

ASCE Embarks on Effort to Develop Standard for the Collection, Administration, and Exchange of Utility Infrastructure (“As-Built”) Data

/ BY PHILIP J. MEIS

The American Society of Civil Engineers (ASCE) believes a standard producing a common “as-built” data set is essential for safeguarding public and commercial infrastructure, protecting the public, and making optimal use of public right-of-way. Accordingly, ASCE formed a new Construction Institute (CI) technical committee to establish a non-mandatory Standard for the Collection, Administration, and Exchange of Utility Infrastructure Data for mapping and documenting newly installed utility infrastructure and related appurtenances at or below grade. The standard committee consists of 37 members forming a multi-discipline team which includes professionals from the oil and gas, telecommunication, power and public works utility industries, as well as representation from subsurface utility engineering, civil design, contractors, transportation research, federal and state agencies, land surveying, computer aided design (CAD), geographical information system (GIS), machine control and trenchless technology industries.

The proposed standard applies to the generation of mapping records to ensure underground utilities are documented in a consistent manner which facilitates subsequent locating, planning, design and damage prevention efforts. Users of the standard include: public land managers and right-of-way agencies, such as federal, state, county and city governments; owners of private industry and land developments; engineers; land surveyors; contractors; and owners and insurers of utility infrastructure.

Right now, utility records are grossly inconsistent throughout the U.S. in spatial accuracy, content and format. Although public agencies often require utility owners to maintain “accurate records” as part of the permitting process, the meaning of “accurate records” has been undefined. Accordingly, widespread interpretations have resulted in very diverse results, many of which are inadequate and incompatible for use in a myriad of emerging digital technologies which, among other benefits, greatly enhance damage prevention.

The standard is intended to complement the latest version of the CI/ASCE Standard 38-02, and it stems from the recently published Canadian Standards Association CSA S250-11.

CI/ASCE 38-02 provides guidelines for existing buried installations, but does not address mapping of newly constructed utility infrastructure. CSA S250-11, championed by the utility industry in Canada, addresses new underground infrastructure and is being used as the template for the new CI/ASCE utility “as-built” standard. The new standard seeks to go further by addressing both above ground and buried infrastructure, supporting three dimensional visualization, and providing a digital data exchange standard.

Over the years, organizations such as the Federal Highway Administration

(FHWA) and the American Association of State Highway and Transportation (AASHTO) have recommended the development of such a standard. Because of the precedence with 38-02, it is appropriate for ASCE to undertake such an effort.

The implications of poor utility records are far reaching and directly impact civil engineers and the public through higher risk and costs for civil projects due to:

- increased costs to rediscover the what, who, and where on utility infrastructure within the project corridor
- increased desire by project developers to simply clear out all utilities from the project corridor, causing utility relocations that could otherwise be avoided
- increased risk to contractors to be liable for utility damage
- increased risk to public and contractor safety
- increased risk to the public and commerce that service disruptions may occur

In emphasis of the last bullet point, a large number of underground fiber optic lines serve e-commerce and “cloud” based data management services. An accidental severing of these communication links could severely disrupt the daily activities of dependent businesses, public agencies, emergency responders, and the general populace.

The benefits for having a utility as-built standard are significant. Many civil engineers and contractors can attest to the fact that utilities have been the bane to numerous infrastructure projects as a direct result of inconsistent underground utility records. The ramifications of error and risk are great, causing project costs to increase dramatically over the years.

CI/ASCE 38-02 was very effective helping designers and contractors by providing standard guidelines for the collection and depiction of existing buried installations on plans. Now, application of the proposed standard will ensure that accurate and consistent information about the location and nature of new underground utility infrastructure is captured at the time of installation and available for future project development and damage prevention measures.

The committee is aiming to have a draft of the new standard by early 2015. 

Philip J. Meis, M.S., P.E., M.ASCE, is chair for this ASCE/CI standard initiative, and co-founder of Utility Mapping Services, Inc. Philip is an associate member of the Transportation Research Board (TRB) Utilities Committee (AFB70) and research participant for the Second Strategic Highway Research Program (SHRP 2) 2012 Report S2-R15B-RW-1 Identification of Utility Conflicts and Solutions. For more information on the proposed new standard, he can be reached at pjmeis@umsi.us.