Al Field & Associates

Presentation for:

ASCE/ASHE Annual Conference
What is a leading cause of increased project costs?
Utility Issues
The Problem

Utility Conflicts are a *leading cause* of Project Delays & Budget Over-runs before and during construction.
Why do we have Utility Issues?
Because they are a step-child in the Project Development process.
The Owner and Design Team hold the keys to project success or failure.
Why Work With UTILITIES?
Ever Had a Utility Fire??
Ever Had a Utility Flood??
Ever Have a Utility Pole Problem??
Ever Had a Utility Nightmare??
Damage Prevention Is the Solution
ASCE Standard 38-02

Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data

This document uses both Systeme International (SI) units and customary units.
A Study commissioned by the Federal Highway Administration determined that you:

Using Subsurface Utility Engineering

For every $1.00 spent

Realize a project savings of $4.62

The study, performed by Purdue University, was the result of analyzing 71 projects over a four state area.

http://www.fhwa.dot.gov/programadmin/sueindex.htm
There Are **Four** SUE Process Quality Levels

- **Level D**: Existing Records
- **Level C**: Surface Feature Survey
- **Level B**: Electronic Designating
- **Level A**: Locating (Test Holes)
Many Utilities Do NOT Map Their Facilities
Many Utility Maps Are Inaccurate
Many Utilities Have Only Schematic Maps
Many Utilities Do NOT Require As-Builts
Many Utilities Rely on Low-Bid 3\textsuperscript{rd} Party Locators
Some Utilities Have Homeland Security Hang-ups
ASCE Quality Level C
Surveying Utilities
ASCE Quality Level B
Designating &
Why would anyone want to skip this step when it’s the one where you can minimize the cost of the most expensive step of the process?
ASCE Quality Level A

Non-destructive Excavation (Potholes)
Various Locating Methods
Smart Probe™

Accurate XYZ Pipeline Locations

“This Changes Everything”

Patented Technology Maps the Centerline Location of Pipeline Infrastructure

Autonomous or “Un-tethered” Application - Not Limited by Depth or Type of Cover
Utilizes Gyroscopes, Odometers, Inclinometers, and Accelerometers to Track and Record its Position

Records Changes in Heading, Inclination, and Velocity at 800 Times per Second
Non-Intrusive Locating
Smart Probe™
Smart Probe™
Data Uses

• Mapping Existing Pipeline Systems
  • Can Be Done in Conjunction With CCTV Inspections
• As-Built Mapping for Completed Projects
• Identifying “Sags” in Gravity Lines
  • Evaluate Aging Systems or “Prove-In” New Installations
Smart Probe™
More Data Uses

- Map Challenging Areas
  - Under Freeways, Rivers, Buildings or Canals

- Excessively Deep Lines
- QA/QC of HDD Bores
- Ascertain Bend Radii
- Determine Pulling Calculations
- Create 3D Maps of Utility Locations for Records or Planning
Smart Probe™
Central Arizona Project Canal

Mapped 400’ of 5” Conduit Under the CAP Canal Confirmed Depth Below Canal.
HEAVY LIFTING
Distances Over 500’
Key Holes
Non-destructive Trenching
Non-destructive Trenching
Utility Trenching - Pole Holes
WORKS WHERE OTHERS CAN’T
References / Sources

- https://pipelineawareness.org.wufoo.com/forms/request-additional-materials/