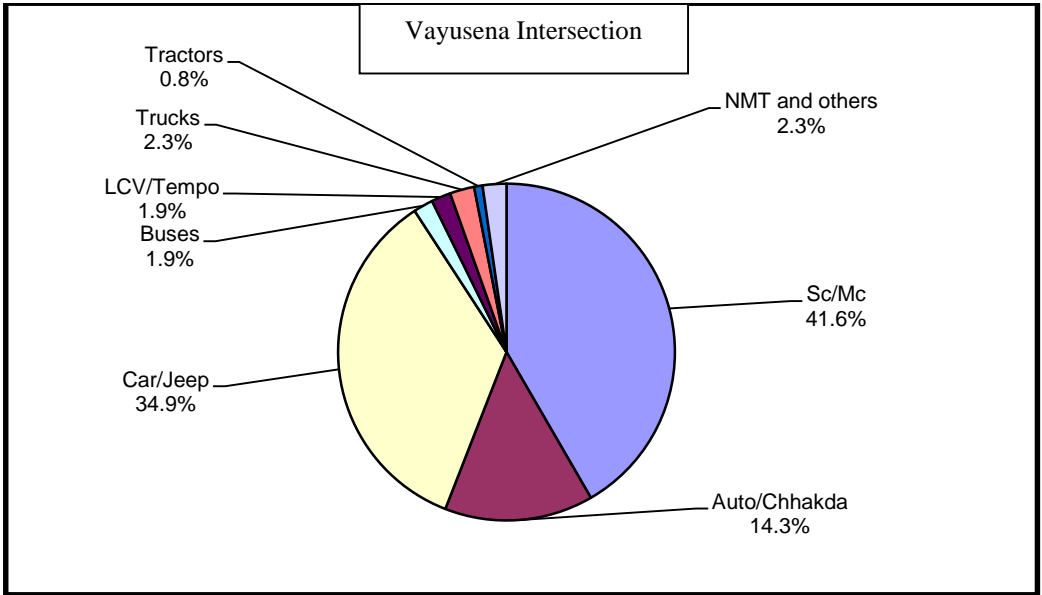
Method of Count Period

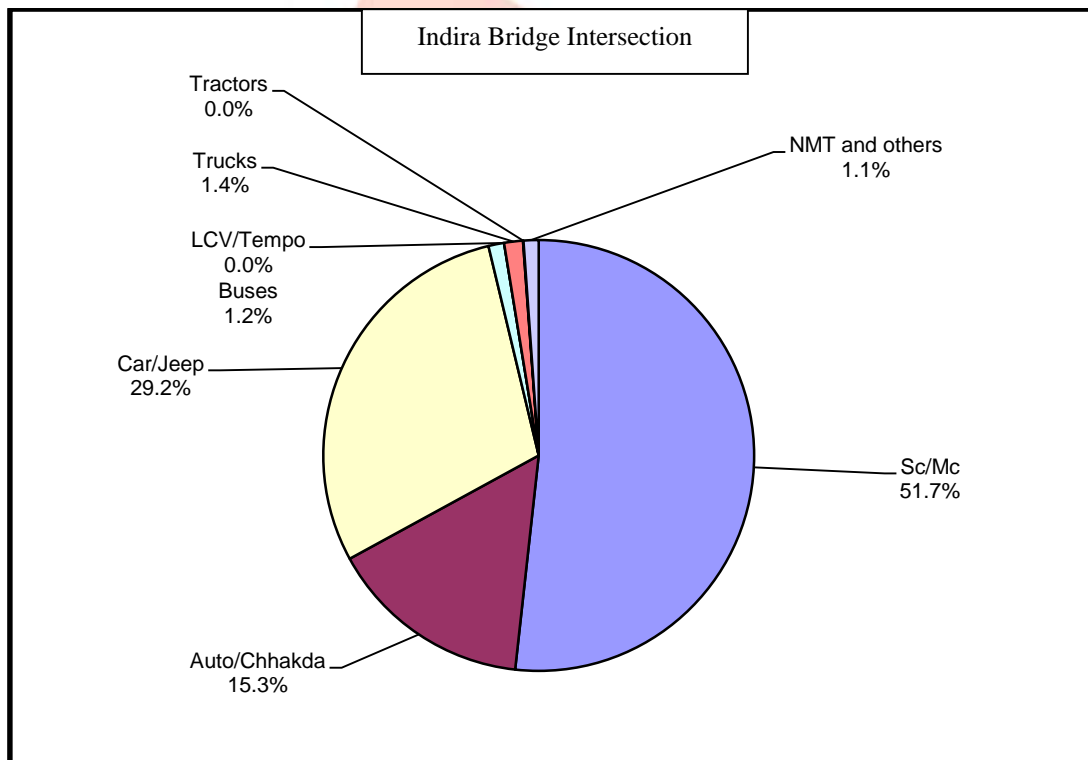
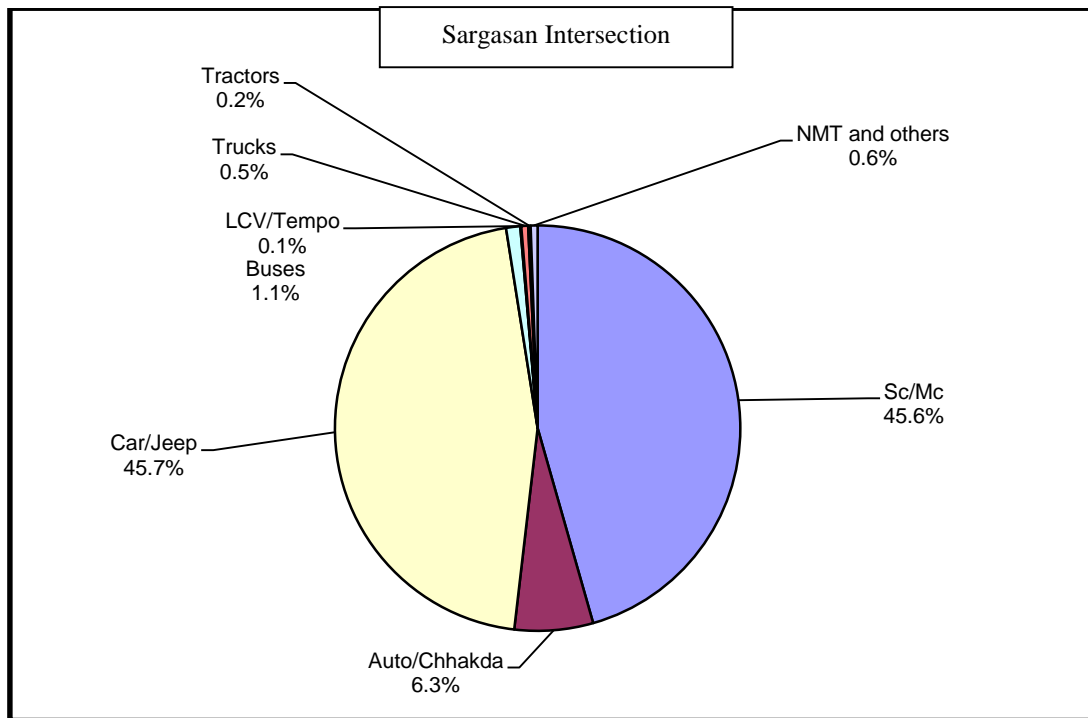
For conducting traffic volume counts, there are two methods for that: (1) Manual Counting (2) Automatic Counting. Manual counting is generally used to determine vehicle classification, direction of travel, turning movements. Hence, automatic counting is typically used to determine hourly traffic volume, vehicle hourly patterns and annual traffic estimation.

