

# Property Values

FactPack – P029



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# Property **Values**

Center for Health, Environment & Justice  
FactPack - PUB 029

August 2019



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## Center for Health, Environment & Justice

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**Mentoring a Movement**

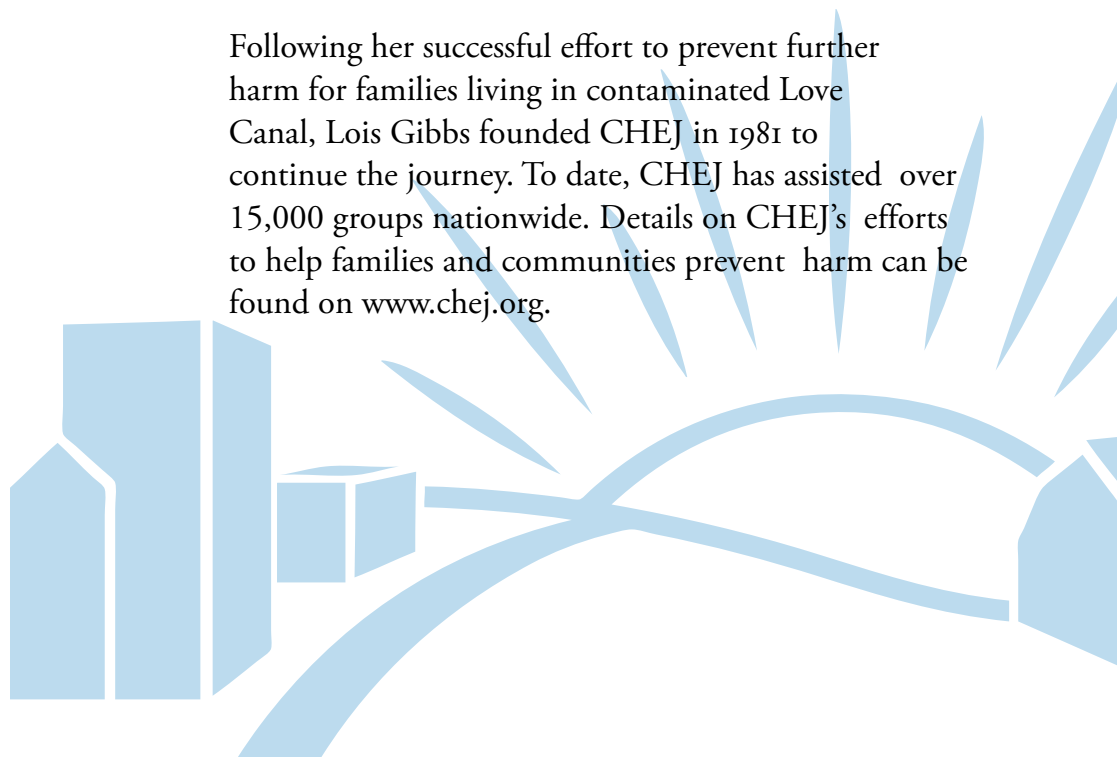
**Empowering People**

**Preventing Harm**

### **About the Center for Health, Environment & Justice**

CHEJ mentors a movement building healthier communities by empowering people to prevent harm caused by chemical and toxic threats. We accomplish our work through programs focusing on different types of environmental health threats. CHEJ also works with communities to empower groups by providing the tools, direction, and encouragement they need to advocate for human health, to prevent harm and to work towards environmental integrity.

Following her successful effort to prevent further harm for families living in contaminated Love Canal, Lois Gibbs founded CHEJ in 1981 to continue the journey. To date, CHEJ has assisted over 15,000 groups nationwide. Details on CHEJ's efforts to help families and communities prevent harm can be found on [www.chej.org](http://www.chej.org).





## Introduction

The Center for Health, Environment and Justice has developed this fact pack on ***Waste Sites and Property Values*** in response to the numerous requests for information that we have had on this topic.

We have included materials from nonprofit organizations, newspapers, journals and the internet in an effort to provide a thorough introduction to the issues surrounding property values and contaminated land.

We intend this fact pack to be a tool to assist you in educating yourself and others. Some of the statistics and personal accounts may be outdated, but the message is the same. Our intention is to provide you with some information to make you more familiar with the problems associated with declining property values so that you will be able to continue to update yourself and others in the future.

Our hope is that reading this fact pack will be the first step in the process of empowering your community to protect itself from environmental health threats. CHEJ can help with this process. Through experience, we've learned that there are four basic steps you'll need to take:

1. Form a democratic organization that is open to everyone in the community facing the problem.
2. Define your organizational goals and objectives.
3. Identify who can give you what you need to achieve your goals and objectives. Who has the power to shut down the landfill? Do a health study? Get more testing done? It might be the head of the state regulating agency, city council members, or other elected officials.
4. Develop strategies that focus your activities on the decision makers, the people or person who has the power to give you what you are asking for.

CHEJ can help with each of these steps. Our mission is to help communities join together to achieve their goals. We can provide guidance on forming a group, mobilizing a community, defining a strategic plan, and making your case through the media. We can refer you to other groups that are fighting the same problems and can provide assistance to help you understand scientific and technical data and show you how you can use this information to help achieve your goals.

If you want to protect yourself, your family, and your community, you need information. In order to use that information for your benefit it is just as important to organize your community and gain support from those around you who have the same concerns.

Thank you for contacting us.

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## Impact of the Economic Obsolescence Imposed by Landfills on Residential Property Values

This study is limited in scope to possible negative effects a landfill might impose on area property values. This assessment employs mass appraisal techniques and is intended to show only general valuation effects on properties located in close proximity to a major landfill.

Sales in four subdivisions and their relevant landfills were used in this study:

Tangerine Landfill- Gladden Farms (closest proximity) and San Lucas

Los Reales Landfill- Rancho Valencia (closest proximity) and Empire Vista

All of these subdivisions have been developed in the past 10 years; they consist of production homes of average quality; they are easily accessible to and from the 1-10 Freeway.

The sales data analyzed came from the Pima County Assessor's records. The unit of comparison is sale per square foot.

### General Economic Effects on Residential Property Values

The overall decline in residential property values in Pima County is the effect of factors that can be applied generally and *equally* to all properties. These are: the credit crisis which is limiting the availability for mortgage loans; foreclosure sales that are driving down home values; unemployment; over building from speculative investments that increased inventories.

### Specific Factors Effecting Residential Property Values

Location is the single most important factor influencing residential property values especially for families whose purchasing decisions are based on the desirability of certain amenities within a particular location. These are:

- Schools- Perceived quality of school districts heavily influences buying decisions and perceived value.
- Transportation- Accessibility to major thoroughfares, traffic conditions and commute times to major employment centers are important conditions influencing value.
- Shopping- Accessibility to major retail centers.
- Parks and Recreation- The availability within a community of parks and leisure activities directly affects the desirability of a specific location.

These factors can positively or negatively affect the desirability and subsequently the property values within a specific location.



There are other specific factors that can affect property values, especially environmental (floodplain) and economic (waste water treatment facilities, airport noise zones and landfills) obsolescence.

### Tangerine Landfill

The two subdivisions compared for the effects of the Tangerine Landfill are the Gladden Farms development and the San Lucas development.

Gladden Farms is located to the west of the 1-10 Freeway and north of the Tangerine Landfill. Access is shared with the landfill by the newly installed four lane Tangerine Farms Rd.

San Lucas is located to the east of the 1-10 Freeway. Access is negatively affected by a railroad crossing and is accessible by a two lane road.

Both subdivisions are equally desirable in relation to the factors Schools and Shopping. They are both in the Marana Unified School District. They are both equally distant from the closest major retail center at Cortaro Farms Rd. and 1-10.

Gladden Farms is superior in that it has walking and bicycle paths and parks. It is also more convenient to the Town of Marana parks.

Subdivision	2007 Sales	2007 per SF	2009 Sales	2009 per SF	Pet. Decline
Gladden Farms	49	\$143.67	60	\$105.10	
San Lucas	104	\$113.84	45	\$95.37	

The sales statistics indicate the Gladden Farms has experienced a much greater decline in value than San Lucas. Possible reasons for the steeper decline specific to Gladden Farms is that during this time frame Tangerine Farms Rd. opened and it now services traffic to both the homes and the landfill. The traffic mix of large waste haulers and commuter cars as well as families traveling to and from shopping, as well as the close proximity to the land fill has diminished the desirability of this location.

#### **Los Reales Landfill**

The two subdivisions compared for the effects of the Los Reales Landfill are the Rancho Valencia development and the Empire Vista development.

Rancho Valencia is located to the south of the 1-10 Freeway and north of the Los Reales Landfill. Access is from Valencia and Swan Roads.

Empire Vista is located to the north of the 1-10 Freeway. Access is from Valencia and Littletown roads.

The access to the Los Reales Landfill from the 1-10 Freeway is by way of Craycraft and does not affect either of these subdivisions. Access from the southwestern portions of the City of Tucson is by way of Valencia and Swan Roads.

The Schools, Shopping and Parks and Recreation factors are equally applicable to these two subdivisions. Only the Transportation factor, taking into account the traffic from large trash haulers and City of Tucson trash trucks, makes the Rancho Valencia subdivision a less desirable location. Rancho Valencia is closest in proximity to the landfill.

Subdivision	2007 Sales	2007 per SF	2009 Sales	2009 per SF	Pet. Decline
Rancho Valencia	148	\$108.96	66	\$94.40	..
Empire Vista	104	\$113.84	69	\$102.04	

The property values declined at a greater rate in the Rancho Valencia subdivision which is affected by the Los Reales Landfill.



**Probable Effects of the Proposed Marana Regional Landfill on Residential Property**

The results of this sales analysis indicates that the proximity to a major landfill *depreciates* residential property values.

First it must be acknowledged that sales analysis relating to the effects of landfills on property values involved subdivisions that were *developed many years after the establishment of the landfills*. Buyers of homes in Gladden Farms and Rancho Valencia were or should have been made aware of the negative impact of economic obsolescence on their property values by the developers who sold them their homes.

In the case of the proposed Marana Regional Landfill the negative impact of economic obsolescence would be *imposed* after their properties were purchased. Since the local residents purchased their homes with the existing zoning, rural low or medium density, prior to any rezoning they could be *negatively impacted at a greater rate of depreciated value* than the subdivision properties used in this study.

The sales analysis and conclusion was produced by:

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Pima County Assessor's Office

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## **Do Landfills Always Depress Nearby Property Values?**

### **ABSTRACT**

All available hedonic pricing estimates of the impact of landfills on nearby property values are assembled, including original estimates for three landfills in Pennsylvania. A meta-analysis shows that landfills that accept high volumes of waste (500 tons per day or more) decrease adjacent residential property values by 12.9%, on average. This impact diminishes with distance at a gradient of 5.9% per mile. Lower-volume landfills decrease adjacent property values by 2.5%, on average, with a gradient of 1.2% per mile. 20-28% of low-volume landfills have no impact at all on nearby property values, while all high-volume landfills negatively impact nearby values.

Keywords: Landfills, Hedonic Pricing, Nonmarket Valuation, Property Values, Solid Waste

Running Head: Property Value Impacts of Landfills

#### IV. DISCUSSION

The results show that landfills do not always depress nearby property values. The estimated MIP for Western Berks landfill was essentially zero, and was estimated with high precision. The meta-analysis of available landfill property value impact studies showed that 20-28% of landfills that accept low volumes of waste have no impact on nearby property values. However, all landfills that accept high volumes of waste have negative impacts on nearby property values.

These meta-analysis results are consistent with previous within-study comparisons of landfills operating at different scales. Lim and Missios (2003) compared two landfills in Toronto, Ont., and found that the landfill that accepted a higher volume of waste had a larger property value impact than the landfill that accepted a lower volume. Similarly, in this study, the two landfills that accepted high volumes of waste had statistically significant negative impacts on nearby property values, while the landfill that accepted less waste did not. The meta-analysis confirms those within-study results, and demonstrates statistically that high-volume landfills do indeed have larger impacts on nearby property values than low-volume landfills.

One would similarly expect that a landfill's prominence on the landscape would help determine whether and how much it impacts nearby property values. The results presented here for the three Berks County landfills were consistent with that conjecture. Anstine (2003) also found that the degree to which a facility impacted nearby property values depended on whether it was visible from the surrounding area. Similarly, Hite (1998) found that only when buyers were aware of the presence of a landfill were property values bid down. Unfortunately, prominence on the landscape could not be included as an explanatory variable in the meta-analysis, because it could not be objectively measured for all landfills. This is an important limitation because less-



prominent landfills will tend to be smaller in footprint and accept lower volumes. It may be difficult to disentangle the impacts of prominence and volume accepted. Volume of waste accepted, as measured in this analysis, should therefore be viewed as a proxy variable that captures both scale of operation and prominence on the landscape.

The meta-analysis presented here suffers from the usual limitation that it is confined to published studies. Studies may have been conducted that failed to show an impact on property values where the authors or journal editors chose to not publish the results. To the extent that this "file drawer" bias exists, the results presented here would tend to overestimate the average impact of landfills on property values, and underestimate the proportion of landfills with no impact.

With that caveat, the results of the meta-analysis can provide landfill permit applicants, permitting agencies and local citizens useful information on the potential impact that a landfill could have on nearby property values. In particular, they emphasize the important point that the impact will vary across landfills. Some of this variation can be predicted, depending on the scale of operation of the landfill. However, there will remain some uncertainty over the magnitude of the impact from a landfill. The meta-analysis presented here can be used to generate a distribution of the possible impacts.

## V. CONCLUSION

While most previous hedonic pricing studies have shown that landfills depress nearby property values, some have found no impact. However, previous studies that failed to detect an impact were based on small samples, so that their statistical power to detect a property value impact was limited. A large-sample hedonic price regression was estimated for three landfills in

Pennsylvania. Two large, prominent landfills depressed nearby property values, while a small, inconspicuous landfill had no impact. This last result is the first time that a large-sample study has shown no impact from a landfill on nearby property values.

A meta-analysis was conducted that included all available hedonic price studies of the impact of landfills on nearby property values. It showed that landfills that accept high volumes of waste (500 tons per day or more) have a greater impact on nearby property values than landfills that accept low volumes. On average, a high-volume landfill will depress the value of an adjacent property by 12.9%. This impact decreases with distance from the landfill at a gradient of 5.9% per mile. A low-volume landfill will depress the value of an adjacent property by only 2.5%, on average, with a gradient of 1.2% per mile.

A second important finding of the meta-analysis is that, even within landfill classes, there is important heterogeneity among landfills in their property value impacts. This means that some landfills will have higher than average impact, while others will have lower than average impact. In fact, 20-28% of low-volume landfills will have no impact at all (or possibly a positive impact) on nearby property values. All high-volume impacts will negatively affect nearby property values. The results of the meta-analysis can be used by permitting agencies or local citizens to estimate the range of possible property value impacts from an existing or proposed landfill.

## Toxic Waste Poses Hidden Menace to Homeowners

Charlotte Fairley had lived in her Sag Harbor home less than six months when she discovered it sat atop a toxic waste plume and was worth just a fraction of what she had paid for it. More disturbing, she found out purely by accident. She said the history of the site was never revealed to her either by the real estate agent, or the developer that built the home. She never thought to ask.

Fairley bought the home in the fall of 1993. The following spring, while speaking with a neighbor, she found that the home sat on a groundwater plume not far from a manufacturing plant about a quarter mile away that had recently been listed as a state SuperFund Site.

Several years before, well water in the community was found to be contaminated by chemicals leaking from barrels buried at the facility. Since all the homes are now hooked up to public water, government officials say there is little need to be concerned for health and safety.

Neighbors say there have been many cancer related illnesses and deaths in the neighborhood. Although there have been no medical studies, property values have plummeted.

Fairley had two appraisals conducted for her home. One by someone unaware of the property's environmental problems and another by an appraiser versed in such matters. The appraisals came back at \$267,000 and \$48,000, respectively. "I never realized that there was a plume, or where it went or that it would affect me," said Fairley, who noted that a title search on the property also failed to reveal anything unusual.

For many years now, commercial property buyers have been required to conduct environmental inspections as a condition for receiving a mortgage.

Guidelines for the purchase of residential real estate however, have not been as stringent. "It should be, according to hazards not only on their property, but the area around their property," said Steven Romalewski, Toxics Prevention Coordinator for the New York Public Research Interest Group. "It makes sense from a health perspective and a financial perspective. If someone finds out after the purchase of a property that it is contaminated, he or she may have to pay for some or all of the cleanup or may get sued for that cleanup. If someone buys a property without knowing about information on environmental hazards, it could be a headache, both literally and figuratively."



In general, home sellers whose properties are located near a known toxic waste site are not legally required to disclose this information unless they are directly on the site. "I don't believe there's any requirement that they tell them," said Cathleen Shigo, spokesperson for the State Department of Environmental Conservation at Stonybrook.

Environmental inspection companies keep track by geographical area. Toxic Targeting, Inc. of Ithica, New York for instance, maps thousands of toxic sites identified in federal, state and local government databases and generates reports for homebuyers based on 16 toxic site categories. "There are so many homes that are immediately adjacent to toxic sites and so many homes that are themselves contaminated, particularly from leaking underground storage tanks. There are no requirements that homebuyers be told about these," said Walter Hang, President of Toxic Targeting. "You could be standing right next to a toxic dump that the authorities have determined to be there. There are no signs, there may not even be a fence. It will simply look like an overgrown lot, but it could be severely contaminated."

Sometimes that nicely landscaped lot is listed on the tax map as "proposed golf course and recreation site." Such was the case for John and Mary, a Manhattan couple who were looking to move to Long Island with their infant twins. Last January, the couple put a binder on a home in a quite upscale neighborhood in Port Washington. Later that day, they discovered that the property abutted a former landfill that had been designated a Federal SuperFund Site.

"The whole thing struck me as strange that no one ever mentioned that it was there," said John. "There's a big open area that says 'proposed golf course and recreation site.' That led me to believe it was commercially owned land, not a landfill. And it's not just a landfill, it's a Federal SuperFund Site - one of the 1,200 most toxic sites in America. If it was cleaned, it wouldn't be a SuperFund Site. It's the little secret that no one tells you about."

"Now I don't trust anyone," Mary said. "It's not in anyone's interest to tell me the detriments of their property. It's made me very nervous about everything." She added that now she would call an environmental inspector when buying a house.

The source of toxic pollution does not have to be from a shutdown industrial site down the street, it can be found right in your backyard. Underground tanks, like those used for home heating oil, can pose significant health hazards if they leak. Their presence should raise a red flag for prospective home buyers. "They're ticking time bombs. The buyer would not know there is a leak unless he asks for it to be tested," said Joseph Baier, Director of Environmental Quality for Suffolk County Health Department. Baier advises buyers to have underground tanks tested before purchasing a home.

Buyers also need to be aware of lead. Federal law now requires that homeowners whose homes were built before 1978, when lead was legally permissible in paint, give buyers a brochure warning them about the possibility of the presence of lead.

Information about potential environmental hazards is more available now, but not always easy to find. Buyers have to know where to look and what to ask for.

Individuals who are looking to make substantial investments in properties should not rely on anyone telling them there's no problem.

A typical homeowner's report prepared by an environmental inspection company costs about \$150 and can be completed in one or two business days. It includes searches of toxic site categories as well as maps and profiles about the community in question.

Who should purchase these reports? "Absolutely everyone who is buying a home," Hang said. "You can't see toxic contamination. Very frequently it's underground. Most toxic dumps look like overgrown fields. Very often a passerby wouldn't know it's there."

Hang also recommends that buyers put a clause in their contract that allows them to walk away if any environmental problems are found. "In addition to due diligence, consider asking some lawyers what the escape clause should be. That has to be drafted carefully so it can't be disputed."

For more information about potential toxic hazards in your neighborhood, try contacting your local county health department, or department of environmental conservation. Also check the phonebook or real estate publications for environmental or toxic inspection companies.

The Environmental Protection Agency (EPA) keeps an eye on toxic waste sites around the country. They have developed a National Priority List of toxic waste sites of great concern. These are called SuperFund Sites. You can go to the EPA SuperFund WebSite... select a state from the national map... and view a list of SuperFund Sites in your area. The text will indicate the location, date project started, approximate completion date, nature and history of the site's contamination and the current status of the site.

We were shocked to find SuperFund Sites closer to our homes than we ever imagined. Go take a look for yourself. Visit the EPA's SuperFund - National Priorities List website:

<http://www.epa.gov/superfund/sites/npl/npl.htm>

Adapted from an article by Jacqueline Henry, a freelance writer.  
Source, New York Newsday October 4th, 1996.

# The Impact of Landfills on Residential Property Values

*Alan K. Reichert\**

*Michael Small\**

*Sunil Mohanty\**

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*Abstract.* The purpose of this study is to determine the impact of five municipal landfills on residential property values in a major metropolitan area (Cleveland, Ohio). The study concludes that landfills will likely have an adverse impact upon housing values when the landfill is located within several blocks of an expensive housing area. The negative impact is between 5.5%-7.3% of market value depending upon the actual distance from the landfill. For less expensive, older areas the landfill effect is considerably less pronounced, ranging from 3%-4% of market value, and essentially nonexistent for predominantly rural areas.

<http://ideas.repec.org/a/jre/issued/v7n31992p297-314.html>

## Introduction and Study Objectives

The purpose of this study is to determine the impact of municipal landfills on residential property values in a major metropolitan area (Cleveland, Ohio). It seems clear that homeowners have personal and financial incentives to protect their environment and the value of their real estate investment. Even industrial firms, which themselves generate a variety of waste, no longer view the environment as a convenient and inexpensive means of disposing of waste.

The scope of the waste disposal problem has grown enormously. In a recent study, Hanley [7] using EPA data, reports that 180 million tons of municipal solid waste was generated during 1988. This translates into 4.0 pounds of waste per person per day and this figure is expected to grow by 25% by the year 2010. The EPA estimates that 72.2% of the waste is disposed of in landfills compared to 14.2% that is burned, and 13.1% that is recycled. Hanley indicates that the total cost of operating a 100-acre landfill from acquisition through closure is approximately \$50 million. Given these rising costs, over one-third of the nation's 6,000 landfills are expected to close by 1995. Other, less visible costs of landfills are the potential impact upon health and safety of local residents and the possible impact upon residential property values.

This study specifically examines: (1) the likely impact on market value of a decision to locate or expand a landfill near residential properties, (2) the price-distance relationship to estimate the marginal influence of proximity to a landfill, and (3) market's perception of the impact of landfills upon various quality-of-life and health factors, and (4) the effect of a landfill upon the rate of housing price appreciation and market liquidity.

A survey of homeowners living near landfills indicates that the most severe nuisances are odor and unattractiveness, while toxic water run-off and methane gas were mentioned

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Date Revised-November 12, 1991; Date Accepted-December 20, 1991.

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as the most severe health issues. Not surprisingly, the farther from the landfill, the weaker the impact of the nuisance factors. The findings suggest that homeowners who own more expensive homes are more sensitive to landfill problems. Almost 30% of the respondents felt that the landfill had a severe adverse impact on selling price and marketability, while 17% felt the landfill could induce homeowner flight.

Data on housing sales indicates that landfills will most likely have an adverse impact upon housing values when the landfill is located within several blocks of an expensive housing area. The negative impact is between 5.5%-7.3% of market value depending upon the actual distance from the landfill. For less expensive, older areas the landfill effect is considerably less pronounced, ranging from minus 3%--4%, and essentially nonexistent for predominantly rural areas. The results of the current study should be useful to homeowners, real estate developers, mortgage lenders, fee appraisers, realtors, tax assessors, environmentalists, and public policy makers who frequently deal with zoning and other land use issues.

## Literature Review

While not intending to be an extensive review of the growing environmental impact literature this section summarizes a number of recent studies that specifically address the impact of various types of landfills on homeowner attitudes and housing values. There is a significant amount of empirical literature dealing with the impact on housing values of a variety of environmental issues such as air, noise, and water pollution (Harrison and MacDonald [8]; Harrison and Rubinfeld [9]; McMillan, Reid and Gillen [18]). At the theoretical level Freeman [5] surveys the issues relating to hedonic price models used to estimate the impact of environmental factors on housing prices.

In the area of waste disposal the famous Love Canal environmental disaster and the publicity surrounding the EPA's Superfund have focused a significant amount of attention upon the impact of hazardous waste sites on property values. For example, Adler et al. [1] examined the impact of hazardous waste sites on property values in two cities: Pleasant Plains, New York and Andover, Minnesota. The study provided limited support for a negative landfill effect in Pleasant Plains. In another study by Schulze et al. [25], housing markets near three California cities were examined for potential hazardous landfill effects. In only one region did houses within 1000 feet of the site report significant results.

Kohlhase [12] analyzed the impact of toxic waste sites in the Houston area on residential housing values and found that when EPA adds a site to the Superfund list a new market for "safe" housing develops. Housing prices reflect a premium of up to \$3,310 per mile as distance to the site increases. Furthermore, these premiums disappear once the site has been cleaned up.

In an important study that has particular relevance to this study, McClelland, Schulze and Hurd [17] analyze the effect of risk perceptions on property values surrounding a hazardous waste site. The authors surveyed residents located near a large landfill located in the Los Angeles area. Opened in 1948, the landfill began accepting hazardous waste in 1976, stopped handling hazardous material in 1983, and finally closed a year later. Homes were built around the landfill and initial plans called for recreation facilities to eventually be built on the site.

While various experts and health officials determined that there was no significant health risk associated with the landfill, local residents were not totally convinced. The survey of resident attitudes revealed a bimodal distribution of risk perceptions. That is, a significant proportion simply dismissed the risk while others exaggerated its extent. The survey revealed that younger respondents and women generally perceived the landfill to be a greater risk. Furthermore, the study indicates that the residents interpreted odor from the landfill as a signal of potential health hazards.

