Energizing a New Future

ALTERNATIVE ENERGY AND RECREATIONAL REUSE AT THE H.O.D. LANDFILL SUPERFUND SITE IN NORTHERN ILLINOIS

Introduction

The H.O.D. Landfill Superfund site was once a closed and fenced landfill area in the middle of Antioch, Illinois, surrounded by an industrial park, residential areas, wetlands, and Antioch Community High School. The site has now become a destination for many community members and visitors. Athletic fields, open space, and a methane co-generation plant demonstrate that reusing a former hazardous waste site is both possible and worthwhile. The reuse plan, developed through innovative thinking and dedication by local stakeholders and support from EPA, succeeded—but the success came with a long history of obstacles, compromises, and lessons learned. The reuse of H.O.D. Landfill and its immediate vicinity has become a reality that will benefit all of the Antioch community. This case study describes the Superfund site, the impetus for its reuse, the history of the project, the reuse plan, and the realization of many new recreational opportunities for students and residents. The case study is intended to provide local government officials, community groups and members, site owners, potentially responsible parties (PRPs), and other interested parties with lessons learned from the H.O.D. Landfill reuse experience.

Site Description

The H.O.D. Landfill Superfund site is in Antioch, Illinois. The Village of Antioch is in Lake County in northeastern Illinois, approximately two miles south of the Wisconsin state line and 60 miles north of Chicago, along Highways 83 and 173 (*See Figure 1*). The H.O.D. Landfill site is on the eastern edge of the Village of Antioch.

The 121.5-acre complex consists of 51 acres of landfill and 70.5 acres of undeveloped buffer land.[1] As shown in Figure 2, the landfill area is divided into two contiguous sections: the "old landfill," consisting of 24 acres situated on the western portion of the property, and the "new landfill," consisting of 27 acres immediately east of the "old landfill." The remaining 70.5 acres include the former landfill borrow area, above the northeast corner of the site, and wetlands both north and south of the site. Figure 3 shows the various owners of the property.

Figure 1: Lake County, Illinois

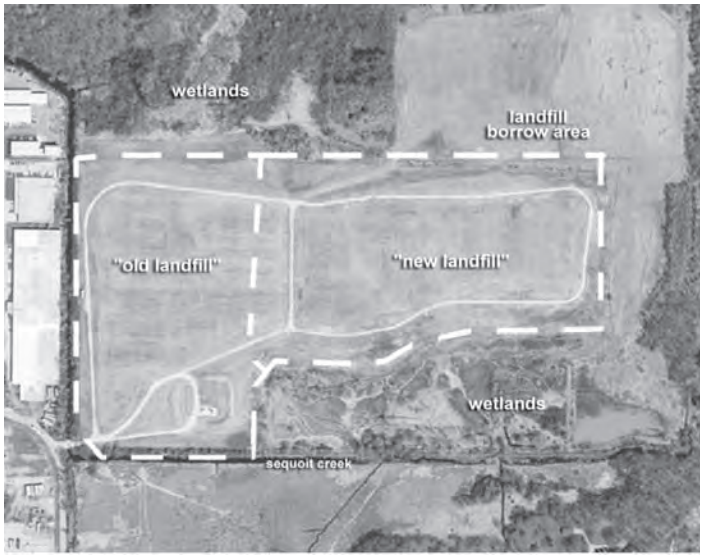


Figure 2: Boundaries of the "old" and "new" landfills.

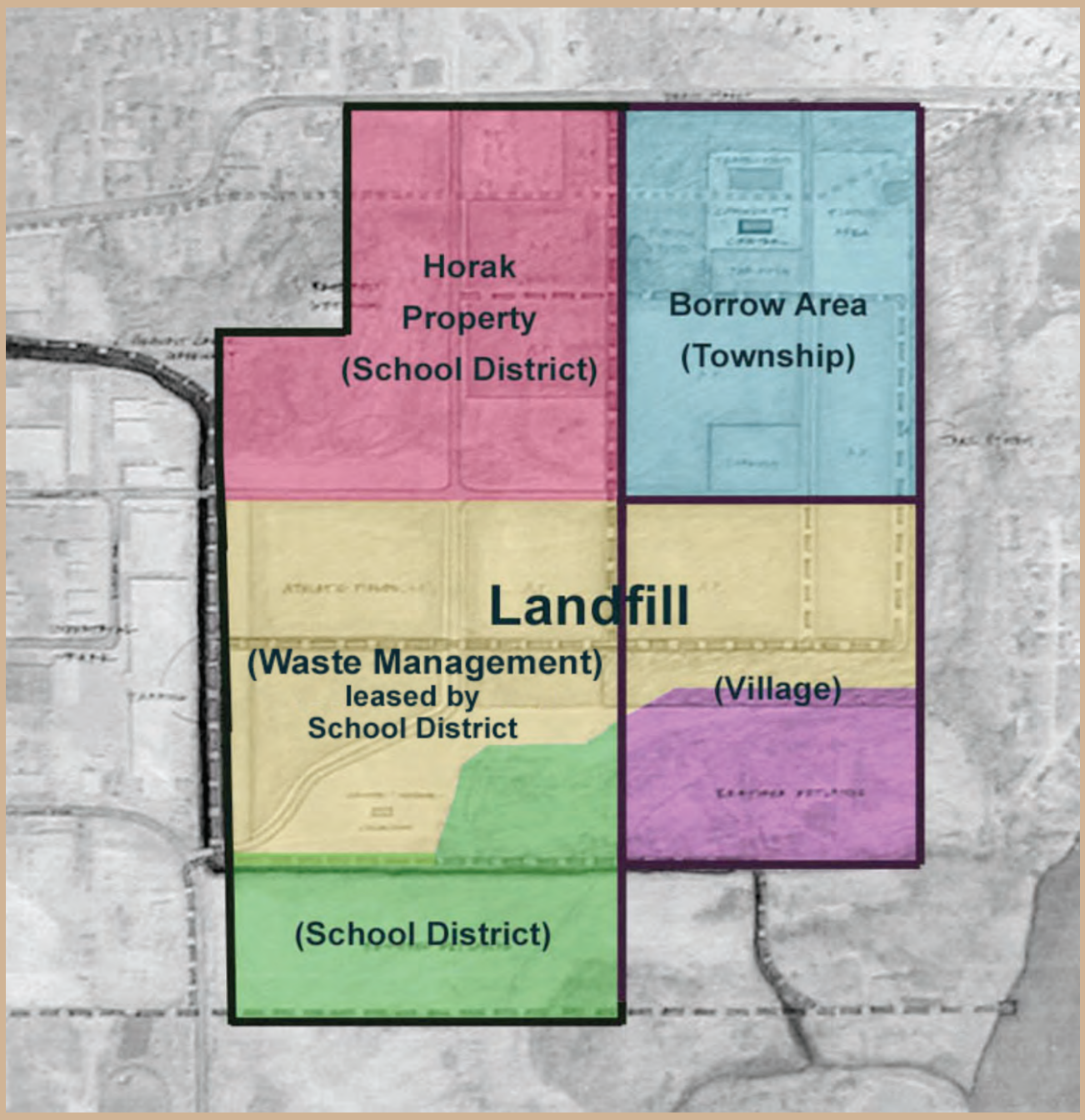
Site History

Disposal activities began in 1963 and continued until waste acceptance ended in 1984. While in operation, the landfill accepted municipal, commercial, and industrial wastes for disposal. In 1989, the landfill was covered with a clay cap under Illinois Environmental Protection Agency (IEPA) permitting because of ground water contamination. The primary contaminants of concern were vinyl chloride, beryllium, manganese, and arsenic. Following the capping activities, the site remained idle for over a decade.

