Landfills Become Landscapes: The American Park Revolution

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As a great number of landfills are closed, American cities and counties are looking more seriously at converting the space into park and recreation areas.

Back in the 1960s and 1970s, the Chicago suburb of Evanston, Ill., had a difficult problem: finding badly needed space to locate park and recreation facilities in the densely populated area bordering Lake Michigan. Land values in the city are high, and because of the large population tracts of land big enough to accommodate parks never became available.

To solve this dilemma, Evanston used a resource usually regarded as a liability: the municipal landfills. To date, the city, whose 75,000 residents reside on nine square miles, has built three parks on top of closed landfills.This practice not only saved the city the cost of acquiring land (which, in Evanston, is not available in any case), but also converted an eyesore into an attractive and functional landscape.

Evanston, however, is not the only municipality that has faced this problem. Cities and counties across the nation are being challenged by a growing demand for parks and recreational facilities, coupled with little or no funding to acquire land for them. Most large wooded areas are located too far from heavily populated areas to be of use to urban residents, yet few urban environments, such as Evanston, have enough land to build new parks in convenient locations.

This dilemma is being accompanied by another difficult problem for local governments: the closing of a large number of landfills. The U.S. Environmental Protection Agency (EPA) estimates that 6,000 landfills will reach their capacity and close by 1992.

While both these situation are causing plenty of headaches for local leaders, they also present an opportunity to devise creative solutions. Converting closed landfills into park and recreational areas is one solution cities and counties have been using at an increasing rate during the past several years.

While local governments have

been turning landfills into parks for the 15 to 20 years, only in the past few years have a significant number turned to this option. Because the individual states are responsible for issuing landfill permits, federal agencies such as the EPA have no precise data on how many local parks in the United States originally were landfills. However, many parks and recreation and solid waste disposal experts agree that the number has been large enough in recent years to make landfilltopark conversion a significant trend.

Converting landfills to parks "has become a very common practice," says Lanny Hickman, executive director of the Government Refuse Collection and Disposal Association. "It's one of the features that will help sell a landfill" to nearby residents who might oppose it.

"As a nation, we are producing an ever increasing amount of solid waste, while at the same time, there is a decreasing number of sites available for creation of new parks," says Barry Tindall, director of public policy for the National Recreation and Park Association. "Inasmuch as these are trends, secondary uses, such as conversion to parks, follow as parallel trends. I keep hearing enough references made to landfills being converted to parks that, if it is not a trend, it is certainly a highly popular, technically feasible land use."

Don Wirth, Evanston's director of Parks, Recreation and Forestry, says a 35 acre park in the city is the result of a decision made in the 1960s when the landfill under it was opened. The $1 million park, built in the late 1970s and the third in Evanston to be converted from a landfill, features small hills for sledding and tobogganing, a soccer field, basketball and tennis courts, a playground, a small shelter with restrooms, and a 28-space parking lot.

Wirth says a two-foot clay barrier was placed on top of the landfill's garbage to create an impenetrable surface. The park's only shelter also is well ventilated to prevent concentrations of methane gas from forming, a situation that can lead to an explosion.

Cities and counties across the nation are being challenged by a growing demand for parks and recreational facilities.

"It would have been impossible for us to site new parks and acquire the land," says Wirth. "Converting the landfills into parks was the only way we had to create park and recreation areas."

Florida is another area where landfills are becoming parks at a healthy pace. One solid waste management and engineering company alone currently is working on six landfill-to-park projects in four Florida counties. Miami-based Post, Buckley, Schuh & Jernigan also has recently responded to a request for qualifications for providing the same services for six closed landfills in Jacksonville, Fla.

Additionally, the firm is closing a 130-acre landfill in Broward County, Fla. Sam Levin, assistant manager of the company's Solid and

Hazardous Waste Division, says the first phase of the Broward County project includes closing a sanitary landfill, trash landfill and sludge lagoon, which is a Superfund clean-up site.

The second phase of the project includes building a park on the closed site, Landfill closure includes selection of a capping technique designed to minimize infiltration of rainfall, while also being compatible with a park. The design includes a landfill gas collection system with special emphasis on recovery and sale of methane in the landfill gas. The methane also will be used to generate electricity for the park.

Levin says when the park is completed, it will feature equestrian activities, and nature appreciation and educational activities. Included are areas for picnicking and open recreation; trails for horseback riding, walking, bicycling, jogging and fitness training; areas for fishing and boating; and scenic overlooks from one of the highest points in South Florida.

While converting landfills to parks is revered for eliminating unsightly landfills and making wise use of space, it also can spur economic growth in a floundering community.