Using an hedonic regression model, the study identified the impact of risk perceptions upon housing values and found that an increase of 10% in the proportion of respondents who felt the landfill represented a high risk reduced property values by \$2,084. Furthermore, closing the landfill reduced the percentage of respondents classifying the landfill as high risk by 24%, which translated into a \$5,000 gain in housing prices. These findings also suggest that housing prices would have been \$9,795 or 7.2% higher if the landfill had never been built. The study also found that the positive impact of closure was reflected in improved property values within a few months. It was interesting to note that distance from the landfill did not prove to be a significant predictor. While distance was a significant factor in influencing risk perceptions, it was also found to be partially redundant with square footage and year built, and hence failed to make an independent contribution to selling price.

In another recent article, Cartee reviewed several unpublished studies that looked at the impact of sanitary landfills on property values [4]. The studies employed very different methodologies, data samples, and various degrees of analytical rigor. While the findings were not entirely consistent, the general conclusion appears to suggest that sanitary landfills do not have a large impact on real estate development activity and prices. In fact, in one case, the development of a sanitary landfill required a sufficiently large investment in infrastructure improvements, such as access roads, utilities, drainage, etc., that an increase in property values actually took place.

## Theory and Methodology

### *Theory*

The presence of a landfill can impact property values from both the supply and demand side. Even though land may be relatively inexpensive near a landfill, contractors may be hesitant to build and lenders may be reluctant to extend credit on properties located on or near landfills due to potential legal liabilities. On the demand side, buyers who are aware that a landfill exists in the area and who are concerned about potential nuisance and health problems will either avoid these properties or be induced to purchase them only at a significant discount. Whether the health problems are real or imaginary may not be the critical issue since people often act on the basis of perceptions, as well as fact. Furthermore, as summarized in the McClelland et al. article, there is a growing body of evidence to suggest that when faced with low probability risks, people generally tend to either ignore or exaggerate the risks involved [17].

As pointeri out by McClelland, Schulze and Hurd, risk assessment by individual sellers may have little impact upon housing prices compared to the risk perceptions of the entire neighborhood. To illustrate, assume most residents in a given neighborhood



**Staff Paper 363**

**June 2003**

**The Impact of Open Space and Potential Local Disamenities  
on Residential Property Values in Berks County, Pennsylvania**

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This report is a shortened version of a longer report, “GIS Analysis of Land Use on the Rural Urban Fringe: The Impact of Land Use and Potential Local Disamenities on Residential Property Values and on the Location of Residential Development in Berks County, Pennsylvania”, which is available at <http://landuse.aers.psu.edu>. For more detail on the data, methods, or results, please see the longer report.

This research was supported by the Northeast Regional Center for Rural Development (NERCRD), under Internal Agreement No. 2093-TPSU-USDA-0496. Additional support that allowed collection of data on potential local disamenities came from Citizens for Pennsylvania’s Future (PennFuture), under Grant in Aid No. 62114.

The authors are grateful for support and assistance from Dr. Timothy Kelsey, Dr. Rick Day, Stewart Bruce and Yanguo Wang, for local knowledge of agricultural production provided by Clyde Myers, Donald Reinert, Mena Hautau, and Dr. David Beyer, for invaluable help on assembling datasets from Martin Moyers and Bill Kochan, and for the guidance and help provided by the Project Local Advisory Group, Clyde Myers, Judith Schwank, Glenn Knoblauch, Duane Rashlich, Tami Hildebrand, Kenneth Grimes, and Robert Behling. The authors are also grateful to four anonymous reviewers for their comments and suggestions. The authors assume all responsibility for the statements made in this report.

## **The Impact of Open Space and Potential Local Disamenities on Residential Property Values in Berks County, Pennsylvania**

### **Executive Summary**

This research project estimated the impact that surrounding land use and potential local disamenities have on residential property values in Berks County, Pennsylvania. An implicit house price function was estimated based on 8,090 single family houses sold between 1998 and 2002, using regression analysis. Information on surrounding land use, proximity to potential local disamenities, and structural attributes of the houses were used to explain variation in house prices.

Within 400 meters of the house, the land use that has the most positive impact on house price was open space, followed by large-lot single family residential land. Commercial, small-lot single family residential, and multi-unit residential were less desirable. The least desirable land use within 400 meters of the house was industrial. Also, open space on parcels that are covered by conservation easements, including agricultural conservation easements, has a less-positive amenity impact than open space not covered by such easements. This does not necessarily mean that easements cause nearby property values to decrease. It may be that farms with agricultural conservation easements tend to be managed more intensively, which may be seen as less attractive by nearby homeowners.

Between 400 and 1600 meters away from the house, the land use with the most positive amenity impact on house price was commercial, followed closely by large-lot single family residential. Of open space uses, only land that is owned by Local, State or Federal Government and land that is covered by conservation easements have a statistically significant positive amenity value.

Several potential local disamenities were found to have a negative impact on nearby house prices. Of the potential local disamenities investigated, the impact of landfills on house price was largest, and extended the farthest (up to 3200 meters). A landfill located 800 meters from a house decreases that house's sale price by an estimated 6.9%. The impact of a large-scale animal production facility (over 200 animal equivalent units or aeu's) on house price was about one half to two thirds as large as that from a landfill (4.1% at 800 meters), and did not extend as far (up to 1600 meters). The impacts on house price from mushroom production and from the regional airport were much less (0.4% and 0.2%, respectively, at 800 meters). The impact from high-traffic roads was small, and extended only a short distance. No significant impact was found for sewage treatment plants.

Additional analysis attempted to investigate whether different types of animal production facilities had different impact on nearby house prices. Differences in the impact due to differences in the size of the operation (number of aeu's) were not statistically significant. Further, medium-sized production facilities (200 to 300 aeu's) were found to have a statistically significant negative effect on house prices when considered apart from larger facilities. Similarly, the impact did not vary significantly by species (poultry, swine, and beef/dairy). An analysis of proximity of animal production facilities and residential properties showed that the

density of single family homes around animal production facilities was lower than the average for rural parts of the county. An implication is that some potential for conflicts is avoided due to the way in which these land uses are located on the land.

The total impact on surrounding house prices was calculated for a landfill, the regional airport, and an animal production facility. The average impact on the value of 3342 houses located within 3200 meters was \$2442 (all values are in 2002 dollars). The total impact on all houses was \$8,162,000, which is 2.6% of the assessed value of the affected properties. The average impact of the regional airport on 2256 houses located within 1600 meters of the airport runway and its flight paths was \$104, and the total impact on the value of these properties was \$235,000, or 0.1% of the assessed value of the affected properties. This calculation does not include 2391 properties located near the airport within the City of Reading. The average impact of a single animal production facility on 119 single family residences located within 1600 meters of the facility \$1,803. The total impact on all 119 houses is \$215,000, or 1.7% of the assessed value of the affected houses. These figures are intended as illustrations, and should not be considered averages for similar facilities. The impact from any given landfill, airport, or animal production facility will depend on the number of houses located near the site, and on the market value of those houses absent the facility.

The study area chosen, Berks County, was well suited to this type of analysis, in terms of data availability and the diversity and dispersed spatial pattern of land uses and agricultural production. The research method should be extended to more study areas, to see if differences in population density, demographics, or type and amount of open space and agricultural production influence the results. Until more research is conducted in more counties, care should be taken in extrapolating the results from this research to other regions.



# Superfund Today

## FOCUS ON PROPERTY ISSUES



### Property Owner Rights



### Property Values



### Buying & Selling Property



### Liability

## How Can a Superfund Site Affect My Property? Answers to Frequently Asked Questions

If you are like most people faced with the possibility or certainty of a hazardous waste site in your community, you probably have many questions about what is happening and how you will be affected. Concerns about your property may be an issue. How will my property values be affected? Who pays for cleanup? Who can help me? This fact sheet answers many of these questions; however, the information applies only to sites under the U.S. Environmental Protection Agency's (EPA) Superfund program.

### What Is Superfund?

EPA's mission is to protect human health and to safeguard the natural environment. In support of this mission, the Superfund program responds to threats posed by uncontrolled releases of hazardous substances into the air, water, and soil. Releases that pose immediate threats are responded to first. EPA then determines if there is a need for long-term cleanup of hazardous wastes. Sites that require a long-term cleanup are added to Superfund's National Priorities List (NPL). When a site is on the NPL, it undergoes a comprehensive evaluation to determine the nature and extent of contamination, an estimation of current and future risks, an analysis of cleanup alternatives, and the design and construction of the selected cleanup plan. EPA ensures that sites are cleaned up to a level that protects people who live, work, or play on or around the site, including community members who may be at greater risk, like the elderly and children.

While the Superfund program focuses on protecting a community's health and surroundings, EPA understands that cleanup activities may directly affect individual properties. Within the limits of the Superfund law, EPA works with the affected community to find a cleanup solution that is safe, effective, and minimally disruptive. EPA recognizes the importance of working closely with affected residents to provide accurate information about the site and respond to your concerns. EPA is always willing to answer any of your questions and invites your feedback.

The following pages provide the answers to questions most commonly asked about the effects of hazardous waste sites on people's property.

The questions are divided into four areas: property owner rights; property values; buying and selling property; and liability. The answers will help you understand how EPA can assist you and direct you to other resources that are available to help you. By understanding Superfund's responsibility for hazardous waste sites in your area, you can take an active role in protecting the health of your community and the value of your property.

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## Property Owner Rights



If you are a property owner in a community near a Superfund site, you may be concerned about the potential effects the hazardous waste may have on your property and your daily routine. EPA assists neighborhoods by informing all concerned citizens about cleanup activities on or around a site, and by giving community members opportunities to voice their opinions and concerns. The following questions and answers provide information for property owners on private property rights, protection from liability, and available EPA assistance.

### Q My property is located near a Superfund site. How can I find out if EPA has investigated pollution problems on my property?

EPA is responsible for keeping the community informed about site investigations and cleanup activities on or around the site. If a sampling program is planned for your area, EPA will notify you through a newspaper ad, or a fact sheet, or in person. EPA sets up an information repository for each Superfund site, so interested community members may review all sampling results and other information known about a particular site. Information repositories are usually kept at a local library or government office. If the federal EPA program is not involved in a site in your area, your state or local environmental and health agencies may have information on pollution problems that may be affecting your property. Many, but not all, states have laws—called *disclosure* laws—that require owners to give information on known or possible pollution problems on or near their property. Also, local lending institutions or real estate agencies may have information on environmental investigations of your property.

- ✓ Effects on Property Values
- ✓ Adjustments to Property Taxes
- ✓ Refinancing in Case of Devaluation
- ✓ Property Value Trends, Forecasts, and Rebounds

### Q My property is located near a Superfund site. Will EPA take samples on my property upon my request?

Living near a Superfund site does not necessarily mean that residential property is contaminated. When EPA first discovers a Superfund site, preliminary tests may be taken to determine if additional sampling is needed, including potential sampling of residential property. If EPA suspects that contamination from a Superfund site may be present on residential property, EPA may request permission from property owners to take samples. EPA will work with individual property owners to determine if there is a need to sample the property. Likewise, if property owners suspect contamination from a Superfund site is on their property, they should contact their regional EPA office (see contact list) or their state or local environmental agency. To report any immediate hazardous waste spill or problem, please contact the National Response Center at 1-800-424-8802.

### Q Will EPA release specific addresses at which samples have been taken?

EPA tries to respect individual's privacy concerns and does not release specific property owner's names to the general public. However, reports with address information and all other sampling data are made part of the public record. EPA will send letters with the sample results only to those whose property was sampled.

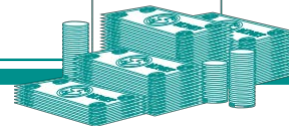
### Q Can I refuse or limit EPA access to my property? If EPA uses my property for sampling or well installation, will I be paid?

Property owners can refuse to allow EPA onto their property. However, the Superfund law does give EPA the authority to conduct sampling activities at residential properties if there is a reasonable basis to believe that a threat to human health and the environment exists. EPA will work to accommodate property owners' schedules and to conduct investigative sampling activities with as little inconvenience to property owners as

possible. EPA cannot pay property owners for taking samples from their property. To the extent possible, EPA tries not to disturb the property. In the event that property is disturbed during sampling or cleanup (e.g., damaged grass, back hoeing of soil during cleanup, etc.), EPA will restore the property to its original condition to the extent possible.

## Property Values

Property  
for Sale



Property values can be affected by a number of environmental factors: perceived health risks; impacts on safe drinking water; air pollution; odor; construction activity; and noise. Factors that may reduce the impact on property values include distance from the site and the presence of a geographic buffer, such as a hill, railroad, river, forest, or divided highway. The following questions and answers provide more information on the effects of Superfund sites on property values.

### Q Can EPA move me from my property? How long can they keep me away from my property?

While it rarely happens, EPA can move residents as part of a cleanup action to protect human health and the environment. In the past, EPA has relocated residents because either an immediate risk existed that could not be minimized without moving people, a site cleanup was difficult or impossible because contamination was very near or under homes, houses were contaminated and EPA could not decontaminate them, or EPA personnel were safeguarding the health of residents during the cleanup action. Relocation may be temporary or permanent, depending on EPA's ability to clean property to a condition where the contaminant(s) no longer threaten human health or the environment.

### Q Can EPA take part or all of my property? Will I be paid if EPA does take my property?

EPA makes every attempt to clean up sites with minimum inconvenience to property owners, and property is only acquired or taken from owners when necessary to protect citizens' health or environment. EPA has acquired all or part of a property in situations where it was necessary to address a serious health problem or a cleanup could not proceed without that property. In cases like these, EPA will provide an explanation to the property owner for this action. By law, EPA must pay the property owner fair market value for any land acquired.

### Q What is happening to property values in my neighborhood?

EPA suggests you consult a professional in your community who can give you a more accurate and current answer. Real estate agents, banks and other lenders, appraisers, and public and private assessors should be able to answer this question for you. Local government agencies—such as your taxing authority or planning commission—may also be able to give you information on property values.

### Q My property values have gone down as a result of being on or near a Superfund site. Can EPA pay me for the property value I have lost?

EPA is very concerned about potential adverse effects on property value that may result when a Superfund site exists near a community. However, the Superfund law does not authorize EPA to compensate individual homeowners for losses of property value or other potential damages associated with designating an area as a Superfund site.



## Q What can I do if my property value goes down because of a Superfund site?

Property owners may want to consult with local government officials about the possibility of property tax abatements or adjustments, based on impacts on property values from pollution concerns; however, this is beyond the authority of the federal government. In some cases, property owners have consulted an attorney about the possibility of recovering the lost property value from the potentially responsible party or parties (the polluters). Based on past cleanups, EPA believes that a Superfund cleanup has an overall beneficial impact on the community, including rebounding property values.

## Q My property sits above contaminated groundwater. How will this affect my property value?

EPA cannot predict how contaminated groundwater will affect individual property values. A good resource for property value information is a local government agency—such as your local taxing authority or planning commission—or a local real estate professional. They are more experienced in appraising property values and determining the effect of contamination on property values.

## Q Will there be an immediate appraisal of my property to adjust my tax status?

Local and state tax authorities can best answer this question, because they are responsible for all appraisal activities in your community. It is beyond EPA's authority to appraise property or adjust tax status, and EPA does not request tax authorities to re-assess properties. Property owners may want to consult with local government officials about the possibility of property tax abatements or adjustments, based on impacts on property values from pollution concerns; however, this is beyond the authority of the federal government.

## Q Will I be able to refinance my loan due to the devaluation of my property?

This is a question that is best answered by your lending institution.

## Q Do property values rebound? How long will it take?

Previous research indicates that contaminated sites, including Superfund and other types of hazardous waste sites, are likely to affect nearby residential property values. Studies estimate property price reductions, due to nearby hazardous waste sites, range from two to eight percent of the value of the property. One study of several Superfund sites in Houston, Texas found that property values rebounded fairly quickly following completion of cleanup activities. Property values are most appropriately discussed with local authorities knowledgeable about the local economy and other local conditions that may influence property values.

## Buying & Selling Property



When buying or selling property, people usually have questions about neighborhood property values; how changes in property value impact mortgages, taxes, and resale; how property owners can increase their property value; and what information a property owner must tell a potential purchaser. This section provides information on what environmental information either you or EPA needs to disclose about a specific site, how EPA can support you through the transfer of property, and actions you may choose to take to increase the value of your property.

## Q What information can EPA provide to potential buyers of property located near a Superfund site?

EPA makes a wide variety of information available to potential buyers, including background information on the Superfund program, its activities and responsibilities, and opportunities for public participation. Site-specific information can be accessed from your neighborhood Superfund public information repository (usually at the local library or government office) and your regional EPA office (a list of regional phone numbers can be found at the end of this document) if there is a federal Superfund site in your neighborhood.

## Q If my loan is denied because of concerns about contamination, can EPA call my banker or appraiser?

EPA does not become involved in individual real estate transactions; however, agency representatives can conduct presentations or provide information about site cleanup plans for the public, including the real estate and lending/financial community.

## Q Do I have to disclose the contamination on my property to potential buyers?

Some states have disclosure laws that require owners to report pollution problems to buyers when they sell a property. Contact a real estate representative, state and/or local government agencies, or an attorney; they should be able to quickly tell you if your state has such a law or if there is a deed restriction on your property.

## Q Can a homeowner perform a cleanup to ensure that he or she will be able to sell their property?

Yes, a homeowner can perform a cleanup, but it is not very common, for two reasons. First, in order for a homeowner to perform a cleanup, EPA must certify that the owner can meet national health and safety standards. Second, once the owner takes responsibility for a cleanup, it makes him/her liable for any future pollution problems (release or threat of release of contaminants) as a result of the cleanup—**forever**.

## Liability



EPA understands that personal liability is also an area of concern when investigating cleanup sites adjacent to private property. This is especially important for new property owners and prospective purchasers, as well as for the lending institutions that will be responsible for the mortgage. By working with EPA in relation to a specific Superfund site, residential property owners and prospective purchasers can ensure they won't be held responsible for pollution that was present on a property prior to the time of purchase. The following questions and answers will help residential property owners understand potential liability issues.

## Q Can I be held responsible for pollution on my residential property?

EPA will not take actions against a residential home owner, unless the owner polluted the site or made existing pollution problems worse (a release or threat of release of hazardous substances) and forced a cleanup action by EPA at the site.

## Q My property sits above contaminated groundwater. Am I liable?

You can be held liable for contaminated groundwater if you are responsible for the initial pollution, or if you have done anything to increase the amount or spread of contamination. EPA will assist property owners if someone tries to make them pay for groundwater contamination for which they are not responsible. EPA may exercise its enforcement discretion and enter into a *de minimis* settlement with an owner of property that has contaminated groundwater when that owner has been sued or threatened with a contribution suit. The property owner must also meet the conditions of the "Policy Toward Owners of Property Containing Contaminated Aquifers" (May 24, 1995 PB96109145). This document is available for free on OSRE's Internet site <http://www.epa.gov/OSRE/950524-1.html> or by contacting the Superfund Document Center at (703) 603-9232.

## Q As a potential purchaser of a piece of property that is on or near a Superfund site, what would my responsibility be for contamination that existed at the time of purchase?

Your responsibility would be minimal if any. EPA will work with the individual and can enter into an agreement with potential purchasers not to sue the purchaser for contamination that existed at the time of purchase.



## Q Is a bank or other lender liable for contamination if it lends money (or has lent money) to owners or developers of contaminated property?

It is EPA's policy not to pursue cleanup cost repayment from lenders who merely provide money to an owner or developer of a contaminated property, provided that lenders do not participate in daily management. If it meets the requirements of CERCLA's "secured creditor exemption," a bank or other lender that loans money to owners or developers of contaminated property will not be liable as an owner or operator of a Superfund facility. In general, the lender should avoid participating in the daily management of the facility. The secured creditor exemption describes various activities that lenders can undertake without losing their protection from owner/operator liability. For example, lenders can investigate a facility, require another person to clean up the facility, and provide financial advice to a borrower.

### For More Information



If you live on or near a Superfund site, all site-specific information is available to you at the local Superfund public information repository. General information is also available through your EPA Region's web site, accessible from EPA's home page ([www.epa.gov](http://www.epa.gov)). You can speak with someone directly through the toll-free Superfund/RCRA Hotline (1-800-424-9346) or one of the following regional phone numbers (\*800 and 888 numbers only work within the Region except Region 4):

<b>Region 1</b>	CT, ME, MA, NH, RI, VT	(617) 918-1064 (888) 372-7341*
<b>Region 2</b>	NJ, NY, Puerto Rico, Virgin Islands	(212) 637-3675 (800) 346-5009*
<b>Region 3</b>	DE, DC, MD, PA, VA, WV	(215) 814-5131 (800) 553-2509*
<b>Region 4</b>	AL, FL, GA, MS KY, NC, SC, TN	(404) 562-9947 (800) 564-7577
<b>Region 5</b>	IL, IN, MI, MN, OH, WI	(312) 353-2072 (800) 621-8431*
<b>Region 6</b>	AR, LA, NM, OK, TX	(214) 665-8157 (800) 533-3508*
<b>Region 7</b>	IA, KS, MO, NE	(913) 551-7003 (800) 223-0425*
<b>Region 8</b>	CO, MT, ND, SD, UT, WY	(303) 312-6312 (800) 227-8917*
<b>Region 9</b>	AZ, CA, HI, NV, U.S. Territories	(415) 744-2178 (800) 231-3075*
<b>Region 10</b>	AK, ID, OR, WA	(206) 553-1352 (800) 424-4372*

\*800 and 888 numbers only work within the Region except Region 4



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# HOW TO WIN LAND DEVELOPMENT ISSUES

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A Citizens Guide To Preserving & Enhancing Quality  
of Life in Developing Areas Through Responsible  
Growth Management

By Richard D. Klein

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Originally Published January 2003

Last Updated April 2012

## Chapter 21: Property Value

A development project may affect property value both positively and negatively. For example, one study showed that a stormwater pond which held a permanent pool of water increased the value of nearby homes by 4% to 23% whereas dry ponds, seen as unattractive, lowered property value by 4% to 10%.<sup>140</sup> This same study showed preferences for living at the following locations, from most desired to least: next to a pond, adjacent to a natural area, on a cul-de-sac (dead-end) street, next to a golf course, then adjacent to a public park.

Homes located within 300 feet of water sell for up to 28% more than comparable homes located elsewhere.<sup>141</sup> A study of homes with a view of Lake Erie showed a doubling of value (\$527,184 vs. \$285,518) when compared to similar homes without a lake view.<sup>142</sup> A development project intruding upon an existing lake view could lower the value of the homes suffering the intrusion.

If watershed development causes water quality to decline, then the value of properties with a view of the affected waters may decline as well. A study of 34 Maine lakes determined that a significant decline in lake water clarity resulted in a substantial decline in the value of lake-front property.<sup>143</sup> A one-meter improvement in the depth of clear water can increase property value by \$11 to \$200 per foot of linear lake frontage.

Trees also enhance property value. In *Landscaping and House Values: An Empirical Investigation*, the authors concluded:

*By and large, a positive tree cover differential between the property and its immediate neighborhood, provided it is not excessive, translates into a higher house value.*<sup>144</sup>

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<sup>140</sup> Human and Amphibian Preferences for Dry and Wet Stormwater Pond Habitat, Technical Note #89 from *Watershed Protection Techniques*. 2(3): 453-454

<sup>141</sup> Economic Benefits of Urban Runoff Controls, Watershed 96, available online at: <http://epa.gov/owow/watershed/Proceed/frederck.html>

<sup>142</sup> Residential Real Estate Prices: A Room with a View, *Journal of Real Estate Research*, 23(1/2):129-137

<sup>143</sup> Water Quality Affects Property Prices: A Case Study of Selected Maine Lakes, by Holly J. Michael, Kevin J. Boyle, and Roy Bouchard, Maine Agricultural and Forest Experiment Station, University of Maine, 18 pp., 1996, available online at: [http://www.umaine.edu/mafes/elec\\_pubs/mr398.pdf](http://www.umaine.edu/mafes/elec_pubs/mr398.pdf)

<sup>144</sup> *Landscaping and House Values: An Empirical Investigation*, *Journal of Real Estate Research*, 23(1/2):139-161, 2002.

Projects perceived as undesirable, such as a landfill, can lower property value by 4% - 10% or more.<sup>145</sup> If a landfill were to contaminate the well serving a rural home and there were no other reasonable source of water, then property value could decline by 90%.<sup>146</sup> A study conducted in the vicinity of Baltimore, Maryland showed that a waste disposal facility affected property value up to four miles distant.<sup>147</sup> Another study conducted near Toledo, Ohio showed that a large toxic waste landfill lowered property value for a distance of 5.75 miles.<sup>148</sup> For each mile from the facility property value increased by \$14,200 out to a distance of 2.6 miles. Homes located adjacent to or within sight of high voltage powerlines sell for about 10% less than comparable houses located elsewhere.<sup>149</sup>

There are also situations where a LULU, such as a landfill, has no effect on property value. A study of a San Fernando Valley landfill found no effect on the nearest residential community.<sup>150</sup> But the community was separated from the landfill by a hill. Trucks traveling to the landfill did not pass through the community. In other words, community residents could not see, hear or smell the landfill. Hence, no adverse effect on property value.

Transportation facilities can also have a significant effect on property value. In Washington, D.C. apartment rent is highest next to metro stations and declines by 2.5% for every tenth mile removed from a station. The metro station effect extends at least a half-mile out.<sup>151</sup> Philadelphia researchers found that apartment value declines by about 3% per block as the distance increased from two major

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<sup>145</sup> The Impact of Landfills on Residential Property Values, *Journal of Real Estate Research* 7(3): 297-314, 1992. Special Appraisal to Determine the Potential Impact of the Cross Roads Trail Rubble Landfill on Property Values of the Surrounding Community, prepared by BLR Real Estate Appraisal, 2316 Franklins Choice Court, Fallston, MD 21047, 1991.

<sup>146</sup> Appraisal on the property known as 2910 Dublin Road, Street, MD 21154, prepared by BLR Real Estate Appraisal, 2316 Franklins Choice Court, Fallston, MD 21047.

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<sup>148</sup> Economic Effects of Hazardous Chemical and Proposed Radioactive Waste, *Journal of Real Estate Research* 7(3): 283-296, 1992.

