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A Battle Plan for Local Landfills

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Americans generated 180 millions tons of solid waste in 1988, an amount that will grow by one-fifth (to 216 million tons) in 2000, according to the U.S. Environmental Protection Agency (EPA). In many communities, landfills are filling up, and everyone wants their replacements to be built in someone else's backyard. New land fills are LULUs—locally unwanted land uses. Modern waste-to-energy incinerators can extend the life of existing landfills, but they represent siting problems as well. Meanwhile, waste bills have climbed skyward, as communities haul trash to ever more distant and costly disposal facilities.

A Crisis in the Making

Increased awareness and regulations have reduced the hazards of solid waste facilities greatly, but have also contributed to the difficulty of developing new ones.

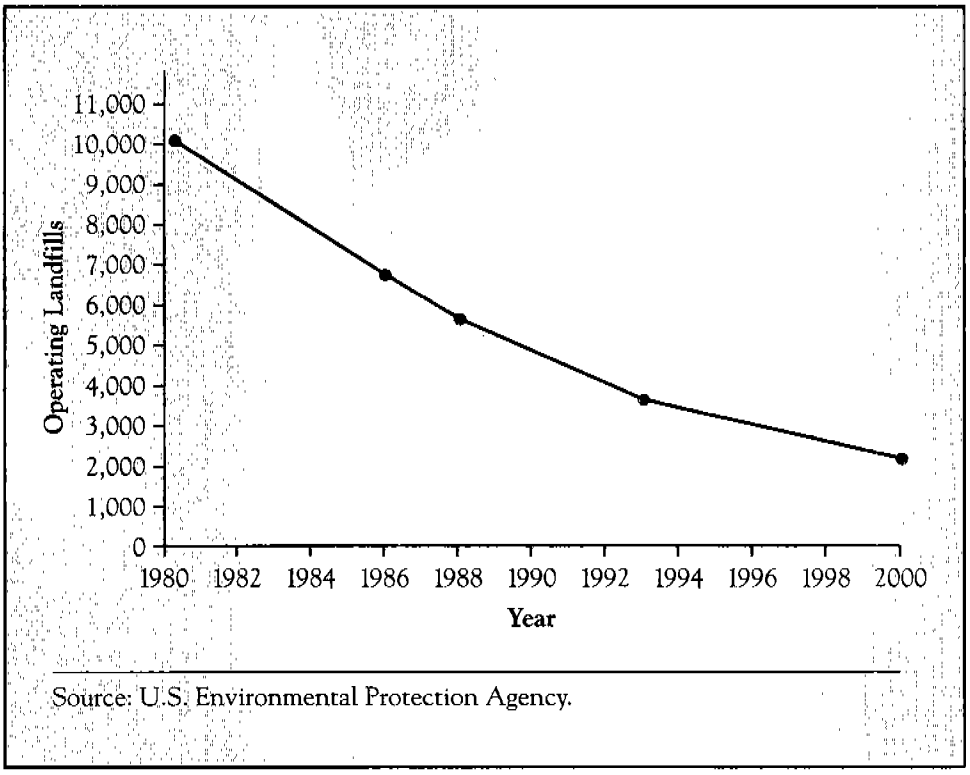
The federal Resource Conservation and Recovery Act of 1976 called for banning such unhealthy and environmentally damaging practices as uncontrolled open burning. EPA has been pushing the states to enact performance standards for a new generation of sanitary landfills that will control better their location, design, operation, monitoring of groundwater and methane, financial assurances, and responsibilities after closure. Toughened environmental controls have closed some older landfills prematurely, but typically many technologically primitive facilities have been allowed to continue to operate under "grandfather" provisions, continuing to give landfills a bad name. New federal requirements are expected this summer.

The development of new landfills slowed substantially in the 1980s. In California, only one major new disposal facility was sited in the first half of the decade. A landfill opening in 1990 was New Jersey's first in over a decade. New Jersey exports more than half its refuse to other states. EPA projects a decline in the number of operating landfills in the United States from about 10,000 in 1980 to less than 2,200 by 2000, a decrease in annual landfill disposal capacity of one-half (see Figure 1). According to a 1991 survey by the National Solid Waste Management Association (NSWMA), 14 states, mostly in the East, have less than five years of landfill capacity, less than the average time required to develop new landfills (Figure 2). California has more than 10 years of capacity re-

"Local government managers surveyed . . . identified solid waste management as the most important problem — ahead of drugs and education — faced by their communities"