1 Cleanup activities at the H.O.D. Landfill Superfund site took place on 51 acres of landfilled area out of the total 121.5 acres that make up the complex. In addition to the 51-acre landfill, plans for future use includes the entire area north of the landfill to Depot Street, the woodland area east of the landfill to the residential property line, the area south of the landfill and Sequoit Creek that includes the wetlands owned by the school district, and Sequoit Creek itself (see Figure 4). This case study will use the term "reuse planning area" to reference all of those areas and will refer to the 51-acre landfilled area as "the site."

FIGURE 3: PROPERTY OWNERSHIP

The reuse planning area is currently owned by multiple parties. Antioch Community High School District 117 owns the former Horak property north of the landfill (pink), leases the western half of the landfill from Waste Management (yellow), and owns 10 acres of wetlands south of the landfill (green). Antioch Township owns the former borrow area and areas north to Depot Street (blue). The Village of Antioch owns the easternmost portion of the landfill area (yellow) and wetlands south of this area (purple).



Local Land Use

Located within the Village of Antioch's "M2" zoning district, the reuse planning area is designated for special use manufacturing and industrial purposes, including landfills. As shown in Figure 4, surrounding land use falls into four categories: ecological, residential, industrial, and educational. Sequoit Creek travels along the southern and western boundaries of the site, flowing through the seasonal wetlands south of the site. Another large wetlands area lies to the northwest of the site. Silver Lake is approximately 800 feet southeast of the reuse planning area. The Little Silver Lake subdivision lies east of the reuse planning area in unincorporated Lake County. Agricultural land, scattered residential areas, and undeveloped land are located to the north. Sequoit Acres Industrial Park lies west of the reuse planning area within the Village of Antioch's "M1" (light industrial) zoning district and borders Sequoit Creek. Antioch Community High School is approximately a quarter mile southwest of the reuse planning area, across an active rail line. Antioch's primary business district is farther west and across the railroad from the industrial park.

Figure 4: Aerial photograph of the H.O.D. Landfill site with surrounding land uses.

Project History

Reuse considerations for the H.O.D. Landfill Superfund site began in the late 1990s and some activities to finish turning the reuse plans into reality are still underway. This section of the case study lays out the project history and describes what steps the stakeholders took to facilitate the reuse outcomes.

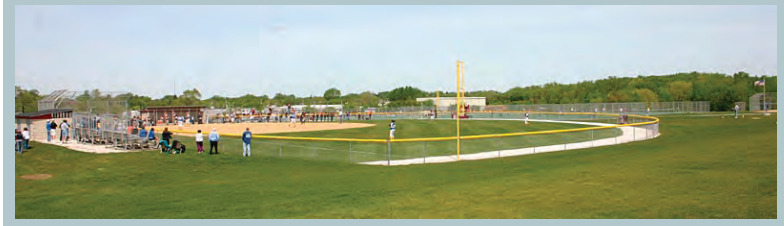
1998 – 2001
Tying Remedial Design to Reuse Outcomes

In 1990, the U.S. Environmental Protection Agency (EPA) listed the site on the National Priorities List. The landfill cover installed in 1989 had begun to form erosional rills and gullies, areas of differential settlement, and stressed vegetation. An environmental investigation also revealed minor leachate seeps, animal burrows, and emissions of fugitive landfill gas.

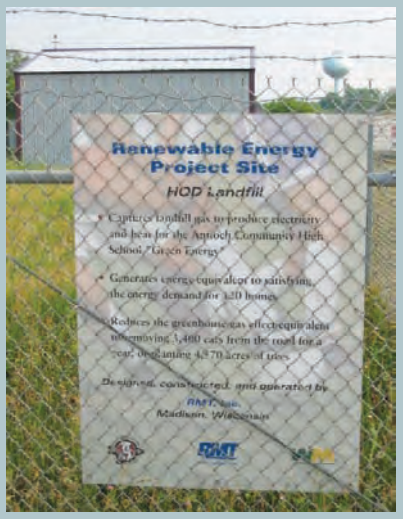
In 1998, EPA issued a Record of Decision (ROD) that selected a remedial plan to address the contamination at the site. The basic requirements of the ROD included restoring the cap with two feet of compacted clay, placing one foot of clean soil on top of the cap, upgrading the gas and leachate collection systems, monitoring ground water, and implementing institutional controls at the site. During the public comment period associated with the ROD, Bill Ahlers, Business Manager of Antioch Community High School District 117, suggested that EPA put the landfill's fugitive methane gas to good use. The ROD called for a gas treatment system that would collect the methane gas created by the landfill and channel it through a central gas flare that would clean and combust the gas and then emit it into the atmosphere. Mr. Ahlers suggested that a methane co-generation system could pipe the landfill's methane to the nearby high school for use as a heating fuel; he had seen a similar system at a school district in St. Louis and wondered if the model would work at the H.O.D. Landfill. Mr. Ahlers's suggestion appeared in the ROD's response to comments document, prepared by EPA. Waste Management officials noted the suggestion and responded directly to Mr. Ahlers about exploring possible options. The resulting discussion between the school district and Waste Management was the starting point of the reuse discussion. When the school district also

Timeline of Project Activities

February 1990:	H.O.D. Landfill listed on National Priorities List
January 2002:	SRI meets with Mayor, Township Supervisor and ACHS District 117 Business Manager
February 2002:	Antioch community receives SRI Pilot Grant
March 2002:	Site Reconnaissance; Consultant Team first visits H.O.D. site in Antioch, Illinois
July 2002:	Public Meeting with Risk assessors
August 2002:	Public Meeting and Site Tour; Community agrees that site reuse can occur if EPA proves that site is ready for reuse
April 2003:	First Community Meeting
May 2003:	Second Community Meeting
Sept. 1997:	EPA issues the Record of Decision for the site
June 2003:	Final Conceptual Design presented
August 2003:	Revised Risk Assessment Explanation of Significant Differences
November 2003:	Ready for Reuse Determination issued
November 2004:	Construction begins on western half of reuse planning area



Softball field at McMillen Park.



Renewable energy project sign.

raised the issue of its shortage of athletic fields, the discussion broadened to include the possibility of recreational reuse.

The Antioch Community High School was about to begin construction of a new building that would eliminate the school's current athletic fields. Using the H.O.D. Landfill and vicinity for new athletic fields made sense: the area was large enough to house fields for soccer, field hockey, and softball, tennis courts, and spectator areas—all within walking distance of the high school. The landfill cover installed in 1989 was already relatively flat, planted with a vegetative cover, and could be altered during the remedial action to provide an adequate playing surface. Waste Management was required to design and construct the remedy, as specified in the ROD. Incorporating plans for possible future recreational use into the design for the site's remedy would reduce the potential for conflict between the remedy's performance and future recreational use.