<sup>149</sup> High Voltage Power Lines: Do They Affect Residential Property Value?, *Journal of Real Estate Research* 7(3): 315-330, 1992.

<sup>150</sup> Does A Landfill Bring Down Property Values?, *Waste Age*, August 1991.

<sup>151</sup> Mass Transportation, Apartment Rent and Property Values, by John D. Benjamin and G. Stacy Sirmans, *Journal of Real Estate Research* 12(1): 1-8, 1996.

roads.<sup>152</sup> The increased value of apartments located near major roads was attributed to the convenience of easy access to a thoroughfare.

Increased traffic volume can lower residential property value. A home located adjacent to a major highway may sell for 8% to 10% less when compared to a home located along a quiet neighborhood street.<sup>153</sup> The noise from heavy truck traffic lowers property value at a rate 150 times greater than cars. This is because at 50 feet heavy trucks emit noise at 90 dBA while car traffic produces noise at a level of 50 dBA.<sup>154</sup>

Mobile homes are becoming an increasingly common means of achieving affordable housing goals. Two studies documented a negative relationship between proximity to mobile home parks and the value of single-family detached homes. The first study, *A Housing Price Model with Endogenous Externality Location: A Study of Mobile Home Parks*<sup>155</sup>, was conducted in Louisiana and showed that as the distance between a single-family detached home and a MHP increases from 0.0- to 0.27-miles the value of the single-family detached home will increase by up to 12%. The second study, *The Impact of Manufactured Housing on Adjacent Residential Property Values: A GIS Approach Based on Three North Carolina Counties*, indicated<sup>156</sup> that mobile home parks exert a negative effect on single-family detached home value out to a distance of 1,800 feet (0.34 miles). However, these studies also indicated that the negative effect could be offset by design changes which caused mobile homes to more closely resemble “site-built” homes.

Like many aspects of development, assessing potential effects on property value requires a fair level of expertise. The studies cited above can certainly give an indication of how a project may affect property value. But the findings from a study of a seemingly identical project is not always transferrable. This is why it is best to obtain the services of a qualified real estate appraisal professional. Nevertheless, if a development project threatens the value of your home then you can use the data presented above as a starting point for convincing decision-makers to take appropriate steps. The burden should be on the applicant to demonstrate why the property value effects may not be significant.

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<sup>152</sup> Thoroughfares and Apartment Values, by Paul K. Asabere and Forrest E. Huffman, *Journal of Real Estate Research* 12(1): 9-16, 1996.

<sup>153</sup> Highway noise and property value by J.P. Nelson, *Journal of Transport Economics & Policy*, May 1982, p. 117-138.

<sup>154</sup> Residential noise damage costs caused by motor vehicles by D. Haling and H. Cohen, *Transportation Research Records*, Issue 1559, p. 84-95.

<sup>155</sup> Munneke and Slawson, *A Housing Price Model with Endogenous Externality Location: A Study of Mobile Home Parks*, *Journal of Real Estate Finance and Economics*, 19:2, 113-131 (1999)

<sup>156</sup> Wubneh and Shen, *The Impact of Manufactured Housing on Adjacent Residential Property Values*, *Review of Urban Regional Development Studies*, Vol. 16 Issue 1 Page 56 March 2004

# **Effects of Hazardous Sites on Property Values in Richland County, South Carolina**

**KATIE FIELD, M.S**

Advisor: Dr. Mike Hodgson

## **Abstract**

Many internal and external factors influence property value. Despite varying methodologies, a majority of the previous literature found that property value was significantly influenced by nearby hazards. In order to verify the findings of previous research, this study sought to examine the relationship between house value and proximity to a noxious site. To fulfill these goals, this study evaluated parcel-level data and four types of hazardous sites (U.S. EPA's Toxic Release Inventory sites, U.S. EPA's CERCLIS sites, U.S. EPA's Biennial Reporting System sites and S.C. Department of Environmental Control's municipal solid waste landfills) for Richland County, SC with multiple regression models. The examination revealed that at specific distances from the nearest noxious site, house value was significantly impacted by its proximity to the hazardous site. The findings suggested that within 2.5 miles of a hazardous site, house value increased between 2.1% and 3.7% per mile away from the noxious site. Although the relationship was not likely to occur by chance, it was found to be weak. The findings from this study were consistent with the findings of previous literature. However, since the majority of the previous literature did not consider the statistical strength of the relationship, this study suggests that this aspect should be taken into account in future studies.

Thesis completed 2000, Department of Geography, University of South Carolina.

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# Economic Effects of Hazardous Chemical and Proposed Radioactive Waste Landfills on Surrounding Real Estate Values

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*Gerald E. Smolen\**  
*Gary Moore\**  
*Lawrence V. Conway\**

*Abstract.* The results of the study of residential housing prices of homes located in the proximity of a large toxic chemical waste landfill in the Toledo, Ohio, area for 1986-1990, strongly suggest a distinct negative impact on sale prices for homes located within 2.6 miles of the existing site, and a diminishing impact before a distance of 5.75 miles is reached. Within the 0-2.6 mile range to the Envirosafe Landfill, a \$14,200 premium was found for each mile a house was located away from the Landfill. The premium is greater than found in other studies. A second proposed site in 1989, for low-level radioactive wastes, showed a clear, initial negative impact on housing sales prices upon announcement, but the negative effect on prices dissipated soon after extensive public resistance became evident and caused the proposal to be cancelled.

<http://ideas.repec.org/a/jre/issued/v7n31992p283-296.html>

## Introduction

This article examines the effects of landfills containing hazardous waste on local housing values. This study differs from previous works because it utilizes an operating landfill explicitly licensed by the federal government to accept only hazardous waste. It is one of eleven in the U.S. created for this purpose. In addition, the site has propinquity to a major metropolitan area (Toledo, Ohio).

Prior studies often focused on both general purpose landfills and industrial landfills, some of which were identified by environmental authorities as containing hazardous wastes, and posing a possible health risk. Many of these landfills are now closed pending cleanup action. Hazardous materials were sometimes incidental to disposal sites for household refuse. According to the Ohio Environment Protection Agency data, in 1990, there were approximately 1,100 actual sites identified as warranting investigation as alleged hazardous substance sites (Ohio EPA [16]).

Additionally, the study considers the effect on house prices in the Toledo area of a proposed low-level radioactive wastes landfill designed to be the exclusive recipient of materials from eight midwestern states.

This study specifically examines the marginal price-distance impact on housing values of locating a regional hazardous waste site in an urban area. It will offer important insights to policy makers, mortgage lenders, developers, fee appraisers, tax assessors, and housing consumers.

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Date Revised-January 1992; Date Accepted-February 1992.

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However, the same regression model was computed substituting *Full* baths for half baths, and the *Full* bath variable was highly significant.

The findings show the real estate market tends to react to bad news quickly and decisively. Moreover, it appears to be efficient in the same context as the securities markets, but the time frame for the adjustment process tends to be longer reflecting the relatively lower liquidity of residential real estate. This finding substantiates the contention that the mere announcement of bad news affecting the status of real estate such as the establishment of a potentially dangerous waste landfill adversely affects housing prices in the proximity to the site. What is surprising, however, is the large distance outward from the site in which reaction is negative to the news. Whether it was the type of the waste destined for the landfill-radioactive-or simply its mere existence nearby, it is not possible to determine from the data. Nevertheless, no longer can we assume that merely planning a landfill for a given location will have no significant impact on the neighborhoods beyond sight of the plan. Although not given in the data, the aggregate cost in lost property values and tax revenues can be sizable over time.

The regression results for 1990, for the 2.6-5.75 mile range, show the *Dist* variable reverting back to statistical nonsignificance, as in the pre-announcement period of 1988. This finding affirms the belief that once the public became convinced that either the landfill would not soon materialize, or the threat of the landfill would be removed, the market would quickly rebound to its prior valuation processes. As with EnviroSAFE, the distance range "greater than 5.75 miles," none of the *Dist* variables in the regression models were significant. Consequentially, these findings are not reported in the text.

## Conclusions

The results of this research study clearly demonstrate an adverse economic impact on the values of residential housing located in proximity to a toxic or radioactive landfill. Most notable of the findings is the considerable distance outward from the site of the landfill affected, in excess of 2.6 miles, and up to 5.75 miles. In addition, the rapidity of excess market adjustment to the announcement of the Riga Township low-level radioactive landfill, and its subsequent withdrawal, provided sharp evidence of local real estate market efficiency. Consequently, research hypothesis 1 was rejected. Hypotheses 2, 3, and 4 were partially rejected, in that real estate sales prices were adversely affected in the 0-2.6 mile range for the EnviroSAFE Landfill for each of the five years in the study. For sales occurring beyond the 2.6 mile radius, housing values were not adversely affected. In this distance range, house sale prices were devalued with each incremental mile from \$9,000 to as much as \$14,000 in a particular year.

The newly proposed Riga Landfill for low-level nuclear waste demonstrated a more pronounced price effect. The distance effect continued outward from the site to 5.75 miles. Statistical significance of the distance variable was first observed in 1989 data, the year in which the nuclear waste facility site was announced. The distance variable became nonsignificant in 1990, once it was apparent the authorities would withdraw the proposal for the facility in Riga Township. The local real estate market was clearly responsive to bad news announcements, but demonstrated an ability to recover quickly once the perceived threat was removed.

The implications of these findings to individuals, businesses, and agencies involved



with real estate transactions are important. Aside from the practical realities of toxic leakage occurring to the surrounding environment, the location of a landfill of toxic chemicals or nuclear waste carries with it costs exceeding the mere acquisition cost of site land used to store hazardous wastes. The results demonstrate clearly that the adverse economic impact extends outward well beyond the actual disposal site, i.e., the economic costs are borne by surrounding real estate owners. Whether or not the technology of the landfill design and its operation is reliable, the results show a considerable skepticism among those choosing neighborhoods for their residences if a hazardous waste landfill is in the area. The study found distance coefficients much larger and more significant than most prior research studies, largely because of the toxic nature of the landfills used in this study.

Notes

- <sup>1</sup>The two sites are approximately 20 miles apart in linear distance.
- <sup>2</sup> $R^2$  is used here as a model selection criterion.
- <sup>3</sup>Kohlhase used this methodology in her work to establish uniform concentric circles outward from the landfills. The distance separating the concentric circle boundaries captures those houses that are affected approximately equally by their proximity to the landfill.
- <sup>4</sup>Discussion of the tests of the research hypotheses is presented in the Conclusions.
- <sup>5</sup>The reader will note in the following exhibits the coefficients change from the values found in Exhibits I and 2. The differing coefficients are caused by two elements. First, the causal relationship is being measured statistically in the actual data. The second cause for changing values is attributable to errors in specification of the model, or "lack of fit" of the regression model.
- &rhe statistical means for the respective variables used in the analysis can be useful to provide perspective on the interpretation of the data. The following means are for 1989, the most recent year with twelve months of data, in the 0--2.6 mile range.

	Riga Landfill	Envirosafe Landfill
<i>Saleamt</i> (\$000)	124.191	57.138
<i>Distance</i>	2.103	1.663
<i>Half baths</i>	.900	.276
<i>Living space</i>	1,997.034	1,309.704
<i>Full baths</i>	1.761	1.174

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## Article Abstract

**Title:** Hazardous waste sites and property values: a French case study in the light of US analyses

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**Journal:** *International Journal of Environment and Pollution* 2008 - Vol. 32, No.3 pp. 387 - 409

**Abstract:** This paper aims to evaluate the impact of a polluted site on property values by using the hedonic price method. The case study concerns a lead foundry in a previously industrialised area in northern France. The results are fairly convincing. The impact is confirmed, but appears to be especially apparent at relatively close distances. More than one mile away, the impact is much weaker. Moreover, a chronological analysis, which includes interaction terms, allows one to demonstrate a significant variability in results, depending upon the years being examined. The results obtained are compared with those derived from US studies. It appears that more than one mile away, the calculated impact values are fairly similar, about 1–2% of the average value of a house. In contrast, bearing in mind the higher average property values in the USA, gradient prices in absolute values are, in general, higher in that country.

**Keywords:** evaluation; hazardous waste sites; property values; hedonic price method; environmental value transfer; France; polluted sites; environmental pollution; lead foundry; USA; United States.

**DOI:** 10.1504/IJEP.2008.017918



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## 7 Neighbors That Can Hurt Your Home's Value

Brian O'Connell

05/17/11 - 08:15 AM EDT

NEW YORK ([MainStreet](#)) -- Woody Allen once said, "We're all our brother's keepers, but in my case I share that honor with the Prospect Park Zoo."

Bad neighbors are nothing to laugh about, according to the [Appraisal Institute](#). An unkempt yard, close proximity to a sex offender or having an unfortunate commercial facility nearby (such as a power plant or funeral home), can reduce the value of surrounding homes by as much as 15%.



Having a power plant near your home usually hurts sales value. One study shows home values within two miles of a power plant can decrease between 4% and 7%.

"The impact can vary tremendously depending on a few factors: how 'bad' the bad neighbor is, the kind of neighborhood you're located in and the type of market that exists," says Carlos Gobel, director of residential services at Integra Realty Resources in Miami.

But what exactly is a "bad" neighbor? Definitions vary, but real estate professionals say it boils down to any home or business enterprise that turns people off.

"A bad neighbor is one that has no consideration for the rest of the community," says Mindy Pordes, co-founder of Pordes Residential Sales & Marketing in Aventura, Fla. "For example, someone who doesn't take care of the outside appearance of the home, such as the gardening, painting of the outside of the home, roof, garbage and general upkeep. In addition, a bad neighbor may have constant visitors taking up parking spaces, perhaps on the street, loud house parties, dogs that bark all night or stray cats lingering around."

A "bad" neighbor can also be a business or government enterprise whose very existence drives the value of your property down. Here,

the seven surprising neighbors that can reduce your home's value:

Property Values Fact Pack 33

### **Power plants.**

The data are fairly clear on the impact of power plants on nearby home values -- it usually hurts them. A [study](#) from the University of California at Berkeley shows that home values within two miles of a power plant can decrease between 4% and 7%.

### **Landfills.**

A [study](#) from the Pima County (Arizona) Assessor's office shows that a subdivision near a landfill (and all other residential factors being equal, including house size, school quality and residential incomes) loses 6% to 10% in value compared with a subdivision that isn't near a dump.

Robert A. Simons, an urban planning professor at Cleveland State University, [says](#) that if you live within two miles of a Superfund site (a landfill that the government designates as a hazardous waste site), your home's value could decline by up to 15%.

### **Sex offenders.**

Living in close proximity to a registered sex offender is one of the biggest downward drivers of home values. Researchers at Longwood University's College of Business & Economics [conclude](#) that the closer you live to a sex offender, the more your home will depreciate. In the paper, Estimating the Effect of Crime Risk on Property Values and Time on Market: Evidence from Megan's Law in Virginia, Longwood researchers say, "the presence of a registered sex offender living within one-tenth of a mile reduces home values by about 9%, and these same homes take as much as 10% longer to sell than homes not located near registered sex offenders."

### **Delinquent bill payers.**

One surprising way neighbors can bring down the [value](#) of surrounding homes, especially in town home or condo communities, is by not paying their maintenance fees or mortgages. "Bad neighbors bring values down by not paying their maintenance fees, in some cases their mortgage payments, and not maintaining the home's appearance," Pordes says. "These homeowners usually do not care about real estate values."

### **Foreclosed homes.**

Perhaps the biggest single factor that drives nearby home values down is a foreclosure. A recent study by the Massachusetts Institute of Technology concludes that a neighbor's foreclosed home can slash the value of homes within 250 feet of the foreclosed properties by an average of 27%. Says Federal Reserve Governor Joseph Tracy recently in his economic outlook for 2011: "The growing inventory of defaulted mortgages continues to weigh down any recovery in the housing market ... Problems in housing markets can impact economic growth."

### **Lackluster landscaping.**

Studies show that lawn care has a big impact on surrounding home values. Virginia Tech University released a [report](#) stating that pristine landscaping can jack up the value of a home by 5% to 10%. But if the lawn looks like it just hosted the world rugby tournament, it can be a green thumb to the eye of local home prices.

### **Closed schools.**

Sometimes, neighborhood problems can stem from local government action. For example, if a cash-strapped city or town closes a neighborhood school, that can easily steer home values south. The National Association of Realtors says 75% of home shoppers feel the quality and availability of schools in the neighborhood is either "somewhat important" or "very important."

So can you fight back against problem neighbors? In the case of a landfill, power plant or sex offender, your options are severely limited. As long as your neighbors are following the letter of the law, you'll just have to grin and bear it -- or move. If not, you have every right to petition your local government authorities for a grievance and at least get the matter reviewed.

If it's a residential property causing the problem, however, you might have better options.

For starters, you can leave a polite letter in the offending homeowner's mailbox to get his or her attention. In addition, Pordes says that if the home is within a homeowners association or condo association, the association can send letters to the homeowner and deny the homeowner community privileges to encourage the homeowner to comply with the community rules and maintain home values.

Most cities and towns have ordinances against messy yards and junk-laden driveways, so check your community's rules and regulations to see what applies.

Unfortunately, many cities and towns also have landfills, power plants and other less-than desirable commercial-sized neighbors.

Most likely, you're just going to have to live with them.

>To submit a news tip, email: [tips@thestreet.com](mailto:tips@thestreet.com).

Release Date: January 31, 1986

# Technical Bulletin 86-1

For further information, contact Charles A. Johnson at 202-659-4613

## The Impact on Property Values of Solid Waste Facilities

By C.L. PETTIT  
and DR. CHARLES JOHNSON

One of the most common objections to siting waste treatment, storage, or disposal facilities is the anticipated impact on values of neighboring properties.

Is there always a negative impact? How can one find out? These questions are often passed on to NSWMA staff members; the following is an attempt to answer them.

The impact that a landfill or a resource recovery plant may have on the value of nearby properties will depend largely, of course, on the site's location.

In addition, the impact will depend on both the local residents' perception of environmental risk and their general attitude towards solid waste facilities.

Given the site-specific nature of a facility's design, its operation, and the community within which it is placed, there seems to be no standard formula for predicting a facility's impact.

Property values will not in all cases be affected in the same way and to the same extent. Nor will the effect always be negative.

This article presents several different approaches to assessing an impact on property values. Where available, specific cases from the solid waste industry are discussed.

### Property tax data

One approach to assessing an impact on property values is to examine the record of county or state assessments made for tax purposes.

In lieu of actual sales data, a record of assessment values could indicate whether the local government is inclined to compensate residents for potential devaluation of property adjacent to a site by reducing the property taxes.

A comprehensive and readily available source of data, the record of assessments can be found at the county or state tax assessment office. The chronological series of docket books that list assessments will also include some data on the property's owner.

Normally, each office will also maintain a series of maps outlining properties that are in some way labeled.

The frequency and method of assessments depends on the county's or state's own procedures. Some states require yearly assessments;

others only once every three years.

Some states may assess properties by requiring on-site inspection where a subjective evaluation is made following certain guidelines as set by the state office. Some states may simply apply to some or to all properties a rate of appreciation or depreciation that is calculated for each assessment period.

Finally, the method of assessments in a state may vary according to a particular geographic region, political subdivision, or socio-economic community.

### Oaks Landfill

One case where assessed values indicate the impact of a solid waste facility is that of the Oaks Sanitary Landfill in Montgomery County, Md.

The area surrounding the site is sparsely populated, largely rural, and relatively undeveloped. The 1982 opening of the landfill followed several years of controversy and litigation over the alleged danger that the site posed to groundwater supplies (on which local residents depended for domestic purposes).

Dr. Charles Johnson is NSWMA's technical director. C. L. Pettit is the Technical Department's research analyst.

(Continued)

Assessment Office, and as evidenced in their docket books, a 25% economic obsolescence was applied to several properties near and adjacent to the landfill to reflect this environmental risk. The depreciation was applied in 1984 to the previously assessed value of 1981—the year before the landfill was opened.

As cited by the Assessment Office, the basis for this depreciation was largely political and subjective. It was not made with regard to market data; instead, it accommodated area residents—who insisted that their properties' value had fallen and would have strongly objected to any assessment that suggested otherwise.

In effect, the reduction was a form of compensation to the property owners who felt their property was adversely impacted.

Insofar as the landfill represents an imposition on the existing community and a perceived or potential threat to the environment and public health, some depreciation of the properties near the site may be appropriate.

Whether 25% is an accurate depreciation, however, is a subject for debate. Translating intangible costs and risks into a dollar depreciation of properties is a task for resource and environmental economists.

#### Assessed values: problems

Another example in which assessed values were used to evaluate a facility's impact on property values was a 1972 study conducted for EPA.<sup>1</sup> In this case, researchers compared the variance of assessed values in "near-site" residential areas to that for comparable properties in more distant areas.

This study concluded that solid waste disposal sites have no apparent negative effect on changes in property values for single-family dwellings. Indeed, the value of vacant lands adjacent to some sites were judged to be positively affected by post-closure development plans that included parks or other amenities.

According to this research, solid waste disposal sites often have a lesser effect on property values than other factors in the local environment.

It should be noted, however, that

the study was never completed beyond a draft stage. Its preliminary findings were criticized for relying on assessed values that may be subject to many considerations.

Property assessments for tax purposes are not necessarily the same as the property's actual worth. More often than not, the property could sell for a greater amount.

Ideally, a property's value is measured as what the market will bear. The availability of sales data, however, is normally too low to reveal any trend or relationship. Properties simply are not sold on both a regular and periodic basis.

The sale of one—or a dozen—properties located next to a new solid waste facility may say nothing about the facility if there are no values for the sale of comparable properties some distance away.

What's more, even if we can designate a set of control values, we may still be comparing apples and oranges. Factors that affect the sale of properties distant from a facility may be unique to that area.

In short, it is difficult to isolate the effect that a facility may have on market values.

#### Using sales data

Another approach to assessing an impact on property values is to rely on existing sales data—however scarce it may be. One can also qualitatively judge an impact by comparing rates of development in impact and control areas.

A 1982 study by Penn State researchers attempted to isolate from other determinants the effect that proximity to a disposal site might have on real property values (i.e., actual sales).<sup>2</sup> The study was conducted for Pennsylvania's Department of Environmental Resources.

Researchers conducting this study first looked at the historical rate of property development that had occurred within a designated "impact zone" around each of nine landfills.

They compared with this the rate of property development that had occurred in four control areas, the centers of which were randomly selected on the edge of a circle lying three miles from each landfill.

Basically, the researchers determined that there was no "conclusive" evidence that these landfill sites had made any adverse impact on the rate of community develop-

ment in surrounding areas.

The data did suggest, however, that property values near the landfill were less developed than in surrounding areas.

In the second part of this study, the researchers attempted to define that set of property characteristics which best described actual sales prices. Age, size, and, of course, distance from the landfill were among the characteristics (explanatory variables) examined.

The general mathematical expression of the econometric model is:

$$P_i = f(X_{1i}, X_{2i}, \dots, X_{ni})$$

or more specifically

$$P_i = b_0 + b_1X_{1i} + b_2X_{2i} + \dots + b_nX_{ni}$$

where  $P_i$  is the price of the  $i$ th property described by  $n$  characteristics, each of magnitude  $X$  (or indicated as existing by  $X = 1$ ). The coefficients  $b_1$  through  $b_n$  are the model parameters to be estimated.

Largely due to the scarcity of sales data, only one landfill study area survived for final analysis. In any case, however, a specified functional form (e.g.,  $P = \log X$ ,  $P = X^2$ ,  $P = \log X$ , . . . etc.) cannot automatically be assumed as applicable to either another site or even to the same site across long periods of time.

Landfills themselves have many variable characteristics, including size, age, and visibility. Moreover, real estate markets will not necessarily be the same from one region to another (or even from one year to the next).

Researchers sought, using regression analysis, to test the significance and certainty of each coefficient that the analysis would provide. The coefficients (the "implicit prices") describe for a particular set of data how the presence or the level  $X$  of any characteristic contributes to the price.

Researchers found that different sets of explanatory variables (i.e., property characteristics) and different functional forms all led to nearly the same results: property characteristics other than distance to the landfill appear much more important in explaining prices.

Researchers concluded that, even in those cases where distance to a disposal site would weigh heavily in the equation, there would probably be sufficient depth to the real estate market as to preclude depreciations of property.

The conclusion should not be

too surprising, however, inasmuch as the priority considerations of a buyer are generally age, size, construction, etc.

### Enhancing values

In some relatively undeveloped areas, the introduction of a solid waste facility might actually enhance the potential for development and, therefore, market values. Subject to applicable zoning restrictions, the introduction of access and an infrastructure could stimulate growth in a previously undeveloped area.

In Pinellas County, Fla., for instance, the Solid Waste Authority began purchasing property for a resource recovery plant in 1977 at

prices ranging between \$6,000 and \$8,000 per acre.

After the Authority began placing roads, drainage and utility lines in the area, the prices climbed rapidly. Some parcels purchased by the County in 1982-83 cost \$30,000 per acre. One choice corner site—purchased commercially in 1984—reportedly brought \$65,000 per acre.<sup>3</sup>

More impressive than land sale prices, however, are the buildings, both commercial and industrial, which have been constructed during the past two years. Where there were no structures for almost one mile, there are now more than a dozen—and all are larger than 50,000 square feet.

### Conclusion

We have seen in three examples how the introduction of a solid waste facility on nearby development and property values can vary according to the circumstances of each particular case.

In one case, the introduction of a landfill did not stimulate development but, instead, resulted in what was, in effect, a form of compensation to property owners.

In another case, the introduction of a resource recovery plant reportedly stimulated development and raised property values by introducing some of the needed infrastructure.

In a third case, a systematic and scientific study concluded that the

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## An Idea: Survey Residents On Their Willingness To Pay

An additional methodology that might be used to assess the impact on property values is the "willingness-to-pay" survey. This survey is a method economists use to evaluate costs and benefits not traded on a market (and thus not observable as market prices).

