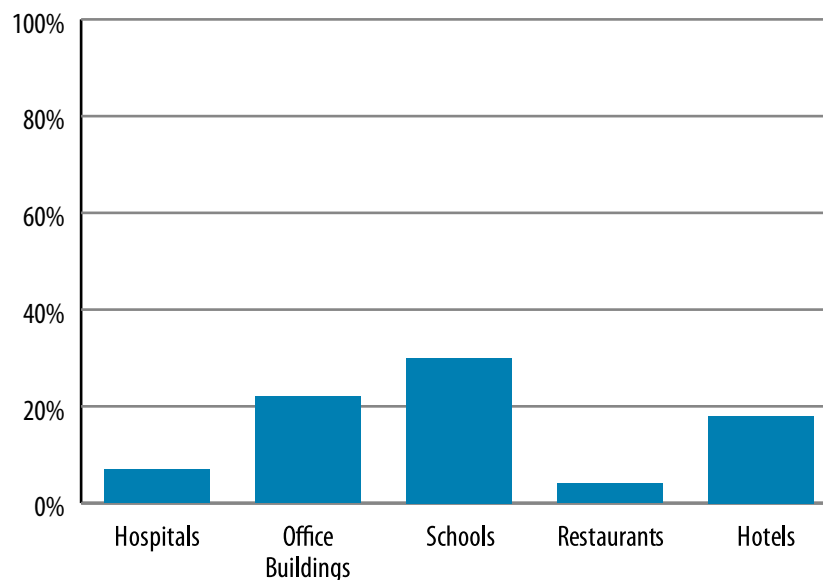


## 5.1 Introduction to Outdoor Water Use

Outdoor water use can account for between 5 and 30 percent of a facility's total water use, as shown in Figure 5-1.<sup>1</sup> Water is used outdoors for a variety of purposes, including landscape irrigation, swimming pools, and vehicle washing. Improved landscaping and pool maintenance practices and more efficient irrigation equipment can provide opportunities for significant water savings.

**Figure 5-1. Water Use Attributed to Outdoor Purposes**



Most commercial and institutional facilities that own or maintain surrounding landscape will have some outdoor water use associated with irrigation or landscape maintenance. The amount of outdoor water use is dictated by the size and design of the landscape and the need for supplemental irrigation. Not surprisingly, larger complexes with larger areas of maintained landscape, such as offices, schools, and hotels, can use as much as 30 percent of their water to maintain the health and quality of the landscape. The amount of water used outdoors may also vary due to local climate and facility type. For example, a 2003 study in California estimated that 72 percent of water use in K-12 schools was used outdoors, compared to the 35 percent average from the eight sectors studied.<sup>2</sup> Several sectors, including schools and hotels, also consume a measurable amount of water for the operation and maintenance of pools. Finally, some commercial buildings also use a significant amount of water to clean their fleet of vehicles with a washing station on site.

In many instances, outdoor water use can be controlled and minimized with proper landscape design. Regionally appropriate plant choices, healthy soils with

<sup>1</sup> Created from analyzing data in: Schultz Communications. July 1999. *A Water Conservation Guide for Commercial, Institutional and Industrial Water Users*. Prepared for the New Mexico Office of the State Engineer. [www.ose.state.nm.us/wucp\\_ici.html](http://www.ose.state.nm.us/wucp_ici.html); Dziegielewski, Benedykt, et al. American Water Works Association (AWWA) and AWWA Research Foundation. 2000. *Commercial and Institutional End Uses of Water*; East Bay Municipal Utility District. 2008. *WaterSmart Guidebook: A Water-Use Efficiency Plan Review Guide for New Businesses*. [www.ebmud.com/for-customers/conservation-rebates-and-services/commercial/watersmart-guidebook](http://www.ebmud.com/for-customers/conservation-rebates-and-services/commercial/watersmart-guidebook); AWWA. *Helping Businesses Manage Water Use—A Guide for Water Utilities*.

<sup>2</sup> Gleick, Peter H., et al. Pacific Institute. 2003. *Waste Not, Want Not: The Potential for Urban Water Conservation in California*. Page 83 and Appendix E.

## 5.1 Introduction to Outdoor Water Use

appropriate grading, the use of mulches, and limiting the use of high water-using plants such as turfgrass can significantly reduce the need for supplemental irrigation. In addition, proper design, installation, and maintenance of irrigation equipment can have a dramatic impact on outdoor water use. For example, using drip irrigation on plant beds instead of traditional sprinklers can reduce irrigation water use by 20 to 50 percent.<sup>3</sup> More efficient sprinkler heads can reduce irrigation water use by 30 percent compared to traditional sprinkler heads.<sup>4</sup> Smart irrigation controllers that schedule irrigation based on weather data or onsite conditions can reduce irrigation water use by 15 percent compared to manual or clock timer irrigation systems.<sup>5</sup>

For schools or hotels with pools, proper pool operation and maintenance can reduce water loss associated with evaporation, filter cleaning, mineral buildup control, leaks, and splashing. For example, pool covers have been shown to reduce evaporation losses by 30 to 50 percent.<sup>6</sup> More efficient filters can reduce water use associated with filter cleaning by 68 to 98 percent.<sup>7</sup>

Vehicle wash facilities are another specialty sector with significant outdoor water use. As much as 95 percent of the water use associated with vehicle wash systems can be attributed to the washing processes and equipment.<sup>8</sup> Reclaiming and reusing vehicle wash water has been shown to save at least 50 percent of the water used in the vehicle-washing process.<sup>9</sup>

*Section 5.0: Outdoor Water Use of WaterSense at Work* provides an overview of and guidance for effectively reducing the water use associated with:

- Landscaping
- Irrigation
- Commercial pool and spa equipment
- Vehicle washing

### Outdoor Water Use Case Study

To learn how the Granite Park office complex in Plano, Texas, saved nearly 12.5 million gallons of water by increasing the efficiency of the irrigation system, read the case study in Appendix A.



<sup>3</sup> *Ibid.* Page 8.

<sup>4</sup> Solomon, K.H., et al. 2007. *Performance and Water Conservation Potential of Multi-Stream, Multi-Trajectory Rotating Sprinklers for Landscape Irrigation*. Applied Engineering in Agriculture. 23(2):153-163.

<sup>5</sup> U.S. Environmental Protection Agency's (EPA's) WaterSense program. November 3, 2011. *WaterSense Specification for Weather-Based Irrigation Controllers Supporting Statement*. Page 8. [www.epa.gov/watersense/partners/controller\\_final.html](http://www.epa.gov/watersense/partners/controller_final.html).

<sup>6</sup> Koeller, John and H.W. (Bill) Hoffman & Associates, LLC. September 2010. *Evaluation of Potential Best Management Practices—Pools, Spas, and Fountains*. Prepared for The California Urban Water Conservation Council. Page 34. [www.cuwcc.org/products/pbmp-reports.aspx](http://www.cuwcc.org/products/pbmp-reports.aspx).

<sup>7</sup> *Ibid.* Page 35.

<sup>8</sup> Created from analyzing data in: Schultz Communications, *op. cit.*

<sup>9</sup> Brown, Chris. 2000. *Water Conservation in the Professional Car Wash Industry*. Prepared for the International Carwash Association. [www.carwash.org/operatorinformation/research/Pages/EnvironmentalReports.aspx](http://www.carwash.org/operatorinformation/research/Pages/EnvironmentalReports.aspx).