This was the case in Southwest Charlotte, N.C., where the city, along with a local engineering firm, Woolpert Consultants, transformed a municipal landfill into the York Road Renaissance Community Park. The park includes an 18-hole golf course with driving range, putting greens and clubhouse, a 17-court tennis center and clubhouse, five illuminated softball fields and four lighted soccer fields.

Charlotte Parks Superintendent Thomas McDermott says the new park and a new adjacent coliseum are encouraging ecomonic growth in the once stagnant area. McDermott says the new facilities have attracted a number of businesses and caused land values to increase.

Woolpert also is working on a massive landfill-to-park project in Prince George's County, Md. just outside Washington, D.C. The county's former 220-acre sanitary landfill has been closed and trans-

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formed into outdoor recreational facilities, bicycle and hiking trails and a custom contoured amphitheater. The project is expected to help revitalize the surrounding area.

The firm prepared plans for four former landfill sites in the Ohio cities of Westerville, Moraine, Springfield and Newton. All four projects, which included athletic fields, picnic shelters, biking paths, basketball courts and other features, made a significant contribution to sparking economic growth in their communities.

Potential problems

Although landfilltopark projects can be a catalyst for economic growth and generally have excellent environmental safety records, there are several problems that can develop if strict guidelines are not followed in closing the landfill and constructing the park. One of the most common is the emission of methane gas from the landfill. If the gas becomes too heavily concentrated in a small area, an explosion can result.

"Methane gas is only dangerous when it is contained in a closed structure," says Gary Stewart, an associate partner with Woolpert Consultants and project manager for the Charlotte park. "In an open environment, it is not dangerous."

To Avoid these problems, most parks converted from landfills are equipped with methane gas collection systems. The gas often is sold to a local utility which uses it to generate electricity.

Settling of the garbage in a landfill also can be a difficult problem, causing the park's ground to shift. Stewart says settling usually is not a problem in picnic areas and open spaces, but can do a great deal of damage to buildings and paved surfaces. He advised against constructing any major buildings and paved surfaces, including tennis and basketball courts, directly on top of fill areas.

Even the bestdesigned landfills may require ongoing maintenance control to counteract the effects of settling. Dale Larson. assistant director of Parks, Recreation and Libraries for Phoenix, Ariz., says that buildings constructed on top of fill areas need to be secured with pilings driven into the ground at very high pressures and compaction, making the structure "almost an island."

Another possible area of concern involves trees planted on soil covering a landfill. Allen Geswein, an EPA environmental engineer, says that if a landfill is closed with a cap that is not impermeable, tree roots cam penetrate the cap. "The trees tend to die when methane gas suffocates their roots," he says.

During construction of the second Evanston park, trees were planted directly into landfill material. "This caused many of them to experience extremely slow or stunted growth, while others remained in generally poor health, or simply died," Wirth says. During construction of its next park over a landfill, extra soil and plant materials were added to protect the trees, which did grow properly.

Perhaps the most disturbing potential hazard with landfill-to-park conversion is the possibility that hazardous or toxic wastes were placed in the landfill before it was closed. Ed Repa, deputy director of waste disposal programs for the national Solid Waste Management Association, says that before the 1979 Resource Conservation and Recovery Act, a lot of hazardous waste was comingled with municipal solid waste, making the transformation of such sites into parks more difficulty and expensive.

"New engineering technologies have been able to turn hazardous sites into parks and even housing developments," says Repa. It can done, but at what cost? The problem of hazardous wastes is much more significant with older landfills than with those opened after 1979. "With some of the older, poorly run landfills, the end use was not as important a consideration as simply finding a suitable landfill site," he says..

"The main thing you have to worry about is what's been put into (the landfill) before," says Tindall. "Some sites are quite old and predate the modern, stricter controls over toxics." He says there are some state parks where as much as six inches of soil has had to be added to the existing cover because of hazardous waste concerns.

"There have been some places where recreational uses have been encouraged that are risky," says Tindall. "There are probably public recreation areas and parks that shouldn't be on those (former landfill) sites, but they just aren't jumping out at us as a problem."

Public perceptions

The possibility of hazardous wastes having been buried under the park may be the landfill-to-park issue that concerns the public the most. "There is far more public concern (connected with landfill-to-park conversion) over illegal toxic dumping than any other related issue,"Tindall says. He adds there should be broadly understood public assurances that a landfill site is safe for park conversion well before construction.

