

COMPATIBILITY ISSUES RELATED TO LAND DEVELOPMENT OR REDEVELOPMENT ADJACENT TO SOLID WASTE FACILITIES – PRELIMINARY FINDINGS FROM AN ENVIRONMENTAL RESEARCH STUDY

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ABSTRACT

There are limited solid waste siting literature and data that address development or re-development issues related to solid waste facilities and adjacent land parcels. Development and re-development of properties adjacent to solid waste facilities will become a significant program for solid waste managers in the years ahead. This paper discusses several case studies where public and private owners/operators of solid waste facilities have been forced to close their facilities pre-maturely, resulting in a loss of valuable solid waste capacity and increased cost for solid waste disposal. Research is needed to develop methodology to gather scientific and quantifiable support for set backs and buffer zones as a function of landfill and transfer station operations.

INTRODUCTION

Landfills, transfer stations, material recovery facilities, and waste-to-energy plants are vitally important to society. Over the last few years, communities have invested literally tens of billions of dollars constructing such solid waste facilities in order to respond to the nation's increasing needs for disposal and recycling capacity. These facilities have been designed under the most restrictive federal, state, and local environmental regulations. Further, since these facilities have been considered by the public to be locally unacceptable land uses (LULUS) at the time of their initial siting, the land use and zoning hearings associated with siting have often been controversial.

As the nation becomes more urbanized, sites once considered remote are now located in areas increasingly ripe for development or re-development. In order to site solid waste facilities local governments have installed public works infrastructures such as roads and utilities reducing the costs for owners of adjacent parcels. Consequently, we see lands adjacent to solid waste facilities being considered for developments such as

residential communities and commercial and industrial projects. Thus, the potential opportunity for nuisance complaints against the existing solid waste facility operations has become an increasing reality in many areas of the nation. There have been some instances in recent years where public and private owners/operators of solid waste facilities have been forced to close their facilities pre-maturely, resulting in a loss of valuable solid waste capacity and increased cost for solid waste disposal.

What then are rational guidelines for land use buffering requirements that would minimize potential conflicts between solid waste facilities and these new developments on nearby land parcels? During the course of researching a new solid waste ordinance for Pinellas County, Florida, the authors found that there is limited solid waste siting literature which address development or re-development issues related to solid waste facilities and adjacent land parcels. This paper will explore the results of our literature search, as well as discussing several specific case studies of solid waste facilities which have been faced with land use compatibility issues.

BACKGROUND AND HISTORY

The Pinellas County Solid Waste Disposal and Resource Recovery System was established by an Act of the Florida Legislature in 1975. County officials envisioned a consolidated solid waste disposal system to serve the County and its twenty-four municipalities. At this time, solid waste disposal was being provided by several of the County's larger municipalities (i.e., Cities of St. Petersburg, Clearwater, Largo, and Tarpon Springs) and by private companies.

While Pinellas County in 1975 was one of the most densely populated counties in the state, the area chosen for construction of the mass burn, waste-to-energy plant, sanitary landfill and other attendant solid waste facilities was relatively underdeveloped. Most of the surrounding land was vacant and had been identified in the county's

Comprehensive Plan for light industrial and commercial use only. Paved roads and utilities had not yet been provided adjacent to the solid waste property. As a precursor of things to come, a residential retirement community of several hundred homes, known as the Tamarac Mainlands was under construction, touching the southwest corner of the solid waste property.

Construction of the waste-to-energy plant began in 1980 and the initial 2,100 tpd capacity facility and adjacent landfill began commercial operation in 1983. During this time, over the objection of the county, the City of Pinellas Park approved the zoning for construction of another residential community of several hundred homes directly west of the active landfill.

During the 1980's and 1990's, the surrounding area, known as The Gateway area, has continued to develop commercially as permitted by zoning regulations, and is now the home of such prominent businesses as Jabil Circuit, Inc., Home Shopping Network, Danka Systems and Raymond James, Inc. As the area developed further, the only undeveloped property remaining were two parcels to the south of the solid waste property totaling over 200 acres, with the adjacent, contiguous 130 acres known as the "Sod Farm" owned by the City of St. Petersburg.

While St. Petersburg had made it generally known as of the late 1980's, that it wanted to sell their Sod Farm property for commercial development, it was not until early 2001 that the City officially announced its intent by issuing a Request for Proposals (RFP). The RFP required bidders to meet minimum commercial development and jobs specifications. Upon learning of this effort, and wishing to preserve an undeveloped buffer adjacent to its future sanitary landfill, Pinellas County officials approached the City with an offer to buy the Sod Farm. This offer was rejected, even with overtures made from the highest levels of administrative and political entities. It was clear that the City intended to provide additional tax base by promoting commercial development. The County was told it could compete for purchase of the property through the RFP process.

In August 2001, with authorization of the County's elected Board of County Commissioners, county staff submitted a bid for the Sod Farm. The county's innovative approach included leasing the land back to the City for a nominal fee, allowing the City to develop the property for a minimum of fifty years, and to keep the tax revenues generated during this period. At the end of the fifty-year period, the County would allow the City to continue with the lease or it could reclaim the property, for public purposes. Even with a very competitive bid, the City awarded the project to a private developer.