Figure 1

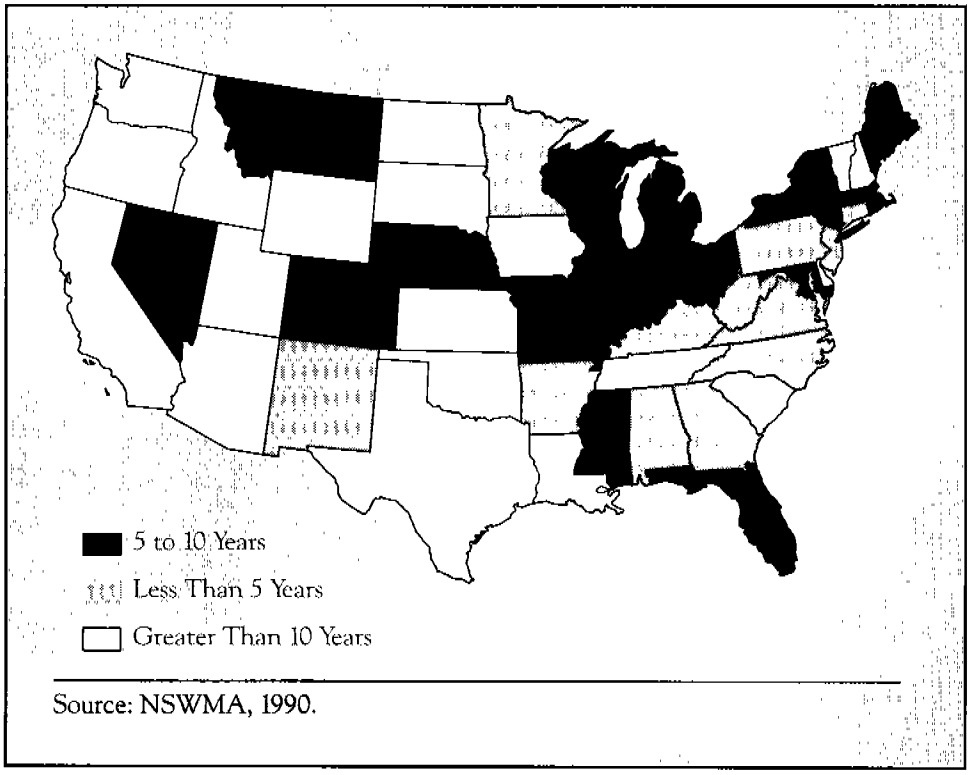
PROJECTED DECLINE IN LANDFILL CAPACITY, 1980-2000



Source: U.S. Environmental Protection Agency.

Figure 2

STATE LANDFILL CAPACITY



Source: NSWMA, 1990.

maining, but 12 counties within the state have fewer than three years.

Unlike other infrastructure problems that lack public awareness, the severity of the solid waste disposal challenge is one on which citizens and government executives seem to agree. Local government managers surveyed by the International City Management Association in 1990 identified solid waste management as the most important problem—ahead of drugs and education—faced by their communities. In 1990, ULI commissioned Tarrance & Associates to survey public opinion in five communities—Portland, Oregon; Lexington, Kentucky; Atlanta, Georgia; San Diego, California; and Sarasota Florida—to ascertain their views of land use and development issues. In all but Sarasota, waste and trash removal was ranked the top infrastructure problem, even ahead of roads.

No reliable data are available on the national dimensions of the landfill problem. But the evidence points to a crisis in the making.

Reducing the Need for Landfills

Burying trash in a landfill is only one method for disposing of it. In fact, landfills can be seen as the bottom layer of a disposal pyramid. Before contemplating new landfill facilities, communities should take up the challenge of reducing the volume of waste destined for landfills.

An integrated solid waste management system, according to EPA and most professionals, includes recycling, incineration, and source reduction programs—three alternatives that can reduce demand for landfill space. A fourth locally available alternative is to ship the waste elsewhere.

Recycling. Japan recycles one-quarter to one-half of its solid wastes. In the United States, local officials have been surprised by the high level of citizen participation in community recycling efforts. Advances in technology, including composting of yard wastes, are improving the efficiency of this option.

Seattle began a program in 1988 that two years later was recycling 38 percent of the city's trash. It was launched after the city's landfills became full, and tipping fees for dumping trash outside its borders rose, and residents rejected a proposed incinerator. The program is optinal: households pay $13.50 per month for a one-can weekly pickup, plus $9 per additional can. Separated yard waste is removed for $2 a month, while separated recyclables are hauled away free. Seventy-eight percent of single-family households now recycle, and the number of 30-gallon cans picked up weekly at the average has fallen from 3.4 in 1981 to 1.1 in 1990.