For example, living within sight of a landfill is a cost, in terms of both aesthetics and the risk that one's health or the environment might be impaired. Yet the homeowner who bears this cost probably never agreed to do so in exchange for some easily measurable benefit.

The benefit the homeowner receives may be that he can live closer to his job, or that he was able to pay a lower price for essentially the same house as could be found some distance away.

However, a price differential could be the result of many factors. Unless the two houses are in every way identical ex-

cept for nearness to the landfill, the exact amount of savings the buyer enjoys by locating nearer the site may be difficult to assess.

The easiest way to assess the impact of a solid waste facility on property values might be to survey people as to what greater value they would place on their property were it farther from a site. Conversely, the same question might be asked as what kind of savings as compensation they would demand to purchase their property were it nearer to a site.

Answers to these questions might indicate a certain premium associated with living away from a disposal facility, as well as the depreciation of a property's value that may come with proximity to the site. The distributions of premiums and depreciations from a statistically adequate random sample would indicate, with some certainty, averages for

all cases.

Aside from being relatively easy, the advantage of a willingness-to-pay survey is that it relies, in part, on the public's actual experience with solid waste facilities. Those who respond in terms of what they would pay to live farther away should know better than most about any "inconvenience" attendant to living near a disposal site.

But the disadvantage to such a survey is that it also relies upon the public's perception. Those that are asked how much less they would offer for the same property, were it closer to the site, are probably unsure of just how "inconvenient" life near a disposal site might be.

But then this point is moot. If fewer people are willing to pay a particular price for properties near a site, the properties must be to some extent devalued. It doesn't matter here whether the public's

aversion to these facilities is founded in fact—only that it is an aversion.

Ideally, the respondents to a willingness-to-pay survey would all have to be equally informed as to:

- Operation of the facility.
- The level of environmental risk.
- The remaining operating life.
- Financial protection and liability provisions.
- Plans for closure, etc.

Practically, however, neither a population nor a sample will be both universally and equally informed. Only insofar as one is willing to accept a gross measure of the impact that a facility may have on property values can one rely on a willingness-to-pay survey.

A final note: to the best of NSWMA's knowledge, this method has never been used in connection with solid waste facilities.

proximity to a landfill did not contribute significantly to the prices for residential properties. (there was no evidence to suggest there had been any impact at all).

Thus, sweeping generalizations about the effect of a solid waste facility on a community should not be accepted as universally true. Deci-

sions regarding the siting of such facilities must depend on the circumstances of each particular case.

*Footnotes:*

1. U.S. EPA: *The Effect of Solid Waste Disposal Sites on Property Values*, prepared by General Behavior Systems, Inc., 1972.
2. Pennsylvania State University, In-

stitute for Research on Land and Water Property Values, *Effects of Solid Waste Disposal Sites on Community Development and Residential Property Values*, 1982.

3. Personal communications with D. F. Acenbrack, former manager of Pinellas County Solid Waste Administration.



# Toxic dump firm wants warning in deeds

The Associated Press

BENICIA — Warnings about the dangers of living near a toxic waste dump should be placed in the deeds of a proposed 600-unit housing development, says the firm that runs the dump.

The proposed Sky Valley housing development would be built 1 1/2 miles west of the dump, one of only three places in the state where the most highly toxic wastes can be released.

Paul Kaufmann, executive vice president of the IT Corp., said the firm asked for the deed restriction "just simply to let people know that there's a disposal site nearby."

The deed restriction should warn that the dump's wastes may "cause, or significantly

contribute to an increase in mortality or an increase in serious, irreversible illness," the company said in a letter to city officials.

It also should say wastes may "pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed or otherwise managed."

Mayor Marilyn O'Rourke said Wednesday she was surprised by the request because the corporation always has maintained that the site presents no danger to the community.

"This is so mind-boggling because it does fly in the face of everything they have ever said

to me and every public utterance they've ever made," she said.

She said the letter raises questions about the safety of people already living near the site.

"There are residences and businesses that are closer to (the dump site) and more in the wind pattern and more in the watershed," O'Rourke said. "Who would buy a house with that kind of deed restriction in it?"

Dan Daniel, owner of the Sky Valley site, called the request "absurd" and said he and his partners would never put the deed restriction in because it would limit their ability to sue the corporation if the company violated its operating permit.

o Examiner

S.F. Sunday Examiner & Chronicle

## Real estate hit by toxic waste

By Sam Spatter

SCRIPPS HOWARD NEWS SERVICE

A new element has crept into today's commercial real estate deals and it threatens to delay or cancel some transactions.

It is called toxic waste.

Some lending institutions are refusing to finance deals unless they are certain the property is free from toxic materials.

John Barbour, a Pittsburgh real estate attorney, said his firm has been involved in real estate deals that never were completed because toxic substances were discovered on the properties.

"The current commercial practice is for lenders to look at the prior use of the property to determine if the possibility of toxic waste exists. This is a new area of concern, one that didn't exist before," Barbour said.

So far, only commercial deals

have been subjected to this requirement. To date, lenders have not sought the same type of toxic clearance on residential properties.

Barbour isn't surprised that the issue has surfaced.

He said there have been cases where lenders have "walked away from properties they obtained through foreclosures because they found it would cost more to remove the toxic wastes than the property was worth."

The state of New Jersey may have found a way to address the toxic problem.

It now requires potential property buyers to prove their site did not have toxic waste problems; or, if it did, that the buyer would commit funds to clean them up.

However, if the state had to clean up past problems, it could receive a super lien on all the property that would take preference over a secured lender's interest in the property.

Howard Wein, an attorney formerly with the Pennsylvania Department of Environmental Resources, said New Jersey now has the ability to resolve any potentially dangerous toxic situation.

"The state can clean up the hazardous site, then lien the property for the cleanup costs. These costs take preference over any other liens on the property except federal taxes."

This power has been upheld to date by New Jersey courts, Wein said.

The state can also search the property's title to determine who was responsible for bringing toxic wastes onto the site, and then go after that individual or company for restitution.

The job is made difficult for state and federal agencies by the evasive actions taken by some property owners to avoid paying for the cleanups.

# Lakenham victims shouldn't pay

Property Values Fact Pack 39

(This letter was originally sent to selectman Frank Mazzilli — ed.)

Mr. Mazzilli,

It amazes me that after two and a half years, you still do not understand the position of the town of Carver regarding the water contamination problem on Lakenham Drive. Let me attempt to clarify the situation for you.

The town of Carver has been named a responsible party because they own the North Carver Landfill, which has been determined as the source of the private well contamination. The DEQE has stated that bulk hazardous waste was buried in the landfill.

The residents of Lakenham Drive are the victims.

During the months of October, November and December 1987, the DEQE installed a temporary clean water supply for the victims. When this system was completed, a contract was signed between the DEQE and the responsible party, the town of Carver, to maintain the water tank until the town of Carver installed a permanent water supply to the residents of Lakenham Drive. At the March 1988 town meeting, the people of Carver voted to pay for the water deliveries.

To my recollection, neither the DEQE, nor the people of Carver, ever suggested that the victims be responsible to pay for the temporary water supply. I consider your suggestion for us to do so to be a personal attack on the residents of Lakenham Drive.

You may also remember that the people of Carver voted to hire a private investigator to locate other responsible parties who the investigator's would be held liable for all costs incurred by the DEQE response actions.

Other responsible parties should pay for the water

## Letters

deliveries; not the residents of Lakenham Drive. As a selectman, you should be actively supporting efforts to locate companies involved in the illegal activities that took place in North Carver. As water commissioner your priority should be a permanent water supply for Lakenham Drive. Since the contract was signed with DEQE, there has never been a public meeting held to update the people of Carver or Lakenham Drive on the status of any water studies that have been ongoing during the past 2 1/2 years.

Instead of a cooperative effort on your part, the residents of Lakenham Drive are harassed by your suggestion that they pay for their water because someone allowed hazardous waste into this town resulting in the contamination of their private wells.

In my opinion, your statement that the victims should pay, is not logical and I question that it is even legal. The residents of Lakenham Drive did not sign either contract; not the contract to operate the landfill and not the contract to operate the water tank. Both were signed by the town of Carver!

I ask that before an article be placed on the warrant, that Town Council be asked to rule if in fact it is even legal to ask that the residents of Lakenham Drive (the victims), assume the responsibility that has been placed on this Town, as liable under Chapter 21E.

Paula and Andrew Zigouras

Thursday, July 13, 1989

Carver Mariner

## Abatement was no break

To the Editor,

"Lakenham Dr. wins 50% tax break." "Carver gives 50% rebate for polluted wells." Neither of these headlines tell the story! Lakenham Drive didn't win 50 percent, we lost 50 percent and Carver didn't give us anything other than a landfill full of illegal hazardous waste. A landfill that the people of Carver did not want!

We requested tax exemption — a 100 percent abatement — for the following reasons:

1. Our well water is contaminated with chemicals. Our wells are shut down, permanently.
2. Our present water supply is a limited supply. It is expensive. We are on a strict water ban. It is also temporary. In 17 months, the easement on the land expires, as does the funding of the water deliveries. On Dec. 25, 1990, we will have an empty underground water tank. We will have no water unless the easement on the land is renewed and unless a town meeting votes to fund more water deliveries or unless the Town installs a permanent town water supply. We don't want to think about Christmas 1990.
3. Yet water is not the only issue. For the next 10 months, DEQE's contractor, Wehran Engineering, will be working at the landfill. Lakenham Drive residents will be exposed to the daily operations, the possible hazards that may arise, and the fear of just not knowing. Not a very good time to try and sell our houses because the area will be overrun with engineers and geologists in white suits and gas masks. Definitely not a selling factor!
4. By the year 1990, we should enter into the next phase, the phase of waiting. All the test results should be available, to Wehran Engineering, and they will be evaluated. This should take anywhere from six to twelve months and then the 1,000 page report will be forwarded

## Letters

to DEQE for approval. Once DEQE reviews and approves Wehran's recommendations for remedial action to the past years testing, then, the clean up begins.

To date, there is mention of capping the landfill. If that is the ultimate determination of one year of testing and one year of evaluating the tests, then I say that the North Carver area remains in danger. "Capping" a landfill is only a temporary solution. The life expectancy of a "cap" is only about 15 years. So before we know it, we are back where we started.

To clean-up the landfill, permanently, would be to remove the bulk hazardous waste that is buried there. Not any easy job and definitely a messy job, but the ONLY solution to a real clean-up. Capping is a cover-up. Capping is temporary.

So think about all of this. Contaminated water is NOT the only problem. There are many problems. Problems that will be here for many years to come. Problems that make Lakenham Drive a very undesirable place to live. Problems that each year place a stigma on Lakenham Drive. We will never be able to sell our homes. Who would buy a house next to a confirmed landfill that may never really be cleaned-up, only capped? We are stuck here, breathing in the methane gas that escapes from the landfill everyday; disturbed by all the work that goes on at the site; worried about our future because we know that the reality is that "There is no future for Lakenham Drive" What would you do?

Mr. and Mrs. Andrew Zigouras

## **Neighborhood Stigma Twenty Years Later: Revisiting Superfund Sites in Suburban New Jersey**

By CostBenefit on Jun 28, 2006 | In [Contaminated Properties](#), [Academic Study/Journal Article](#), [New Jersey](#) | [Send feedback »](#)

Link: [http://www.appraisalinstitute.org/publications/periodicals/taj/current\\_issue.asp](http://www.appraisalinstitute.org/publications/periodicals/taj/current_issue.asp)

Six Superfund hazardous waste sites in suburban New Jersey were examined for evidence of long-term stigma. Two decades after being added to the Superfund list, the areas immediately surrounding four of the six sites show some, but not substantial, evidence of lingering stigma, measured by relatively lower increases in housing values, rents, and household income. The key observation is that areas around some of the worst National Priorities List sites in the United States are middle-income suburbs. The policy implication suggests that strong government actions, developer interest in a hot market, and reduced media attention can greatly diminish the impact of contaminated sites in suburban settings.

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According to the EPA, the first three of the sites were among the most hazardous in the United States for the first decade of the NPL program, and the other three were considered less hazardous. Table 1 shows key facts about each of the case study sites.

**Lipari Landfill.** Located in Mantua Township in southern New Jersey, the Lipari landfill site was the number one (most hazardous) Superfund site in the United States. The 15-acre site had been a sand-and-gravel pit and was converted into a landfill that accepted waste in drums and other forms. Leachate leaked into a nearby lake and into groundwater. Because of widespread public concern, a disease cluster study was done, but showed no evidence of excess risk. While no health effects were measurable in state epidemiological studies, considerable negative media publicity was generated. A record of decision was signed in 1988, the site was fenced and surrounded by vegetation, a slurry wall was built, and the site was encapsulated. These steps ended the fires and odors. Lipari, located in the midst of what was a middle-income suburb, would be a prime candidate for changed development and stigma in the short run, but development was renewed after remediation began presumably because it was in a desirable, residential market area. Figure 2 shows the Lipari site's front entrance, which is completely out of character for this residential neighborhood.

**Helen Kranier Landfill.** The Helen Kramer site, also in Mantua Township, was a landfill with about 60 feet of piled-up waste. It ranked number four in the United States listing of hazardous sites. Its ROD was signed in 1985 and included a groundwater and leachate collection, a slurry wall, removal of materials from ponds, and a clay cap over the site. Site remediation was completed in 1994. Like Lipari, this site attracted an enormous amount of attention. Remediation expenditures were well in excess of \$100 million. The area surrounding the site was forested, making the site less obvious. Would development be precluded near me site? Or would the land use be adjusted to deal with the reality of being adjacent to one of the worst Superfund sites in the United States? Figure 3 provides part of the answer. The photo shows relatively new homes constructed near the site in the foreground despite the presence of the landfill visible through the trees.

...

Six sites that were expected to show short-term stigma were selected for this study. Had the stigma continued and in what form(s) was it manifested? Had the surrounding land-use plan been altered? Had property values and rents appreciated less rapidly than surrounding areas?

Two methods were used to answer these questions. U.S. census data was examined at the census tract scale for 1980 and 2000, comparing the change in housing values and types in the host census tract(s) with other census tracts located within five miles of the site. With the exception of the Global Sanitary landfill site, which is on the border of two tracts, each of the other sites is squarely within a single census tract. For each of these sites, there are between 27 and 62 census tracts within the surrounding five miles.

...

## Conclusion

The study offers a number of important implications for appraisers. In hot real estate markets similar to the ones studied in New Jersey, appraisers should assume that any stigma effect that may exist due to proximity to an NPL site can be markedly reduced with deliberate actions by government and developers. Appraisers need to frequently monitor these kinds of sites to understand their impacts on neighborhood property values. This analysis showed that signs of change, such as the appearance of new zoning overlays, converting homes from well water to public water supplies, changing percentage of rental units, and changing demographics, can all signal that an area is adjusting to proximity stigma effects of an NPL site. In their work, appraisers need to do more than study the numbers; they also need to talk to local officials and realtors to see if there are early signs of change in stigma effect.

by Michael Greenberg and Justin Hollander

The Appraisal Journal [http://www.appraisalinstitute.org/publications/periodicals/taj/current\\_issue.asp](http://www.appraisalinstitute.org/publications/periodicals/taj/current_issue.asp)

Spring, 2006; Volume 74, Issue 2; page 161, 13 pages

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1/6/92

# Love Canal stigma limits home sales, bank loans

NIAGARA FALLS, N.Y. (AP)—A consumer-friendly logo greets house shoppers at William Broderick's realty office, showing a family holding hands in front of a green house, with the sun rising behind them.

Photographs line the entryway, showing each of the 200 homes Broderick has for sale.

Detailed maps show the locations and amenities of each house.

Yet to reach Broderick's office, home buyers must drive past the real thing: Rows of boarded-up houses along a great open space that marks the site of the country's most notorious chemical dump.

Love Canal homes are on the market again, and, to use a cliché, they're selling like hot cake. That's hot cake, singular.

The realty market is slow all over, but with the stigma of Love Canal, it's even slower at Broderick's office, the Love Canal Area Revitalization Agency.

Broderick heads the effort to re-occupy about 225 boarded-up homes on the outer edge of the area contaminated by Love Canal, which was used as a chemical dump in the 1940s.

The houses—abandoned when the dumped chemicals were discovered more than a decade ago—have been deemed safe by health and environmental officials. They are being fully rehabilitated, so that buyers are getting homes that are almost new. They are selling for 20 percent below the average price of other homes in Niagara Falls.

There have been a lot of prospective buyers willing to take a chance on a cheap but solid home, even if it is next door to Love Canal. The trouble is, banks and mortgage agencies have been unwilling to take a chance.

Every bank in the area has refused to provide mortgages on the Love Canal homes, Broderick said.

"Once we mentioned where it was, they wouldn't even talk to us," said Joanne Lewis, whose mortgage application for a Love Canal home was rejected by several banks.

"The bank felt it was a risk to them," said Terry Sharp, who also had a Love Canal mortgage rejected.

Bankers say they can't loan money for the homes because state and federal agencies refuse to insure the mortgages. The government bodies say they won't insure

the loans because they fear they could be held liable if new problems arise at Love Canal.

"They're all antsy about taking risks because of the uncertainty of the environmental situation," Broderick said.

The agency itself has had to hold mortgages on the houses, including homes bought by Lewis and Sharp. Broderick said the agency requires buyers to pay thousands of dollars more up front than a bank would, and few customers can come up with that much cash.

Since the homes went on sale in August 1990, 32 have been sold. The agency could have sold twice that many if bank loans were available, Broderick said.

"We would love to do loans in the Love Canal," said John Virtuoso, a vice president at Norstar Bank, which turned down one Love Canal mortgage.

Banks sell most of their mortgages to investors on secondary markets. Without mortgage insurance from agencies such as the State of New York Mortgage Agency or the Federal Housing Administration, banks cannot sell the loans, Virtuoso said.

"Making loans under those circumstances would make the liability fall back on the lender," said Nancy Brock, spokeswoman for M&T Bank, which also rejected Love Canal loans.

SONYMA and FHA officials worry that they could be sued if they provide mortgages at Love Canal and more environmental hazards arise.

"It's a matter of liability," said Joseph Lynch, area director for the federal Housing and Urban Development Department, which oversees FHA.

State and federal legislation has been proposed to shield banks and mortgage agencies from liability at Love Canal. Until such legislation is approved, "our hands are really tied," said SONYMA spokesman Alan Hamerman.

Lack of financing along with the specter of Love Canal make it doubly difficult to sell the homes, said Len Rinallo, a realtor hired by the agency to sell the houses.

"It's a double whammy," Rinallo said. "Some people still think we're selling homes that were on top of the Love Canal. The homes we're selling were never proven to be contaminated in the first place."



## Nuclear Waste Transport and Residential Property Values: Estimating the Effects of Perceived Risks

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**Journal of Environmental Economics and Management**

Volume 42, Issue 2, September 2001, Pages 207-233

### Abstract

Spent nuclear fuel shipments have raised concerns that property values along the shipment route will be reduced due to the real or perceived risks from the shipments. While prior research has identified property value losses associated with proximity to certain environmental disamenities, findings on the effects of nuclear facilities is ambiguous and virtually no research has focused on the effects of transitory nuclear waste shipments. The initiation of radioactive waste shipments to New Mexico, and the prospect of shipments of high-level nuclear waste from across the U.S. to Nevada, make consideration of possible property value impacts of substantial concern for federal policymakers. This study employs data on 9432 real estate transactions in South Carolina to model the effects of a series of highly publicized shipments of spent nuclear fuel to a storage facility at the Department of Energy's Savannah River Site. Using a model that corrects for spatial autocorrelation, we obtain results with important implications for the kinds of effects that nuclear waste shipments may have on property values. In areas with lower risk perception and more experience with nuclear materials management, we find that the shipments did not affect property values. In more populous urban areas, property values appear to have been lowered in a substantive manner. Limitations in the data leave uncertainties, however, which must be addressed in future research.

[http://www.sciencedirect.com/science?\\_ob=ArticleURL&\\_udi=B6WJ6-458179HG&\\_user=10&\\_rdoc=1&\\_fmt=&\\_orig=search&\\_sort=d&\\_docanchor=&view=c&\\_searchStrId=952942440&\\_runOrigin=google&\\_acct=C000050221&\\_version=1&\\_urlVersion=0&\\_userid=10&md5=32bcf7db1b97d1c7ecc6fe4262d933e6](http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6WJ6-458179HG&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&_searchStrId=952942440&_runOrigin=google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=32bcf7db1b97d1c7ecc6fe4262d933e6)

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## Analysis of the Effects of Contamination by a Creosote Plant on Property Values

[\*Douglas S Bible\*](#), [\*Chengho Hsieh\*](#), [\*Gary Joiner\*](#), [\*Chuo-Hsuan Lee\*](#), [\*David W Volentine\*](#).  
**The Appraisal Journal**. Chicago: [\*Winter 2005\*](#). Vol. 73, Iss. 1; pg. 87, 11 pgs

### Abstract

This article examines how an environmental hazard affects home values. It uses a geographic information system to obtain the straight-line distance (in feet) from the nearest source of contamination to the homesite to measure how the pollution problem affects home values in terms of distance. In addition, this article examines how home values change before and after remediation efforts. The results confirm that homes closer to the problem area suffer a greater loss. Also, the revelation of a contamination problem decreases home values, while a cleanup of the contamination has the reverse effect.

# Medical waste treatment site proposal riles residents

**Proponents say the treated material would be sterilized and hauled to Okeechobee County.**

By TERRI BRYCE REEVES, Times Correspondent  
Published January 16, 2008

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The threat of falling property values. Concerns about disease. The fear of exploding autoclaves.

The Pinellas County examiner's board heard an earful Thursday from about two dozen residents, armed with petitions, who voiced their objections to a proposed biomedical waste treatment facility near their neighborhoods.

"We're not going to welcome it," Lee Norins told county officials. "Put it where it belongs: in an industrial area where no variance is needed."

Advanced Medical Disposal's treatment facility would be on an industrial street just north of Ulmerton Road at the end of 34th Way N near Largo. The business would be within 130 feet of the nearest home.

That's too close, say those from the surrounding Tall Pines, Fairway Village and Coral Heights neighborhoods.

"To plunk it in the middle of all of us I think is absolutely uncaring and unsafe," said Kathy Weinrich, a resident of Fairway Village, a 55-and-over mobile home park.

Barr Brothers Properties, which owns the property, is seeking a conditional use permit for the facility as well as a variance so that it can operate within a half-mile of a residential zone.

John Heath and Trey Heyward, owners of Accident/Trauma Scene Cleaners, have a contract to buy the property. They plan to install two 20-foot-long, 6-foot-wide industrial-sized autoclaves inside the 15,000-square-foot building. Trucks would transport medical waste such as used gowns, gauze pads, gloves and intravenous tubing in U.S. Department of Transportation-approved boxes.

"They would be sealed and opened only within the biomedical treatment facility," Heath said.

Needles would be accepted but processed at another facility. No tissue body parts would be treated there, he said.

The county really needs a biomedical treatment facility, according to Heath.

"The closest facility is now in Lakeland," he said.

About 8,000 pounds of waste would be processed a day, said Todd Pressman, a land use consultant speaking on behalf of Heath and Heyward. The Pinellas County Health Department would monitor the facility once a week, he said.

There would be no incinerators, Pressman said. The autoclaves would use steam heated to nearly 300 degrees Fahrenheit to render the waste sterile.

The dry by-product of the process would be hauled to a landfill in Okeechobee County.

"There is no emission into the air at any time," he said. No chemicals, no smoke, no debris, no odors.

The only by-product other than the purified material would be water condensed from the steam, which would be

discharged into the Largo sewer system.

"At that state, it is a sterilized liquid that is cleaner than many items that enter the sewer system," he said.

But neighbor Heather Morissette was concerned for her 10-year-old son.

"I have a son that has had two bone marrow transplants," she said. "He has an immune deficiency that makes him susceptible to everything under the sun. I don't want to have infectious waste sitting at the end of the street."

Jay Sewell, who brought a petition with 345 signatures from residents of Coral Heights, said property values would plunge.

"Biomedical waste - just the name would reduce the property values," she said.

Not an issue, Pressman said.

"Because everything is internalized, there cannot be any effect on property values other than whatever is already existing throughout the entire industrial warehouse park," he said.

Tall Pines resident Mindy Schreiner said she had a medical background and was familiar with autoclaving.

"It's a fairly safe procedure, but if it explodes I'm going to have a problem," she said. "I'm not going to have a house to live in."

Helen Prokopchuk said the ethnically diverse Coral Heights neighborhood was made mostly of renters on modest incomes. She said they were being relegated to second-class citizens.

"Just because we're poor doesn't mean that we need to be dumped on," she said. "If they can't put it in Feather Sound, then we don't want it in our neighborhood either."

But Heath said residents have nothing to fear: "We'll be the cleanest industrial business in the area."

*Terri Bryce Reeves can be reached at [treeves@tampabay.rr.com](mailto:treeves@tampabay.rr.com).*

### **What's next?**

County staff members will make a recommendation on the project to the County Commission, which is scheduled to hold a public hearing on the proposal at 6:30 p.m. March 18 in the assembly room on the fifth floor of the County Courthouse, 315 Court St., Clearwater.

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## Let's Face it, They Don't Put Landfills in Rich Neighborhoods Stuart Lieberman ESQ,USA

As they say, "I've been rich and I've been poor. And frankly, I'd rather be rich." Frequently, being poor in America involves more than just not having enough things. In this hyper-political nation, what's really bad about being poor sometimes is that poor people have little political clout.

If you do not have power, you may very well end up getting what those with power do not want. This might mean, for example, landfills, incinerators, stinky factories, waste storage facilities, etc. You do not typically find these kinds of nuisances in wealthy neighborhoods. They seem to generally be located in poorer, often minority communities.

Wealthier people know how the game is played, after all. Rich folks make political donations and get to have their voices heard. Politicians generally will not risk offending these people with even a suggestion

that they might be called on to house the next landfill or incinerator.

And poor people cannot retain lawyers and experts that are sometimes necessary to fight the fight. So, when a large company is considering moving a potentially hazardous business into a neighborhood, if it's a choice between a neighborhood that contains residents who can afford to fight and one that contains residents who cannot afford to fight, guess where the facility usually ends up.