Proposed Development of the Sod Farm Property

While the county believed an opportunity had been lost for the long-term welfare of all of Pinellas County's nearly one million permanent residents, with the adjacent property zoned Commercial/Light Industrial, such uses were none-the-less compatible with the solid waste facilities.

Then in October 2003, the County became aware that the City of St. Petersburg had proposed a change to their Comprehensive Plan through the regional planning authority, known as the Tampa Bay Regional Planning Council (TBRPC) that would allow for a mixed use development of the Sod Farm. Over the years, this zoning concept had received favor to allow for the redevelopment of older, run-down commercial areas and to provide for a new live/work urban type community environment. Under the zoning guidelines for these types of developments, a residential component was authorized that would allow a developer to provide high-density residential on up to twenty-five percent of his property, if over 100 acres, and at a density of up to 75 units per acre. If approved, the adjacent Sod Farm could potentially be the future "home" of nearly 3,000 residential units.

Quickly, County solid waste staff had to prepare and present information to the various responsible planning entities about the County's solid waste disposal facilities and its plans for the future. Within days of learning of the City of St. Petersburg's and the developer's Comprehensive Plan change request, County solid waste staff presented its position and concerns at the October 13, 2003 TBRPC public hearing. This was the first of a series of required actions by the developer for project approval. The action of the TBRPC would be forwarded to the Florida Department of Community Affairs for review and approval, as required by state law. Surprisingly, in preparation for its presentation, County staff learned that the TBRPC staff person responsible for evaluation of the developer's application was not aware that the County's solid waste property was contiguous to the developers. This event was the first indication of a theme that would be restated by the proponents of the proposed development throughout the ensuing process. That is, that the solid waste facilities were operated so well, and with proper site planning by the developer the solid waste facilities could co-exist with new high density residential. In later public hearings on the subject, the developer strongly argued that the County's suggestion of the potential of negative environmental impacts from the sanitary landfill and waste-to-energy plant, i.e. noise, traffic, dust, odor, birds and litter, was just the County staff crying, "Chicken Little – the sky is falling."

With County input, the TBRPC staff substantially changed its recommendation from nearly unconditional approval to

one that would result in substantial “extra-jurisdictional impacts” and not in conformance with the agency’s “Strategic Regional Policy Plan.” While the proposal received substantial discussion and debate by the TBRPC Board (made up of elected and appointed officials for the four county West Central Florida area), the application for an amendment to the City of St. Petersburg’s Comprehensive Plan, changing the allowable land use for the project site from Industrial Limited to Planned Industrial Mixed Use, was adopted. The amendment was the first step to allow the construction of high-density residential—up to 75 units per acre—as part of a planned industrial/commercial project.

The next step in the process was for the application to be considered by the Pinellas Planning Council (PPC), a thirteen member legislatively established planning agency, consisting of elected officials representing the County and its 24 municipalities. With the favorable TBRPC action, the PPC hearing was set for November 19, 2003. As in the case of the TBRPC, it was determined PPC staff had little knowledge of the relationship of the developer’s property to the existing and future solid waste facilities. In early November, 2003, the Planning Advisory Council (PAC), a staff advisory board to the PPC, voted nearly unanimously to recommend the Comprehensive Plan amendment to the PPC (the one descending vote was the County Government’s Planning Department representative). County solid waste staff sought to meet with the PPC Executive Director. The outcome of the PPC vote was important since any recommendation of the PPC would require a super-majority vote of the CPA, to overturn.

From Planning to Politics

Unlike the TBRPC process, solid waste staff had time to prepare a formal presentation to the PPC. A video was prepared of landfill operations during a full waste diversion (approximately 3,500-4,000 tons per day of MSW), showing the typical impacts from normal landfill operations – queuing garbage trucks, back-up alarms, seagulls, etc. As the factual presentation was being prepared, the process to educate the elected decision makers also ensued.

A major factor in the long-term success of Pinellas County’s solid waste system is the Technical Management Committee (TMC). The TMC was formed as part of the system’s enabling legislation and is composed of solid waste and public works officials representing the County and its municipalities. Realizing the danger to the long-term future of the solid waste system of major new residential development, the TMC voted to authorize its chairman (the Solid Waste Director from the City of Clearwater and an original TMC member) along with the County’s Solid Waste Director and Assistant County Attorney, to meet individually with the seven member

Board of County Commissioners, as well as interested elected officials from the municipalities. As these meetings progressed, it was clear the developer and his consultants were also meeting with and lobbying the elected officials.

The County staff/TMC position was not to object to development of the adjacent property as it was currently zoned (i.e. Industrial Limited), but any zoning change to allow Mixed Use/Residential use have an appropriate set back. The suggested setback was 2,000 feet.

While there was much internal staff debate (County staff for the Department of Solid Waste Operations, Planning Department, County Attorney’s Office and Consultants), the 2000 foot set-back was chosen based on experience with local landfill operating conditions and sound planning judgement. While County staff hoped to find many examples of similar zoning experiences elsewhere, as shown in Table 1, little of direct practical help was found. What was confirmed is the majority of published studies and regulations deal with the corollary, but opposite situation, of siting landfills near existing development.

Even with a formal presentation, and acknowledgement by the PPC staff of the significance of the solid waste properties, disappointingly, the PPC passed the developer’s requested Comprehensive Plan change allowing new residential development within 500 feet of the solid waste property line. The next “stop” was before the Pinellas County Board of County Commissioners, sitting as the Countywide Planning Authority (CPA).