Before Waste Management began implementation of the remedy, representatives of the Waste Management Closed Sites Management Group met with community members to determine 1.) whether the community wanted to reuse the H.O.D. Landfill and vicinity; and 2.) if so, how the community wanted to reuse it. The school district had already expressed a strong interest in reusing the property as athletic fields for the high school. Directors of local sports organizations were also enthusiastic about the possibility of athletic fields. However, many in the community wanted more information, assurance of the site's safety, and answers from EPA to a number of questions before they would proceed.

In 2000, the Village hired an independent environmental engineering consultant, A.E. Zanoni, to assess the site's ability to support recreational reuse. Mr. Zanoni's opinion was the primary cause of what would become an ongoing community concern. In a letter summarizing his findings, Mr. Zanoni wrote:

…I strongly recommended that potential uses for this site be considered for the distant future, rather than the immediate future. While it's difficult to offer a specific time frame it is my recommendation that the Village would be best served by delaying the decision for possible end uses of the site for at least 10 years, and even as much as 20 years, following the installation of remedial action facilities which have been proposed in the Workplan.[3]

The only support offered for the time frame was Mr. Zanoni's statement, "In my opinion the decision on a possible end use can only be made after a sufficient ground water monitoring and landfill operation database has been compiled, following completion of the remedial action workplan." [4] Mr. Zanoni's professional opinion resonated with the community because it

3 A.E. Zanoni to The Honorable Marilyn J. Shineflug, Mayor of the Village of Antioch, 13 March 2000.

4 Ibid.

Impetus for Reuse

A number of factors converged to pique interest in pursuing reuse of the H.O.D. Landfill site. Perhaps most important was the demand for land for recreational facilities in the community, a need shared by the Village of Antioch, Antioch Township, and the Antioch Community High School District 117.[2] Antioch and its suburbs in Lake County are experiencing rapid population growth. Between 1990 and 2000, Antioch's youth population increased by 48 percent, and the demand for recreational facilities increased accordingly. The H.O.D. Landfill and vicinity was an obvious choice to meet the community's recreational needs, since it is near the Antioch Community High School and is the largest tract of unused land within the Village and Township limits.

As a PRP and owner of the site and some of the surrounding property, Waste Management of Illinois Inc. (Waste Management) was interested in the site's reuse for two main reasons. First, an intrinsic part of Waste Management's mission statement is a commitment to finding productive end uses for all of the company's projects. Through its Closed Sites Management Group, Waste Management forms partnerships with communities, governments, and industries to redevelop closed landfill sites. Second, Waste Management has continuing operations in Lake County and wanted to enhance the company's image by demonstrating responsible stewardship for its land.

2 Antioch Township is one of 18 townships in Lake County, Illinois. As a geographical and political subdivision of the county, Antioch Township has its own government and provides various services to the residents within its boundaries but has no direct zoning or planning authority. The boundary between the Village and Township is irregular and sometimes overlapping.

Softball game at McMillen Park

confirmed their perception of the site's potential risks. The burden fell on EPA to convince the community that the site could be reused for recreational purposes soon after Waste Management completed remedy construction. This proved to be a challenging task. Mr. Zanoni's comments were based on the results of the baseline risk assessment, which assessed site risks before remedial improvements. In order to refute Mr. Zanoni's comments, EPA would need to demonstrate that remedy construction had essentially eliminated the risks associated with recreational use of the site.

In light of the proposed reuse, Waste Management made special design modifications to the remedy so that the former landfill could support recreational fields. For example, Waste Management re-graded the site according to sports-field specifications. Waste Management also installed leachate and gas extraction well heads with the field layout in mind and placed the well heads in below-ground vaults so that they could be covered with synthetic turf to allow recreational users to play above them. Finally, the company opted to construct the gas flare building on the southern portion of the site so as not to interfere with the placement of fields. Waste Management bore the extra cost of these modifications specifically to facilitate reuse.

2001 – 2002
Building Community Support through Reuse Planning

Waste Management completed remedy construction in June 2001. Prior to this date, the Superfund Redevelopment Initiative (SRI) had requested that the Regions propose candidates for redevelopment pilots. Being aware of the site's reuse potential,

Concession stand at McMillen Park.

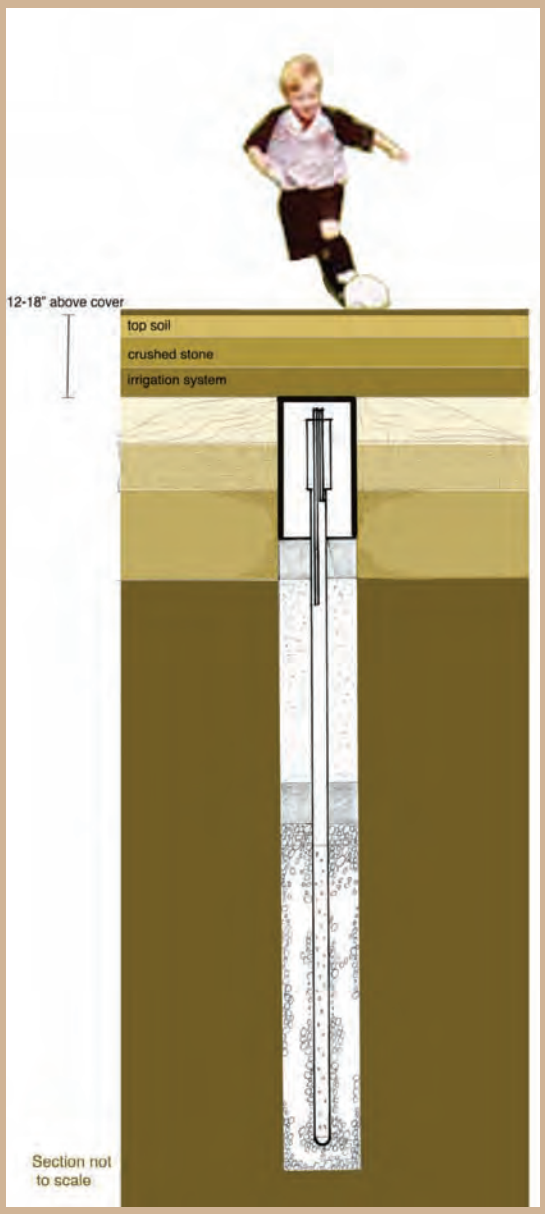
the Region 5 Superfund Redevelopment Coordinator, Tom Bloom, submitted the H.O.D. Landfill site for consideration as a potential pilot. Because remedy construction was already complete, the H.O.D. Landfill site did not meet the criteria for SRI pilots; however, SRI representatives agreed to consider the H.O.D. Landfill site as a research project to investigate how to approach reuse at construction complete sites. In January 2002, an SRI representative discussed the site and its potential reuse with key stakeholders in Antioch, including Taso Maravelas, Mayor of the Village of Antioch; Stephen Smouse, Supervisor of Antioch Township; and Bill Ahlers, Business Manager of Antioch Community High School District 117. At the meeting, attendees concluded that Antioch needed assistance with reuse planning for the site and preferred fast, direct support from an existing reuse planning consulting team rather than a monetary grant that could take a year or more to process. The SRI representative agreed to provide the consulting team's support to Antioch to begin to assess the reuse potential of the site and create a reuse plan that could be endorsed by the community. H.O.D. Landfill was formally selected as an SRI pilot in summer 2002. This marked the first time that EPA offered direct services from a group of experts to a community to facilitate the reuse of a Superfund site. The SRI-sponsored consultant team at the H.O.D. Landfill included land use planners, landscape architects, a community involvement facilitator, a field design specialist, and an EPA redevelopment expert. EPA also contacted its national partner, the United States Soccer Foundation, which offered to contribute its skills and resources to the reuse process.