In recent years, this issue has come to be referred to as "environmental justice." It has been simmering for 20 years or so, but now is simmering to a boil. What environmental justice signifies, essentially, is that being poor or a member of a minority population does not give license to the government or to industry to place a disproportionate amount of noxious operations in your neighborhood.

Are there environmental justice problems in this country? This is something that people disagree about today. Some people seem to be quick (perhaps too quick) to label any siting of a less than desirable

operation into a poor community as evidence that injustice is alive and well today. On the other hand, others call the entire concept hogwash. I fall squarely in the middle.

There have been numerous well publicized cases which seem to point to environmental "injustice." There was a California neighborhood that already had housed every kind of nasty operation known to man when the local power utility proposed a new plant that would spew additional toxins. There was a New York state playground that was known to contain lots of arsenic laden soil, which was apparently ignored by officials for years. There was a Pennsylvania community that already housed a disproportionate number of noxious operations, and had to go to the U.S. Supreme Court to block yet another such operation.

These stories suggest that environmental "injustice" may be at work in certain cases. But, how can we know for sure when this is a factor in a particular instance? Fortunately, the government is suggesting how we can tell.

The New York region of the U.S. EPA has proposed very comprehensive environmental justice guidelines. They were published in December 1999. You may review them at the Agency's web site and can submit comments about them to the Agency. If you care about this issue, this might be a productive exercise for you.

Other EPA regions have also published guidance documents concerning this area as have also various state agencies. Expect much more to come and expect scholars to continue to evaluate this issue. Many law schools and social organizations are now devoting resources to this pursuit.

Environmental justice is another way of saying "spread the wealth and spread the detriment." As you can see, environmental issues are often grounded more in socio-economic considerations than in pure science.

The information provided in this column is written by Stuart

Liebennan, a practicing environmental attorney, and is for general information purposes only. It is not legal advice and should not be used in place of legal advice.

THE EFFECT OF ETHANOL PLANTS ON RESIDENTIAL  
PROPERTY VALUES: EVIDENCE FROM MICHIGAN

By

Timothy R. Hodge

A THESIS

Submitted to  
Michigan State University  
in partial fulfillment of the requirements  
for the degree of

MASTER OF SCIENCE Agricultural, Food,  
and Resource Economics

2011

**ABSTRACT****THE EFFECT OF ETHANOL PLANTS ON RESIDENTIAL  
PROPERTY VALUES: EVIDENCE FROM MICHIGAN**

By

Timothy R. Hodge

Since the mid 1990s, bio-fuel producers have built more than 130 ethanol plants across the United States, the majority of which have been placed in the upper Midwest. While politicians and the industry have praised the positive effects of ethanol facilities, it is important to explore the potential negative impacts. This study examines one negative effect that is not yet fully understood: the impact ethanol plants have on the value of residential property located near a new ethanol facility.

To meet this objective, sales data for residential properties sold between 1999 and 2009 from two ethanol communities in Michigan and the hedonic method are used to evaluate the impact on property values over time and across homes in each community. Use of sales data over this ten-year period provides a unique analysis as it enables a comparison of properties pre- and post- plants coming on line. Furthermore, use of pre- and post-plant sales data provides greater confidence that any observed negative effect is truly the result of the ethanol plant and not some pre-existing, unobserved factor. Conclusions confirm that ethanol plants may have large negative effects, depressing the value of homes as much as 18% and as far as two miles away. However, these results may not be universal as conditions, tastes, and preferences differ across space and time.

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# Wind power sometimes hurts property values, Clarkson study says

NANCY MADSEN  
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ARTICLE OPTIONS



A recent Clarkson University study found that wind power projects might depress the prices paid for surrounding properties by as much as 17 percent.

The study, "Values in the Wind: A Hedonic Analysis of Wind Power Facilities," is based on the areas around three wind farms in Lewis, Clinton and Franklin counties. Clarkson assistant professor Martin D. Heintzelman and doctorate degree candidate Carrie M. Tuttle collected data from 11,331 residential and agricultural property transactions over nine years from Clinton, Franklin and Lewis counties.

"Overall, the results of this study are mixed as regards the effect of wind turbines on property values," the report said. "In Clinton and Franklin Counties proximity to

turbines has a usually negative and often significant impact on property values, while, in Lewis County, turbines appear to have had little effect, and, in some specifications, a positive effect.”

Lewis County had 1,938 sales used in the study, while Franklin had 3,251 and Clinton 6,142. There were 3,969 repeat sales for 1,903 parcels. The study used GIS software to match the parcels to turbine location. The data showed that properties at one mile from towers had a decrease of between 7.73 percent and 14.87 percent in sale prices. When the nearest turbine is a half-mile away, the sales price has a decline of between 10.87 percent and 17.77 percent.

“By and large, I was not surprised,” Mr. Heintzelman said Monday afternoon. “Anti-wind groups have a lot of complaints, and if those issues are perceived to persist, it is going to affect property values.”

But the data from Lewis County didn’t necessarily agree, showing positive trends. The researchers tested whether the effect was negative at first and then turned positive over time, but the Lewis County data showed increases in property values from the get-go, which mellowed with time.

“Another possible interpretation is that there is something about the design or placement of the facilities in Lewis versus Clinton/Franklin Counties which has reduced or eliminated the negative impact on property values,” the report said.

And, Mr. Heintzelman said, another option is that people in Lewis County could have an entirely different feeling about the turbines compared with people in other counties.

The report has been accepted for publication in the peer-reviewed journal “Land Economics.”

Like previous studies, the Heintzelman one has a small proportion of properties close to the turbines. Overall, 461 were within three miles.

“There is still more work to be done in the area,” he said. “In these study areas, we need more data post-turbine, on sales after the turbines are built.”

They ran a regression analysis with three different dates — when the draft environmental impact statement was submitted to the state Department of Environmental Conservation, the date the final environmental impact statement was approved and the date when the turbines became operational.

The study accounts for other characteristics of the home, including distance to a major road, value of personal property included in the transaction, whether the home is in a village, number of bedrooms and bathrooms, square footage of the house, age of the house and lot size.

The analysis also showed that local buyers have about half as strong an adverse feeling to being near turbines when compared with non-local buyers, which “suggests that non-local buyers are more wary of turbines and their effects than local residents which may also be a function of familiarity.”

The results suggest that nonparticipating landowners are due some kind of compensation. Landowners receive lease payments and towns and school districts get proceeds from payment-in-lieu-of-taxes agreements.

“I think that is what has to be thought about,” Mr. Heintzelman said. “There are two channels for compensation: property owners get money from the developer for their land and towns get PILOT payments. Even with those PILOT payments, there are people who are being harmed with their property values. We need to think about how the PILOT is spent or think about other mechanisms to compensate individuals who have been harmed.”

Health degradation and aesthetic damage are “likely to be capitalized into property values and, as a consequence, property values are likely to be a reasonable measuring stick of the imposed external costs of wind development,” the report said.

## **STUDIES DOCUMENT NEGATIVE IMPACTS FROM ASPHALT PLANTS PROPERTY VALUES AND PUBLIC HEALTH SUFFER**

The Blue Ridge Environmental Defense League has released two studies showing the adverse impacts on property values and public health for residents living near operating asphalt plants in Avery and Macon counties. The property value study shows losses of up to 56% around a plant in Pineola, and in Cullasaja nearly half of the residents report negative impacts on their health since asphalt plant operations began in 1999.

In Avery County tax office officials used distance from Maymead Materials, Inc. asphalt plant and noxious odor emissions as the bases for property devaluation in Pineola. The largest percentage drop was recorded on property located directly across the road from the plant. The largest dollar loss of \$45,300 was at a church adjacent to the plant. The study documents property value losses up to 3,200 feet from the plant.

Pineola resident Dale Thompson and many of his neighbors sought tax relief when the asphalt plant effectively reduced their use and enjoyment of their homes and land. Mr. Thompson cited smoke and vile odors as reasons why he and his family can no longer spend time outdoors at either recreation or work.

In a second study, the Blue Ridge Environmental Defense League conducted a survey in response to health concerns of residents in the mountain community of Bethel in Macon County. The door-to-door survey shows that 45% of the residents living within a half mile of the two year old Rhodes Brothers asphalt plant report a deterioration of their health which began after the plant opened. The most frequent problems include high blood pressure (18% of people surveyed), sinus problems (18%), headaches (14%), and shortness of breath (9%).

Pineola's experience with property devaluation gives us only a part of the picture. The effect on the health of residents in these two communities is devastating. People who have only a passing acquaintance with asphalt fumes know little about the true dangers of this pollution. Good health is priceless—It's simply absurd to say that asphalt plants have no impact.

*Louis Zeller  
January 6, 2004*

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# National Center for Environmental Economics

## Stigma of Environmental Damage on Residential Property Values

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### Metadata

#### Objectives/Hypotheses:

There has been much disagreement about how to best measure the benefits of cleanup of hazardous waste sites. In 1980, Congress mandated the EPA to clean up abandoned hazardous waste sites. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) required the EPA to establish criteria to prioritize sites based on risks to health, environment, and welfare. Welfare was interpreted to mean impacts associated with health and the environment, not economic and social impacts. (Greenberg and Schneider, 1995) Consequently, the real effect of hazardous waste sites on property values are often left out of cost-benefit analyses. Including losses in property values in the analyses may yield a different conclusion about the effectiveness of remedial actions.

Previous academic studies have attempted to measure benefits

from the cleanup of hazardous waste by showing that residential property values become lower as the distance to a hazardous waste site decreases. Extending this argument, if the hazardous waste site is removed, then the discount for being in a location that is close to a former hazardous waste site should be recovered. After environmental contamination is completely cleaned up, *ceteris paribus*, one would expect residential property values to regain their lost values. The benefits of cleanup are then the difference between what property values would be if the hazardous waste site never existed and what property values are with the hazardous waste site. We argue that this reasoning is faulty because of hysteresis or path dependence. Furthermore, if stigma effects from a site exist, then past studies have overvalued the benefits of cleanup of hazardous waste sites.

This project will add to the existing literature on the impact of environmental contamination on residential property values because property values are analyzed over a lengthy period of time. Specifically, existing studies have not looked at property values after cleanup has been completed. It is of questionable value to measure the benefits of cleanup without looking at post-cleanup property values.

#### Approach:

The researchers present an economic model of hysteresis. We will use the hedonic price technique (Rosen, 1974) to test for stigma from environmental damage on residential property values. The level of environmental quality can be considered to be a qualitative characteristic of a differentiated good market. Consumers can choose the level of environmental quality through their choice of house. Housing prices may include premiums for locations in areas with high environmental quality. If so, the price differentials may be viewed as implicit prices for different levels of environmental quality.

## Expected Results:

The researchers expect to find the existence of stigma from environmental damage on residential property values.

## Metadata

**EPA/NSF ID:** R825995

**Principal** Rausser, Gordon C.

**Investigators:**

**Technical Liaison:**

**Research** California at Berkeley, University of  
**Organization:**

**Funding** EPA/ORD/Valuation

**Agency/Program:**

**Grant Year:** 1997

**Project Period:** October 1, 1997 August 31, 1998

**Cost to Funding** \$42,260

**Agency:**

**Project Status Reports:**

**Project Reports:**

**Final Report**

**Executive Summary**

**Project Description and Objectives of Research:**

There has been much disagreement about how to best measure the benefits of cleanup of hazardous waste sites. In 1980, Congress mandated the EPA to clean up abandoned hazardous waste sites. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) required the EPA to establish criteria to prioritize sites based on risks to health, environment, and welfare. Welfare was interpreted to mean impacts associated with health and the environment, not economic and social impacts (Greenberg and Schneider, 1995). Consequently, the real effect of

hazardous waste sites on property values has often been neglected in cost-benefit analyses. Incorporating losses in property values in the analyses may yield a different conclusion about the effectiveness of remedial actions.

Previous academic studies have attempted to measure benefits from the cleanup of hazardous waste by showing that residential property values become lower as the distance to a hazardous waste site decreases. Extending this argument, if the hazardous waste site is removed, then the discount for being in a location that is close to a former hazardous waste site should be recovered. After environmental contamination is completely cleaned up, *ceteris paribus*, one would expect residential property values to regain their lost values. The benefits of cleanup are then the difference between what property values would be if the hazardous waste site never existed and what property values are with the hazardous waste site. We argue that this reasoning is faulty because of hysteresis or path dependence. If stigma effects from a site exist, the stigma associated with a hazardous waste site leads to irreversible losses in property values. Past studies have ignored the effects of stigma and, therefore, may have overvalued the benefits of cleanup of hazardous waste sites. The hypothesis to be tested is whether there is a stigma effect from environmental damage on residential property values. If the stigma from environmental damage is significant, then the framework developed in this study can be used to analyze issues of environmental justice.

This project augments the existing literature on the environmental contamination and residential property values because property values by analyzing such values over a long period of time. Specifically, existing studies have not looked at property values after cleanup has been completed which we proposed to do in this study.

## Summary of Findings:

We developed a theoretical model that includes both path dependence and expectations in the determination of property values. This research makes an important contribution to the tipping (or residential succession) literature by showing that, with external economies and adjustment costs, both path dependence and expectations can play a role in determining whether there will be a stigma equilibrium. The model was estimated empirically using hedonic price techniques. The pooled data set covered the period 1979 to 1995 and included more than 200,000 observations. The time period included observations before, during, and after cleanup of a contaminated site. We found that only houses located in a very close proximity to the hazardous waste site were stigmatized.

A variety of estimation methods were used in this study. The first approach was to estimate a distance model. We found that the coefficient on distance from smelter starts out positive, then turns negative after cleanup. Standing alone, one might conclude from this result that there is no stigma. However, in the first post-cleanup period (1987-90), there were no sales within one mile of the smelter.

We hypothesized the price gradient on distance from the hazardous waste site is unlikely to be continuous. We used two approaches to deal with the possible discontinuity of the price gradient. The first approach is using a linear spline function in place of the distance variable in the hedonic price equation. The second approach is to replace the distance variable with discrete distance dummy variables. We conclude from the results of both approaches that the effect of the smelter diminishes rapidly with distance. The smelter's sphere of influence is no greater than one mile. There is stigma for houses within one mile of the smelter.

A repeat sales subset of the data set which consists of houses that were sold more than once was identified, and a repeat sales model was estimated separately for the smelter area and a control area. The hypothesis tested that the rates of return are the same across areas. The repeat sales data set was also used to estimate separate hedonic regressions for houses that were sold both before and after cleanup. The coefficients on the year dummy variables in the years after additional contamination concerns about the RSR smelter site arose (1991-1995) are more negative for the smelter area than the control area. In the period during and initially after cleanup (1981-1990), the return is better in the smelter area. This allows for a non-confounded analysis because the structural characteristics of the house do not usually change over time. However, there may be selection bias because the most stigmatized houses may not have been sold after cleanup.

The dynamic effects of the smelter were analyzed by estimating its effect on housing appreciation rates. Using the repeat sales data set, appreciation rates were calculated for each of event-driven time periods. Appreciation rates multiplied by 100 were used as the dependent variable in a regression with housing, neighborhood, and environmental attributes used as the independent variables. In the period in which identification and cleanup occurred, which was also a period of intense media coverage (1981-1986), a location that is farther away from the smelter had a positive and significant effect on the appreciation rate of the house. In the first post-cleanup period (1987-1990), the houses with locations that are in close proximity to the smelter experienced a significantly higher appreciation rate than houses located farther away. Finally, in the period of additional concern about the smelter area (1991-1995), a location that is farther away from the smelter had a positive but insignificant effect on the appreciation rate of the house.

In order to compare the smelter area with a control area, models with an indicator variable, which is equal to one when the distance from the smelter is less than a specified number of miles and zero otherwise was estimated. This model was estimated with the smelter area equal to a circle with a radius of one mile and a radius of four miles. There is a discount for being within one mile of the smelter in each period, which can be interpreted that a stigma exists on properties within one mile.

The effect of media coverage was also analyzed in this study. The bulk of the coverage occurred in the period in which identification of the site and cleanup occurred (1981-1986). The results indicate that the estimated coefficient on the media variable in this time period was negative and significant for properties sold within four miles of the RSR site, while the estimated media coefficient was positive and significant for properties sold greater than four miles away from the site. Media coverage again increased in the period of new concern after cleanup (1991-1995). The media variable coefficient was again negative and significant for properties sold within the smelter area, while it was positive but insignificant for properties sold greater than four miles from the smelter.

We also estimated a dynamic discrete time model in order to analyze the evolution of perceived risk around a hazardous waste site and its effect on property values. Perceived risk is different from scientifically assessed risk because it can be manipulated. We found that media coverage and high prior risk perception increase current perceived risk. Increased perceived risk surrounding the hazardous waste site, in turn, lowers property values. This research is very innovative because it uses a revealed preference approach to estimating perceived risk, while other attempts to estimate perceived risk rely on survey data. Using Generalized

Maximum Entropy (GME) estimation techniques, we found that perceived risk, weighted by distance, has the expected negative relationship with housing price. The coefficient on lagged perceived risk is positive and less than one, so that perceived risk does not explode. Finally, the media coefficient is positive. Media coverage increases perceived risk.

## **Conclusions:**

The theoretical model shows that stigma can be caused by both path dependence and uncertainty, rather than uncertainty alone, which is the accepted explanation in the environmental economics literature. The theoretical model also shows that stigma is not the only outcome after contamination. Recovery is also possible. In our examination of Dallas County, Texas, and the RSR lead smelter site, we found that stigma exists close to the site, but it dissipates rapidly with distance. Before the identification of the site by the EPA, there was already a discount for a buying a house with a smelter location. During the period of smelter identification and cleanup, there was a period of high media coverage, and the discount increased. In the first four years after a court ruled that cleanup was complete, no houses were sold within one mile of the site. Finally, in the subsequent five years, houses were sold within one mile of the site but a discount remained. Media coverage of the site caused property values to decrease in the smelter and increase outside the smelter area.

## **Papers and Manuscripts:**

McCluskey, Jill J. and Gordon C. Rausser, 1998. "Estimation of Perceived Risk and Its Effect on Property Values," Working Paper, Department of Agricultural Economics, Washington State University.



McCluskey, Jill J. and Gordon C. Rausser, 1998.  
"Stigmatized Asset Value: Is it Temporary or Permanent?"  
Working Paper, Department of Agricultural and Resource  
Economics, University of California, Berkeley.

McCluskey, Jill J. and Gordon C. Rausser. "Causes and  
Compensation for Environmental Inequality," In preparation.

**Presentations:**

"Stigmatized Asset Value: Is it Temporary or Permanent,"  
Presented at: University of California, Berkeley--Real Estate  
Ph.D. seminar at the Haas School of Business, November  
1997; Pennsylvania State University--Department of Energy,  
Environmental, and Mineral Economics, January 1998;  
Department of Agricultural and Resource Economics--North  
Carolina State University, January 1998; School of Public  
Policy and Management--The Ohio State University, May  
1998.

"Stigma of Environmental Damage on Residential Property  
Values," Selected Paper presented at the 1997 American  
Agricultural Economics Association meetings, Toronto.

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## CONTAMINATED SITES AND INFORMATION IN HEDONIC MODELS: AN ANALYSIS OF A NEW JERSEY PROPERTY DISCLOSURE LAW

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**Session:** [Valuation I: Hedonic](#)

**Chaired By:** Charles Towe, University of Maryland

**When & Where:** 4th June 2012, 08:30 - 10:00, Room Taft M

**Presented By:** Patrick Walsh, US EPA: NCEE



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Hedonic analysis has been used to analyze a variety of hazardous sites (Jackson, 2001), and was supported by a 2006 EPA workshop as the most promising method for producing defensible studies (US EPA, 2011). However, there are several challenges to valuing hazardous site cleanup, including site and risk heterogeneity, exposure pathways, and public information. Sellers typically have more knowledge about risks and exposure than buyers and there may be a wide gap between perceived and actual risk, for both buyers and sellers. These issues complicate the task of valuing contaminated site cleanups. In this paper, I use a quasi-experimental approach to explore the impact of information in a hedonic analysis of contaminated sites. The experimental design focuses on the passage of a 2004 New Jersey law which requires a seller disclosure to be provided to home buyers. A section of the disclosure requires sellers to indicate if there are any properties in the vicinity that adversely affect “the quality or safety of the air, soil, water, and/or physical structures present” on the property for sale. This paper uses over 30,000 property sales in Atlantic County, New Jersey, which occur two years before and after the passage of the disclosure law. Atlantic County contains wide variation in property characteristics, with sizable urban and rural areas. Property sales are matched to over 300 contaminated sites, which have been identified by the New Jersey Department of Environmental Protection (NJDEP) to have soil or ground water contamination greater than or equal to applicable standards. The methodological approach I use follows several recent quasi-experimental papers. In particular, Pope (2008) examines the impact of an airport noise zone disclosure on property prices, while Pope (2008b) looks at a flood zone disclosure. Both papers find a significant impact of information disclosure on the property market. Using a variety of specifications for proximity to contaminated sites, I find that proximity has a negative effect on home prices. However, I consistently find that the passage of the seller disclosure diminishes this negative effect. Although this result appears counterintuitive at first, there may be a plausible explanation to it. First, sellers are required to disclose information about contaminated properties “in the vicinity” of their own. Several discussions with local realtors and government officials confirmed that there is no guidance on how far the “vicinity” refers to, although two realtors said that they advised clients to report

on contaminated sites within on block of the home in question. This vague definition of distance may result in homes getting artificially “blessed” by the disclosure. If a buyer knows that a landfill is nearby, but farther than one block away, it will not appear on the disclosure and they may improperly conclude that there is no risk. Alternatively, for sites that do appear on a seller disclosure, buyers may be given information about the site that better aligns their risk perceptions with the true risk. The results of this paper further highlight the importance of information in property markets. Furthermore, they underscore the importance of well defined policy. There was no agreement in the interpretation of the seller disclosure among real estate agents, and the New Jersey Department of Consumer Affairs (who were responsible for the disclosure law) could not provide a definition of “in the vicinity.” In order to improve the functioning of property markets, future disclosure laws should more specifically convey seller requirements. Works Cited Jackson, T. O. (2001). "The Effects of Environmental Contamination of Real Estate: A Literature Review." *Journal of Real Estate Literature* 9(2): 93-116. Pope, J. C. (2008). "Buyer Information and the Hedonic: The Impact of a Seller Disclosure on the Implicit Price for Airport Noise." *Journal of Urban Economics* 63: 498-516. Pope, J. C. (2008b). "Do Seller Disclosures Affect Property Values? Buyer Information and the Hedonic Model." *Land Economics* 84(4): 551-572. US EPA (2011). *Handbook on the Benefits, Costs, and Impacts of Land Cleanup and Reuse*. National Center for Environmental Economics. Washington, DC. EPA-240-R-11-001.



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- [08:30 First Parallel Session](#)
- [10:00 Coffee Break - Grand Ballroom Prefunction Area](#)
- [10:30 Second Parallel Session](#)

# Aluminum landfill now in use

<http://www.columbiadailyherald.com/sections/news/local/aluminum-landfill-now-use.html>

August 15, 2012

Tennessee Aluminum Processors and Smelter Services Corporation have received state approval to begin using a landfill that will house byproducts of the aluminum recycling process.

Smelter Service Corporation President Tom Grosko said the approval was granted Monday by The Tennessee Department of Environment and Conservation Division of Solid Waste. Grosko said byproducts started being deposited at the site Tuesday.

"We are very excited, and we understand this is a big responsibility and we plan on treating it as such," Grosko said. "We don't take this casually at all."

The landfill, located off Hoover Mason Road, will hold salt cake, a material that has the potential to produce ammonia gas when exposed to water, though salt cake is not considered a hazardous waste by TDEC. The opening of the landfill is the culmination of a six-year controversy in the community. Residents opposed to the facility said it could be a health hazard and may negatively affect property values in the city.

The department issued a construction permit in July 2011, and the Mt. Pleasant Planning Commission approved the zoning in September 2011. Final development plans were approved in October 2011.

The landfill, which will operate under the name Hoover Mason Recycling, is about 39 acres and has an expected lifespan of 30 years, according to a press release.

According to the site plans, a 12-inch-thick leachate collection system, a 7-foot clay buffer, two high density polyethylene liners and a clay liner are intended to prevent aluminum byproduct from rain exposure and any leachate from entering the ground.

"If I see anything that looks the least bit questionable, I can ask (the manager of the landfill) if that is OK and we can discuss it," the Smelter Services president said.

Grosko said having the landfill closer to the recycling facility will help his business keep a closer eye on the recycling process from start to finish. The landfill's close proximity will also help offset transportation costs and limit the byproducts' exposure to rain, he said.

"Everybody is really excited here to get it up and going," said Crystal Preslar, Smelter Services communications coordinator.

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## Landfill expansion plan sparks concern on property values

By [Cassie Foss](#)

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Published: Monday, January 9, 2012 at 10:08 p.m.

The battle over the expansion of a Brunswick County landfill near a predominately black community in Supply is far from over.

Attorneys for Brunswick County argued Monday during a special meeting of the county's planning board that expansion of the county's construction debris landfill, which sits near the intersection of N.C. 211 and U.S. 17 in Supply, would not have an adverse effect on property values in the Royal Oak community, home to about 300 residents.

Monday's meeting was a continuation of a permitting process that began in October. The county's operation services department, which operates the landfill and is seeking a special permit to add to the site, must prove the expansion will not have adverse impacts on a number of criteria, including the public health of nearby residents and their property values.

In early June, the Royal Oak Community Association and several residents filed a lawsuit against Brunswick County that claimed the county's push to expand its landfill, which sits near homes in the community, is part of a culture of institutional racism. Royal Oak also is home to the county's animal shelter, a wastewater treatment plant and permitted sandmines. The suit asks the courts to permanently keep the county from expanding the landfill and to keep it from continuing to discriminate against the black community.

The community is being helped by the University of North Carolina School of Law's Center for Civil Rights.