As required, the CPA held a public hearing on the PPC action on December 16, 2003, and after hearing the testimony of all parties, directed a new County Ordinance be drafted to establish criteria for a minimum 2,000 foot set-back for new residential development adjacent to the landfill property line. Lessor set-back distances would be subject to the County’s existing zoning variance procedures. On March 9, 2004, the ordinance was passed with an effective date of March 31, 2004. As of this writing (June, 2004), the developer has filed the required variance application with the County’s Department of Review Services.

Solid Waste Siting Standards

One of the first steps of County solid waste staff was to gather information on separation distances between solid waste facilities and residential developments. Table 1 lists some of these research findings. The Federal Environmental Protection Agency (EPA) in its Subtitle D Solid Waste Disposal Criteria and all of the states have established strict regulations governing the design, construction and operation of sanitary landfills. Also, most of the states have established regulations regarding

other solid waste management facilities. For the most part, the purposes of these rules and regulations are to assure protection of public health and safety as well as the environment. Almost all these regulations include siting standards for solid waste facilities, which are usually stated as prohibitions or restrictions. Examples of such prohibitions and restrictions include: prohibiting certain landfill types within certain distances of airports; construction in floodplains; construction on or near wetlands; construction in seismic or fault areas; distance from drinking water wells; and, depth above the groundwater table. These prohibitions and restrictions vary from state to state to reflect local conditions and concerns. However, they have several characteristics in common: they are directed towards protecting the environment by limiting development in areas that may pose a health or safety issue or directly affect the environment, and they focus heavily on engineering factors that assure that the facility will not pose a potential threat to health or the environment. These characteristics are also based upon operation of the facility in accordance with strict operating and monitoring requirements. Finally, they do not address land use issues, compatibility with surrounding land uses and proximity to residential development. Many states, including Florida, do require that the site be zoned properly.

Other Federal and state regulations exist that may affect the siting of solid waste facilities. These include the Clean Air Act, the Endangered Species Act, regulations protecting national and state parks and historic areas, land preservation, etc. While some of these regulations require consideration of nearby land uses, they are limited and are directed to protection of legislatively designated areas of federal and/or state concern.

It is important to point out that for all the rules and regulations, there is a presumption that if the solid waste facility complies with the siting standards and is constructed and operated in accordance with design, construction and operating standards, it will not impact public health and safety nor impact the environment.

As stated above, siting standards contained in federal and state solid waste facility regulations do not directly address compatibility with surrounding land uses, and more specifically, proximity to residential development. There are two primary reasons that this has occurred. First, the regulations, and associated siting standards are based upon meeting groundwater and surface water standards, air quality criteria, and protection of specific resources such as wetlands. The design, construction and operating requirements are based upon meeting and exceeding these standards. The regulatory standards are based upon modeling, engineering analyses, and scientific studies that can demonstrate compliance. The regulations are based

upon quantifiable and measurable procedures that have been demonstrated, and which are defensible, to achieve the desired end. Land use considerations, particularly impacts on residential uses, are extremely difficult to quantify and measure in a defensible manner. The presumption is that the solid waste facility will be operated properly; however off-site impacts may occasionally occur. More importantly are perceived potential impacts. While some studies have been undertaken to try and measure these impacts, they tend to be very site specific and have difficulty in defining measurable results that may be applied in a broad sense.

Secondly, land use and zoning considerations are almost universally in this country considered local issues, which are best decided by local community policy makers. Solid waste facilities usually require specific changes to land use plans and/or zoning to allow their development. The local forum where these changes are made is where the issue of compatibility with residential land uses is decided. Such changes require public hearings allowing the public input into the process. Some states, as part of the permitting process, require public meetings. Many local communities in their land use and zoning codes have placed restrictions on the siting of solid waste facilities to help define such land use compatibility. It is interesting to note that examples of restrictions on land use near solid waste facilities at the local level are extremely rare.

In summary, federal and state regulations setting siting criteria for solid waste facilities are primarily focused on protection of public health and safety and the environment. They are based upon quantifiable and measurable standards. Land use compatibility is generally considered a local decision. Many of the factors considered in determining land use compatibility, particularly between solid waste facilities and residential uses, are not directly quantifiable and measurable. Decisions are made by local policy makers with respect to setting land use compatibility standards. Courts have shown a strong reluctance to overturn such decisions and substitute their judgment for local officials on these issues.

ILLUSTRATIVE CASE STUDIES OF PRE-MATURE SOLID WASTE FACILITY CLOSURES

In addition to gathering information on ordinances requiring various separation distances between solid waste facilities and residential developments, County staff and consultants reviewed illustrative case studies where complaints from residential neighbors of operating solid waste facilities resulted in pre-mature closure of these facilities.

Bee Ridge Landfill, Sarasota County, Florida

The Bee Ridge Landfill was sited as a County landfill in the 1970's. Although the County had completed planning studies aimed at locating another landfill site, the County went ahead in 1981 to expand the Bee Ridge Landfill instead of building an entirely new facility. At that time, the Bee Ridge area was still a remote area of the county with little, if any, commercial or residential development.

