



## **DEMONSTRATION OF RISK ASSESSMENT IN UTILITY CONFLICTS**

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Article Received on: 13/05/23 Revised on: 23/05/23 Approved for publication: 26/05/23

### **ABSTRACT**

Fast traveling connections between the cities or states are the major supporter in the growth of the economy of any country but in countries like India transportation means like highways play a vital role in the uprising of the economy as well as the safe and fast travel of the population. India has a very high population density than many other countries and thus is a cause of sophisticated and packed working system in various aspects of the country. Out of many sociological and environmental and financial causes, there is the problem of the Utility Relocation from the proposed project right of way (ROW), which is the reason for most project's completion delay. Utility conflicts are a major problem that is faced during new construction or widening of a highway because there are various departments and organizations working in our highly dense country, they tend to have a conflict of utilities overlapping or intersecting with each other. It has been observed that delay in utility relocation is one of the major reasons which leads to the untimely completion of highway projects. Improper accounting/estimating of the utility relocation in detailed project reports also affects adversely the execution of projects as sudden changes. Good risk-avoiding decisions on design and construction cannot be made without knowledge of where these systems are, how they are constructed, and design constraints for relocation or construction in their vicinity. Therefore, a pre-planned detailed report needs to be documented and furnished describing the utility conflicts and their solution throughout the project. This paper will explore, explain and recommend educational and training needs as presented in recent research studies with interviews conducted with design engineers, survey teams, and utility authorities.

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**Keywords:** Highway, traveling, utility conflict, utility relocation

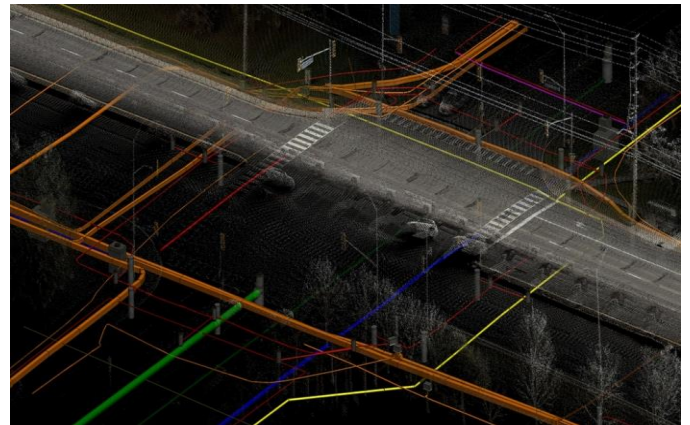
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## INTRODUCTION

Utility conflicts happen when utilities of various departments and/or organizations disturb the other department and/or organizations' work<sup>1</sup>. The highway department in our country faces these conflicts more than any other department. Most of the over-expenditure which happens in any highway project is mainly due to Utility conflict. In highway construction utilities both over ground and underground of different departments (government and private) like water pipeline, sewerage pipeline, natural gas pipeline, optic fiber cables, electric cables, telephone cables, private water wells, etc comes in between proposed alignment of project and needed to be dealt with under the project cost limits<sup>2</sup>. Utility conflicts can be resolved by a number of processes which includes

- Tracing of utilities

- Mapping in CAD drawings, plain sheets, or any other means used by authority
- Planning proposed relocation with cost estimates which should be under highway project cost limits
- Utility relocation



**Figure1: Underground utilities across highway<sup>2</sup>**

Utility relocation is the process of relocating the utilities from the project design alignment to a sideway location which does not affect the functioning of the utility and also does not cost much financially<sup>1</sup>. Utilities located within and near road rights-of-way present challenges

to transportation agencies in terms of coordinating the reconfiguration of those facilities to accommodate highway system improvements. The cost of the project is also directly affected by the utility relocation planning<sup>3</sup>. Due to a lack of uniform utility coordination terminology and process standardization across and within Highway Departments, utility coordination has become a very broad and ambiguous term<sup>4</sup>. Additionally, effective utility coordination can be an even more varied term. Highway Departments handle utility coordination processes differently and may even coordinate utilities differently within different business units<sup>5</sup>. In this paper, utility coordination refers to the active effort to communicate, share information, and interact productively with all applicable stakeholders regarding the utility involvement, adjustment, and relocation during all phases (planning, design, construction, operation, and maintenance) of the development and delivery of a transportation project<sup>6</sup>.

## **RESEARCH METHODOLOGY**

The review of published literature and relevant legislation focused on topics related to utility coordination, and location practices. Select trainings, educational modules, and academic literature as well as published procedures and policies related to effective utility coordination at Highway Departments were also reviewed.

Telephonic surveys were used to document the current state of the practice in utility coordination, determine how research on utility coordination has been implemented, and identify practices viewed as effective in utility coordination. Telephone surveys are popular in developed countries; however, until now this method has not been popular in developing countries because of low telephone coverage. In recent years, with the improved telephone coverage, it has become a promising method of data collection. Telephone interviews aid in covering a wider number of industry

experts within less time and with minimal resources<sup>7,8</sup>.

## **CONCLUSION AND RECOMMENDATION**

Utility shifting is the most common hindrance in any highway project. With the advances in technology, there are also more complex utility hindrances that occur in the field of work nowadays. The technical complexity of utility systems has increased, but the educational opportunities have not kept pace. There is a general shortage of experienced designers and the engineering shortage in the field of utility relocation risk assessment. Additionally, since the utility network is typically in public rights of way, an additional design and construction coordination requirement with other engineers is necessary. Utility relocation engineers employed by utilities have little formal training in transportation system design and construction. The issue faced is:

- Lack of knowledge of the process of relocation.

- Lack of guidance for the process.
- Lack of communication and coordination between the concerned departments.
- Limitations on utility design consultant capacity.
- Utility companies giving low priority to utility relocation.
- Misinformation within the Utility departments.

Since there can be different utilities of different departments within the proposed project, there are various departments involved. With this many parties involved in the process, there is a need to clearly identify responsibilities, scopes of work, and timing sufficiently to address all the parties and the means to get utility information delineated on plans. This absence of technical knowledge is an obstacle to coordination. Yet being the important part of a project, educational opportunities regarding Risk Assessment in utility are limited and only involved in

traditional generic engineering courses, on-the-job training, and trade organization courses. There should be a number of tasks that should be followed to avoid the above mention issues.

Task 1: Processes for Planning and Executing Utility Relocations

Task 2: Review Utility Relocation

Task 3: Approaching the Concerned Authorities.

Task 4: Develop New and Recommend Revisions Processes for Improved Utility Relocations

Task 5: Prepare a final report

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*Cite this article as: Dahiya. Demonstration Risk Assessment in Utility Conflicts. Int. J. Sci. Info.* 2023; 1(2):107-111.

Source of support: Nil, Conflict of interest: None Declared