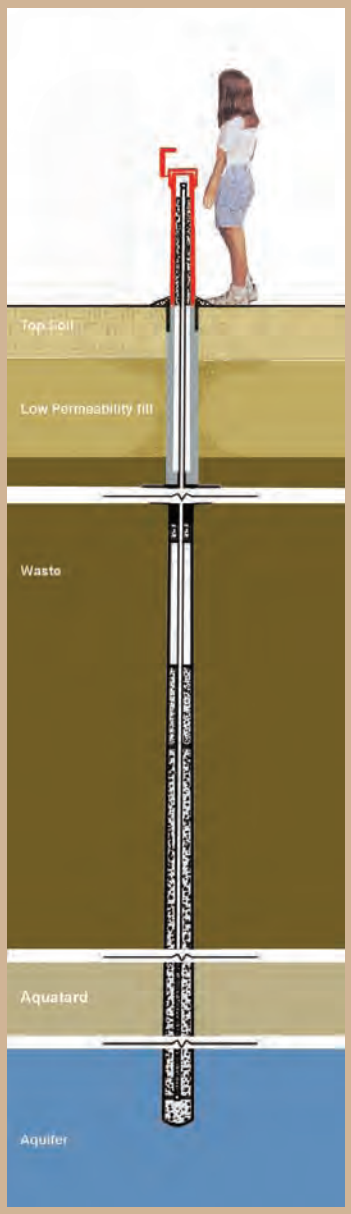
In July 2002, a group of Antioch residents attended a public meeting where a group of risk assessors who had prepared a new risk assessment for the Superfund site under a recreational end use scenario gave a presentation on potential risks. Though the meeting was designed to address site safety concerns, the risk assessors were unable to adequately answer all of the community's questions about why the site did or did not pose future risks, largely because they were unable to translate their technical analysis into easily understandable language.

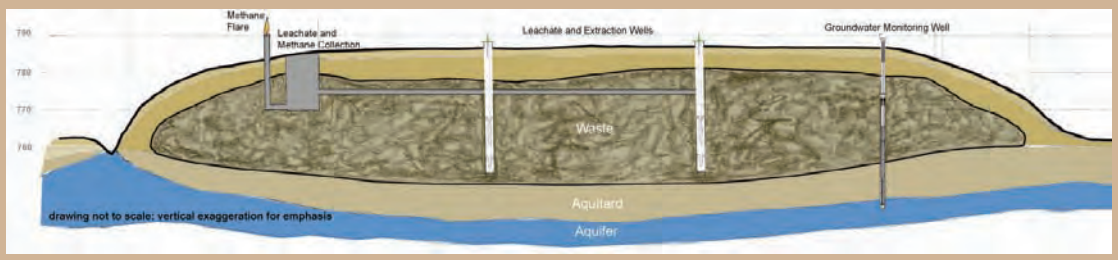
At a subsequent public meeting in August 2002, a group of Antioch residents, including several youth sports directors, met with EPA, Waste Management, and the team of consultants. This meeting, designed to educate the community and address concerns, consisted of three parts: a site tour, a presentation about site risks, and a discussion of reuse. EPA's efforts to assure community members of the site's safety were better received during this meeting. First, Waste Management conducted a tour of the site, where the community members viewed the components of the site's recently installed remedy and learned how the site is monitored and tested. After the tour, EPA and the consulting team gave a second presentation on site risks and described the landfill's structure and inner workings with diagrams. Finally, EPA hosted a preliminary discussion of reuse possibilities, during which some of the experts brought in by SRI presented concepts about reuse and encouraged discussion among the meeting participants. During these discussions, the Antioch residents expressed their continued concern based on A.E. Zanoni's letter but still felt optimistic about the prospect of using portions of the site and vicinity as a recreation area. The combination of diagrams, explanations, and the site tour helped to ease the community's site safety concerns (*See Figure 5*).

Figure 5: The Landfill's Working Systems

The consultant team used graphic depictions of the landfill and its infrastructure at the August 2002 community meeting to explain the site's operating and monitoring systems to the community. The diagrams depicted layers of the landfill and the monitoring well structure and showed that recreational users would remain well above waste and monitoring systems at all times. The consultant team hoped that if they could offer the community information about the landfill's infrastructure and make the working systems visible and easy to understand, the community's fears would be allayed.







Eventually, the consensus was reached that in order for the community of Antioch to be convinced of the site's safety, EPA must provide assurances. EPA needed to 1.) present Antioch with a document stating that the H.O.D. Landfill Superfund site was ready for recreational reuse (a Ready for Reuse determination),[5] and 2.) modify the fence around the site to demonstrate that the fence was no longer necessary to keep people out. EPA began the work necessary to make these changes and expected to complete the tasks within six weeks.

2002 – 2003
Discord in the Planning Process

During the early stages of reuse discussions, the Township organized an intergovernmental grant application that, if awarded, would help fund the purchase of the northwest portion of the reuse planning area (known as the Horak property). This property acquisition would supplement the

Soccer game at Osmond Sports Complex.

40 acres on the northeastern portion of the reuse planning area that Waste Management had donated to the Township, the 10 acres of wetlands on the southwest portion of the reuse planning area owned by the school district, and the southeastern portion of the reuse planning area owned by the Village.

The Village, Township, and school district envisioned a future for the entire reuse planning area in which the multiple parcels would combine into one coherent recreational unit. As they discussed the conceptual plan, the Village, Township, and school district disagreed over which entity would have priority in scheduling use of the fields. Before this conflict could be resolved, the Village and school district found themselves in a major dispute about matters unrelated to the H.O.D. Landfill. This discord postponed all collaborative discussion.

Removing Reuse Barriers: Regulatory Agencies Pick Up the Pace

EPA committed to removing the requirements for the site's fence and issuing a Ready for Reuse determination in an attempt to resolve the community's lingering uncertainty that the site would be safe for school children and community members to use. In order to accomplish these goals, EPA approved or issued three documents: a revised risk assessment, an Explanation of Significant Differences, and a Ready for Reuse determination. The sections below explain the purpose and effect of these documents.