However, in the late 1980s all that apparently changed as several large residential developments were under development in the vicinity of the landfill. These were "upscale" golfing homes/condos with prices in the range of \$400,000 to \$500,000. Unfortunately, while the County went to extraordinary lengths to mitigate the usual impacts of landfills (noise, odor, littering, truck traffic on local roads, etc.), it is my opinion that the residents felt that they were misinformed about the landfill when they originally bought their homes. As a consequence, the residents made daily complaints to county officials and Commissioners about methane odors, littering on local roads, side slope washouts after heavy rains, birds, etc. Although the complaints did not receive much press attention at this time, these residents were politically influential and complained directly to their elected representatives. Further the level of complaints caused the Commission to direct staff to immediately plan on siting another landfill at a more remote location in the County. As a result of these studies, the County Commission voted in 1986 to purchase the 6,150 acre Walton Tract as the site for the new county landfill.

For the next 12 years, the County embarked on a long period of litigation with local residents in the vicinity of the Walton Tract, environmental organizations, and the federal government to site and permit the Walton Tract for the Central Landfill. Challenges and re-challenges to existing consultant studies were heard in federal courts. It was not until April 1998 that the Central Landfill opened and the Bee Ridge Landfill was closed.

Due to the extensive amount of planning, permitting, legal and construction work that was required to site the new landfill, the County's costs for landfill disposal have escalated significantly over the past decade. Initial disposal rates for county users (solid waste haulers) in the mid 1980s (before significant siting and construction started on the Central Landfill) ranged in the low to mid \$40s per ton. The current rate (effective February 2, 2004) for solid waste haulers is \$63.77 per ton. The move from the Bee Ridge Landfill probably resulted in a 50% increase in the cost of solid waste disposal to County residents.

Martin County, Florida

Briefly, Martin County had sited its only landfill in the vicinity of I-95, which served the County extremely well,

being close to its waste centroid. At the time the landfill was sited, this area in Martin County was fairly remote and had limited residential population. However, due to its proximity to I-95 and the Florida Turnpike, the Board of County Commissioners had approved several rezonings and land use changes. Consequently, major residential developments (Stewart West and Cobblestone Country Club) were sited adjacent to the boundary for the county's sole landfill.

Many realtors failed to inform potential buyers that the landfill was adjacent to their property (a small drainage swale separated the boundary of the homes and the landfill property). In fact, oftentimes buyers were misinformed, told that the landfill was closing. In fact, the landfill had decades of future capacity. As you might imagine, once a significant number of homes were sold (price range \$300,000 to \$400,000) and the community established, a vocal group of residents began complaining about landfill operations to both staff and the Commission. Groups appeared at every board meeting, flyers were circulated, and special orange t-shirts were worn by community members (opposing landfill operations – "move the dump") at practically every commission event. While staff developed a pro-active educational campaign to inform the public and the adjoining neighborhood about landfill operations, nothing they did appeared to satisfy the residents. The county invested in very expensive odor misting systems to minimize normal landfill odors and adjusted landfill operations.

With all of the bad press that ensued, the Board came to a decision to close the landfill, even though it had many years of landfill life remaining (additional landfill cells could be designed and constructed). They entered into a long-term disposal contract (30 years) with Waste Management to dispose of the county's waste out of county in Okeechobee County. The landfill tipping at that time was \$38.60 a ton and with CPI escalators, the current tipping fee is estimated at \$61.00 a ton for approximately 140,000 of the County's waste stream.

Osceola County

Osceola County owned and operated the sole Class I solid waste landfill – the Southport Landfill, which was located in proximity to the City of Kissimmee, near the County's waste centroid. Similar to Martin County, the County closed its landfill and has since contracted with a private waste disposal operator, Omni Waste, to provide solid waste disposal capacity.

When the Southport Landfill was originally sited, this area was fairly remote. However, with increasing growth in the County, large residential developments were sited adjacent to the landfill. Some of these included upscale developments, which catered to seasonal residents. One

development was immediately downwind from the landfill and numerous odor and equipment noise complaints were received, almost on a daily basis. County staff developed a pro-active education program, which included tours of the landfill, presentations at the civic association's recreation room, etc.

Unfortunately, the staff was unable to respond to resident complaints, which came in on an almost daily basis. Litigation ensued and a consent order was finally approved, which mandated that the landfill would have to be closed, although significant space existed at Southport for many years of solid waste capacity.

Current tipping rates at the new Omni Waste site are currently pegged at the old tipping fee rate at Southport (\$38.00 a ton). However, with the cost of the landfill transfer station and CPI escalators built into the Omni/Osceola contract, the County will be paying significantly more for landfill disposal.

WHAT THE PINELLAS COUNTY SOLID WASTE ORDINANCE ACCOMPLISHES

Information and data gathered during the course of our research assisted in developing a proposed solid waste ordinance with buffering or setback distances, which was then considered by the Board of County Commissioners. The unusual layering of processes within Pinellas County comprehensive planning, however, complicated the changes contemplated by the City to its comprehensive plan. Chapter 88-464, Laws of Florida, as amended is a special act of the Florida legislature that created the PPC and the CPA. The PPC and the CPA jointly have the responsibility of maintaining a Countywide Comprehensive Plan and a Countywide Future Land Use Plan with which all local governments within the County must remain consistent. The legislature's expressed intent in that Act was to coordinate planning and development among the County's twenty-four municipalities and the County government. The state recognized that there was such a level of interdependence among such a large number of local governments within a small land area of only approximately 264 square miles, as to necessitate broad oversight to prevent the actions of one local government from adversely affecting another, or the County as a whole.

