

Geophysics and Geology

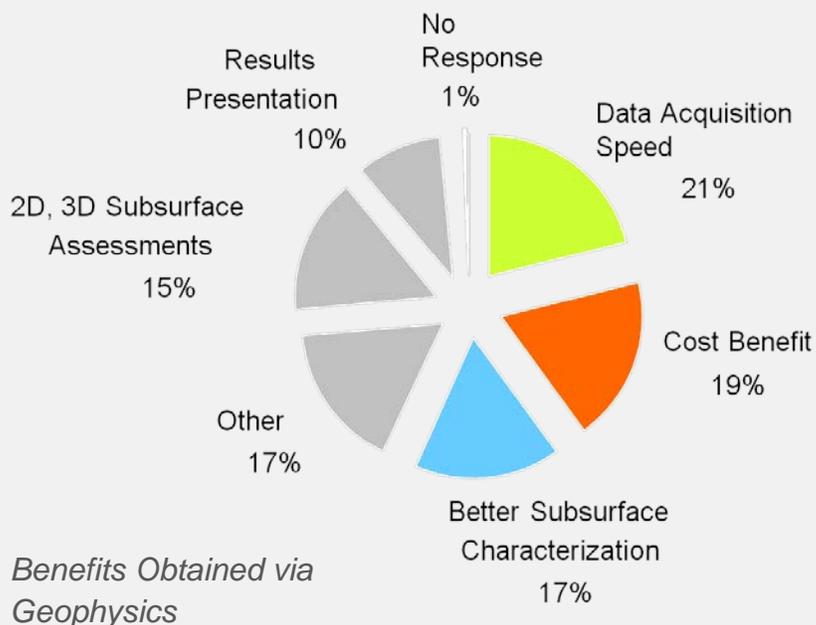
Geophysics in Geotechnical Characterization

Geophysical techniques provide powerful tools for augmenting other test data and focusing investigation efforts. Geophysics involves the measurement of specific physical properties of a material (e.g., seismic velocity, conductivity and density).

In **borehole geophysics**, measurements are acquired in drilled holes. These methods provide direct *in situ* soil and rock properties and can provide continuous data to supplement core samples.

Surface geophysics, where measurements of subsurface materials are made with sources and receivers at or near ground surface, can be used to interpolate data into unexplored areas. Surface geophysical methods may be differentiated by their sensitivity to either lateral or vertical changes in the subsurface. The sensitivity of many geophysical methods and arrays to vertical or lateral contrasts may be mutually exclusive, requiring careful evaluation during project planning.

Geophysics can be useful in narrowing the scope of an investigation and for correlating data between boreholes. Where no information exists, surface geophysical reconnaissance may yield valuable data to guide further investigation, locate rebar and underground utilities, and define the boundaries of existing fill areas.



More information on geophysical applications is available from the Federal Highway Administration at the following link:

<http://www.cflhd.gov/resources/agm/about/Background.cfm#overview>