With EPA oversight, Waste Management conducted a revised risk assessment for the Superfund site to take a second look at the risks posed to human health and the environment after completing remediation activities at the site. Most importantly, the revised risk assessment examined exposure pathways for recreational use, which the original risk assessment had not specifically addressed. The results showed that direct contact with the soil currently present would not harm human health. The extra foot of clean soil on top of the cap made risks associated with the site about one in a billion, much lower than EPA's threshold for concern. Thus, the risks associated with recreational use of the site were considered to be minimal. Waste Management completed the assessment report for EPA review in July 2002. EPA approved the revised risk assessment in August 2003, thereby confirming the ability of the site's remedy to safely support recreational uses.

Based on information from the risk assessment, EPA issued an Explanation of Significant Differences (ESD) to explain and document how the final remedy at the site would differ from the remedy selected in the ROD. The ESD approved the removal of the fence surrounding the site, allowing public access to the site. In addition, the ESD allowed for the recreational reuse of the site as long as the remedy remained intact.

Finally, EPA communicated the site's capacity to support recreational uses by issuing a Ready for Reuse determination on November 12, 2003, at a public ceremony in Antioch. The H.O.D. Landfill Ready for Reuse determination documented that the site can safely support recreational uses.

5 In order to support community efforts to reuse Superfund sites, EPA developed a new type of document called a Ready for Reuse Determination. These documents are environmental status reports written in plain language; they describe how a site can be used productively while remaining protective of human health and the environment. Sometimes this assurance is all that is needed to give local communities, developers, or site owners the confidence to move ahead with redevelopment.

In addition to this delay, the regulatory preparations for fence removal and the Ready for Reuse determination, which hinged on the approval of a risk assessment at the site, were taking longer than EPA had originally anticipated. Faced with these delays, school district officials felt compelled to move quickly to replace the fields they were losing because of building construction; therefore, they decided to forge ahead. In January 2003, the school district purchased the Horak property that the inter-governmental grant would have funded and initiated a lease agreement for the portion of the landfill owned by Waste Management. The school district then began planning for the reuse of the western half of the reuse planning area.

Before the school district purchased the Horak property, the intergovernmental grant application was approved. The grant, a $702,000 matching award, was provided by the Illinois Department of Natural Resources' (IDNR) Open Space Land Acquisition and Development program, which assists local government agencies in acquiring and developing land for parks and open space. However, the intergovernmental body, which would receive the grant and collaboratively redevelop the reuse planning area, had never been legally created because of the disputes between the Village and school district. The school district then purchased the property for which the grant would have paid. Therefore, the Village and Township made preliminary plans to use the grant money to purchase another parcel in Antioch that could be developed as a recreational area. Meanwhile, the Village and Township began to think about jointly redeveloping the portion of the reuse planning area that was not under school district jurisdiction.

Creating Compromise

In April and May 2003, the team of consultants worked with the community and local officials to create and present formal reuse plans. The contentiousness that had broken up the intergovernmental body was still present, but most members of the Antioch community were interested in a future recreation area and were willing to discuss the reuse plan. Because of the continuing discord, the consultant team met with the stakeholders in two groups—first with the Village and Township, and then with the school district—to discuss the particulars of each group's portion of the reuse planning area. The consultant team also held community meetings for the general public to think about reuse. In order to ensure that the community members could adequately communicate their needs and priorities during the public meetings, the consultant team formed a Land Use Committee (LUC) that included representatives from local organizations and neighborhoods, as well as from the school district, Village, and Township. During these meetings, the consultants engaged in an interactive process with the LUC and other stakeholders to work toward the following goals:

1. Educate the community about the site's history, remedy, and reuse options that would not compromise the remedy.

2. Encourage ongoing communication among EPA, community members, the Village, the Township, the school district, and Waste Management.

3. Discuss how surrounding land uses could inform a final design concept that would utilize the reuse planning area to reconnect the community.

4. Brainstorm reuse opportunities and work with the community to develop reuse priorities, conceptual designs, and a final reuse plan.

Land Use Committee (LUC)

Land Use Community Members

- Reed Ano
- Michael Cascone
- John Cook
- Kevin Crowe
- Mary Dominiak
- Steve Gebauer
- Mary Johnson
- Jerry Olive
- Linda Peterson
- Steve Schoenfelder
- Steve Thelen

Though all three entities were interested in reusing the site and vicinity at some point and saw the benefits of a reuse plan that would incorporate the entire reuse planning area, it became clear that they had different priorities and agendas, which created different time lines for reuse. As three-way collaboration was unlikely, the two halves of the reuse planning area had to be designed separately. The consultant team worked with the Village and Township to develop a reuse plan for the eastern half and worked with the school district to formalize a design for the western half. Separating the reuse plans was a critical step that served as a catalyst for action; the three entities could now plan to develop their own acreage whenever circumstances allowed. Because the consultant team had considered how the various components would fit together, the two plans could operate independently and could also integrate into one fairly seamless recreation area in the future (*See Figures 6 and 7*).

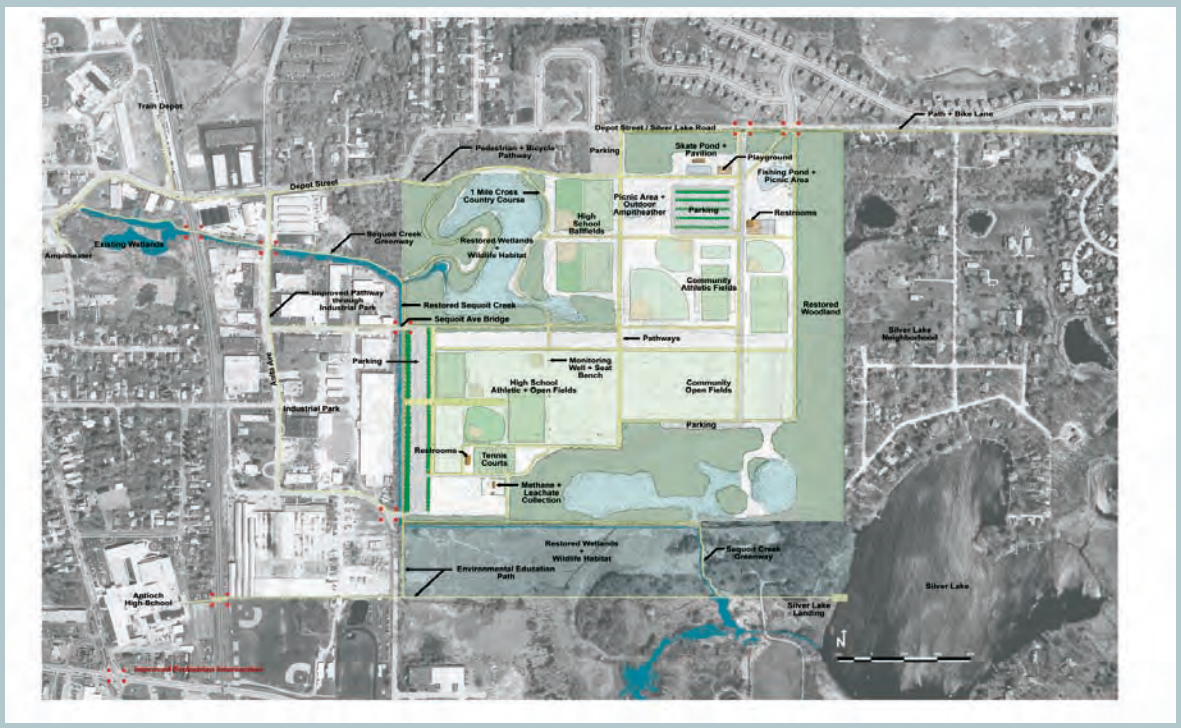


Figure 6: Conceptual reuse plan.