Nothing could have provided a better example of the ill the legislature was trying to cure than the attempt by the City of St. Petersburg to expand its tax base while putting the countywide solid waste disposal facilities in jeopardy. The City sought to allow a multibillion-dollar development, which would provide significant tax income to the City, in an area abutting the current and future countywide solid waste disposal facilities. The City's efforts were not

uniformly rebuffed, largely due to the fact that the City of Pinellas Park had visions of similar developments. To that end, the two cities jointly requested that the industrial areas countywide be changed to allow residential development. Despite the fevered political battle, the competing interests of the cities and the remainder of the County were resolved through the oversight process put in place by the legislature. Ultimately the Countywide Future Land Use categories were changed to allow for mixed-use residential development, but only under extremely limited circumstances and the changes would only become effective after a period of approximately three months.

While the only developer with known plans to take advantage of the changes celebrated, and with the threat of extremely dense residential development looming on the doorstep of the County's only solid waste disposal facility, the Pinellas County Commission took steps to ensure the longevity of its valuable countywide asset. The Board of County Commissioners passed an ordinance that would restrict the future expansion of residential uses near the solid waste disposal facilities. In passing the ordinance, the Board recognized the very real threat of both legal and political challenges that could be brought to bear if large numbers of residential properties were to be located near its current landfill, waste to energy facility, or landfill expansion. Since the County has the legal responsibility under not only Florida general law, but also under a Special Act of the Florida legislature and the County's Charter, the Board was forced to protect its ability to provide necessary disposal services.

Opponents of the ordinance suggested alternatives touted as solutions to resolving the County's fears of impacts from future residential developments on the continued life of the solid waste disposal facilities. Among those were deed covenants to be recorded by the developer that prohibited property owners from complaining about landfilling activities on the County's property. It was also suggested that the city would require buffering and other on-site abatement within the mixed-use development that would minimize the exposure of the residents to the on-going and future solid waste disposal activities. One developer's representatives went so far as to state that since the County represented to the Florida Department of Environmental Protection that it had no issues with odors, noise, birds, etc., that there were no impacts that could be experienced by nearby residents. Detractors also urged that the creation of such a buffering ordinance was both beyond the County's powers and would result in constitutional takings..

Ultimately, the County Commission resolved the matter with an ordinance prohibiting residential development within 2,000 feet of the property boundaries of the solid waste disposal facilities without a variance. The 2,000

foot distance was set as a matter of legislative policy by the Board. The Commissioners found that the separation of incompatible residential development from the Pinellas County Solid Waste Disposal Facilities is directly concerned with the provision of countywide solid waste disposal services. The Board did include criteria that would allow for residential development when practical difficulty or undue hardship arose from the application of the buffer ordinance. They also included criteria, beyond that initial determination of hardship, to consider in the decision of whether or not the variance should be granted. Implicit in any variance determination is that the granting of a variance will not cause detrimental impacts to, or be injurious to, the property or improvements of other properties in the same area.

The ordinance was carefully drafted to avoid successful takings claims by excepting from application all residential uses that were vested as of the effective date of the ordinance; for properties that allowed residential development on the effective date of the Ordinance, it would be as if the ordinance had never passed. It is critical to note that the Ordinance went into effect prior to the effective date of the changes made to the industrial category in the Countywide Comprehensive Plan, thereby cutting short any claims of vested property rights in residential development.

The most contentious of the criteria is that the Board must consider requiring a "Landfill Easement." The Landfill Easement was a creation of the ordinance and is defined by the ordinance as:

[A] deed restriction, easement, or covenant to run with the land placed upon the entirety of a development project that does all of the following:

1. Exists in perpetuity.
2. Requires written notification prior to closing by each seller of real property to potential buyers of that real property of the existence, location, and nature of the Pinellas County Solid Waste Disposal Facilities. The required notification shall include a statement that the Pinellas County Solid Waste Disposal Facilities process and dispose of over one million tons of municipal solid waste per year and include current contact information for the Director of Pinellas County Solid Waste Operations.
3. Requires written notification by each lessor of real property, within any lease or rental agreement, to potential lessees of that real property of the existence, and location, and nature of the Pinellas County Solid Waste Disposal

Facilities. The required notification shall include a statement that the Pinellas County Solid Waste Disposal Facilities process and dispose of over one million tons of municipal solid waste per year and include current contact information for the Director of Pinellas County Solid Waste Operations.

4. Recognizes that the Pinellas County Solid Waste Disposal Facilities may eventually reach a height of at least one hundred and fifty (150) feet above existing grade and possibly higher if allowed by applicable permitting authorities.
5. States that failure by a seller or a lessor to provide both a copy of the deed restriction, easement or covenant running with the land and the notice required by subsections 2 or 3 above, as applicable, shall create a rebuttable presumption of fraud in the inducement to the contract for sale or lease.
6. That the terms of the deed restriction, easement or covenant running with the land shall inure to the benefit of the other owners or tenants of the development project as well as to Pinellas County, and shall be enforceable by any of those entities in circuit court.

