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BENEFICIAL PLANNING

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BY **Miles Gornto** AND **Michael Kalish**

When thinking about transfer stations, “green” is certainly not the first word that comes to the general public’s mind. Residents often associate unpleasant odors, noise, traffic, rodents, unwanted birds and fugitive waste with these facilities, and generally consider the sites to be blights to the surrounding communities.

The sheer volume of material heading for landfills requires thousands of transfer stations across the country to help ferry our waste from the curb to a landfill. According to the U.S. Environmental Protection Agency (EPA), 249.6 million tons of municipal solid waste (MSW) were generated in this country in 2008. Just more than 135.1 million tons were disposed of in landfills; most of those landfilled tons were routed through transfer stations.

The most common facilities in the waste disposal process, transfer stations typically consist of large pre-engineered metal buildings in which the waste is “tipped” onto a reinforced concrete floor and then pushed over an edge into a lower level. At this lower level, the waste is compacted and

A Healthy Shade of Green

FEATURE

Transfer stations across the country are using sustainable construction techniques to improve operations and their image.



FRIEND OF THE ENVIRONMENT: Work recently began on a transfer station in Prince Georges County, Md., that will achieve Leadership in Energy and Environmental Design (LEED) certification in part by using recycled building materials and by reusing rainwater.

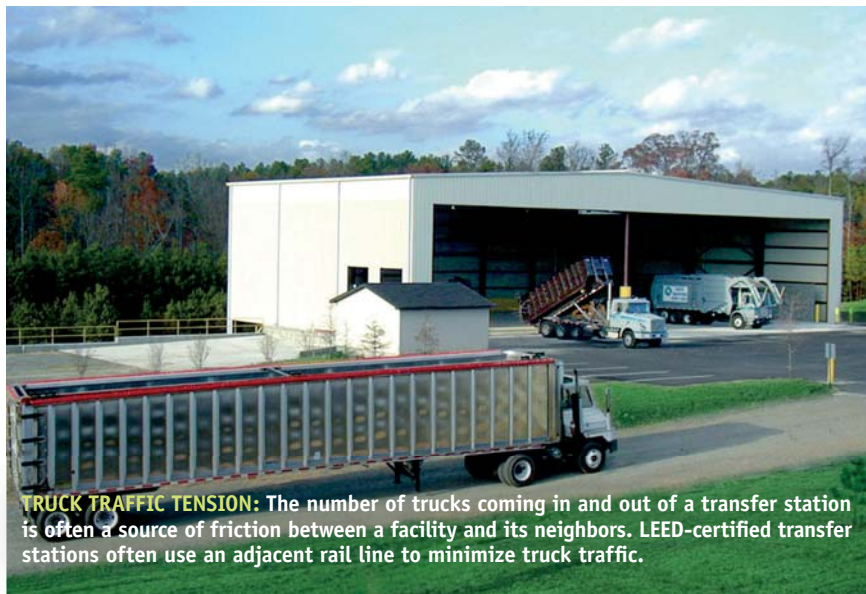
Rendering courtesy of SCS Engineers

loaded into rail cars or tractor-trailers for transportation to landfills, incinerators and other waste disposal facilities.

Negative perceptions of transfer stations dominate siting discussions with the public. However, if managed properly, nuisances can be mitigated, and with proper design, transfer stations can become strong assets to a community — especially if they incorporate “green” design and practices.

Getting Certified

As a result of the advancement of environmentally friendly initiatives in the early 1990s, the U.S. Green Building Council (USGBC) was formed in 1993 and soon established a rating system to certify buildings featuring sustainable design and construction. The Green Building Certification Institute (GBCI)



TRUCK TRAFFIC TENSION: The number of trucks coming in and out of a transfer station is often a source of friction between a facility and its neighbors. LEED-certified transfer stations often use an adjacent rail line to minimize truck traffic.



was established to interact with builders and developers to create a uniform process for certifying buildings with Leadership in Energy and Environmental Design (LEED) status.

The LEED certification has become the international standard for sustainable building design and construction. In order to achieve the certification, a project must accumulate a certain number of points based on energy and water efficiency, improved indoor air quality, and the use of renewable and local building materials. Projects must obtain at least 40 points on a 100-point scale for certification as a LEED building. Additional points go toward certifying the project as a silver, gold or

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platinum (50, 60 and 80 points, respectively) facility. These gains are verified by the GBCI at each phase of the project, from design through construction and operation.

Incorporating LEED-certified design and construction practices into transfer stations provides industry with an opportunity both to improve its image and to make a real and permanent move toward sustainability. This task may seem more daunting than it actually is.