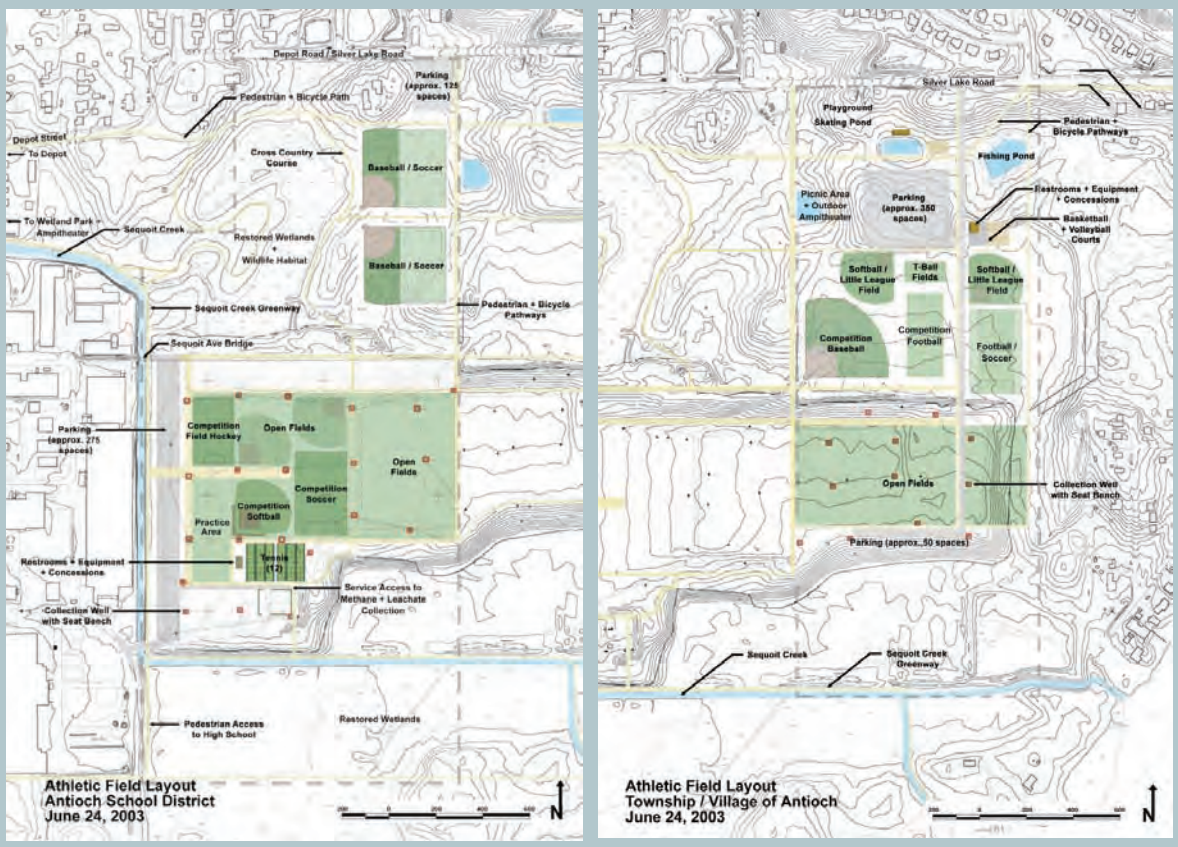


Figure 7: Conceptual reuse plans for the school district, Village and Township.

Reuse on the Horizon

Issues

Well after reuse efforts were underway, Lake County imposed a number of storm water requirements that were unforeseen and considerably delayed field construction. The unforeseen storm water regulations negatively affected the school district's schedule and budget. A local contractor offered to donate the excavated dirt from his construction site to the school district for field construction. Unfortunately, the school district was forced to give up this opportunity—the time lines of the contractor's excavation and field grading activities at the site no longer coincided. After a significant delay and much searching, the school district procured dirt from other sources. It is possible that the storm water problem (and thus the construction delays) could have been circumvented, had officials in the Village, Township, and school district involved Lake County in the process from the outset. Despite these problems, the field construction project began moving forward with a completion date set for Fall 2005.

School District: Activities Underway

The school district benefits on two fronts: athletic fields and low-cost energy. The athletic facility includes five soccer and field hockey fields, three softball fields, and 12 tennis courts. A concession stand and restroom building serve students and spectators. The methane co-generation system, which began operation in September 2003, provides low-cost energy and clean combustion for the landfill's fugitive gas, and decreases the school's environmental emissions. Landfill gas moves through a collection and conditioning system at the landfill and travels through a transmission pipe to the school. There, a combustion process in 12 microturbines generates heat and electricity for the school. RMT Inc., the environmental management, engineering, and construction services firm that designed the methane co-generation system, has received a number of awards for the system's innovative concept and design. These awards include the 2004 "National Honor Award" from the American Council of Engineering Companies (ACEC), the 2004 "Engineering Excellence Grant Award" from the Wisconsin ACEC, and 2003 Landfill Methane Outreach Program "Project of the Year Award."

The school district's construction activities incorporated a number of environmentally friendly features. Permeable asphalt in the parking lot helps alleviate storm water issues, and the car stops in the parking lot are made of recycled rubber. The design also uses the landfill's existing leachate system tank to serve the restrooms in the new recreational facility rather than build an additional septic system. Mr. Ahlers feels strongly that the school district's actions to reuse the site and support green building practices exemplify the ethic of environmental stewardship taught in the school. The high school curriculum

Tennis courts at McMillen Park.

now includes units on methane co-generation. The RMT Inc. design engineer for the co-generation plant visits physics and environmental science classes to explain the design and operation of the plant. Students in these classes have been analyzing energy production data from the plant. In addition, high school teachers and administration worked with the Wildlife Habitat Council to develop an educational environmental laboratory for the wetlands south of the site.

Village and Township: Partnership and Progress

In October 2003, with the Village providing the matching funds, the Township used the IDNR grant to acquire a 30-acre parcel on the west side of Antioch. The Village and Township plan was to develop the 30-acre parcel and the entire eastern portion of the H.O.D. Landfill site as public recreational areas for Antioch residents and organized sports leagues.

In January 2004, the Village and Township formalized this intention by forming the Antioch Township Parks Cooperative, a 20-year intergovernmental agreement that lays out the provisions for developing the eastern portion of the reuse planning area, together with the 30-acre parcel in western Antioch funded by the IDNR grant. The agreement assigns to Village and Township representatives equal responsibility in developing the parks and establishing the rules and regulations. The Village and Township share the cost of planning and maintaining the parks and the cost of liability insurance. The Village and Township commissioned a wetlands delineation and survey of Sequoit Creek, in preparation for the wetlands enhancement portion of the reuse plan. Development of the recreation areas was estimated to cost approximately $1.5 million, and the two governments began researching funding options. The time frame for planning and construction of amenities is currently unknown. Township supervisor Stephen

Smouse says of the project that through "cooperat[ion] with the Village of Antioch and Antioch Community High School, there will be approximately 140 acres of recreational area for use of residents of the Township, Village, and school district. [The] lesson learned is to keep pushing in a positive direction to get important work done."