Opponents argued that the imposition of such an easement would be a taking of property (as an uncompensated exaction), that the easement was extremely burdensome on the developer, and that the ability of the developer and subsequent purchasers of the property to sell or lease the property would be chilled. Florida law is clear, however, in that there is broad discretion in the type and nature of conditions that may be placed on variances. The granting of a variance is not a matter of right, but rather the discretionary relief from burden by the regulating authority. The nature and extent of the burden on any developer created by such an easement is legislatively determined by the Ordinance to be subordinate to the interests of the county's residents as a whole and the County Commission's statutory obligation to provide countywide waste disposal.

The largest apparent struggle with respect to the legislative decision was the lack of scientific data to guide the Board in setting an adequate separation distance. A brief review of how other local governments had addressed the issues resulted in determining that previously, only one other local government has set a required separation for residential units from solid waste facilities. That was Placer County, California.

Placer County had set a one-mile separation distance between their landfill and any future residential development. A developer challenged that ordinance as an arbitrary decision since the county presented no scientific evidence to support its one-mile setback distance. The court, in upholding the county ordinance, found that, "the restriction has a reasonable relation to the public welfare and is a valid exercise of the County's police powers." Placer Ranch Partners v. County of Placer, 91 Cal.App.4th 1336, 1343 (Cal. 3rd DCA, 2001).

Other local governments had placed further zoning restrictions on solid waste facilities however. This was presumably to reduce or avoid the effects of having these two incompatible uses too close together. These restrictions varied widely and the chart used to illustrate these differences to the Pinellas County Commission is shown in Table 1.

RECOMMENDATIONS FOR FUTURE WORK EFFORTS

Solid waste facilities exhibit all of the major facets of industrial type operations. They can generate fugitive dusts, odors, noise, result in high traffic levels, and attract vectors. Operating such facilities at the peak of efficiency and under stringent federal, state, and local environmental regulations can nonetheless result in varying degrees of these impacts. As this paper has illustrated, most siting standards nationwide have focused on the compatibility of solid waste facilities with nearby land uses through the use of buffering or setbacks. Few, if any, localities have addressed the rational basis for urban infilling developments or re-developments desiring to site in proximity to existing solid waste facilities. Balancing the needs of economic growth and increased tax base against the need to preserve valuable solid waste capacity poses a real dilemma for public officials. Political issues aside, current zoning law allows such officials to establish buffering or setback limits using only a rational basis rather than requiring a firm analytical or quantitative methodology.

As the nation continues to experience urban infilling in areas once believed to be remote, solid waste managers will undoubtedly be faced with issues of potential property owner complaints regarding solid waste operations. Antecedental evidence from trade journals, newsletters, and word of mouth suggests that urban infilling is becoming a significant problem in many areas, although there is limited reliable information and data currently available. Further, little, if any, academic research is being conducted to measure typical operational impacts of solid waste facilities with varying setback distances from different land uses. The issue is further complicated by the fact that often these impacts are "perceived impacts". The

authors firmly believe that as urban infilling development or re-development continues solid waste managers, political decision makers and environmental/land use regulators will need reliable data and information to balance the needs for continued economic growth with protecting the long-term ability of solid waste managers to continue operation of these critical public facilities.

FLORIDA RESEARCH STUDY

A research program to assess urban infilling issues related to solid waste facilities is currently underway with funding from the Florida Center for Solid and Hazardous Waste, Pinellas County and the Solid Waste Authority of Palm Beach County. The objectives will be met by an approach similar to an environmental impact assessment, with the exception that only neighborhood aesthetic impacts (i.e. noise, odor, litter, birds) will be assessed as a function of distance. Health considerations are currently addressed by landfill regulations and permitting. This research will be accomplished by (1) data collection regarding solid waste management experiences with local developments, and (2) environmental impact data collection. To facilitate data collection, a field integrated GIS/GPS/database system integrated with a base map, will be used with a portable PDA.

Solid Waste Facility Database

There are currently limited information and data documenting the impacts of development and re-development of properties adjacent to operating solid waste facilities. There are many instances across the state and nation where development or re-development has resulted in premature closures of operating solid waste facilities. However, this information has, to date, not been collected uniformly. Further, we do not currently know how significant the impacts of development or redevelopment have had on the loss of solid waste capacity. We propose that these data and information be gathered through an extensive desk research and survey program to gain "grassroots" insights about the issue, where solid waste facilities have been impacted, where setback or buffering ordinances have been implemented, and the experience of those communities who have developed such ordinances. These data and information will then be recorded into a specific GIS data and information base.

Environmental Measurements

To provide a quantitative data set needed to evaluate the extent of environmental impact by operating solid waste facilities, environmental measurements will be obtained from a small (~300 tpd), medium (~ 800 tpd), and large (~1200 tpd) landfill. Data will be analyzed to produce geographical contours of environmental measurements around the sites. Ideally the appropriate impact area will

be identified at the point at which the data match background levels or reach acceptable levels. These measurements will be used to extrapolate results to other solid waste facilities. The methodology developed will provide the framework for universal evaluation of setback requirements at other sites. The following measurements are proposed.

Noise. Noise measurements will be made using overall "A-weighted" sound level analyzers and 1/3-octave band analyzers. Particular attention will be paid to existing dwelling locations and other sensitive receivers in the area. Measurements will be made at varying distances to allow the local geometric spreading to be evaluated. This information will serve as a baseline in analysis and predictions using appropriate noise models. These data will also permit the evaluation of background noise levels that do not include the solid waste facility operations. The data will be analyzed using statistical software and a Traffic Noise Model that has been computerized.