Incineration. The buring of all combustibles would reduce the volume of municipal solid waste by 60 percent. Incinerators require less land and may be more environmentally acceptable than landfills. Waste-to-energy incinerators can offset some costs by the sale of electricity. A 1990 survey by the NSWMA counted 123 waste-to-energy facilities in operation in 36 states and 98 planned or under construction.

On the other hand, incinerators are also LULUs. In its 1985 plan, the California Solid Waste Management Board placed a high priority on the development of waste-to-energy projects. But only two have been built, largely because of public concerns about air quality.

Oregon's Marion County opened a $47 million, 550 tons-per-day, mass burn plant by Ogden Martin Systems in 1986. The county presorts heavy metals and unburnable materials—including recyclable cans and glass—out of incinerator burns. Removal of this material from the combustible trash allows the furnace to reach temperatures hot enough to generate electricity efficiently and break down potentially carcinogenic dioxin. While the cost of garbage disposal to the county has tripled since 1981—from $8 to $26 per ton—it still pays less than many East Coast communities. And going into the next century, Marion

County's disposal costs should become more stable.

Source Reduction. The reduction of waste from the manufacturing process or packaging results in less to throw away. A growing number of industries are voluntarily reducing excess packaging materials, such as foam containers. Eliminating troublesome substances, such as lead and cadmium, from products could make normal household trash less toxic. In California, levying a disposal fee on goods sold has been proposed to create an economic incentive to conserve, for both industry and consumers.

Out of Town, Out of Mind. When all else fails, hauling waste out of town is one way to avoid political battles over siting new facilities. It is an expensive option, which makes sense only when the disposal fees at a remove site are low enough to make up for the higher transportation costs.

Moreover, resistance is growing in many communities to the practice of taking in other people's garbage, especially from out of state. A ban on interstate waste has been proposed in Congress. Almost all states (47 in 1990) import or export solid waste (38 do both). Communities in states that rely heavily on out-of-state trucking would face an immediate crisis were a ban imposed.

The Politics of Landfills

While the technical problems involved in the location of new solid waste facilities grow increasingly complex, the process, according to researchers from Pennsylvania State University, is "10 percent technical and 90 percent political." postponement of decisions until a crisis is unavoidable. Construction of safe modern waste facilities is being blocked, even in communities with cheap vacant land and favorable geology. A reading of local headlines (paraphrased below) suggests the contentious, high-visibility nature of these battles:

- In North Carolina, a *Mechlenburg County* judge set back six years of planning for a new landfill by overturning a rezoning approval, on an appeal from two adjoining counties, one in neighboring South Carolina.
- In Virginia, the *Fairfax County* board of supervisors reversed an earlier decision to expand the Lorton landfill, and voted unanimously to close it, requiring county trash to be hauled to West Virginia, and leaving Washington, D.C. (which uses the Lorton landfill), in a scramble for alternatives.
- In *Los Angeles County*, plans for a new landfill in Towsley Canyon were dealt a major setback by the Santa Monica Mountains Conservancy's purchase of 453 acres. The conservancy's action boosts prospects that the land will become a state park instead of a dump.

Memories of primitive open dumps and incinerators are still vivid in some communities. Sometimes sanitary landfill proposals are tagged with the fallout from publicized catastrophes at hazardous waste facilities. Residents worry about water-contaminating leachate and hazardous fumes and ash, along with noise, odors, and traffic. Homeowners worry about falling property values as well as relative fairness. And, although the latest technology can essentially eliminate

"To avoid battles over siting new facilities, elected officials often adopt NIMEY, NIMTO, or NIMBY positions."

To avoid battles over siting new facilities, elected officials often adopt the position of "not in my election year" (NIMEY); "not in my term of office" (NIMTO); or "not in my backyard" (NIMBY). The result is

the environmental danger of new facilities, many cost-conscious communities wish to minimize disposal fees.

In landfill battles, the issues are technical, economic, and political. Much of the progress in modern landfill development has been technological. State-of-the-art landfill technology mitigates the typical problems found at older dumps and assures public health and safety. Clay and/or synthetic liners can prevent leachate from seeping into the ground, while underdrains can collect and treat it. Monitoring devices can test for pollution of aquifers and methane gas buildups. Adequate soil over protects against odor, litter, flies, gulls, and rodents. Appropriate enforcement assures the operator is practicing a good neighbor policy. In short, communities must be willing to spend the money it costs to meet new standards.