County officials have argued that the site, which handles only construction and demolition waste, will run out of space within the next three years. If expanded, the land would be able to handle about 100 more years of debris, county officials estimate.

During Monday's nearly seven-hour meeting, a witness for the county, Morehead City-based real estate appraiser Robert Mashburn, told planning board members and residents he compared the property values of homes near Brunswick's landfill to the values of homes near landfills in other parts of the state, such as the Charlotte Motor Speedway Landfill, and found little devaluation.

Mashburn also told board members he did not believe current property values were lower in Royal Oak because of the landfill, citing the recent renovation of a nearby church, the county's new hospital and the construction of a new home on Middle River Road.

Elizabeth Haddix, an attorney with the Center for Civil Rights, argued that the landfills Mashburn used as comparisons, most closed municipal dumps used for household trash, were not similar to the county's proposed expansion.

Planning board member Denny Jordan agreed.

"You come here, in my opinion, with comparisons of landfills that are not comparable and are not showing the impact that citizens of this county would potentially feel if the expansion was approved," Jordan said. "The landfills you used as comparisons have all been capped."

Area residents wary of noise from operator equipment, the height of the landfill and odor also attended, though none spoke during the meeting's public comment period. Royal Oak Association members are expected to testify in front of the board at a later date, association president Lewis Dozier said.

Area residents wary of noise from operator equipment, the height of the landfill and odor also attended, though none spoke during the meeting's public comment period. Royal Oak Association members are expected to testify in front of the board at a later date, association president Lewis Dozier said.

"I feel pretty good about the board, which really is the judge, asking the witnesses to explain their research," Dozier said. "They are being open minded and looking for all the facts."

The board also heard from other witnesses for the county, including sound and odor consultants and a toxicologist. It was unclear Monday night when the hearing, which did not wrap by press time, would be continued.

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# State addresses Fenimore landfill concerns in Roxbury Township

**By Mike Condon, Editor | Posted: Thursday, January 26, 2012 12:30 am**

ROXBURY TWP. – The state Department of Environmental Protection (DEP) has crossed all of the proverbial “T’s” and dotted all of its “I’s” in regard to the proper capping and filling of the former Fenimore landfill on Mooney Mountain.

That’s the gist of a 13-page-letter written to Sen. Anthony Bucco, R-Morris, by Scott Brubaker, director of the Office of Permit Coordination and Environmental Review at the DEP.

The letter, dated Jan. 13, addresses each and every point that Bucco, on the township’s behalf, forwarded to the DEP in regard to the closure project.

The applicant, Strategic Green Energy, plans to, with DEP oversight, properly cap and fill the landfill, which was abandoned in 1979, and, eventually, construct a solar panel farm there.

With the DEP in charge of virtually every aspect of the project, the township has been, in many cases, entirely shut out of the process, and township officials have lately found themselves largely without answers.

Residents living on narrow, residential streets leading to the former dump have begun steadily raising concerns about frequent truck traffic, noise, damage to the roadways, dirt, debris, and other issues.

In the letter, Bucco states that the proposed capping actually sounds like an approval to create a new landfill on top of the existing landfill.

Bucco says in the letter that about 1.2 million cubic yards of “new material” will be brought to the site. They will consist of, he said, recyclable masonry, brick, block and glass, construction site fill, chipped tires, and water treatment plant residuals.

Also listed, however, by the DEP was “materials obtained from areas of concern.”

What, exactly, he asked, are those materials, and what does “areas of concern” mean.

In the response, Brubaker said that the closure approval is not, in any way, a “reopening of the landfill.”

“The proper closure of this landfill is of significant environmental benefit to the area and surrounding waters,” he wrote.

“Currently, untreated leachate flows into a tributary of Ledgewood Brook, which eventually empties into the Raritan River.

The materials approved to be received at the site are recyclable materials that are approved for reuse to “close” the landfill and to prepare and grade the site for redevelopment,” the response states.

“Materials from areas of concern are fill materials that are subjected to extensive testing to determine suitability for reuse,” Brubaker wrote. “Once the landfill has been brought to proper grades, it shall be capped with a minimum of two feet of low permeability material and covered with a minimum of two feet of clean fill,” Brubaker wrote.

“This has been a common practice in capping old landfills since the mid nineties,” he added.

Brubaker said that about 1,167,000 cubic yards of materials will be used for all closure activities, including regarding and stabilization, access road construction, capping and vegetative cover. “The applicant is estimating up to 50 trucks will deliver fill per day for a total of approximately 67,000 truck loads,” Brubaker wrote.

Approximately 82,000 cubic yards, including stone and soil, will be used solely for the landfill cover, which is approximately seven percent of the imported materials,” Brubaker said.

Bucco also asked if Roxbury retains site plan jurisdiction over the proposed solar facility.

Brubaker said it will, but said the DEP is responsible for the oversight of the landfill closure.

“Future development of the solar energy system will be subject to local/municipal as well as department approval,” he wrote.



Another question Bucco posed has to deal with what residents on Lookout Drive and Vanover Drive will be able to see as they exit their residential developments.

“What measures will the DEP take to minimize visual impacts,” he asked.

Brubaker said that shrubs are most likely.

“Due to the fact that this is a landfill site that requires capping, and that the cap integrity has to be maintained, the DEP does not promote planting trees on top of the cap,” he wrote. “It is suggested that shrubs be used in the buffer. A raised berm with shrubs may be constructed to create a landscaped visual barrier,” he wrote.

## **Property Values?**

Bucco also inquired whether or not the DEP has taken into account the potential loss of property value and economic impacts to the area.

“Residential properties will be subjected to an undetermined number of years where more than 150,000 total truck trips in and out will be bringing in 1.2 million cubic yards of recycled material to create a 50 acre cap covered with solar panels,”

Bucco wrote.

In response, Brubaker said that is, essentially, not a concern of the DEP.

“The department has not considered the loss of property or economic impacts to the area,” he wrote.

“The department’s priority is to properly close the landfill. This site is a former landfill which has not been ‘closed’ to protect the surrounding environment from impacts from pollutants or substances formally deposited at the site,” Brubaker wrote.

“The department believes that an unclosed landfill also has a negative impact on property values, as well as the surrounding environment,” Brubaker said.

# The fracking/real estate conundrum

Are home value declines near wells another multi-billion dollar subsidy for oil and gas industry?

By Joel Dyer

The New York State Bar Association calls it the “perfect storm begging for immediate attention.” For homeowners who have been caught in the storm, it is an unmitigated economic disaster. But for the oil and gas industry at the center of it all, it is just the latest potential roadblock threatening to derail its plans to quickly drill up our nation’s natural gas reserves before changing laws and growing negative public sentiment permanently alter the prospect for doing so.



The “perfect storm” that is keeping the lawyers up at night is the realization that the current oil and gas boom, which has been aggressively marketed as an economic windfall for the U.S. by both the industry and politicians whose cash-strapped regions are desperate for new sources of revenue, may, in fact, be something far different.

New research indicates that many of the 15.3 million Americans living within a mile of a hydraulically fractured well that’s been drilled since 2000 may have lost or be in the process of losing a good portion of their wealth as a result of this drilling activity.

So just how big of a loss are we talking about cumulatively? If the research is correct, it’s billions upon billions of dollars. As a matter of perspective, recent research indicates that drilling wells within just one mid-size community such as Longmont could, in a worst-case scenario, trigger a drop in home values of more than 15 percent. And a 15 percent drop in Longmont real estate values, a town with a population of only 88,000, would equal somewhere around a \$1.2 billion loss.

The losses of those living near wells is due to the diminishing values of their homes and property as a result of the fact that an increasing number of buyers have become hesitant to purchase real estate near fracked wells and their accompanying industrial production platforms. It also doesn’t help that fracking/oil and gas shale development is also threatening the primary and secondary mortgage markets. No buyer, no sale. No mortgage, no sale. It’s that simple.

It seems that while most of the nation has been focused on the debate over whether or not fracking poses a risk to the environment and public health, a few curious minds have been researching fracking's impacts on the real estate and mortgage markets. And while the science on fracking's very real potential health dangers is still being collected, studied and debated, it appears that the verdict is in on the controversial extraction practice's impact on what is, for most Americans, their largest single investment, namely, their homes.

The fracking/real estate conundrum will not be easily solved. It is not so simple as identifying the fact that most people won't buy a home if it's sited near oil and gas activity that they believe could be harmful to their health or negatively impact future property values. That part of the equation is just common sense and is indirectly linked to the ongoing scientific health debate over fracking.

In the real world, housing prices rise and fall with public perception, not with the quality of Haliburton's latest scientific explanation for why its 500 toxic chemicals used in the fracking process won't find their way into your groundwater. Or put another way, industry white papers don't sell houses.

For the most part, the real estate market operates on just one principle; if a prospective buyer isn't sure that they will be able to sell a property later for at least what they paid for it today, they won't buy. Real estate buyers correctly understand that the scientific and political arguments that are increasingly being debated around the subject of fracking and increasingly reported in the media are causing apprehension in the real estate market. They know that because of that apprehension, regardless of whether or not it is justified, a growing number of people don't want to live or invest in a property near an existing well or even in an area that could one day end up with a well nearby because some third party owns the mineral rights.

Because perception is reality in the real estate market, informed buyers and qualified real estate agents are beginning to steer clear of houses and properties near oil and gas shale plays unless they are at a substantial discount to similar properties that are not threatened by such drilling activity. And if buyers and agents are aware of fracking's impact on real estate values, you can bet that banks are also well aware of their potential exposure when lending money in those same areas.

If housing prices in an area fall because of the fear of fracking, then lenders stop lending in areas where fracking may occur, and when that happens, prices in those areas fall still further. Like many ups and downs within the investment community, it is a chain reaction triggered entirely by perception, but the results are all too real.

But if research is finding that oil shale development is driving down real estate values, then why does the industry continue to claim just the opposite to be true? The answer is likely twofold.

First, if people in communities and counties sitting atop oil and gas shale formations realize that they could potentially lose 5 percent to 20 percent of their property values should drilling occur anywhere near their homes, they would likely go the same route as Colorado's Front Range citizens and begin to vote for moratoriums and outright bans on fracking. And that would

create a disastrous delay for an industry whose economic vitality is literally dependent upon its ability to drill, produce and export our natural gas overseas as quickly as possible.

Foreign markets are currently willing to pay as much as four times the going rate for gas here in the states, but that won't last forever. In fact, it is predicted that most foreign markets will be using their own domestically produced shale gas within the next five to 10 years.

So if the oil and gas industry is going to capitalize on this short window of opportunity to secure mass profits from shale gas, it needs to keep the public on its side for as long as possible while it moves forward with plans to get U.S. natural gas to Asia, Europe and elsewhere.

Oil and gas executives understand that nothing motivates the citizenry to grassroots action like hitting them in their pocketbooks. So for the industry, the story of job creation makes for better TV commercials than the story of real estate value declines.

The second reason the industry claims that oil and gas shale development is a positive for real estate values is because it has been so in some select areas. These exceptions to the lowerprice-near-drilling rule are often used as examples by the industry to try and quell a community's fear that its real estate values could be harmed by nearby drilling activity. But it seems a somewhat disingenuous argument when all the facts are known.

Communities that have experienced a boost in real estate prices due to oil and gas shale development tend to be small, isolated towns located in close proximity to a major shale play during the drilling phase.

For example, Williston, N.D., has seen an extraordinary increase in property values due to the current oil shale drilling boom in the Bakken formation. Why this has occurred is not a mystery, nor is it applicable to other locations around the country such as the Front Range of Colorado.

In Williston, 15,000 mostly short-term (a few years at best) workers have descended, almost overnight, onto the tiny town with a population of 12,000 locals who already occupied nearly all of the 5,230 existing houses in the community.

As a result, wheat fields around the town have become home to thousands of travel trailers and motor homes of every size and shape. In these "man camps," as they're called by locals, it's not unusual to find recently arrived workers paying thousands of dollars a month for the privilege of sleeping in a bunk in a crowded travel trailer. Many workers wind up living in their cars.

It's true that existing home prices in the area have increased three- to fivefold because, during the drilling boom, they are being sold as rental properties that can be used to house the glut of workers who are willing to pay thousands to share a room with four to six of their oil-patch pals. Fast money tends to inflate things.

Like the landlords, the local restaurants in Williston are enjoying the boom, but they are also shelling out \$25 an hour just to get someone to wipe down tables or wash dishes. And more often than not, the restaurant owners also have to provide housing for employees in the form of a trailer in the eatery's parking lot.

When it booms, it booms. Strip clubs have shot up in Williston like gushers of oil from the plains. According to Hollywood Interrupted writer extraordinaire Mark Ebner, who has spent a fair amount of time of late rubbing against Williston's underbelly, dancers at these clubs who entertain the roughnecks while helping to separate them from their paychecks can make as much as \$2,000 a night. And the folks cooking meth can do even better than that.

Williston is one of the real estate markets that the industry touts as being healthy and sustainable thanks to oil shale development?

But as with all booms, the bust will most assuredly come when the brunt of the drilling activity moves on to the next play. This is Williston's third "boom" since 1981. I was there for the first one and can assure you that the real estate prices went up and then fell back to reality as soon as the rig count plummeted and the oilies moved on.

The only thing that will be left when the current boom subsides will be a devastated little North Dakota town with a bad case of culture shock and a few new tattoos.

This is what has happened to some extent in small towns near shale plays all across the country, including Colorado towns like Rifle and Trinidad that have already experienced the boom and bust cycles attributable to shale gas.

The housing additions that were new and promising a few years ago are today bank-owned eyesores. The new restaurants, hotels and businesses that came have mostly gone. Today even the businesses that existed before the wells came are struggling to hold on now that the oil patch has shifted to the next unsuspecting, ill-prepared community.

It seems hardly an honest position for the oil and gas industry to point to such boomtowns as examples of oil and gas shale development's positive influence on real estate values. Industry folks know that, for the most part, the benefit to real estate values only occurs during a drilling boom phase of development due to severe housing shortages for workers in less populated corners of rural America.

In most areas where a larger population exists before the rigs move in — areas such as Colorado's Front Range or similarly populated parts of Pennsylvania, New York and Texas — researchers have found that fracking has a substantial and negative influence over real estate prices.

In these more populated, more developed areas there is no upward pressure on housing prices when the drilling comes because there is ample housing and other businesses to handle any short-term influx of the drilling-related workforce. So the real, long-term impact on housing values for most Americans living near oil and gas shale development is to the downside due to the perception, right or wrong, that drilling and fracking may contaminate the air and water, create a visual/noise nuisance and threaten public health, at least that is what the research is finding.

[http://boulderweekly.com/article-12047-the-fracking\\_real-estate-conundrum.html](http://boulderweekly.com/article-12047-the-fracking_real-estate-conundrum.html)

# Waste Sites and Property Values: A Meta-Analysis

- [John B. Braden,](#)
- [Xia Feng,](#)
- [DooHwan Won](#)

## Abstract

Recent studies suggest that some of the most contaminated waste sites in the United States have idiosyncratic or no discernable effects on nearby property values. This paper presents a meta-analysis of the literature measuring the economic impact of sites harboring waste materials on real estate values. A sample of 46 North American studies issued from 1971 to 2008 yields 129 distinct estimates that survive outlier diagnostics. The estimation results are highly robust and significant across estimators and specifications. They suggest that all classes of waste sites affect real estate prices, but sites classified as hazardous, especially aquatic hazardous sites, are associated with the greatest discounts. The estimated impacts of nonhazardous waste and nuclear sites are not statistically different from one another. Surprisingly, estimated impacts associated with sites included on the EPA's National Priority List (NPL) are generally smaller (although still statistically significant) than those for non-NPL hazardous waste sites. The estimates for sites in Canada and Mountain, Middle Atlantic, and South Atlantic states exceed those for other regions. Larger impact areas and aggregated data, such as census block observations, are associated with lesser estimates.



## Fracking the American Dream: Drilling Decreases Property Value

Drilling conflicts are almost always described in the context of their impacts on air, **water** and **health**. But increasingly, as the drilling boom sweeps the country, another part of the drilling story is starting to bubble up in drilling hotspots like Colorado, Pennsylvania, New York, Wyoming and Texas.

Increasingly, oil and gas development is butting up against, and often trampling, the bedrock American principles of **property rights** and **the value of one's home**. The map below shows all the shale gas in play in North America.



Industry estimates peg the number new wells that will be drilled across the U.S. over the next decade at more than 200,000. In this rush to tap once unreachable deposits, oil and gas development is pushing the boundaries of drilling. Innovations like **fracking** and horizontal drilling mean nothing is out of reach. Once the province of wide open spaces, drilling rigs now regularly inch up and even into communities that never anticipated having to address problems like round-the-clock noise, storage tanks, drums of toxic chemicals, noxious fumes, and pipelines near homes, schools, playgrounds and parks.

This clash of large-scale industrial activity and communities has surfaced a deep rift in the American landscape, where the legal doctrine of split estates allows one party to own mineral rights and someone else to hold the rights to soil and surface. With the oil and gas industry showing little self-restraint in where drilling happens, and almost no regulatory or legal precedents to protect them from having industrial activity in their back yards, communities are fighting back. Increased truck traffic, chemicals, lights, noise, heavy equipment, noxious air

emissions and water contamination are liabilities for landowners, to the point that communities in Colorado, New York and other states have taken matters into their own hands.

Feeling unprotected by weak state and oil and gas regulations—most of which were developed never contemplating drilling in urban and suburban landscapes—towns, cities and counties are instituting moratoria and bans on drilling within their borders. There are fracking-related **ballot measures in at least four Colorado communities** this year.

But it's not just "not-in-my-back-yard"-ism driving this reactive opposition. The financial risks posed by drilling are real and substantial enough, for example, that banks and insurers are adopting guidelines that forbid mortgage loans or insurance coverage on properties affected by drilling. It's a battle between oil and gas and the nest egg of countless Americans.

The following examples begin to piece together the ways in which the threats posed by drilling and the deep pockets of the oil and gas industry quite literally hit home. Taken together, they are a call for decision-makers to start quantifying data and asking tough questions about drilling vs. the American Dream.

## **Property Values**

In the Catskills, fracking fears have already impacted the real estate market even though the state has yet to make a determination on whether to allow drilling. The prospect that the state will open the region to drilling, as the New York Times reported, "has spooked potential buyers" in upstate New York. The Times story also quoted a realtor who shut down her business in Wayne County, Penn. Agents there, the woman said, are having trouble selling rural properties "because people don't want to be anywhere near the drilling."

A study conducted by researchers at Duke University found that the risks and potential liabilities of drilling outweigh economic benefits like lease payments and potential economic development in Washington County, PA. Even though lease payments can add overall value to homes with wells drilled on them, the possibility of contaminated water decreases property value by an average of 24 percent. The boost that comes from signing a lease offsets the increases, leaving a net decrease in value of 13 percent.

A 2010 study of the Texas real estate market in the heavily drilled suburban-Dallas area near Flower Mound concluded that homes valued at more than \$250,000 and within 1,000 feet of a drilling pad or well site saw values decrease by three to 14 percent. Faced with a boom in coal-bed methane development in the early 2000s, officials in La Plata County, CO studied the impacts of oil and gas development and found that properties with a well drilled on them saw their value decrease by 22 percent.



In a 2005 peer-reviewed study, researchers found that oil and gas production “significantly affect the sale price for rural properties.” The study determined that the presence of oil and gas facilities within 2.5 miles of rural residential properties in Alberta, Canada reduced property values between four and eight percent, with the potential for doubling the decrease, depending on the level of industrial activity.

In Pavilion, WY, where the EPA has linked groundwater contamination with fracking, Louis Meeks saw the value of his 40-acre alfalfa farm all but disappear completely. In 2006, his land and home were appraised at \$239,000. Two years later, as ProPublica reported, “a local realtor sent Meeks a coldly worded letter saying his place was essentially worthless and she could not list his property. ‘Since the problem was well documented ... and since no generally-accepted reason for the blowout has been agreed upon,’ she wrote, ‘buyers may feel reluctant to purchase a property with this stigma.’ ”

Similar nightmares have befallen residents of **Dimock, PA, where fracking problems decimated home values**, and the drilling company responsible, Cabot Resources, was ordered to pay impacted families’ settlements worth twice their property values, a total of more than \$4 million.



The threats posed by oil and gas drilling and the deep pockets of the industry quite literally hit home, decreasing property values and seizing land rights.

In North Texas, the Wise County Central Appraisal District Appraisal Review Board **knocked down the appraised value of one family’s home** and 10-acre ranchette from \$257,000 to \$75,000—a decrease of more than 70 percent. The board agreed to the extraordinary reduction as a result of numerous environmental problems related to fracking—just one year after the first drilling rig when up on the property.

Boulder, CO, real estate agent Nanner Fisher, who has lived in the area since 1983, told the *Boulder iJournal* that **selling properties near drilling operations is difficult**. “For the most part, if there is a well that’s visible when you show a property, [the prospective buyer] will ask to look for something else. A lot of it is the visual effect of the well site,” she said. “And, they think if you can see it, it’s gotta be close enough that it’s not healthy. It’s the same thing that’s been going on with electrical lines for years. People don’t want to live under power lines, either.”

Potential buyers, another Colorado real estate agent wrote recently in a column, “[balk at buying a home near a drilling or fracking site](#) ... The flip side of that same coin is that there are homeowners struggling to sell their home near these sites because of low buyer interest. They often have to sell at significantly lower prices than when originally purchased due to the oil and gas industry neighbors.”

## **Property Rights**

In at least 39 states, there are [laws that compel “holdout landowners” to join gas-leasing agreements](#) with their neighbors, allowing oil and gas companies to drill horizontally to tap into oil and gas reserves that cross property lines—whether the owner of a property wants to allow the drilling or not. Called “mandatory pooling” or “compulsory integration,” these laws basically create eminent domain by private enterprise.

Pooling gives the owner an interest in the well, including royalty payments, but as in Colorado, where forced pooling orders were issued by the state’s Oil and Gas Conservation Commission 48 times in 2010, the law also makes the unwilling owner “[liable for the further costs of the operation, as if he had participated in the initial drilling operation.](#)” The intent of forced pooling is to create more orderliness in drilling underground oil and gas reserves, which rarely adhere to the patchwork of surface ownership. Forcing holdout landowners into leasing agreements is supposed to lead to fewer wells drilled and more efficiency in the ones that are. But it’s also frequently [used as a threat by landmen looking to cash in on leases.](#)

## **Mortgages and Fracking**

Recognizing the numerous ways that drilling and fracking could damage value, the mortgage industry is starting to refuse to take on the financial liabilities and is tightening policies that prohibit lending on properties with wells on them or that are subject to leasing. According to a [white paper prepared for the New York State Bar Association](#), Wells Fargo, one of the largest home mortgage lender in the U.S. is cautiously refusing to make home loans for properties that have gas drilling leases attached to them.

In addition to Wells Fargo, Provident Funding, GMAC, FNCB, Fidelity and First Liberty, First Place Bank, Solvay Bank, Tompkins Trust Co., CFCU Community Credit Union are either putting hard-to-meet conditions on mortgages or denying loans altogether on properties with oil and gas leases. ([Excellent summary of oil and gas issues related to mortgage lending](#) from brokerage vice president is available online.)

The **backgrounder prepared by the NYSBA** about gas leasing impacts on homeowners also includes a section on residential mortgages and says the combination of home-ownership and drilling, “creates a perfect storm begging for immediate attention.” Risks include:

- Homeowners being confronted with uninsurable property damage for activities they cannot control.
- Banks refusing to provide mortgage loans on homes with gas leases because they don’t meet secondary mortgage market guidelines.
- Impediments to new construction starts, long a bellwether of economic recovery, since construction loans depend on risk-free property and a purchaser.
- The possibility of a property owner defaulting on a mortgage by signing a gas lease.
- Prohibitively expensive appraisals and title searches that are complicated by assessing the value of risks and the arcane paper trail of mineral rights and attached liabilities.

A Pennsylvania couple was recently **denied a new mortgage** on their farm by Quicken Loans because of a drilling site across the street. According to the lender, “gas wells and other structures in nearby lots...can significantly degrade a property’s value” and do not meet underwriting guidelines. Two other lenders also denied the family mortgages.

Federal lending and mortgage institutions (FHA, Fannie Mae, Freddie Mac) all have prohibitions against lending on properties where drilling is taking place or where hazardous materials are stored. A drilling lease on a property financed through one of these agencies would result in a “technical default.” FHA’s guidelines also don’t allow it to finance mortgages where homes are within 300 feet of an active or planned drilling site.

## **Insurance Coverage**

Homeowners who think damage to property incurred by drilling accidents is covered by insurance need to think again. Such damages are typically not covered. Last July, Nationwide Insurance spelled out specifically that it **would not provide coverage for damage related to fracking**. According to an internal memo outlining the company’s policy, “After months of research and discussion, we have determined that the exposures presented by hydraulic fracturing are too great to ignore. Risks involved with hydraulic fracturing are now prohibited for General Liability, Commercial Auto, Motor Truck Cargo, Auto Physical Damage and Public Auto (insurance) coverage.”

Often, a **driller or well operator’s insurance won’t cover damages**, according to the NYSBA summary. Homeowners may have to sue for damages and, even if they win, may not get paid for all damages since drillers admit in their regulatory filings that they may not carry enough insurance.

# The Trouble With Trash | How Landfills Affect Property Values

by admin | Sep 14, 2016 | Buying | 0 comments



In today's world, one of the biggest problems involves depositing trash. As it becomes difficult to find new landfill sites, existing ones become crammed with more trash. For homes living near these landfills, this can result in many issues. Whether it's enduring disgusting smells, increased traffic, or having drinking water contaminated by chemicals, the results can be difficult. As a result of these issues, property values are often affected in a negative fashion. If you're searching for a home, make sure you know all the facts about the site before you move and have a trouble with trash.

If you're currently living near a landfill, read more about the ways it affects your property value.

## Superfund Sites

According to the Urban Planning department at Cleveland State University, people who live within two miles of a landfill are considered to be a Superfund site and may see their property values

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fall by as much as 15%. This is no surprise to many, since a Superfund site is dened as one the federal government has designated as a hazardous waste facility.

