

## Applications

Utility monitoring points (UMP) are used to monitor underground utilities for potential displacement from excavating, dewatering, tunneling, trenching, and other construction activities.

UMPs can also serve as automated heave-settlement points to monitor ground loss or heave in foundation soils.

## Operation

A UMP consists of a riser rod installed to follow any vertical movement of the utility below. Displacements are detected by monitoring the top of the rod.

## Monitoring Options

**Optical UMP:** A prism is fitted to the top of the riser rod, which is installed within a PVC sleeve to allow free movement. An AMTS monitors the elevation of the prism. One AMTS system can monitor multiple UMPs.

**Digital UMP:** A single-point rod extensometer is anchored close to the utility. Movement of the utility is detected by a displacement sensor in the extensometer head. Measurements are transmitted to a gateway by wireless logger. This option is especially useful if consistent line-of-sight is not available.

**Manual Verification:** An optional feature, available with the optical version, allows manual checks with a depth gauge.

## Advantages

- **Low Profile:** The UMP does not interfere with traffic or construction activities. It can be installed completely flush with roadways or under a low-profile, heavy-duty dome on construction sites.
- **Safe & Cost Effective:** Automated monitoring eliminates the need and expense of survey crews and traffic control.
- **Timely Data:** All measurements are relayed to a GeoCloud server that checks for alarm conditions and sends alerts to desktop PCs and smartphones.