Odor. Odor impacts will be assessed based on odor emissions from the landfill. As presently conceived, H₂S will be used as a surrogate for landfill odor emissions since it is typically a major component of odor-causing emissions. H₂S emissions will be measured at the surface of the landfills using flux chambers. Ambient levels will be measured simultaneously at random locations at predetermined distances from the facility site. Other odor surrogates are also being explored including total hydrocarbons, methane, and Electronic Nose measurements.

Odor emission data will be modeled in a companion effort using an odor model called CALPUFF. CALPUFF is a proprietary advanced non-steady-state meteorological and air quality modeling system. This model is considered to be the state-of-the-art for air emission simulations, however due to its complexity it is beyond the scope of the proposed project. Linking our project with Dr. Cooper's project provides tremendous synergy toward evaluating odor, which is often the most troubling off-site impact of a landfill.

Since both noise and odors can be significantly impacted by weather conditions, weather measurements will be

made. These measurements will be made at a location away from obstructing surfaces to allow unimpeded wind flow. Temperature, wind speed, and wind direction will be measured at two heights. Precision electronic thermometers along with sonic anemometers will be used for this purpose. Additional locations could be added for any site with a more complex wind pattern.

Fugitive Dust. Dust emissions will be measured using dust deposit gauges. These gauges have four vertically mounted tubes facing in four directions. These gauges will be placed at various locations around the facility sites for approximately one month. Airborne dust settles in the tubes and is weighed at the end of the collection period. Results will be compared to recommended airborne dust levels.

Litter. A litter study will be conducted in neighborhoods surrounding solid waste facilities (only in public areas or trespassing issues will be raised). Litter will be collected, catalogued, and weighed. A statistically sound study will be designed accounting for wind impacts, collection vehicle routes, litter size and type, and land usage.

Bird Impacts. Spreading of debris by birds will be evaluated by identifying "typical" debris attractive to birds, such as bones, during the litter studies.

REFERENCES

Florida Department of Environmental Protection, Chapter 62-701, F.A.C., Solid Waste Management Facilities Effective 5/27/01.

Reinhart, Debra, 2005, "Proposal to the Florida Center for Solid and Hazardous Waste", University of Central Florida.

Rogoff, Marc, Warren Smith, Donald S. Crowell, and Robert Hauser, "Urban Infilling Impacts on Solid Waste Facilities, MSW Management, in press.

USEPA, Revised Criteria for Municipal Solid Waste Landfills, October 9, 1991, 56 FR 50978.

**Table 1
Illustrative Ordinances Mandating Separation Distances Between Solid Waste Facilities and Residential Developments**

Governmental Entity	Required Separation Distance Between Landfill and Residential	Source	Notes
Broward County, FL	1000 ft.	Broward County Code §39-368	Excepts Agricultural residential from separation requirement
Hernando County, FL	1000 ft.	Hernando County Code §11	May not be within 1000 ft of residences or schools
Hillsborough County, FL	1000 ft.	Hillsborough County Code §6.11.55	
City of Jacksonville (Duval County), FL	*2640 ft. (1/2 mile)	City of Jacksonville Code §656.401	* For hazardous waste transfer stations
Lee County, FL	660 ft.	Lee County Land Development Code §34-2443	Greatest separation distance in Lee County LDC.
St. Johns County, FL	1000 ft.	St. Johns County Land Dev. Code §2.03.11	
Placer County, CA	1 mile (5280 ft.)	<u>Placer Ranch Partners v. County of Placer</u> , 91 Cal.App.4 th 1336(2001).	
State of Illinois	**1000 ft. (reduced to 800 ft min. for Counties in excess of 3,000,000 pop.)	Il. Stat. § 5/22.14	**NOT FOR LANDFILLS BUT RATHER GARBAGE TRANSFER STATIONS
Township of South Harrison, Gloucester County, NJ	½ mile (2640 ft.)	Ordinance 04-82	
Hunlock Township, PA	2000 ft.	Ordinance 2 of 1988	
Town of Johnston, RI	***1000 ft.	Ordinance 23-19-34	*** Requires private landfill corporation to acquire all residential properties within 1000 ft. (all acreage and buildings of "any parcel that is encroached upon to any degree by the 1000 foot mark.").
Queen Anne's County, MD	****500 ft.	Queen Anne's County Code §18-1-025(1996)	****500 feet for rubble landfills; only Construction and Demolition materials, not MSW
State of Utah	¼ mile (1320 ft.)	Utah Admin. R. 315-302	From existing residences

Table 1 (Continued)
**Illustrative Ordinances Mandating Separation Distances Between Solid
Waste Facilities and Residential Developments**

Governmental Entity	Required Separation Distance Between Landfill and Residential	Source	Notes
Madison Township, MO	1 mile (5280 ft.)	Comprehensive Planning and Zoning Regulations Adopted 02/27/91	
State of Indiana	½ mile (2640 ft.)	IN Stat. 13-20-12-2	
State of Wyoming	1 mile (5280 ft.)	WY Landfill Regulations – Ch. 2, Section 3(a)(iii).	Also does not allow within 1 mile of schools or 1000 ft from a hospital.

