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Effects of Water Conservation and Reduced Imports on Urban Landscapes in Los Angeles

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Abstract: Los Angeles faces a future of reduced imported water availability. As a result, many local agencies are promoting water conservation, enhancing local water supply sources, and funding “cash for grass” programs. Such residential water conservation efforts could have long-term effects on the existing urban tree canopy, while choices for resulting landscapes after replacing lawns can vary widely. Using a model of integrated water management (Artes) that simulates water supplies, conservation, and local reliance opportunities across hundreds of water agencies, we assessed how maximizing local water supply could affect water demand expectations. Results demonstrate that indoor water demands (residential, commercial, and industrial), current urban tree canopy needs, and low-water use landscapes could all be supported through a supply regime that is predominantly reliant on local water supply sources. Water conservation, along with enhancing local stormwater capture and water reuse, are key to this potential future. Real-world impediments, such as the complexity of regional water management, existing access to groundwater rights and even offerings of plant nurseries, all affect the capacity for regional progress towards goals.

Keywords: urban water management, urban landscapes, urban ecology, turf replacement, trees, California