## Subdivisions

Even if you don't live near a Superfund site, chances are your property values will still see a signi cant decline. Based on a study from the Pima, Arizona Assessor's Office, with all factors such as house size, quality of schools, and residential incomes being equal, the average home located in a subdivision will lose up to 10% of its value. Many home buyers will hesitate to buy in the surrounding area of an active landfill.

## High-Volume versus Low-Volume

While most people think all landfills are created equal, they are not. Most are classi ed as high-volume or low-volume, depending upon how many tons of waste they accept per day. However, according to the Journal of Real Estate Research, the impact these landfills have on property values decreases the further they are from homes. On average, the impact a high-volume landfill has on property values decreases by 5.9 percent for each mile they are away from homes. Therefore, it's vital for those dealing with these issues to seek out experts with a [Master's in Public Administration](#). By doing so, they can examine ways to change the over lling of landfills as well as their location to residential zones.

By utilizing this and other information, those who live near landfills may be able to find ways to turn a negative situation into a positive one, allowing them to keep their property values as high as possible. And remember, it pays to get all of the facts before you buy a new home so if a property price looks too good to be true, it might be.



**More about admin**

# **The Property Value Impacts of Groundwater Contamination: Agricultural Runoff and Private Wells**

By:

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National Center for Environmental Economics  
US Environmental Protection Agency

Last Revised: November 16, 2015

## **Abstract:**

There are few studies examining the impacts of groundwater quality on residential property values. Using a unique dataset of groundwater well tests, we link residential transactions to home-specific contamination levels and undertake a hedonic analysis of homes in Lake County, Florida; where groundwater pollution concerns stem primarily from agricultural runoff. We find that testing and contamination yield a 2% to 6% depreciation, an effect that diminishes after the situation is resolved. Focusing specifically on nitrogen-based contamination, we find prices decline mainly at concentrations above the regulatory health standard, suggesting up to a 15% deprecation at levels twice the standard.

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**Keywords:** drinking water; groundwater; hedonic; nitrate; nitrite; potable well; property value; water quality

We thank Robin Jenkins, Erik Helm, and participants at the Northeastern Agricultural and Resource Economics Association's 2015 Water Quality Economics Workshop for helpful comments. We are grateful to Abt Associates for data support, and Michael Berry at the Florida Department of Health for explaining the extensive dataset of potable well contamination tests. Any views expressed are solely those of the authors and do not necessarily reflect the views of the US Environmental Protection Agency and the other above organizations.



## The Housing Market Impacts of Shale Gas Development<sup>†</sup>

By Lucija Muehlenbachs, Elisheba Spiller, and Christopher Timmins\*

*Using data from Pennsylvania and an array of empirical techniques to control for confounding factors, we recover hedonic estimates of property value impacts from nearby shale gas development that vary with water source, well productivity, and visibility. Results indicate large negative impacts on nearby groundwater-dependent homes, while piped-water-dependent homes exhibit smaller positive impacts, suggesting benefits from lease payments. Results have implications for the debate over regulation of shale gas development. (JEL L71, Q35, Q53, R31)*

Technological improvements in the extraction of oil and natural gas from unconventional sources have transformed communities and landscapes and brought debate and controversy in the policy arena. Shale gas plays underlying the populated north-eastern United States were thought to be uneconomical less than ten years ago, but now contribute a major share of US gas supply.<sup>1</sup> Natural gas has been hailed as a bridge to energy independence and a clean future because of its domestic sourcing and, compared with coal and petroleum derivatives, its smaller carbon footprint and reduced emissions of other pollutants (e.g., particulates, sulfur dioxide, carbon monoxide, and nitrogen oxides). Yet, opposition to unconventional methods of natural gas extraction has emerged, citing the potential for damages from methane leakage, water contamination, and local air pollution (see Mason, Muehlenbachs, and Olmstead 2015 for a review).

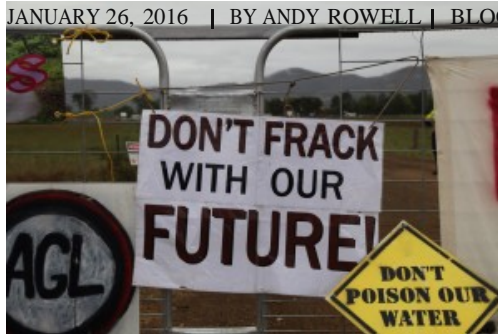
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<sup>†</sup> Go to <http://dx.doi.org/10.1257/aer.20140079> to visit the article page for additional materials and author disclosure statement(s).

<sup>1</sup> In 2000, shale gas accounted for 1.6 percent of total US natural gas production; this rose to 4.1 percent in 2005, and by 2010, it had reached 23.1 percent (Wang and Krupnick 2013). Natural gas from the Marcellus formation currently accounts for the majority of this production (Rahm et al. 2013) and can be attributed to advances in hydraulic fracturing, horizontal drilling, and 3-D seismic imaging.

# Fracking Aects Property Prices

JANUARY 26, 2016 | BY ANDY ROWELL | [BLOG POST](#), [FEATURED](#), [NEWS](#)



Living close to a shale gas well aects the price of your house, according to new research published in the *American Economic Review*, one of the country's oldest and most respected economic journals.

Researchers examined property data from Pennsylvania, one of the fracking hotspots in the US and found that property values could be negatively aected by up to 14 per cent or an annual average loss of \$30,000.

However, for some properties there was a small positive benet, due to householders receiving royalty payments from shale gas operators.

The major factor on whether property was aected was proximity to the fracking well and whether people's water supply was from groundwater, where there is a risk of contamination, or from a municipal supplier, where the risk to water should in theory be less.

The researchers argued that the eects of being close to shale gas extraction "can be positive, such as in the case that the property owner receives royalty or other lease payments from the gas company for the natural gas extracted from their property, or negative, given perceived impacts of groundwater contamination, noise, light, and air pollution, or the alteration of the local landscape."

The worst negatively aected houses were those located close to the fracking well, with "groundwater-dependent homes" the worst o, due to the risk of contamination from fracking.

The researchers estimated that "the local impacts on groundwater-dependent homes to be large and negative ... We see a sharp decline in



property values of groundwater-dependent homes after a well is drilled within 2 km.”

The closer you go to a shale gas well, the more negative the impact.

They outlined their reasoning as why property values were affected: “As groundwater contamination can cause severe economic hardship on homes without access to piped water, the perception that a nearby shale gas well will cause irreversible harm to an aquifer can have significant effects on nearby property values.”

The study found that “the costs of groundwater contamination risk are large and significant (ranging from -9.9 percent to -16.5 percent), suggesting that there could be large gains to the housing market from regulations that reduce the risk”.

“Furthermore” they warn, “it is important to keep in mind that our estimates do not fully capture the total costs associated with groundwater contamination risk.”

In contrast for homes on a central water supply, there could be a small net benefit to house prices due to the royalty payments that homeowners get from natural gas production.

However, the academics noted: “Recently drilled wells (i.e., drilled within the past year) do not contribute to this benefit, providing evidence that the drilling and hydraulic fracturing stages of shale gas development are the most disruptive.”

In conclusion, they argue that: “Using a variety of empirical methodologies, we demonstrate that the risk of groundwater contamination negatively affects house values in the 1–1.5 km range.”

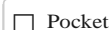
This includes a “statistically significant” drop of 13.9 percent for groundwater-dependent homes, which equates to an average annual loss within 1.5 km of a well to be \$30,167.

In contrast, they concluded that for piped-water properties the average annual gain within 1.5 km of a shale gas well was \$4,802.

“Regardless of whether water contamination is happening, the perception that it might be happening is enough to have large effects on property values,” argues [Lucija Muehlenbachs](#), one of the study’s three authors.

She adds: “The results of the study demonstrated that groundwater contamination risk is calculated into the value of homes that are located near shale gas wells which negatively affects the homeowners by lowering their property value.”

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# High Voltage Power Lines: Do They Affect Residential Property Value?

*Charles J. Delaney\**

*Douglas Timmons\*\**

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*Abstract* A survey administered in 1990 suggests that proximity to high voltage power lines is being capitalized into lower values for residential properties. Respondents who had appraised such property report that power lines can affect residential property value to varying degrees under certain circumstances and that the market value of these properties is, on average, 10.01% lower than the market value for comparable properties not subject to the influence of high voltage power lines. Further, the results indicate that even appraisers who had not appraised such property believe that power lines contribute negatively to property value.

<http://ideas.repec.org/a/jre/issued/v14n11997p29-42.html>

## Introduction

The popular press and recent articles in the academic literature [5], [6] underscore a dramatic shift in perception regarding the value of residential property located proximate to high voltage electric power lines. It is commonly believed that power lines impose a significant negative impact on the desirability, hence the value of, housing stock adjacent to or within a short distance of the lines. This perception is in stark contrast to the preponderance of research dating from the mid-1950s to the late 1980s which found no or negligible impact on property values from power lines [17]. The most commonly cited reason for this shift is the potential health hazards detailed in epidemiological studies claiming a positive correlation between long-term exposure to the electromagnetic fields produced by power lines and certain types of cancers in humans [12], [13], [19]. While no study to date has proved conclusively that a health hazard exists, the ongoing debate poses an interesting question for researchers in the field of valuation. Specifically, is the perception that residential property is negatively affected by proximity to power lines based on reality, i.e., changes in the market for such properties, or is it simply a belief unsubstantiated by market evidence. If appraisers are penalizing properties located near power lines, but this penalty is not substantiated by market evidence, then there is, indeed, cause for concern.

To address the question of whether high voltage overhead electric transmission lines (HVOETLs) result in a lower market value for residential property located adjacent to or within sight of (proximate to) the lines, a survey of appraisers holding the RM designation was conducted in 1990. This survey questioned appraisers who have

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Date Revised- October 1992; Accepted October 1992.

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experience appraising residential property proximate to HVOETLs, as well as appraisers having no experience appraising such property.

One of the objectives of this study was to determine, based on the responses of experienced appraisers, whether the market value of affected properties was significantly lower than the market value of comparable properties not affected by HVOETLs. If this is indeed true, and given the sales comparison approach is used most often to value residential property, this would imply that the actual sale prices of dwellings proximate to HVOETLs are lower than for comparable properties not in proximity to HVOETLs.

The second objective was to compare responses of appraisers having experience with this type of valuation assignment to the responses of appraisers without experience to determine if the value conclusions were significantly different. From this it could be determined whether the value conclusions regarding the consequences of proximity to HVOETLs (the estimated magnitude of the value impact) were different between the two groups.

## Literature Review

There is a significant and varied body of literature focusing on the potential impact of HVOETLs on different property types. Almost all of the research reported in the literature to date has concluded that HVOETLs have little or no effect on property value. Kinnard [17] reports on more than seventy-five studies and articles (published and non-published) from the mid-1950s to 1988, that seek to determine what, if any, effect HVOETLs have on sale prices and market values of nearby real property. The studies cited examine improved residential property (the focus of this study), vacant land, including acreage and lots in subdivisions, but excluding agricultural land that is actively farmed, and all other land uses, including actively farmed land.

In addition to categorizing studies by type of property, Kinnard [17] further classifies the literature reviewed by date (pre-1970 or post-1970), topic (studies that focused on economic value versus non-monetary issues such as physical, health, and psychological effects of proximity to HVOETLs), and methodology used. These latter studies rely primarily on statistical models, direct comparisons of groups of sales, case studies and mini-appraisals, and judgmental and non-empirical studies, including those that rely on questionnaires.

Four studies used statistical models to determine if HVOETLs had a measurable impact on proximate residential real estate. Three out of the four reported little or no discernible impact (Blinder [2]; Brown [3]; Kinnard, Geckler, Geckler, Kinnard and Mitchell [8]).<sup>2</sup> The lone dissenting study reporting a significant negative impact on value is that of Colwell and Foley [5]. More recently, another study by Colwell [6], not included in the Kinnard bibliography [17], finds a negative impact on residential properties in close proximity to power lines, declining as distance increases.<sup>3</sup> Further, the negative impact diminishes with time. Colwell [6] also determines that properties not adjacent to, but within sight of, a utility easement suffer an impact as a result of proximity to power lines.

Two studies used paired sales analyses and direct comparison. Neither study detected any negative impact on residential property value (Canadian Real Estate Research Corporation, Ltd. [4] and Realty Research Group, Ltd. [14]). Six case studies or

mini-appraisals were analyzed with none of the six finding any measurable impact on value (Lamprey [9]; Realty Research Group, Ltd. [14]; Commonwealth Edison [7]; Minnesota Power [II]; Sherman [16]; and Vredenburg [18]).<sup>4</sup> Finally, of the ten studies classified as non-empirical or judgmental, only two (Ball [I] and Layton [10]) appear to deal solely with the potential economic (value) affect of HVOETLs on proximate improved residential real estate. The remainder address noneconomic impacts. Neither the Ball [I] study nor that of Layton [10] conclude that proximity to HVOETLs adversely affects market value or sale price. The findings, regardless of study methodology, overwhelmingly support the conclusion that little or no significant negative effect exists on property values attributable to HVOETL proximity.

## Study Justification

Although conventional wisdom indicates that HVOETLs negatively impact residential property values, the majority of related research indicates otherwise. The issue is of importance not only to property owners, but fee appraisers, tax assessors, mortgage underwriters, insurers, and others directly or indirectly involved with valuation. Specifically, is the valuation process being influenced by perception or is there hard evidence that the market is indeed valuing properties proximate to HVOETLs lower than comparable properties not so affected.

## Study Hypothesis

It is hypothesized that there is no difference in the value conclusions of appraisers who have appraised residential properties proximate to high voltage power lines compared to appraisers who have not appraised such property. Alternatively, appraisers who have appraised such properties will differ in their conclusions regarding the value adjustment warranted when compared to appraisers who have not appraised such property. It is assumed that professionals having experience in appraising properties proximate to HVOETLs will report their conclusions based on market evidence. Appraisers not having such experience are assumed to report their conclusions based on other evidence, different from that used by experienced appraisers.

## Sample Group Profile

The survey was conducted in cooperation with personnel in the Research Department of the Appraisal Institute.<sup>5</sup> The Appraisal Institute was responsible for mailing out the questionnaire to a random sample of Appraisal Institute members holding the RM designation. The initial mailing was sent to 500 potential respondents. Based on previous survey research by the Appraisal Institute, a 50% response rate was anticipated from the initial mailing.<sup>6</sup> (The goal was to obtain a sample size sufficient to establish a 95% confidence level on the data analysis with a maximum bound on the error of 5%.) A cover letter encouraging each survey recipient to participate in the study also was included in the mailing. Of the 500 questionnaires mailed out, 53.6% (268) were

*Real News • Really Local*

**NORTH COUNTY TIMES**

MONDAY, OCTOBER 7, 2000

Last modified Saturday, October 7, 2000 10:00 PM PDT

## Property owners worry about health, values and views

LARA AZAR  
Staff Writer

TEMECULA ---- Mike Williams gets up at 2:30 a.m. to commute to his truck-driving job in Irvine, just so he and his wife, Sandra, can live on a few acres in relative quiet.

Chris and Annette Alexander put years of effort into building their dream house in De Luz.

Janis and Jon Ford bought their Rancho Glen Oaks home partly as an investment and partly for a little solitude.

And Dick and Betty Diamond shopped around for a post-retirement home before choosing Temecula for its healthy environment.

They are only a few of the hundreds of area residents that have stepped forward in recent months to lodge protests against San Diego Gas & Electric Co.'s proposal to string a high-voltage transmission line linking substations in Romoland and northern San Diego County through Southwest County.

The "Valley-Rainbow Interconnection," as SDG&E dubs it, would send 500,000 volts of electricity through a series of 150-foot tall metal or concrete towers from a Southern California Edison substation to a proposed SDG&E substation, to be built near either Pala or Rainbow. The length of the line would vary depending on which of about 40 possible routes is chosen. SDG&E plans to announce its preferred route sometime this month.

Numerous public meetings since September included concerns from a woman worried about the redtailed hawks nesting in her back yard and a man lamenting the loss of his television reception. But most complaints have centered around the core issues of environment, health, visual blight, property depreciation and why the line even needs to go through Southwest County in the first place.

"... where I want to be"

Mike Williams said they used to live in Irvine and, yes, that was easier, but it wasn't the life he and Sandra wanted.

"We moved here from Irvine, pretty much just to get the hell out of Irvine," he said from his home on Casa Verde, just east of Anza Road and Temecula city limits. "Peace and quiet. That's why I moved here. That's why I do what I do. That's why I drive 150 miles ---- so I can come home and be where I want to be. That's why we all moved out here."

The Williamses lived in Irvine from 1983 to 1992, but finally couldn't handle what Mike said consisted of "car alarms going off in the middle of the night and the neighbors screaming at each other and the sirens going up and down the street."

"I'm getting old and cranky," the 62-year-old said. "If you get cranky, you don't tolerate things as well, so you do the next best thing. You move out to an area where you don't have to put up with it."

But one of the proposed routes indicates power lines could go up about 1,000 feet from his house. Williams said if that happens, his house would look like the crowded areas he tried to leave behind.

Williams said he plans to retire in a few years and knows he won't really be able to go anywhere even if they did want to move. For one thing, he said, no one will want to buy a house with high-voltage lines standing so close.

"I'd love to stay here when I retire," he said. "My plans were to stay here, but if those things bothered me in Orange County, think what happens every morning when I'm retired and I go out in the back yard and those things are staring me in the face."

"... our own sweat"

Chris Alexander, an orthopedic surgeon in Temecula, bought nine acres of avocado groves in the De Luz area three years ago. At the time, he said, he and Annette were told that the easements owned by SDG&E that cut out about one-third of his property had expired.

They have not. Alexander said he has since assumed that the easements were bought for a different project that never happened, and that is where the expiration belief stemmed from. The stretch through the De Luz hills constitutes the westernmost route among those proposed ---- and the only one that the utility already owns easements on.

The 300-foot-wide right of way is in four pieces, purchased between 1971 and 1992, and allows for overhead wires. Alexander said it runs down the border between his and his neighbor's properties, split roughly in half.

He has been working on the design for the home he'll share with Annette and their four young

children for the last year and a half. Construction began in July and now they are just starting to put walls up," he said.

"We've wanted to do this for a long time and now we're finally doing it," he said. "I just thought that if the lines went in, it would be devastating. ... If nothing else, we'd lose a lot of value. But the other thing is, we would just lose this house."

Alexander said the line would interfere with some of the reasons they purchased the land, such as its security and panoramic view.

"It'll be a split-level, sitting on top of a knoll and looking out at the view," he said. "If the line went in, it would look out over the line."

Alexander said he and Annette have put "a lot of our own sweat" into their home. They took care of the avocado trees, designed the grove, worked on readying the land for construction. As for their kids, ages 1,3, 5 and 7, he said, work isn't the issue ---- play is.

"We go up there and they just love it," he said.

"We have our ideal place"

The thing that sold Dick and Betty Diamond on their house five years ago was the fact that they could see stars shining through the 9-foot glass windows gracing the area near their double-door entrance.

"I hadn't seen stars for 40 years because of the lights in the cities," said Dick, who moved to Temecula from Riverside. "It was very, very exciting."

But, Diamond said, if SDG&E's lines go up near his home, just east of Butterfield Stage Road near De Portola Road, they will be anywhere from 100 yards to 300 yards from his home.

"We have our ideal place; we love Temecula," Diamond said. "We came here for our view, the area, anything you can imagine. ... We're going to see (the transmission lines) and they are going to be a blight on the environment."

But, more important, he said, he thinks living near electromagnetic fields could cause health risks. Diamond said that there may be no definitive studies in the United States linking the two. However, he said, that does not mean it is safe.

"There is no concrete evidence one way or the other saying that there is no cancer or other disease caused by these lines," he said. "I am concerned about disease, anything that can be caused by an EMF (electromagnetic field)."

According to a 1999 report from the National Institute of Environmental Health Sciences, EMF exposure "cannot be recognized as entirely safe because of weak scientific evidence that

exposure may pose a leukemia hazard."

The agency stops short of recommending an "aggressive regulatory response" to the concern, but suggests that the power industry continue siting lines away from populated areas to reduce exposures. Utilities should also continue exploring ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards, according to the study.

It's not only the risks directly associated with the lines, either, Diamond said; it's what may follow. He worries that Temecula Valley may join the ranks of other crowded, polluted areas in the state if this sort of development continues unabated.

"It's all of those kinds of things ---- environmental, ambiance; you can't beat this climate anywhere in this country ---- that caused us to come here. And now we see power lines ..." he said, trailing off. "This is nothing new. It's just having to hit the people in Temecula."

Diamond said he wouldn't consider moving if the lines spring up near his home, but he would be "very unhappy."

"I'm 64 years old," he said. "Where am I going to go?"

"... a real, real burden"

For Rancho Glen Oaks resident Janis Ford, her beautiful 360-degree view would suddenly sprout power lines if the easternmost route is chosen. As if that's not bad enough, she said, the family could have to rethink their finances if the transmission line goes up.

Their property, a 3,500-square-foot home on five acres, was appraised at about \$330,000 six months ago, Ford said, an amount that she and her husband, Jon, were counting on for the future. She said a real estate agent has already told her that the property's value could drop by almost a third if the transmission lines go in.

"To lose \$110,000..." she said. "My husband's 60, he wants to retire soon, and we're trying to get it paid off and get the kids through college and everything and we thought we'd be established. Financially, it's going to be a real, real burden."

And she, like Diamond, has yet to be convinced that high-voltage power lines are not going to cause her children, ages 11 and 16, harm, she said. Her young son is "very into the whole outdoor thing," she said, and her daughter has long taken advantage of living in the country.

"Part of the reason we moved up here was that it was safe," Ford said. "To me, they haven't proved there isn't a problem. ... Until they prove (the transmission lines) are safe, they're unsafe."

Ford, who is secretary of the Rancho Glen Oaks Homeowners Association, said most of her



neighbors share the same concerns, including one couple who said they would immediately move away if their route is chosen.

"I've seen all these people just tickled to pieces about this one little bit of country and it just seems like a sin to take it away," she said.

From the utility

SDG&E officials have met each of the complaints with their own arguments. The line is necessary, they said, because San Diego County cannot, for a variety of reasons, continue to meet its own need for power.

The company's figures show peak power demand in summer 2004 hitting 4,900 megawatts, which is about 600 more than the company can deliver now. Six hundred megawatts would cover the power use of about 600,000 homes at any given time.

The California Independent System Operator, the agency created to maintain the state's power grid when deregulation went into effect in 1996, supports the project in order to protect San Diego County from widespread power outages in the coming years. Besides, according to both the ISO and SDG&E, the line runs both ways.

The transmission line adds another link to the state's 45,000-megawatt power grid, they said, which is not limited by geographical borders. Almost any place in the state that uses electricity draws off the same grid.

Plus, they said, environmental impact studies are required for a project of this type, there have been no definitive studies linking high-voltage lines with health detriments and property owners will be appropriately compensated for land taken for easements.

None of that, though, has comforted the area residents with property on or anywhere near any of the 40 proposed routes for the project.

Contact staff writer Lara Azar at (909) 676-4315, Ext. 2616, or [lazar@nctimes.com](mailto:lazar@nctimes.com).

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## Power Lines' Impact on Sales Depends on Property: The Appraisal Journal

**CHICAGO (March 20, 2012)** – Transmission lines are more likely to have a negative impact on sales when a property has a residential use or small lot size, or when similar properties without transmission lines are available in the market, according to an article published this week in The Appraisal Journal.

The Appraisal Journal is the quarterly technical and academic publication of the Appraisal Institute, the nation's largest professional association of real estate appraisers. The materials presented in the publication represent the opinions and views of the authors and not necessarily those of the Appraisal Institute.

"High-Voltage Transmission Lines and Rural, Western Real Estate Values," by James A. Chalmers, Ph.D., looks at the impact of transmission lines on sale prices and time on the market. It reports the findings of an 11-year study of property sales across 640 miles and 15 counties in Montana. The study includes sales of rural subdivisions and agricultural, recreational and mixed-use properties; prior transmission line studies have focused on densely populated urban areas.

The study offers a new perspective because it examines the impact of transmission lines on individual properties, unlike previous studies, which only report the average effect of transmission lines in an area. According to Chalmers, studies that focus on the overall average impact of transmission lines may miss significant, but rare impacts on specific properties.

The current study shows the impact of transmission lines on the property sales varies significantly depending on a property's use, size and uniqueness.

In the study, sale prices of recreational and agricultural property were not affected by the presence of transmission lines, while some residential properties near transmission lines sold for 20 to 50 percent less than comparable residential properties.

The study also finds that smaller properties are more vulnerable to transmission line impact; Chalmers observes that with "larger properties, there is a greater likelihood that the location of the lines will not interfere with the use of the property."

Finally, the results show that if a property is unique because of its location, view, or other features, the property is less vulnerable to any negative effects from the presence of transmission lines. According to the author, a property's other attributes may dilute the transmission lines' impact. On the other hand, if a property with transmission lines is otherwise similar to other properties, it is more likely to sell for less or take longer to sell.

The author cautions that negative effects from transmission lines cannot be presumed and are generally infrequent.

Read [High-Voltage Transmission Lines and Rural, Western Real Estate Values](#) in the Winter 2012 issue of The Appraisal Journal.

Also in The Appraisal Journal's Winter 2012 issue:

"Correcting for the Effects of Seasonality on Home Prices," by Norm Miller, Ph.D., Vivek Sah, Ph.D., Michael Sklarz, Ph.D., and Stefan Pampulov, shows how, depending on the time of year, sale prices fluctuate almost 3% on the downside and almost 2 percent on the upside. This seasonal difference may be important in appraisals that compare sale prices of similar properties.

"Market Conditions Adjustments for Residential Development Land in a Declining Market," by Robert M. Greene, Ph.D., MAI, SRA, offers a method for measuring price declines in undeveloped subdivision land in markets where there are few or no comparable sales.

