

## Study of the Effect of Seismic Behavior of Twin Tunnels Position on Each Other

**Authors :** M. Azadi, M. Kalhor

**Abstract :** Excavation of shallow tunnels such as subways in urban areas plays a significant role as a life line and investigation of the soil behavior against tunnel construction is one of the vital subjects studied in the geotechnical scope. Nowadays, urban tunnels are mostly drilled by T.B.Ms and changing the applied forces to tunnel lining is one of the most risky matters while drilling tunnels by these machines. Variation of soil cementation can change the behavior of these forces in the tunnel lining. Therefore, this article is designed to assess the impact of tunnel excavation in different soils and several amounts of cementation on applied loads to tunnel lining under static and dynamic loads. According to the obtained results, changing the cementation of soil will affect the applied loadings to the tunnel envelope significantly. It can be determined that axial force in tunnel lining decreases considerably when soil cementation increases. Also, bending moment and shear force in tunnel lining decreases as the soil cementation increases and causes bending and shear behavior of the segments to improve. Based on the dynamic analyses, as cohesion factor in soil increases, bending moment, axial and shear forces of segments decrease but lining behavior of the tunnel is the same as static state. The results show that decreasing the overburden applied to lining caused by cementation is different in two static and dynamic states.

**Keywords :** seismic behavior, twin tunnels, tunnel positions, TBM, optimum distance

**Conference Title :** ICSMGE 2014 : International Conference on Soil Mechanics and Geotechnical Engineering

**Conference Location :** New York, United States

**Conference Dates :** June 05-06, 2014