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**The Impact of Soil Compaction on Soil Moisture Dynamics of Red Maple, Norway
Maple, and Honey Locust Tree Species in Urban Environments**

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Soil compaction, a result of urbanization, may be detrimental to the soil moisture dynamics and health of urban trees which subsequently limits their ecosystem services. This study considers two hypotheses: higher compacted soils will negatively impact soil moisture dynamics of red maple, Norway maple, and honey locust tree species on campus; and there will be a difference in the soil moisture dynamics between tree species due to varying tree traits. A preliminary survey was conducted on trees of interest to gather health metric data, and soil compaction, soil texture, and water holding capacity were measured. Additionally, soil moisture measurements were taken throughout the duration of this study for further analysis. In regard to all 36 trees of interest, the lowest soil compaction measured was 243.25 PSI with the highest measurement at 766 PSI, providing a wide range of variability. The average water holding capacity measured was 1.828 g/g and the average percentages of sand, silt, and clay were measured at 56.92%, 27.30%, and 15.77% respectively. 7 total soil moisture events were measured and the lowest soil moisture measurement within the full dataset was 1.85% with the highest at 22.60%, again showing a wide range of variability. Further analysis of the data suggests a relationship between the soil compaction and the health of the tree as well as shows a significant difference between the two maple and honey locust species. Future studies may closer look at the potential relationship between soil compaction and soil moisture dynamics within urban environments.