Repa does not believe the guarantee of a park as and end use for a proposed landfill can mitigate long-standing public opposition to them. "The NIMBY (Not In My Back Yard) syndrome is so strong, and people have become so anti any waste facility, that nothing you do will help overcome that, no matter what the proposed end use," he says

Levin says, however, that citizens usually welcome the idea of building a park over a landfill. "This works beautifully with the public, "he says "They are happy to see what would otherwise be wasted space put to good use."

"These parks have been used just as much as we had expected," says Wirth, "just as any other park in Evanston would have been used. I have seen no documented evidence, nor have I heard any comments about public reluctance to use the parks because they were built on landfills. One reason for that probably was our work with the Illinois EPA, which monitored the parks for a number of years and reviewed all our plans and specifications."

A golf course built over a landfill in Phoenix has 110,000 rounds of golf per year played on it. Larson says that figure surpasses that of a private golf course in the city, rated as one of the top in the country.

"We've had no problem with public opposition to our park sites built on landfills," says Stewart. "It's not really a cause for public concern anymore because better laws make it harder for landfills to be used. There are strict criteria for governments to follow, such as constant checks on groundwater supplies."

Stewart says that while the vast majority of landfill-to-park projects are successful and be believes even more projects will be constructed in the future, great care should be taken when evaluating a landfill with eventual park construction in mind. "By no means should we convert every landfill into a park. Every site should be checked thoroughly on an

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What's The Use?

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The scientific community left the idea of certainty behind 50 years ago. Both the location of an electron as of a specific time (a rather small bit of real estate) and the prospect of life in other galaxies are measured in terms of probabilities. The budding social science of appraisal needs to adapt its concepts as well so that its models reflect reality.

1. Lincoln W. North, *The Concept of Highest and Best Use* (Winnipeg, Manitoba: Appraisal Institute of Canada, 1981). Both North's monograph, which is part of the AIC appraisal course, and American Institute of Real Estate Appraisers' textbooks carry a disclaimer that indicates that the opinion and views in their texts are not necessarily the views of the institute or its members.
2. James A. Graaskamp, "Institutional Constraints on, and Forces for, Evaluation of Appraisal Precepts and Practices," *The Real Estate Appraiser and Analyst* (Spring, 1986): 23-34.
3. Astute readers will recognize that "right foot" may sometimes mean left foot and cause confusion. Because the vast majority of people are right-footed, I have considered changing the manuscript to read, "get off on the most probable foot."
4. Byrl N. Boyce, ed. *Real Estate Appraisal Terminology* (Cambridge, Mass.: Ballinger Publishing Company, 1975), 126-127.
5. North, 2.
6. Appraisal Institute of Canada, *An Introduction to Real Estate Appraising*, 4th ed. (Winnipeg, Manitoba: Appraisal Institute of Canada, 1984), 3-2, 3-3.
7. North, ibid.
8. Boyce, 27.
9. Appraisal Institute of Canada, 6-2.
10. Richard U. Ratcliff, *Valuation for Real Estate Decisions* (Santa Cruz, Calif.: Democrat Press, 1972), 69.
11. James A. Graaskamp.
12. James A. Graaskamp, *The Appraisal of 25 N. Pinckney: A Demonstration Case for Contemporary Appraisal Methods* (Madison, Wis.: Landmark Research, 1977).
13. Eric T. Reenstierna, "Alternatives to Point Estimates," *The Appraisal Journal* (January 1985): 115-126.
14. Boyce, 160.
15. Harold D. Albritton, "A Critique of the Prevailing Definition of Market Value," *The Appraisal Journal* (April 1980): 199-205.

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individual basis. We're not going out and promoting this to communities, but where it does make sense, it should be strongly considered because there will always be a need for park space.

"I hope what will eventually happen is that the maximum number of (landfill) sites possible will be examined for their recreation potential," Stewart says. "The first test of this potential is whether the present demand is there, or whether local officials are able to predict future demand."

"There are some parks out there whose designers didn't plan for methane gas collection." says Hickman. "There are some who had no understanding of settling. But if they plan ahead, there really shouldn't be a problem with these issues."

A combination of rising land values and a growing population and their need for recreational activities, may force more local governments to turn an unpopular necessity into an attractive asset. As stricter regulations and new technology make landfill-to-park conversion more feasible and popular, planning ahead, as Evanston did in the 1960s, is one way cities and counties are participating in the American park revolution.

Recent Court Decisions

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Finally, the court reversed the trial court's determination that laches barred Hay's action. It was very possible that applications by Hay earlier than 1986 would have been futile, considering the sewer needs of Andover during that time. Since Hay did show at trial that sewer access and needs have changed, the court reasoned that Hay should be allowed to pursue his claim for immediate sewer connection.