Making Reuse Financially Possible

A number of creative arrangements have made reuse economically feasible. Waste Management donated the 40-acre former borrow area to the Township and leases the western portion of the landfill surface to the school district for $1 per year. The school district has released Waste Management from liability for any recreation-related injuries on the site. In a further effort to support reuse, Waste Management encouraged all non-settling PRPs to make a contribution to support reuse of the H.O.D. Landfill.[6] In exchange, Waste Management offered to indemnify each contributing PRP from any future costs. The non-settling PRP contributions totaled approximately $215,000. Waste Management presented $100,000 to the school district during the Ready for Reuse determination signing ceremony to help fund the construction of reuse components. The Village and Township also received a $400,000 Open Space Land Acquisition and Development grant from the Illinois Department of Natural Resources. The balance of the PRP contributions was committed to further development of the site.

Tom Bloom and Steven Smouse at Osmond Sports Complex Grand Opening

The $1.9 million methane co-generation plant was funded primarily through a $550,000 alternative energy grant from the Illinois Department of Commerce and Community Affairs and $1,225,000 in revenue bonds. Waste Management donates the methane that powers the plant. Using this donated methane, the system provides the high school all of its energy needs for electricity, heat, and hot water. The school district estimates that it saves about $100,000 per year by reducing energy costs and selling excess electricity to Commonwealth Edison, the energy services company that serves the Antioch area, for an estimated $5,000 - $25,000.

Waste Management believes that the additional effort to remediate and prepare the site for reuse was worthwhile. The Closed Sites Management Group maintains that many of the advantages that the company will receive are intangible and unquantifiable, such as improved corporate image and community relations. The company is confident that its work at the site will give Waste Management a competitive advantage in seeking contracts with other communities. Local waste haulers for the company now report that they often hear positive comments about the site.

Waste Management had ceased to view the property as a financial asset. By donating 40 acres to the Township, the company has reduced its real estate tax burden. In addition, Waste Management can now see its donated and leased land as a positive gift to the community. Jack Dowden, a member of the Closed Sites Management Group, says of the process, "It's worth doing. There are monetary and non-monetary rewards that make it worth the effort, but you have to allocate the time and energy and resources if you're going to do it right. We took the field of dreams approach that if we offered it up and offered the facilitation and resources, everyone would come running—that was naive on our part. Good intentions have a very low currency value in these projects. It takes a lot of concerted effort and time to build consensus and get community buy-in for the project. You need to be able to demonstrate tangible value to the community."

Broader Implications

Reuse activities at the H.O.D. Landfill site have had broad implications for Superfund site reuse throughout the country. The H.O.D. Landfill was the first Superfund Redevelopment Initiative pilot awarded to a construction-complete site. Activities conducted at the H.O.D. Landfill site informed EPA about the needs and issues associated with returning construction-complete sites to use and led directly to the development of a new EPA effort to help communities remove barriers to reuse at cleaned up Superfund sites, called the Return to Use Initiative. The Initiative, which EPA announced on November 10, 2004, is designed to remove barriers to reuse that are not necessary for the protection of human health, the environment, or the remedy at those sites where remedies are already in place. In other words, the Initiative aims to address

6 EPA tries to make agreements with all potentially responsible parties to perform or pay for cleanup of a Superfund site; however, some PRPs decline to negotiate a legal settlement. In the case of the H.O.D. Landfill, Waste Management entered into agreement with EPA and conducted the cleanup under EPA oversight. Under this agreement, Waste Management can file suit against other PRPs who did not settle in order to recover cleanup costs.

the exact type of barriers uncovered by the H.O.D. Landfill redevelopment process.

Recognizing the Reuse Champions

The H.O.D. Landfill redevelopment process made clear the need for "reuse champions" at every level—the locality, the PRP, the EPA Region, and EPA Headquarters. These "reuse champions" are people who are committed to the importance of reusing Superfund sites.

Bill Ahlers of the school district emerged as the first local reuse champion. He was the first to advocate reuse at the site, when he proposed the methane co-generation plant, which led to the discussions of recreational use. He also developed and won support for the agreement in which the school district indemnified Waste Management from any liability associated with accidents or injuries caused by athletic or recreational activities on the property and committed the school district to maintaining the vegetative cover of the cap by mowing and re-seeding when necessary.

Throughout the process, and despite the discord among the Village, Township, and school district, Waste Management, in particular the Closed Sites Management Group, remained committed to the site's reuse. Waste Management voluntarily designed the site remedy to accommodate potential athletic fields and spent extra money in order to make the site's remedy conducive to recreational use. The Closed Sites Management Group also played a leading role in maintaining lines of communication among all of the stakeholders and focusing stakeholders' efforts on the potential for beneficial reuse of the reuse planning area. Waste Management's patient and persistent approach was the glue that held the project together.

EPA Headquarters staff responded to the community's needs by agreeing to support the community's effort to reuse the site. Headquarters staff then selected H.O.D. Landfill to be an SRI pilot, which was the first such designation for a construction-complete site. They also participated in local meetings throughout the process. They supported development of and approved the Ready for Reuse determination, which was the first document of its kind in Region 5 and the second nationally. At the EPA Regional level, Tom Bloom assisted first as the Region 5 SRI Coordinator and then became the site's Remedial Project Manager (RPM) so that he could use his expertise to facilitate the process. Mr. Bloom worked to procure the Superfund Redevelopment in-kind services award, to gain EPA and state approval of the revised risk assessment funded by Waste Management, and to overcome the regulatory obstacles preventing the site's reuse. In addition, Mr. Bloom worked extensively with the Region, Waste Management, the State of Illinois, and the Antioch community to promote the reuse of the site and answer questions related to the site's reuse.

EPA and Reuse: Lessons Learned

- Regulatory agencies must communicate technical information to the community using plain, easily understandable language.
- EPA must have a well-defined process in place to facilitate site reuse.
- The consultant team must be prepared to use innovative approaches to dealing with conflict.
- Persistence, persistence, persistence.

Legal Liability: Further analysis

Waste Management, as a PRP and owner of part of the site, would not have been willing to open the site for public recreation without indemnification, which the Antioch school district provided for any recreation-related injuries on the site. Waste Management remains liable for any chronic or acute health problems caused by contamination at the site. As further protection from liability, Waste Management was listed as an additional party covered on the school's insurance policy.

A number of other people and organizations helped to make the project possible by lending financial and technical support. The U.S. Soccer Foundation endorsed the project and brought in Clark Company, a field design firm, as a consultant to the project. Karen Irish, the U.S. Soccer Foundation's Director of Public-Private Partnerships, helped to bring local sports organizations on board. The Illinois Department of Commerce and Community Affairs funded part of the methane co-generation plant and the Illinois Department of Natural Resources made it possible for the Village and Township to purchase property in Antioch for future recreational areas. Finally, the Wildlife Habitat Council provided technical advisors for the development of the reuse plan; their advocacy and expertise led directly to the wetlands creation and enhancement component of the reuse plan.

