



A GREEN YEAR IN REVIEW

Sustainable parking case studies that made 2017 greener.

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SILICON VALLEY



2017 has been another year for the books, and the parking, transportation, and mobility industry is no exception. We continue to see significant advancements in sustainability in parking design and construction, technologies, and management and operations. Experts from throughout the industry continue to follow through on their commitment to integrate these concepts in all areas, and parking developers and owners constantly seek new ideas to make their properties more efficient and sustainable.

To wrap up the year, we take a look at some case studies as well as some proposed creative strategies that will continue to allow parking, transportation, and mobility professionals lead the way toward promoting sustainable development and design.



SHADY GROVE

Universities at Shady Grove Parksmart Certification

The Universities at Shady Grove (USG), Rockville, Md., recently developed a 700-space parking structure to support the planned addition of USG's Biomedical Sciences and Engineering Education (BSE) Facility, which is scheduled to open in the fall of 2019. The BSE facility will allow the campus to serve thousands of additional students in science, technology, engineering, mathematics, and medicine (STEMM) fields and other academic programs.

The new parking facility was designed to achieve Parksmart bronze certification. It includes a number of sustainable features that serve to enhance the parking experience for users, reduce energy and waste, and positively affect the environment:

- Rooftop solar panels for onsite renewable energy.
- Covered bike racks and self-serve maintenance stations.
- Rain gardens that surround the garage to treat storm-water runoff.
- Landscaping that uses native and drought-resistant species.
- Recycled and reused 99.5 percent of construction waste materials.
- Use of regionally sourced materials for 75 percent of construction.
- Discounted parking rates for fuel-efficient vehicles and carpoolers.
- LED lighting with motion sensors.

USG is and will continue to be a leader in sustainable development. This new parking structure serves as a primary example of its commitment to sustainable technologies and materials in all aspects of design, construction, and operation of the facility and highlights the university's dedication to implementing environmental strategies at all levels.

San Francisco: Technology that Minimizes Garage Energy Consumption

Many towns and cities across the U.S. are faced with an aging transportation infrastructure and how to effectively integrate the latest technologies with outdated facilities.

The San Francisco Municipal Transportation Agency, Calif., oversees the majority of the city and county municipal garages. Three of these properties were more than 50 years old and contained mostly inoperable mechanical ventilation systems requiring significant upgrades. This issue was compounded by the fact that the revised California Energy Code (Title 24) specifications required the agency to take corrective measures for these facilities.

City and county engineers focused on two intertwined objectives. The first was to ensure proper health and safety standards were met. This priority developed from a 2011 California Energy Commission audit that found too many enclosed garages weren't being properly ventilated due to a design flaw in older building systems. As a result, the code was revised to require continuous ventilation to better ensure the health and safety of those in and around the parking garages.

The second objective of this effort was to, of course, ensure environmental sustainability, specifically limiting energy consumption.

Fortunately, garage ventilation technology has improved significantly in recent years, resulting in stricter energy code standards to provide a real and significant means to generate energy savings. To meet this challenge, city engineers designed an innovative variable flow demand-control ventilation system at each garage; this modulates fan-motor speeds in proportion to CO concentrations, greatly minimizing power consumption during off-peak traffic hours. Based on the early returns—the annual energy savings captured at each garage exceeds 650,000 kWh, providing a combined annual energy cost savings of more than \$487,000—San Francisco is becoming a quality example of how mu-



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unicipalities can overcome the operational challenges presented by timeworn parking structures.

Silicon Valley Parking Innovation

Right-sizing parking is an extremely important aspect of parking planning. It is important to ensure that neither too much nor too little parking is developed, which is often a complex number to determine. However, it is also extremely important to consider the various needs of all users, particularly in a mixed-use environment, and ensure that all groups have their needs met.

Museum Place, a unique high-rise mixed-use development in San Jose, Calif., will feature open-office environments, housing, and a luxury hotel, in addition to the expansion of the nearby Tech Museum, retail space, and street café. The project's developer sought to identify opportunities to right-size the parking while still providing an adequate amount to meet the needs of the neighborhood. This required the careful consideration of current demand as well as varied current and future needs of residents and visitors. While office and residential users do not typically share parking because residents tend to be more territorial, the two uses are complementary from a shared-use perspective because of their offsetting peak demands.

The solution in this case was a full valet operation that uses mechanical lifts or stackers to provide additional parking capacity within the same space as a traditional parking system. Users drop their vehicles off at one of three different valet stations that cater to residents, office workers, and hotel guests. Valets then park vehicles based on user group and anticipated duration of stay to make the most efficient use of available parking resources. This program not only reduces the emissions created by circulating and idling vehicles but also helps

dramatically reduce the amount of space dedicated to parking in the development.

Transforming Downtown Recycling Programs

When driving down most residential streets the night before recycling day, you will likely see them littered (no pun intended) with the traditional blue and green recycling bins often used to gather recyclables in homes. In some states, recycling is mandatory, and some states impose fines and penalties on those in violation. There is an increasingly conscious effort to reduce, reuse, and recycle.

A 2012 study of students and faculty on campus by Western Michigan University student Katherine Binder showed that humans were actually more likely to change their behavior if they were more aware of their actions. The study found that when classroom trash bins were replaced with recycling and waste bins, people modified their behavior and recycled. The university actually experienced a significant reduction in landfill waste as a result.

The examples of residential and municipal recycling requirements and the Western Michigan University study is similar to what is happening in parking garages and lots across the country. In an effort to be more green and sustainable, parking garage owners and operators have added blue bins next to many of their standard trash bins. Municipalities are purchasing all-in-one recycling receptacles with three compartments for users to deposit their paper, plastic, and trash.

The garbage industry has radically changed the way parking facility patrons dispose of their trash, as they become more and more conscious and take the time to separate their recyclable materials and garbage and then leave them in the proper containers. Some municipalities have even taken the recycle-reduce-reuse movement a step further by eliminating the recycling part and promoting a carry-in, carry-out strategy. This has sparked an interesting debate—some say it reverses the recycle, reduce, and reuse concept by forcing people to litter, while others say it revolutionizes sustainability by minimizing the carbon footprint through slowly eliminating all the waste people produce on a daily basis.

Would the carry-in, carry-out concept encourage people to skip the bag at checkout and opt to use their own reusable bag, purse, and/or briefcase to carry their purchases? This removes the “recycle” from reduce-reuse-recycle altogether.

We can't wait to see what new trends, technologies, and strategies the parking and transportation industry will create in 2018 as it seeks to promote more sustainable practices in development, design, construction, technology, and management. **P**



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