

Study on Time Space Management In Work Zone on the NH7 Stretch between Jagir Ammapalayam To Seelanaickenpatti

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Abstract- *The purpose of this investigation is to find out the various problems involved in the highways due to the setting up of the work zones at the various points in the particular section of the road. Time space management is the major concern in road construction projects and established guidelines exist for some countries. The large number of new major road infrastructure projects requires the enhancement of highways for the safe operation and maintenance of the traffic. Constructability is an important aspect, which becomes more pressing in light of public-private partnership (PPP) nature of these projects. We can and must build faster, bigger, safer and more economically than our predecessors and to meet this challenge, effective project management is crucial. The major problem faced in the construction of roads is the diversion of the traffic and safe work zones for the workers. The management of these zones is highly under the low priority list of all contractors or the firms which carry out the works. The improvement of the roads should be carried out with proper detailing and scheduling. Proper study of the traffic pattern of the particular section is to be carried out. With the details derived and using suitable Statistical Packages Social Sciences(SPSS) for the time space management of the work scheduling is to be done. A study on the NH7 stretch between Jagir Ammapalayam and Seelanaickenpatti is to be carried out and subsequently a Statistical Package Social Science(SPSS) is developed on time space management system.*

Keywords- Time Space Traffic Management, SPSS, Transportation Management Plan.

I. INTRODUCTION

The road system is the most important part of the transportation system in the whole world. This system requires a high level of management. Our country as a whole does not have a proper system to monitor this traffic. The road system requires a high amount of management features for the proper functioning and to avoid the traffic jams and accidents which occur daily in Salem as it is a Fifth largest Municipal Corporation of Tamil Nadu. Our highway infrastructure is ageing and congestion is increasing. Transportation agencies

must find ways of building and reconstructing roads and bridges while limiting impacts to the traveling public. Managing traffic during construction is necessary to minimize traffic delays, maintain motorist and worker safety, complete roadwork in a timely manner, and maintain access for businesses and residents.

Effective time space traffic management includes assessing work zone impacts and documenting strategies for mitigating the impacts in a transportation management plan (TMP).

Time space traffic management strategies should be identified based on the project constraints, construction phasing/staging plan, type of work zone, and anticipated work zone impacts. Once these strategies are implemented, they need to be monitored to ensure they effectively manage work zone impacts. So the various problems that are faced in the modern India where there are precious lives lost and time lost due to improper management of the traffic.

The proper need for the time based management is needed to sort out the issue. This kind of heavy vehicular quantity facing roads need proper build up of a management system for the traffic management. The time management system can be used to enable in the proper facilitation of the traffic. The time management system is brought about with the study of the pattern of the traffic in the particular area. The various time series are the ones at which the traffic tends to be heavy during this time the vehicular count should be also known for the formulation of a good management system.

ENTITLED POINTS:

Accelerated construction uses various techniques and technologies to help reduce construction time while enhancing/maintaining safety and quality. Coordination of road projects between transportation agencies, utilities, and other agencies that need to do construction in the public right-of-way can result in benefits such as significant cost savings, earlier identification of project impacts and greater ability to

reduce and manage traffic disruptions from road work, and better quality road surfaces.

Night work/off-peak work involves scheduling work at periods of lower traffic volumes, to reduce traffic disruption, as well as worker exposure to traffic and driver exposure to work zones. Positive protection can reduce the risk to workers and travelers with the use of devices that contain and redirect vehicles, reducing the risk of vehicle intrusion into the workspace (J.Weng, Q. Meng, 2012).

Road closure is an approach designed to eliminate the exposure of motorists to work zones and workers to traffic by temporarily closing a facility for rehabilitation or maintenance. Managing traffic during construction is necessary to minimize traffic delays, maintain motorist and worker safety, complete roadwork in a timely manner, and maintain access for businesses and residents.

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A carefully designed organizational structure is essential for success in a competitive business climate. However, without a practical management system that can establish companywide information dissemination, structure loses its full effectiveness. Equally influential are the players within the management system, who must be able to address all cultural factors that may affect the operation of a company. These factors include organizational characteristics, relationships, competition, and performance. All elements combine to form an integrated business process. The starting point for any organizational design is a realistic company structure that is based on a well-thought-out strategy. If the management team develops a clearly understood strategy and a company structure to accommodate it, the management system has a better chance of being effective.

The concept of program management charges an entity, which we will call the program management group, with the responsibility for overall management of all phases of the work to ensure success. However, managing a major program is impossible without a comprehensive management plan. The plan will establish the method for obtaining the program's schedule and cost goals, and determine the most

efficient allocation of resources required to achieve these goals. The actions that are taken to create an information system that solves an organizational problem are called system development. These include system analysis, system design, computer programming/implementation, testing, conversion, production and finally maintenance. These actions usually take place in that specified order but some may need to repeat or be accomplished.

LANE ENCLOSURE:

Road closure is an approach designed to eliminate the exposure of motorists to work zones and workers to traffic by temporarily closing a facility for rehabilitation or maintenance. Managing traffic during construction is necessary to minimize traffic delays, maintain motorist and worker safety, complete roadwork in a timely manner, and maintain access for businesses and residents. Effective time space traffic management includes assessing work zone impacts and documenting strategies for mitigating the impacts in a transportation management plan (TMP). Time space traffic management strategies should be identified based on the project constraints, construction phasing/staging plan, type of work zone, and anticipated work zone impacts. Once these strategies are implemented, they need to be monitored to ensure they effectively manage work zone impacts. Examples of possible performance measures for time space traffic management strategies include volume, travel time, queue length, delay, number of incidents, incident response and clearance times, contractor incidents, community complaints, user costs, and cumulative impacts from adjacent construction activities (Highway Capacity Manual, 2000).

