GeoIst

2-D Site Response and Deformation Analyses

Istanbul New Airport, Istanbul, Turkey

Istanbul New Airport is an international airport under construction in Arnavutköy district on the European side of Istanbul, Turkey. The airport is scheduled to open in 2018 and will be one of the largest in the world, with a capacity to host 200 million travelers.

GeoIst worked as a subcontractor to perform 1-D & 2-D site-specific response analyses to evaluate earthquake-induced ground motion characteristics at multiple performance levels (i.e. earthquakes with probability of exceedance of 2%, 10% and 50% in 50 years).

Geotechnical models of the site were generated based on the site investigation test program results with quantitative consideration of uncertainties involved.

Dynamic analyses for 2D finite element models of several geotechnical cross-sections were performed to evaluate seismic stability and to estimate earthquake-induced deformations at the embankments of the proposed runways.

Ground response acceleration time histories for use in performance-based nonlinear analysis were also provided.

In addition, assessments for liquefaction susceptibility of soils that were present at certain parts of the project area were made.

Scope of Work

- Geotechnical Modeling
- 1-D & 2-D Response Analyses for Multiple Performance Levels
- 2-D Seismic Stability and Deformation Evaluation of Runway Embankments