The economic issue usually centers on fears of a decline in property value. But four studies of property values around new landfills published in the Spring 1989 issue of *The Real Estate Appraiser and Analyst* fail to document a clear negative impact.

To address the concerns of property owners, however, a compensation scheme can be incorporated into the project. In such an instance, the question becomes whether to compensate individual homeowners (which enables them to leave the community) or to mitigate the impact by improving the community as a whole. In Martinez, California, a consultant's study of a proposed hazardous waste incineration and storage facility recommended reinvesting the state-mandated tax on its revenues for improving schools, streets, and community amenities, thereby improving overall community values rather than compensating individual property owners.

After all is said and done, most landfill siting battles come down to political decisions. Overwhelmed by the many technical issues involved, many local governments have relied on what one researcher calls the DAD method: decide-announce-defend. Today, however, the "I'm from the government, trust me" approach will no longer work in many communities. Local landfill siting decisions will have to involve the public more actively or be made by state "super siting agencies," which can preempt or override local siting decisions.

Success Stories

Despite the difficulties and media clamor, new waste facilities are being built. The "model" proposals that make it through the process are environmentally sound waste facilities, and many of them include compensation for the host community and nearby residents. They are, as reflected in their price tags, state-of-the-art facilities.

Earlier this year, ULI surveyed waste officials in eight states—California, Connecticut, Florida, Georgia, Minnesota, New Jersey, Pennsylvania, and Texas—to assess the severity of the landfill siting problem. The survey results show that both landfills and incinerators are being built. Rising disposal fees, a concern in many communities, are actually part of the solution. They are paying for disposal at facilities with top-of-the-line environmental safeguards, and are motivating households and businesses to cut unnecessary waste and increase their recycling efforts.

In California, where only one major new landfill was opened during the first half of the 1980s, seven new landfills have been permitted since 1988.

Florida's solid waste management system, which in 1980 consisted of 500 open dumps, one small waste energy plant, and virtually no local government recycling, had grown by 1990 to 150 permitted landfills (most lined against leachate), 11 waste-to-energy plants, and the ambitious goal of 30 percent recycling statewide by 1994. Even in Florida's geographically and politically complex development environment, siting needed landfills and incinerators is a very difficult but

"manageable" problem, according to David Dee, an attorney who has represented both proposers and opponents of new facilities. While battles continue over a proposed Jacksonville site, a new landfill in rural Hernando County was permitted in only two months.

Connecticut, which found in the 1980s that it had less than five years of landfill capacity, took action. Emphasizing recycling as well as incineration, the state adopted a solid waste management plan in 1987 that "has taken the crisis away," according to David Nash of the state department of environmental protection. Communities were required to aim for 25 percent recycling by the end of 1991. Seven incinerators have been built since 1980, many with the help of a quasi-public agency funded with disposal fees and proceeds from the sale of waste energy and recycled materials. One new landfill has been sited, and four landfills are being developed with environmentally sound liners, which can accept incinerator ash.

Developers of new landfills in Texas have a major advantage in dealing with opposition. The permitting process looks mostly at technical (geological and engineering) factors. The courts have ruled that local opposition is not sufficient grounds for denying a permit, although opposition can, of course, prolong the process.

to replace a small private landfill in the city of El Mirage. Although little opposition was anticipated because potential sites were to be selected from an undeveloped area, 500 angry county residents came to the initial public meetings to voice concerns about groundwater contamination. This surprising opposition led county officials to expand the study area and give residents greater opportunity to participate in the decision-making process.

A 28-member advisory committee was established that included area residents, local municipal officials, homeowners' association representatives, developers, farmers, water interest, and others. Its members immersed themselves in the subject of modern landfills and investigated the preferences and concerns of residents near potential sites. The committee helped to develop site selection criteria, which included the potential impact of the landfill on groundwater wells, existing and future land uses, traffic congestion, air quality, and noise levels, as well as user costs. A list of 24 sites was reduced to seven, then to one. At the public hearings on the proposed site, most of the comments were supportive. When the county and Phoenix needed to select another landfill site in the southwestern part of the county, they had learned their lesson.

One of the lessons of a **Charles City County**, Virginia, landfill development is that host communities can be receptive to the financial benefits of these facilities. Located about 25 miles southeast of Richmond, Virginia, the $30 million Charles City County landfill was developed by a private waste company under a lease-purchase agreement with the county.

After Charles City County had been identified by several counties as a possible site for a multicounty facility, Chambers Development de-

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Public education and involvement, as well as community compensation, are important elements in recent landfill siting success stories.