In fact, there are currently four LEED-certified transfer stations in the United States, and 10 transfer stations making their way toward certification. A transfer station's relative simplicity and typically smaller office space can lead to significant gains in sustainability with minimal changes. By documenting transfer station design and construction standards already in practice and adding relatively inexpensive modifications, transfer stations can achieve LEED certification fairly easily.

Perhaps the greatest potential for LEED points lies in the proper siting of a transfer station. One of the key goals of any transfer station project should be to minimize the impact of traffic and the building's aesthetics on the surrounding community.

Any impacts on traffic can be minimized not only with a well-planned location, but one that has access to rail service. Rail is approximately three times more fuel-efficient than trucking, and reduces the need for larger tractor-trailers carrying heavy waste loads to drive through communities. Creating visual buffers and green space around

transfer stations is practically required by communities these days, and, like access to rail, these techniques garner LEED credits.

Energy consumption also is a major component of achieving LEED certification. Energy consumption in transfer stations typically can be high, and most of it is used for facility ventilation and lighting of the tipping floor. However, use of natural light and ventilation can result in massive consumption reductions. Installing photovoltaic cells on the roof also provides an opportunity to reduce energy costs and increase alternative energy use, all of which contributes to LEED certification.

Water consumption can be drastically reduced by using rainwater harvest-

ing and green roofs, which are roofs on which organic material is planted to provide insulation, lower a building's temperature and capture rainwater. The large surface area of the reinforced roofs of the tipping floor provide prime real estate to collect water for washing down equipment and the tipping floor, and flushing toilets. Slashing water use and using the roof space are easy ways to earn points toward LEED certification.

Using recycled, reused and sustainable building materials might be the most cost-effective way to earn LEED credits. Since transfer stations have a large percentage of building material costs tied up in concrete and steel, it is fairly easy to reach the 10 percent, 20 percent and 30 percent recycled content credits.



BEING A GOOD NEIGHBOR: Building an environmentally friendly transfer station can lay the foundation for a good relationship between the site and the surrounding community.

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Purchasing the materials from regional suppliers can yield more credits, as can using fly ash in the concrete mix.

LEED transfer stations are popping up all across the country. Shoreline Recycling and Transfer Station in

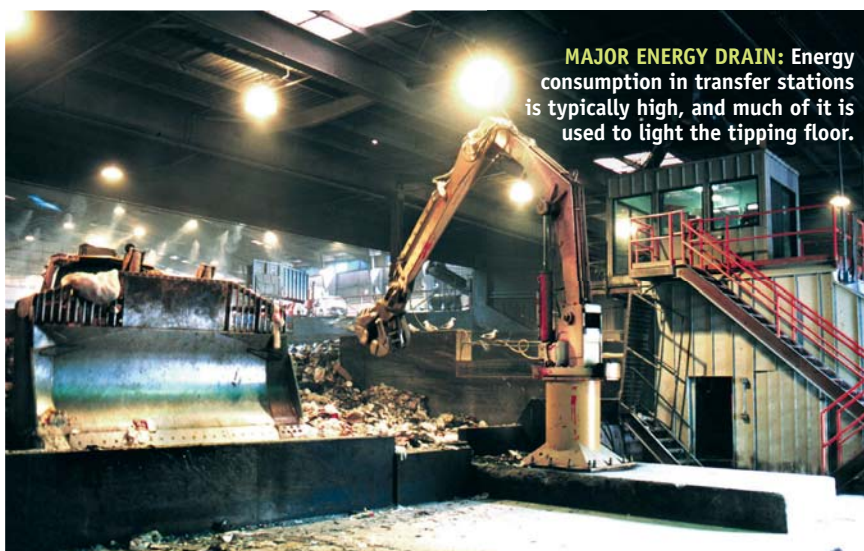
King County, Wash., was recently credited with being the first transfer station to achieve Platinum LEED certification. This facility uses solar panels to provide 10 percent of its electricity. The site also has reduced

non-potable water use by 50 percent through rainwater capture, slashed lighting costs by 50 percent by using translucent roofing and walls, reduced ventilation energy consumption by 80 percent by using a natural ventilation system, and reduced paved surfaces by providing parking for industrial vehicles beneath the building, which also minimizes noise impacts on the neighborhood. These features alone accumulated 36 points toward the 40 required for LEED certification.

Work has recently begun on a new project in Prince Georges County, Md., to construct a LEED Silver transfer station. This project plans to achieve energy reduction and to use water conservation, rainwater reuse, recycled and local building materials, and traffic diversion by rail to not only reach LEED status, but to provide the county with a sustainable structure that meets the operational needs of this growing community.

The tension between a solid waste facility and its surrounding community can be high. Obtaining LEED certification is not only a cost-effective way to improve the public opinion of municipal and private waste operations, but it is also a way that the industry can make a lasting impact on the communities in which it operates. ■

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