Manual counting determined using count period. It should be representative of the time of day, as well as day of month and month of the year cause all are affecting the value of traffic survey. Usually count period are 15 minutes to 2 hours for peak periods, 4 hours for morning and 3 hours for evening. For example, if you are conducting a 2-hour period count, 15 minutes counts would be required. The higher count periods make the data more perfect.

Based on a Traffic survey, Traffic composition on various locations are given as below,







V. CONCLUSION

- Vehicular distribution leads to suggestion of following four traffic routes which lead to common routes at every interval
- New Identified routes are as below:
 - ✓ Pathika – (Gh-0) –Relience Junction - Shahpur Junction – Tapovan Circle – Visat Junction – Chandkheda
 - ✓ Pathika – Gh-0 – Ch-0 – Koba – Indira Bridge Junction – Hansol
 - ✓ Pathika – Sector -7 – Sector – 6 – Sector -12 – Sector -23 – Sector -28 – Gh-6 – Pathika
 - ✓ Pathika – Sector -1 – Ch-0 – Gh-0 – Sargasan Junction – Kudasán – Shahpur Junction – Indroda Park – Sector -10 – Pathika

VI. ACKNOWLEDGMENT

I take this opportunity to express our profound gratitude and deep regards to our guide Prof. Priyank B. Shah for his exemplary guidance, monitoring and constant encouragement throughout the course of this project. The blessing, help and guidance given by him time to time shall carry me a long way in the journey of life on which we are about to embark. Lastly, I thank almighty, my parents and our friends for their constant encouragement without which this would not be possible.

REFERENCES

- [1] Mr Priyank B Shah, Prof. H K Dave, 2009, A study on Public Transport Network With Vehicle occupancy Survey IJEDR1303055, 2009; 272
- [2] Víctor Islas Rivera, Salvador Hernández G., José A. Arroyo Osorno, Martha Lelis Zaragoza, J. Ignacio Ruvalcaba, Discussion Paper 2011-14, Implementing Sustainable Urban Travel Policies in Mexico – ©OECD/ITF 2011
- [3] Balcombe, R and Paulley, N 2004, 'Demand of Public Transport: A Practical Guide' TRL Report 2004, TRL Limited, Great Britain
- [4] Deb, K and Philippini, M 2010, Public bus transport demand elasticities in India" 2010
- [5] IRC-93-1985, Guideline on Design and Installation of Road Traffic Signals.
- [6] Sharma, S.C. 1994. Seasonal traffic Counts for aPrecise Estimation of AADT. ITE Journal, Vol. 64, No. 9, pp. 34-41.