Using Organics at Your Landfill

Sponsored by U.S. Composting Council

4:30 – 5:30 pm

Moderator: Matt Cotton, S.C., Integrated Waste Management Consulting

The Advantages of Composting at the Landfill
 Matt Cotton, S.C., Integrated Waste Management Consulting

Air Emissions from Composting – It's Not Just About Odors
 Craig Coker, S.C., Coker Consulting

**Thursday, September 21st
 Commercial Organics Recycling: Program Realities**

Sponsored by BioCycle - Journal of Composting & Organics Recycling

2:00 – 3:00 pm

Moderator: Nora Goldstein, BioCycle

The Economics of Commercial Organics Diversion
 John Connolly, JF Connolly Associates

Preparing a Site to Receive Commercial Organics
 Nora Goldstein, BioCycle

Organics Conversion Technologies

Sponsored by BioCycle - Journal of Composting & Organics Recycling

3:15 – 4:15 pm

Moderator: Nora Goldstein, BioCycle

Commercial Anaerobic Digestion of Liquid Organic Residuals
 Bill Schubert, Waste Management, Inc.

Compost Heat Recovery
 Thomas Smith and Marvin Shaw, Global Earth Products

Planning & Management

**Room 213A
 Tuesday, September 19th
 Update on Current Credit Rating Trends and Key Court Decisions**

2:00 – 3:00 pm

Moderator: Trent Cave, Napa Vallejo Waste Management Authority, CA

A Decade of Credit Trends: Implications for Solid Waste Management
 Edward McGlade, Standard & Poor's

Solid Waste in the Courts: Rulings that Continually Shape the Industry
 Barry Shanoff, SWANA General Counsel and Attorney, Knopf and Brown

Developing a Highly Skilled and Competitive Workforce

3:15 – 4:15 pm

Moderator: Catherine McCall, SWANA

A Unique Program to Meet Future Solid Waste Engineering Needs
 Janet Coke, Los Angeles County Sanitation Districts, CA

Employee Development in the Solid Waste Industry
 Wayman Pearson, City of Charlotte Solid Waste Services, NC

Managing Knowledge: When You Absolutely, Positively Can't Afford Not to Know
 Kathi Mestayer, S.C., KMA Consulting, Inc.

Solid Waste Board Members: Learning from the Pros

4:30 – 5:30 pm

This interactive session designed specifically for solid waste board members will provide an open forum of discussion on the issues important to those whose unique roles as public servant and solid waste professional often create competing priorities. Whether you are a seasoned or rookie board member, you will have the opportunity to listen to and share your thoughts on the best ways to maintain public support while at the same time providing your solid waste agency the resources and support they need to improve solid waste operations in your community.

Moderator: Charles Whitehurst, Southeastern Public Service Authority, VA

Panelists: Gary Bales, Monterey Regional Waste Management District, CA
 Tom Houska, Delaware Solid Waste Authority
 Steve Johnson, S.C., Salinas Valley Solid Waste Authority, CA

**Thursday, September 21st
 Innovative Contracting for Financial Success**

2:00 – 3:00 pm

Moderator: Jay Alexander, Clinton County Solid Waste Authority, PA

Central Wayne County Sanitation Authority: Waste-to-Energy Facility Decommissioning and Demolition
 John Wise, Golder Associates

Negotiating and Renegotiating Solid Waste Service Contracts
 Stephen Lynch, R.S. Lynch & Company, Inc.

System Planning to Manage Growth and the Implications of Urban Infilling

3:15 – 4:15 pm

Moderator: Barbara Kula, Charlotte County Environmental & Extension Services, FL

Proactive Planning: Anticipating and Accommodating Growth
 Raymond Schauer, Solid Waste Authority of Palm Beach County, FL

Compatibility Issues Related to Land Development or Redevelopment Adjacent to Solid Waste Facilities – Preliminary Findings from an Environmental Research Study
 Marc Rogoff, SCS Engineers

Recycling & Waste Diversion

**Room 217D
 Tuesday, September 19th
 Taking Commercial Recycling Further**

2:00 – 3:00 pm

Moderator: Pamela Gratton, S.C., Fairfax County Division of Solid Waste Collection and Recycling, VA

Complementing Mandatory Commercial Recycling with "GREEN BUSINESS" Recognition – The Carrot and Stick Approach
 Mitch Kessler, S.C., Kessler Consulting, Inc.

Making Mandatory Business Recycling Work: Mecklenburg County Commercial Source Separation Ordinance
 Michael Talbert, Mecklenburg County Solid Waste Department, NC

Clear Facts on Glass Markets

Sponsored by the Glass Packaging Institute

3:15 – 4:15 pm

This session will feature a panel discussion on the impact of glass manufacturing plant locations, glass quality, and transportation economics for successful bottle-to-bottle glass recycling. Also addressed will be collection and processing issues as they relate to glass markets, including fiber glass, construction, and highways.

Moderator: Joe Cattaneo, Glass Packaging Institute

Panelists: Paul Smith, Owens-Illinois Inc.
 Bill Richardson, Waste Management Recycle America

Green Building as the Next Step in Reduction and Reuse

4:30 – 5:30 pm

Moderator: Laurie Batchelder Adams, S.C., LBA Associates, Inc.

Beyond Commercial Recycling: Green Building in a Commercial Setting
 Miriam Zimms, S.C., Kessler Consulting, Inc.

Visions and Revisions in Green MRF Design
 Kevin Berg, Summit County Solid Waste, CO

203B
5:46:30

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