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II. OBJECTIVE

- ✓ To study the causes of traffic issues in the selected road stretch.
- ✓ To study the amount of vehicular passage in the area to be under surveillance.
- ✓ To prepare the questionnaire for the receiving of required data from the road construction companies.
- ✓ To space out the time of operation of the work based on the movement of the vehicle.
- ✓ To prepare an SPSS model ensuring that the end user's perspective is taken into consideration and thus improving the efficiency of the organizational structure.

III. SCOPE OF PROJECT

- ✓ It would help in improving the efficiency and proper step by step planning of project implementation.
- ✓ Proper utilization of the work force which is to be utilized without wastage of men, material and machinery.

IV. METHODOLOGY

Initially the roads which tend to have heavy traffic the numbers of vehicles which are travelling on it are to be analyzed for the considered section. Later, time-space management strategies are analyzed in case of any constructional operations like building, reconstructing or maintenance of roads or bridges in this selected zone. The following figure, shows the flow of the work for the project. The complete road section which stretches from Jagir Ammapalayam to Seelanaickenpatti is about 10 km. The stretch consists of three major points at which the traffic survey is to be carried out.

The three major points are, Jagir Ammapalayam, AVR Circle and Seelanaickenpatti are considered. These points are where the usual accumulation of traffic takes place. The various points which involves a high level of risk are properly assessed and these points are entitled to the various set of varying methodologies for the study of the traffic related aspects involving the vehicles present in the particular area of interest. Once the road survey is completed, a questionnaire is prepared based on different factors affecting the project. The questionnaire helps in analyzing the issues during different phases of the project. Thus, it can be supplied to the organization taking up the project

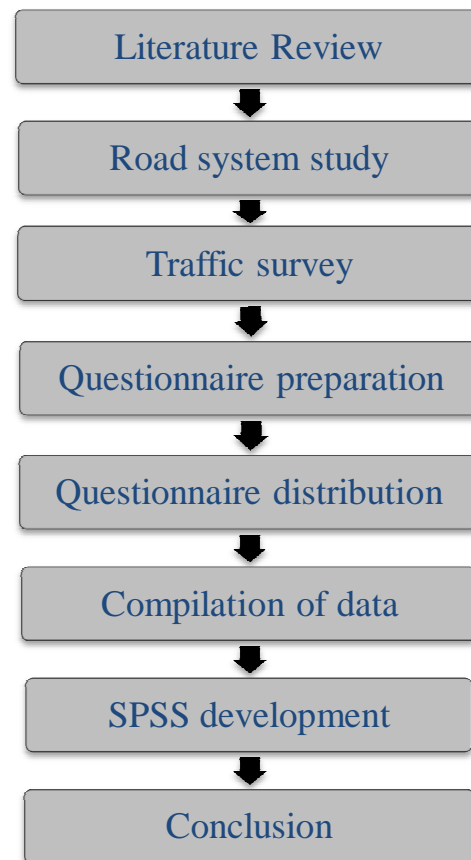


Figure 3.1 Flow chart showing the steps involved in project.

so that they can easily analyze the major problems that may arise in construction due to the traffic. The organizations that take up the project are supplied with questions to study and analyze the problems. An SPSS model is then made in such a way that these issues are rectified and thereby increasing the efficiency. Many companies were approached with the questionnaire and the major concerns in construction due to traffic is then found out from the questionnaire analysis.

V. METHODS FOR TRAFFIC VOLUME COUNT

There are three steps to a manual count study

- ✓ Proper necessary office preparations.
- ✓ Select proper observer location.
- ✓ Need Label data sheets and record observations

QUESTIONNAIRE SURVEY PREPARATION

The questionnaire survey has been prepared regarding the work zone related notations and various factors too. A questionnaire is prepared to analyze the important issues that are caused due to any constructional activity in the selected zone. The analysis should be focused towards construction strategies and technologies that can be used to

save time and cost, and provide a better, safer driving experience during construction.

VI.CONCLUSION

The study of the time space management on the work zone in the Jagir Ammapalayam to Seelanaickenpatti has enabled in the work structure of the highway construction. The traffic densities along the complete section of the highway at the three major points are noted. The three major traffic filled points on the section are closely monitored and the various feeder roads are studied. The questionnaire was prepared according the various requirements for our detailed study on the highway work zone management.

The questionnaire was distributed to various numbers of companies who carry out road repair and road construction works. The various responses and the risk from the questionnaires are formulated. Using the SPSS the various issues are properly formulated and the various high risk issues are dealt with at most care. The time space along which the work zone work should be carried is to be done in timings other than the peak hours. The other major point to be considered is to carry out the work during the proper season and avoiding the rainy season too.

- The proper space should be allocated between the work zones in case of multiple points.
- The speed limitation should be properly monitored with the help of sign boards and
- Personnel holding or showing red flag for the traffic control.

APPENDIX

Questions to be answered

- ✓ Number of road repair projects completed in the past.
- ✓ The minimum and maximum distance of the work zone.
- ✓ The clearance area required on the road.
- ✓ Number of accident occurrences during the repair of the roads.
- ✓ Safe distance for convergence of two lanes.
- ✓ Speed limitation along the work zone.
- ✓ Time required for carrying out repair works on work zone.
- ✓ Risk prone zones on the road work zone.
- ✓ Sign board and personal placing distance.

- ✓ The change made in the signaling system during work.
- ✓ Steps taken to manage the worksite.
- ✓ No of labors usually involved in the site.
- ✓ Modes of transportation of material to site.
- ✓ Machinery used in the worksite.
- ✓ Classification of labor force for carrying out the work.
- ✓ Efficiency of work force at site.

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