Conclusion

In April 2008, the Village and Township held a grand opening of the 80-acre, $1.1 million Tim Osmond Sports Complex, named after the former Township Supervisor and former State Representative. The Complex already has fields for baseball, softball, soccer and football, running trails, a playground, a picnic area and an 18-hole disc golf course. In May 2008, the School District held a grand opening of the $3.2 million McMillen Park, celebrating completion of its recreational facilities; some, like the 12 tennis courts had been open for some time, but the grand opening celebrated three new softball fields, five fields for soccer or field hockey, and a concession stand with restrooms.

The H.O.D. Landfill is a model of complex, multi-stakeholder reuse planning. The reuse process was not without obstacles. Reusing a Superfund site is a long and difficult task, but the H.O.D. Landfill site is proof that eventual success is possible, despite all of the obstacles and detours along the way. The history of the H.O.D. Landfill site now serves as a learning tool for other parties interested in reusing Superfund sites. There are Superfund sites across the country that can be transformed, as the H.O.D. Landfill site has been, into community assets. Bill Ahlers agrees and offers a vote of confidence to those interested in reusing a Superfund site: "You need to look at the big picture, the long-term benefits, and be patient and recognize that it's going to be a slower process than you are probably used to—but the benefits are there at the end."

Sources and Resources

Sources

Images for this case study were obtained from EPA Region 5 and June 2003 and March 2007 site visits.

Resources

EPA Region 5 Superfund Redevelopment Program:

http://www.epa.gov/region5superfund/redevelop/

Superfund Redevelopment Initiative:

www.epa.gov/superfund/programs/recycle/index.htm

EPA site progress profile, including the site's 2006 Five-year Review:

http://cfpub.epa.gov/supercpad/cursites/csitinfo.cfm?id=0500581

Waste Management's landfill gas-to-energy program:

http://wm.com/wm/environmental/renewable_energy.asp

EPA

On this day, November 12, 2003,
the U.S. Environmental Protection Agency (U.S. EPA)

Determines that the

H.O.D. Landfill Superfund Site Is Ready for Recreational Reuse

U.S. EPA Region 5
Superfund Director

This Ready for Reuse Determination (RfR) is for the 51-acre H.O.D. Landfill Superfund site ("Site"). This RfR provides information that the U.S. EPA has made a technical determination that the Site, located in the Village of Antioch, Lake County, IL, is ready for limited recreational use and the Site's remedy will remain protective of human health and the environment, subject to operation and maintenance of the remedy and the limitations as specified in the Record of Decision (ROD) and the Explanation of Significant Differences (ESD), which have been summarized in the attached report, Ready for Reuse Determination, H.O.D. Landfill Superfund site, November 12 2003. This RfR remains valid only as long as the requirements and use limitations specified in the ROD and ESD are met.

This Ready for Reuse Determination is a technical decision document and does not have any legally binding effect, nor does it expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits of any party. U.S. EPA assumes no responsibility for reuse activities or for any possible or potential harm that might result from reuse activities. U.S. EPA retains any and all rights and authorities it has, including but not limited to legal, equitable, or administrative rights. U.S. EPA specifically retains any and all rights and authorities it has to conduct, direct, oversee, and/or require environmental response actions in connection with the Site, including instances when new or additional information has been discovered regarding the contamination or conditions at the Site that indicate that the remedy and/or the conditions at the Site are no longer protective of human health or the environment for the uses identified in the Ready for Reuse determination. Waste Management is responsible for ensuring that any limitations specified in the ROD or ESD that might be affected by a particular recreational use are complied with during the activity.

Limitations on Site uses identified in the ROD and ESD include the following: there should be no displacement of soil, either direct or incidental, beyond 12 inches underneath the ground's surface, although this limitation may be waived, on a case-by-case basis, if an appropriate engineering study is conducted that justifies non-compliance with this limitation, and U.S. EPA approved the engineering study and provides approval to modify the limitation for that particular instance; the gas and leachate well head vaults existing on-site should remain locked at all times, except during operation and maintenance activities, in order to maintain their security; the security of the flare building and remedial components existing on-site should be maintained with the installation and ongoing maintenance of fencing, gates that are to be locked at all times except during operation and maintenance activities, and posting and maintaining no trespassing signs. The components of the remedy requiring ongoing operation and maintenance are: the landfill cap, the landfill gas collection system, the leachate collection system, and groundwater monitoring. Waste Management is responsible for the continuing operation and maintenance of the remedy at the Site. According to the ROD, use of Site groundwater and groundwater in the vicinity of the Site is prohibited by Village of Antioch ordinance (Antioch Water Works and Sewage Ordinance Sections 50.008, 52.009, and 52.011).

Glossary of Terms

Borrow area – An area of land near a landfill that serves as the source of clean soil used to cover the landfill waste.

Differential settlement – Gradual and uneven settlement of waste in a landfill, caused by non-uniform composition of waste and uneven rates of decomposition.

Rill – A small channel eroded into the soil by surface runoff.

Explanation of Significant Differences (ESD) – A significant change to a Record of Decision (ROD) that does not fundamentally alter the remedy. An ESD may be initiated by EPA.

Fugitive landfill gas – Gas formed in landfills that could reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

Extraction well heads – The portion of an extraction well (for leachate or gas extraction) that typically lies at ground level. Well heads can also be placed in below-ground vaults that allow access to the well head.

Gully – Severe erosion in which trenches are cut to a depth greater than one foot. Generally, ditches deep enough to cross with farm equipment are considered gullies.

Institutional controls – Non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land or resource use.

Leachate – Water that collects contaminants as it trickles (or seeps) through wastes, pesticides, or fertilizers. Leaching may occur in farming areas, feedlots, and landfills, and may result in hazardous substances entering surface water, ground water, or soil.

Leachate collection system – A system that gathers leachate and pumps it to the surface for treatment.

Methane – A colorless, nonpoisonous, flammable gas created by anaerobic decomposition of organic compounds (such as in a landfill). A major component of natural gas used in residences.

National Priorities List (NPL) – EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under Superfund. The list is based primarily on the score that a site receives from the Hazard Ranking System. EPA is required to update the NPL at least once a year.

Potentially Responsible Party (PRP) – The Superfund Law (CERCLA) allows EPA to respond to releases or threatened releases of hazardous substances into the environment. Under CERCLA, potentially responsible parties (PRPs) are expected to conduct or pay for the cleanup. The Superfund enforcement program identifies the PRPs at the site, negotiates with PRPs to do the cleanup, and recovers from PRPs the costs spent by EPA at Superfund cleanups.

Record of Decision (ROD) – The ROD documents the cleanup alternatives that will be used at NPL sites as well as the supporting analyses.

Remedial Action – The implementation of a permanent resolution to address a release or potential release of a hazardous substance from a site.

Energizing a New Future

ALTERNATIVE ENERGY AND RECREATIONAL REUSE AT THE H.O.D. LANDFILL SUPERFUND SITE IN NORTHERN ILLINOIS

EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

January 2010 *(Review Draft)*