In **Phoenix**, the lesson from a regional battle for a landfill that was won is to involve the public early in the siting process. In 1984, officials of Maricopa County and the city of Phoenix agreed to build a landfill in the northwestern part of the region

cided to preempt consideration of other private developers/operators by meeting with local activists to ascertain their concerns. After discussions in the community, Chambers offered a carefully designed proposal that included state-of-the-art technology; extensive mitigation, monitoring, and security measures; free disposal for Charles City County residents; and payment of a share of the tipping fees to the county, the host community. Chambers paid for the county's independent consultant review of the engineering plans. Based on the company's track record on community cooperation and environmental mitigation, residents decided to endorse Chambers to county officials.

This rural community's five-acre dump was filling up, and new state requirements were going to push construction costs for a new landfill as high as $1.5 million—equal to the country's annual real estate taxes. Annual operating and maintenance costs would have to be added. Meanwhile, the county needed money for a new school. Chambers addressed those financial concerns by designing a compensation package that guarantees the host community annual fee revenues of $1.14 million. The base host fee was set at $2.50 per ton of waste shipped to the landfill, with an increase to $5.50 when incoming shipments top 1,200 tons per day. By April 1991, at the end of its first year of operation, the landfill was receiving between 1,400 to 1,800 tons of wastes daily. According to the county administrator, property taxes have already been reduced by 20 percent.

To finance this generous package, Chambers created a facility large enough to accept wastes from nearby counties and cities such as Richmond. Residents still are leery about the county's agreement not to restrict the importation of wastes from other states such as New Jersey. Liability for landfill operations and responsibility for post-closure monitoring requirements are shared by Chambers and the county. The county will resume ownership of the site 20 years after it closes, or 45 years after it opened.

Impediment to Growth?

Will landfill capacity problems join lack of road and sewer capacity issues as impediments to orderly growth? Will developers soon be paying solid waste impact fees? Probably not. For one thing, the most critical capacity shortages appear to be in the slower-growing communities of the East and Midwest, rather than in the high-growth but less densely developed Sunbelt states. Moreover, waste disposal is a basic public service that communities cannot leave to the vagaries of the real estate market.

Nonetheless, the growing solid waste crisis will have some effect on development and developers. First, the solid waste issue will compete for space on the agendas of local governments, slowing considerations of problems many developers believe are pressing. Second, the disposal of construction and demolition waste is beginning to be a problem for builders, as localities ban this material from landfills to conserve capacity.

Third, communities getting on the recycling bandwagon are changing zoning and building codes to require provision of space in both homes and businesses for storage of recyclable materials. As a result, developers may be required to work with tenants in developing recycling programs. (See Suzan Canli and Scott W. Gordon, "New on the Recycling Scene: Land Use Controls," *Urban Land*, May 1991.)

Finally, most basic to the development business, businesses may come to view landfill capacity as a locational criterion. Adequate waste disposal capacity may turn into a useful tool for attracting certain businesses, making it in the interest of developers to help assure the provision of such capacity in their communities.

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It is the goal of *The Real Estate Appraiser (TREA)* to publish practice-oriented articles of assistance and of interest to residential and small commercial property appraisers. Original manuscripts within this framework are invited for publication consideration.

Authors need not be members of the Appraisal Institute although it is the hope of *TREA* that many members will want to share their experiences with our readers.

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The following guidelines are offered for manuscript submission:

1. There are no restrictions as to the length of manuscript, however, a reasonable limit is 3500-5500 words.

2. Because *TREA* is a refereed publication, manuscripts are sent anonymously to members of the Review Committee for comment and recommendation. Page 1 of the text should begin with the title of the article. No author identification should be shown on any of the manuscript pages. A cover sheet showing the title of the manuscript and the name and address of the author should accompany the submission.

3. Manuscripts should be typed, double spaced on one side of the page with wide margins; pages should be numbered.

4. Four copies of the manuscript should be submitted along with a 50 to 100 word abstract and a brief biographical statement.

5. Succinct titles are preferred and brief subheads are recommended to emphasize major thoughts and add to the readability of the article.

6. Each chart and/or table should be on a separate sheet. Photos, charts and/or illustrations should be identified and preferred or approximate placement indicated. Photos and artwork should be protected to avoid damage in transit. Staples or paper clips should not be affixed directly to photos.

7. Footnotes and/or bibliography should begin with the name of the author, and should include title, publication, publisher, date/year of publication, volume number (if any) and pages cited.

The Appraisal Institute reserves the right to edit manuscripts in accordance with established policy.

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