NCHRP 20-05
Proposed Research Needs Statement

Subcommittee on Right of Way, Utilities, and Outdoor Advertising Control
September 4, 2014

TITLE

Evaluation of the Management and Implementation of Utility Impact Analysis (UIA), Utility Conflict Matrix (UCM), and Subsurface Utility Engineering (SUE) affecting utility-related Risk on projects by State Departments of Transportation

BACKGROUND / NEEDS STATEMENT

Risk is defined as the exposure to the chance of injury or loss; a hazard or dangerous chance. The probability of risk is typically proportional to the resulting impact (i.e. the greater the potential risk, the greater potential impact to financial, schedule, safety, etc.) Utility-related risk on projects differs greatly site to site, utility to utility, and proposed project to proposed project and is handled differently owner to owner. For example, the risk associated with utility impacts and relocation costs may be minimal on a mill and pave project, whereas the utility impacts and relocation costs for a proposed drainage improvement project may be significant. Or the risk associated with utility impacts and relocation costs is minimal on a private site development project converting farmland or open field to a commercial use, whereas the utility impacts and relocation costs for a county underground stormwater detention system on an urban redevelopment project may be significant. Lastly, the utility-related risk associated with a interstate fuel pipeline may be more than the utility-related risk associated with street-lighting.

Utility-related risk is currently mitigated by successful and proven technologies and procedures such as Subsurface Utility Engineering (SUE) and the use of Utility Conflict Matrix (UCM) and Utility Impact Analysis (UIA), however these technologies and procedures are not consistently managed or implemented state to state. States who implement some or none of these proven technologies increase the utility-related risk, and some states may not even be aware of these technologies. Therefore, there is a significant need for states to identify and share these successful and proven technologies and implement them in addition to providing a comprehensive report of best practices.

RESEARCH OBJECTIVE

Evaluate the management and implementation of Utility Impact Analysis (UIA), Utility Conflict Matrix (UCM), and Subsurface Utility Engineering (SUE) affecting utility-related risk on a state by state basis and to offer best management practices regarding educated decision-making on acceptance, mitigation or avoidance of utilities.

WORK TASKS

Tasks anticipated in this project include the following:

- Survey all states and follow up with personal contact to identify and document the approach each state takes in implementing Subsurface Utility Engineering (SUE) and the use of Utility Conflict Matrix (UCM) and Utility Impact Analysis (UIA),
- Identify similarities and differences of each state.
- Identify positive and negative impacts and best management practices
- Write and publish a synthesis report.

URGENCY

Utility-related risk on transportation construction projects continually contribute to cost overruns, schedule delays, and litigation because some DOTs are not implementing and managing in part or in whole successful and proven technologies created to manage those risks.

FUNDING REQUESTED AND TIME REQUIRED

It is estimated that this research will take 8 months to complete and will require $100,000.

CONTACT PERSON

Kenneth C. Kerr, P.E.
Regional Director / Chief Engineer
InfraMap Corp.
92 North Main St., Building 19E
Windsor, New Jersey 08561
(609) 371-5420 x405
kkerr@inframap.net