

BEYOND QUANTITY: ASSESSING TREE HEALTH FOR HIGHER PERFORMANCE IN DESERT PARKING LOTS

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1 ABSTRACT

The compounding ecosystem services trees provide such as clean air, runoff reduction, outdoor comfort, and cost-savings can only be maximized if the tree has a life expectancy longer than the average standard urban tree life of fifteen years. The lifespan of urban trees is often predicated on planter size, soil health, and routine maintenance but these factors are marginalized by current county planter codes for parking lots in Southern Nevada leading to poor tree health and frequent tree removal and replacement practices. Through an inventory and analysis of parking lots on the University of Nevada Las Vegas campus, advocacy workshops and partnerships, and volunteer training and community engagement this research will collaboratively identify best practices for parking lots and tree planting that will benefit local communities and establish healthy working forests. By looking at strategies to implement proper tree planting, optimizing parking lot layouts for tree planting, and diversifying tree species based on their range of environmental, social, and economic benefits, parking lots in the desert can be transformed into multifunctional and comfortable outdoor spaces. The challenge of these strategies is the balance of maintaining parking stall count with an adequate tree count and plant communities that provide an extensive variety of benefits due to their prolonged lifespan from proper planting techniques. Transforming parking lots with green improvements will come at a higher initial cost but the long-term savings and benefits from healthy trees will make the innovative solutions cost-effective.

1.1 Keywords

Tree Benefits, Parking Lots, Arid Performance, Stormwater Management, Green Infrastructure