"Site Essentials of Convenience Stores and Retail Fuel Properties," by Robert E. Bainbridge, MAI, SRA, looks at the design features of convenience stores that generate income and consequently influence property value.

The Winter issue also includes a "Residential Appraising" column by Sandra K. Adomatis, SRA, which offers a step-by-step explanation of how appraisers can use the Appraisal Institute's new [Residential Green and Energy-Efficient Addendum](#) to describe the green or energy features of a home. The completed form can then become part of the appraisal report.

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*The Appraisal Institute is a global membership association of professional real estate appraisers, with nearly 23,000 members in nearly 60 countries throughout the world. Its mission is to advance professionalism and ethics, global standards, methodologies, and practices through the professional development of property economics worldwide. Organized in 1932, the Appraisal Institute advocates equal opportunity and nondiscrimination in the appraisal profession and conducts its activities in accordance with applicable federal, state and local laws. Members of the Appraisal Institute benefit from an array of professional education and advocacy programs, and may hold the prestigious MAI, SRPA and SRA designations. Learn more at [www.appraisalinstitute.org](http://www.appraisalinstitute.org).*



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## Property owners frustrated by power grid update

by [Conrad Wilson](#), Minnesota Public Radio  
December 14, 2011

### AUDIO

[Property owners frustrated by power grid update](#) (feature audio)

St. Cloud, Minn. — A massive power grid update under construction through the state is causing consternation for some homeowners in its path.

The CapX2020 project is designed for more efficient electricity use, and to improve delivery to the places it's needed. Xcel and their partners plan to flip the switch on the stretch that runs from Monticello to St. Cloud this month.

Few dispute the need for the project. But some affected property owners are frustrated with how they've been treated by the utility companies behind the project.

Rick Weiman owns a home in the middle of 20 acres in Stearns County. Soon he'll be able to see a 150-foot power line from his kitchen table.

"It's going down the whole south boarder of the property, taking out about an acre and an eighth of mature oaks along there."

Walking through the densely-wooded property, Weiman points out the pond where he says wood ducks and frogs congregate during the summer. Soon, a utility tower will stand at one end of it.

Weiman gestures toward some of the trees that will be cut down. He pauses at one that he guesses is close to 250 years old.



*Rick Weiman*

"It's going to go away. It's going to be cut down. Kind of a bummer. It stood the test of time," Weiman said.

The CapX2020 project has offered to pay him \$7,636 for the 1&frac18; acres it needs. The figure is based on the average price of land sold in the area as well as a potential loss in property value.

But it's not a fair price, Weiman said. Lawyers and a real estate agent have told Weiman that his property value will drop between 25 and 30 percent, so he's trying to get the project to pay a figure closer to what he might lose.

"They try and nickel and dime and low ball everybody along the way," Weiman said.

There are some who would be glad to trade places with Weimann.

Scott and Belinda Welsh live a half-mile away. In the house Scott grew up, he now lives with his wife, mother and four kids.

"I was brought home from the hospital here. This is where I grew up," he said.

Last June, a letter from Xcel Energy indicated the final route for the power lines crossed the Welsh's property. They could either be compensated for the land the project would need, or sell their home to CapX.



*Scott and Belinda Welsh*

But three months later, the family was told that rather than being on their property, the power line would run just outside. A representative from Xcel told the family they were not going to be directly affected, so no easement would be needed.

"I said how am I not affected? The power lines still going to be there, the lines are going to be there, all the negative effects, health effects, property values, everything like that," Welsh said. "And he said, 'Well, from just our point of view, you're unaffected.'"

Under Minnesota law, only property owners directly affected have compensation rights, meaning folks like the Welsh's are out of luck.

Legal battles like these aren't unusual. There are likely to be more of them than the state has seen since the last major grid update in the 1970s.

When completed in 2015, about 700 miles of power lines will run through the region, affecting hundreds of property owners.

Laws of eminent domain typically only apply to those who are losing property, said Scott Hempling, an attorney and former executive director of the National Regulatory Research Institute, an organization that advises on utility regulation.



*CapX2020 power line*

"Sending electromagnetic waves from next door or creating a lot of noise next door... that's not taking somebody's property away, it's spoiling their day and reducing potentially the value of their lifestyle," Hempling said. "But that's not normally what's compensated in eminent domain."

Hempling adds that when it comes to compensating homeowners for the land taken by utilities, the companies have a responsibility to the public to do it as cheaply as possible.

"That means when it goes to a particular homeowner, it's got that obligation. And all the sympathy in the world for what it's doing to a particular person is not going to induce the utility to pay more than it needs to or than it should," Hempling said.

Darrin Lahr manages the permitting process along the power line's route. He acknowledges that no one wants to see a major power line cut through or skirt their property.

"Building a transmission line has impacts. We never pretend that it doesn't have impacts... It is just the nature of the building of infrastructure," Lahr said.

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# Responsible Energy Action LLC

## Northern Pass's Appraisal Expert Recants and Zaps Northern Pass

Posted on [May 9, 2012](#) by [REAL](#)

### ***Chalmers Now Says Value of Residential Land Near Transmission Lines Declines Up to 50%***

Ever since the project was announced, there has been a spirited debate about the negative impact Northern Pass's proposed transmission lines would have on New Hampshire property values. Common sense (supported by an [appraisal](#) commissioned by the opposition) says when you run a massive HVDC line through beautiful, unspoiled land, property values will plummet. That's happened already based merely on the threat of Northern Pass. Just ask anyone who's been trying to sell a property close to the proposed lines.

Northern Pass's response has been denial. They've slapped some flawed, inapplicable "studies" on the table (for example, broad statistical studies focusing on urban or dense suburban areas without attractive physical surroundings) and stuck to the party line that their transmission lines will have no "significant" impact on property values. Northern Pass's "forget the facts and just keep repeating no significant impact until they believe it" position relies heavily on a [study](#) by James A. Chalmers, PhD. This study (which is flatly irrelevant to the landscape and properties of New Hampshire) found property value declines of less than 10%.

Unfortunately for Northern Pass, the esteemed Mr. Chalmers has, shall we say, supplemented his views with new research more relevant to New Hampshire. Chalmers just released a [new study](#) that corrects some of the flaws in the earlier research. The new research looks at transmission line effects in Montana (a state with some features in common with New Hampshire) and assesses the specific circumstances of individual properties. Based on this new approach, Chalmers found **value declines of up to 30%-50% for residential land in Montana affected by HVDC lines. Chalmers also found these properties take up to two to five times longer to sell than comparable unaffected properties.**

Here are Mr. Chalmers' own words about some of the properties he studied near the transmission lines:

**"Cove View Estates had the clearest price effect where the lot adjacent to the lines sold for 50% of the sale price of the lot of the same size immediately next to it." (Emphasis added.)**

**"Salish Shores was interesting in that it was hugely successful, selling out 44 lots in two years.**

**Nevertheless, the 8 lots closest to the transmission lines took an average of 10 months to sell, while the other 36 lots sold in an average of 2 months.” (Emphasis added.)**

**“Brown’s Estates, the first of the Sanders County subdivisions is a 34-lot subdivision with most of the lots between 5 and 10 acres in size. It has open, unobstructed views of a 350-foot wide corridor containing the 500 kV line and two 230 kV lines. The adjacent lots have clearly suffered both a sale price effect of 25% to 30% and, at a minimum, a doubling of the marketing time relative to nonadjacent lots.” (Emphasis added.)**

The new study is unambiguous as regards residential land affected by HVDC transmission lines. Mr. Chalmers has knocked the legs out from under Northern Pass’s ridiculous “no significant impact” claim. The price declines and sales delays found in the new study are highly material. And if you think a power line opposition group paid Mr. Chalmers to produce this new study, think again. [NorthWestern Energy](#), which is trying to build a transmission line through Montana, paid for it.

**REAL** believes the results would be even worse as regards the impacts of Northern Pass in New Hampshire. First, much of Mr. Chalmers’ work in Montana was during a time of strong real estate markets. This can mask negative effects. New Hampshire’s real estate market is weak and is likely to remain so for the foreseeable future, which will almost certainly magnify negative impacts from the transmission lines. Second, Mr. Chalmers’ methodology finds the sharpest value declines (and largest increases in required marketing time) are for small to mid-sized residential properties located in areas where other properties without transmission line impacts are available for sale. In other words, transmission line impacts are greatest when buyers have a choice between buying a lot looking out at the transmission lines or a lot in the same general area with a pleasant, un-impacted view. That’s a good working description of much of the New Hampshire landscape that lies in the path of Northern Pass.

A responsible transmission line developer would promptly put Mr. Chalmers’ new study up on the project website. To leave Mr. Chalmers’ old study up with no supplement is beyond misleading – it is a lie of omission.

This entry was posted in [The REAL View](#) by [REAL](#). Bookmark the [permalink](#) [\[http://responsibleenergyaction.com/pages/714\]](http://responsibleenergyaction.com/pages/714) .

Comments are closed.



## Property Value

Your home is likely the single largest investment that you have made. There is absolutely no doubt that erecting even the “usual” 240kV towers near residential properties has a serious impact on property values. How much greater then will the impact be when these mammoth 500kV 77m tall towers are erected?

For your reference, RETA has authored a Fact Sheet on [Property Values and High Voltage Power Lines](#) as part of its [Fact Sheet](#) series.

The current route evaluation criteria used by AltaLink and EPCOR do not ascribe a monetary value to the decrease in value of people’s property. We have done much research on this subject and, while there is a considerable range of estimates on how much property values are affected, we feel very comfortable using a 15%-20% average within 1 kilometre or so of the towers and lines approved by the AUC November 1, 2011. Front line homes can be hit much harder – as much as 40% or more. [Some appraisals](#) have listed up to 91% devaluation associated with overhead lines.

As an example, using the Strathcona County tax register, RETA added up the assessed value of the 2,300 homes along the Sherwood Park Greenbelt separating Highway 216 and Sherwood Park (within 800m of the Greenbelt). This amounted to more than \$1.2 billion. The new-build cost is substantially higher and many of the homes in the area are in fact relatively new.

Surely the real cost of the project should reflect the decrease in value of people’s homes. So, even with a 15% average property value decline, we have an additional project cost of \$180 million. RETA’s position is that homeowners and landowners need to be compensated for the decrease in the value of their properties and that they should be compensated at new-build value – not fair market value after that has been driven down by as much as 40% or more.

And rural land is also impacted – the ability to sub-divide, the effects of EMF on livestock and so on all contribute to adversely affect property values. And just picking up and moving when you’re a farmer or an acreage owner isn’t always an option. Studies indicate agricultural properties devalue by 16-29%, when overhead lines are built on or nearby the properties.

Burying the lines in an urban setting (i.e., the Sherwood Park Greenbelt and Ellerslie [AltaLink’s and EPCOR’s “preferred” route]) completely mitigates the damage to property value and is far more cost effective than forcing hundreds or thousands of families to move (or live with the debilitating effects of EMF). In rural settings, we need to be sensitive to nature and the environment, but with modern-day undergrounding techniques, it is completely viable to farm land that has underground transmission lines. Again, burying the line is the answer.

[Blog at WordPress.com.](#) Theme: [Customized ChaoticSoul](#) by [Bryan Veloso](#).

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# PROPERTY VALUES AND HIGH VOLTAGE POWER LINES

## The Myth:

*Property values are not affected by overhead high voltage power lines.*

## The Facts:

- A British study in 2007 showed the value of properties at a distance of less than 100m from high voltage overhead transmission lines was 38% lower than comparable properties. The effect of devaluation has been seen up to 2.5km from such lines (Askon Consulting Group 2008).
- A study of agricultural properties in Canada in the mid-1980s found that the per acre values from more than 1,000 sales were 16-29% lower for properties with easements for high voltage transmission lines than for similar properties without easements (Askon Consulting Group 2008).
- For example, on the basis of the Strathcona County tax register, 2,300 homes within 800m of the Sherwood Park Greenbelt have a combined assessed value of more than \$1.2 billion. Based on a very conservative average property devaluation of 10-15%, the total devaluation would be \$120-\$180 million.
- It is important to note that homes lying immediately along EPCOR's and AltaLink's preferred route for the Heartland Transmission Line would experience property devaluations of up to 38% (comparable to devaluations in the above-mentioned 2007 British study).
- Property devaluation associated with a 500kV overhead power line would affect many more homes than would other overhead lines, because the much taller and wider 500kV towers would be visible for a far greater distance than in previous property devaluation studies conducted elsewhere.
- RETA's position is that homeowners and businesses must be fully compensated for these decreases in the value of their properties in the unfortunate event that an overhead power line is constructed near them.



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## Valuation Guidelines for Properties with Electric Transmission Lines

By: Kurt C. Kielisch, ASA, IFAS, SR/WA, R/W-AC

Before a discussion can be entered about the perception of electric transmission lines and their effect on property value, it is important to understand what a transmission line is and how it differs from a distribution line.

An electric *transmission* line is an electric line that transports electrical power from one substation to another. These lines are typically 100kV (kilovolts) or larger exceeding one mile in length<sup>1</sup>, have large wood or steel support towers over 45ft in height, and often have more than one set of wires (3 wires per circuit plus the static wire). Electric transmission lines do not directly serve electric utility customers: their power is distributed from distribution point to distribution point. Transmission line wires are not insulated and are “bare”. Typically, they constructed to have at least 20ft of clearance between the ground elevation and wire at low sag.

An electric *distribution* line is a power line that transports electricity from the substation to the electric utility customers. These lines are of less voltage, typically under 65kV, carried on wood poles of 45ft in height or less and hold one pair of wires. The voltages of these lines are downgraded before the electricity is brought to the customer's residence or commercial building. The focus of this report is on transmission lines, not distribution lines

### Perception = Value

The valuation of properties that have an electric transmission line requires an understanding of the basic principles of Market Value. Market Value is defined, in layman's terms, as the value a property would sell for at a given date considering an open market. (A complete definition of this term is included in the body of the appraisal report.) An open market assumes that the property is available for purchase by the public, being properly marketed for maximum exposure, and that the buyer is well informed, fully knowledgeable and acting in their best interest. Included in this definition is that the buyer has full knowledge of the pros and cons of the property, and then acts with that knowledge in a way that will benefit them. In other words, the value of the property is based on the perception of the buyer. Understanding that perception drives value is the foundation in analyzing the effect that electric transmission lines have on property value.

The key point of the Market Value definition, which gives guidance to answer the *Impact* question, is the *Willing buyer* part of the equation. In appraising a property the appraiser attempts to reflect the potential buyer of the subject property and estimate their action as to the subject property with all its advantages and disadvantages (knowledgeable buyer). To accurately reflect this buyer, the appraiser must determine the typical profile of such a buyer of the property in question. An example of this

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<sup>1</sup> Wis. Stat. 196.491(1)(f)

would be a one bedroom condominium along a lake may indicate a typical buyer to be a retired couple who is looking for a recreational retreat for themselves and their guests. Another example would be a parcel with the best use being a dairy farm; the typical buyer would be a person either currently engaged in dairy farming looking to expand or relocate, or one who desires to enter into this field -- in either case a dairy farmer. Such an analysis should be obvious, yet often overlooked when appraising properties.

For rural properties that are utilized for agricultural purposes, the most likely buyer would be one who: (1) prefers the rural lifestyle over the urban lifestyle; (2) typically generates their income from working in the agricultural field; (3) would be sensitive to environmental issues that affect the uses of the land and the view shed of the land; and (4) would be sensitive to health and safety issues relating to the land and its use.

It is most likely that such a person, when confronted with an electric transmission line traversing the property, would view such an improvement as aesthetically ugly, potentially hazardous to their health, disruptive to rural lifestyle and potentially harmful to the use of the land for agricultural purposes.

## Research Format

Our research into the impact of electric transmission lines followed several stages. The first was a literature study. This study involved investigating, collecting, indexing and reading many of the published articles, news stories and published transcripts relating to the topics of EMFs and stray voltage. Stray voltage was included in this research due to the concern dairy farmers have relating to its presence from high voltage power lines. This research resulted in over 2,500 pages of information collected and analyzed. The purpose of this study was to discover “what is the public’s perception of high voltage transmission lines.” Overall, the majority of the articles indicated a fear of these power lines, citing health concerns as the primary factor. Other concerns included stray voltage issues (mainly with rural publications) and aesthetics. It was clear that most of the information the public receives about these matters is negative. The literature study will follow these “guidelines.”

The second part of our study involved researching studies completed on the effects on property value due to the presence of electric transmission lines. This included collecting many of the published research studies on this topic found in the public domain. Additionally, the study reviewed trade journals not available to the public, but available only to real estate professionals. Again, to be fair, some of the studies indicated that there was no measurable effect. However, there were a number of studies (mostly recent) that indicated there was a measurable effect and that effect ranged from a loss of 10% to over 30% of the overall property value. These studies included both improved and vacant land.

## Empirical Studies

Below is a sampling of some studies we have reviewed regarding the impact that electric transmission lines have on land value and were utilized to formulate our opinion of value when a property is impacted by a high voltage transmission line.

*Study of the Impact of a 345kV Electric Transmission Line in Clark County, Town of Hendren.*

(Appraisal Group One, Kurt C. Kielisch, 2006, revised 2009) This study was limited to Hendren Township, Clark County, and covered a five year time period from January 1<sup>st</sup>, 2002 to June 1<sup>st</sup>, 2006. This study included 22 land sales of agricultural and recreation land, of which 4 were encumbered with a 345kV electric transmission line having wood H-pole design, 60ft height and 150ft wide easement. The other 18 land sales were considered comparable to the power line encumbered sales. The conclusion of this study was that: (a) the land sales with an electric transmission line sold for 23% less than comparable land sales without a transmission line; and, (b) the more severe the location of the power line the greater was the loss of value.

*An Impact Study of a 345kV Electric Transmission Line on Rural Property Value in Marathon County - Wisconsin.* (Appraisal Group One, Kurt C. Kielisch, 2006) This study focused on the impact a 345kV line, known as the Arrowhead-Weston line, had on property value. This power line was a 345kV electric transmission line, having steel single poles ranging in height from 110ft to 150ft, single and double circuit lines, having a 120ft wide easement. The study compared sales within a 2 year time period (January 1<sup>st</sup>, 2004 to December 31<sup>st</sup>, 2005) in Marathon County, Wisconsin, focusing the area to the Townships of Cassel and Mosinee. This study used 14 land sales, of which 5 were encumbered with the power line and 9 were not. A simple regression technique and matched pair analysis was used to extract the value impact. The study concluded with a finding that when the power line traversed the property along the edge, such as a back fence line, the loss was as low as -15%, and when it bisected a large parcel the loss was as high as -34%. The properties were all raw land sales with either agricultural or residential land use.

*Transmission Lines and Property Values State of the Science* (Electric Power Research Institute [EPRI], 2003). This study completed by EPRI for the benefit of its electric utility clients reviewed the issue of property values being impacted by electric transmission lines by summarizing research they had on the subject. Essentially they concluded that the results are mixed, some cases showing a loss in value ranging from 7-15% with appraisers who had experience with valuing such properties, to having no effect. Interestingly, it appeared in their survey that appraisers who did not have experience valuing such properties tended to overrate the negative effects.

*American Transmission Company, Zone 4, Northeast Wisconsin - High Voltage Transmission Line Sales Study* (Rolling & Company, 2005). This study researched the impact that high voltage electrical transmission lines have on property value in the northeast Wisconsin area. They collected information on 682 land sales of which 78 involved lots near a transmission line corridor, but not directly encumbered by the transmission line. Their conclusions were: (a) easement lots sold at about 12% less than lots located over 200ft from the transmission lines; and (b) no clear impact on Aproximity® lots those that lie within 200ft from the easement area but are not directly subject to the easement.

*Properties Near Power Lines and Valuation Issues: Condemnation or Inverse Condemnation* (David Bolton, MAI. Southwestern Legal Foundation. 1993). This study cites a number of studies that prove a loss of property value due to proximity to an electric transmission line and then cites his own study. His own study found that in the Houston area assessed values of properties that adjoined a power line easement had a 12.8% to 30.7% lower assessment than the average homes not on the line, but in the same area. He also found that: (1) many buyers refused to even look at such properties; (2) such properties took at least twice as long to sell; (3) some brokers said such properties can take three times longer and finally sell at a 25% loss of value; and (4) overall homes adjoining transmission line easements took six times longer to sell and experienced a 10% to 30% loss in value.

*Power Line Perceptions: Their Impact on Value and Market Time* (Cheryl Mitteness and Dr Steve Mooney. ARES Annual Meeting paper. 1998) The authors interviewed homeowners on or near electric transmission lines and found: (1) that in relation to the average impact of overall property value, 33% said 2-3% loss and 50% said a 5% loss or greater; (2) nearly 66% said the power line negatively affected their property value; (3) 83% of real estate appraisers surveyed said the presence of the power lines negatively affected the property values, most saying the loss was 5% or greater.

*Analysis of Severance Damages* (James Sanders, SRA, 2007) This study completed an analysis of the impact of a transmission line through the middle of the Continental Ranch subdivision outside of the Tucson, Arizona area. This subdivision had a wood H-pole high voltage electric transmission line running through a portion of the subdivision. The author compared the residential lots abutting the easement to ones that were not. All lots abutting the easement were much bigger than the non-easement abutting lots. The author used improved properties for his study and by the use of regression analysis isolated many variables of value for an improved property to remove them from the analysis. In conclusion, through extensive use of the regression technique, the author finds an overall loss to the improved properties abutting the power line easement at -12%. This loss is attributed to both the land and improvements. However, the author notes that the lots are typically twice the size of the non-easement lots. When the size of lots was factored the overall loss to the land only was factored at -40%. It should be noted that the residences were at a distance from the power line.

*The Peggy Tierney property: A Comparative Study of the Impact of a 69kV Transmission Line v. 345kV/69kV Transmission Line* (Kurt C. Kielisch). This was a brief study on the impact difference, if any, between an existing 69kV transmission line and a new proposed 345kV and 69kV transmission line on the same property. The property was a 3.70 acre residential lake front improved property that had an existing 69kV transmission line crossing the west half of the parcel along the road and required the property owner to cross under the power line to enter the parcel. The 69kV line had an easement width of approximately 100ft, wood H-poles at 50-60ft in height. The new 345kV line was to be placed within the existing easement, more or less, would have 140ft monopoles and carries both a 345kV and 69kV line. The seller attempted to sell the property at its full list price after an experienced lake front home Realtor established the list price from a comparative sales analysis. The home eventually sold for 27% less than the list price and took longer to sell in a relatively strong lake front home market. The buyer cited the pending 345kV line as the principle reason for their low offer.

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A comparative sales analysis to isolate the percentage of loss a residential and/or agricultural

land use property suffers due to the presence of a high voltage electric transmission line (HVTL). This study was found in an appraisal completed by Aari K. Roberts for American Transmission Corporation (ATC) on the Herbert Bolz property located in the Town of Rubicon, Dodge County, Wisconsin. Mr. Roberts compared the sale of a rural agricultural 24 acre land parcel that had an HVTL crossing the property, to three comparable agricultural land sales of comparability that did not have a HVTL. His sales comparison study concluded that the property with a HVTL suffered a 29% loss of value due to the presence of the HVTL. This study was completed in September 2007.

A sales analysis of the property located at: N8602 CTH D, Town of Deer Creek, Outagamie County, Wisconsin. This is a single family home located on 3.19 acres in the rural area of Outagamie County. The home was a ranch style residence with 1,500sf GLA, attached 2-car garage, 8/3/2 room count, full basement and was in average condition overall. The property also had a 104ft x 52ft pole barn and two other outbuildings. There were two appraisals completed on this property, one by the condemnor (ATC) and one by the property owner. The average Before taking value of the two appraisals was \$221,000. The property was then improved with a 345kV & 138kV electric transmission line having 126ft pole height and was placed along the roadside reaching 68ft into the property. The edge of the easement was in less than 20ft to the residence, however the placement of the pole was as close to the roadway right-of-way as possible. The condemnor American Transmission Company (ATC) purchased the property and installed the transmission line. Then they upgraded the property with new paint, doors, sinks, dishwasher and flooring, plus cleaned the premises and outbuildings. ATC put the property on the market asking \$179,900 a number established by the appraiser for ATC as the After value. It was sold for \$128,500 10 months after ATC purchased it.

The Before taking average value was \$221,000. The property was then improved and upgraded at an expense estimated to be \$8,000-\$10,000, then resold 10 months later with the transmission lines in place for \$92,500 less or 42% less. The only differences between the Before taking market value and After taking sale price were the transmission line and time. A review of the Outagamie County market between November 2008 and September 2009 shows only a small downward trend in rural residential property value, therefore the biggest part of the loss is attributed to the presence and near proximity of the transmission line that being 38%-40%.

*The Gene Laajala property: A Comparative Study of the Impact of a 161kV Transmission Line v. 345kV/161kV Transmission Line (Kurt C. Kielisch).* This was a brief sales study on the impact difference, between an existing 161kV transmission line and a new 345kV/161kV transmission line on the same property. The property was a 20 acre rural agricultural and residential property that had an existing 161kV transmission line bisecting the parcel along the east side. The 161kV line had an easement width of approximately 120ft, wood H-poles at 50ft± in height. This line was replaced with an upgraded easement comprised of 345kV/161kV line which was to be placed within the existing easement, more or less, and had (2) 110ft and (3) 120ft steel H-poles. The property was appraised in January 2007 with a Before condition value of \$204,500 using the Cost approach and \$185,500 using the Comparable Sale approach, by Ted Morgan, MAI. (The whole property appraised was 40 acres and the 20 acre parcel was portion out of this whole). The ATC appraiser did not appraise the home in the Before condition, but did conclude the Before taking land value was \$44,000 for 20 acres (using his \$2,200/acre conclusion for 40 acres) and the assessed value of the improvements were \$107,600, indicating a \$151,600 Before

value. The property sold and closed in October 2007 for \$120,000. The seller attributes the loss to the new power line, it being larger and more lines. The loss indicated was \$65,500 (using Morgan's Comparable Sales value) or \$31,600 (using ATC's land plus assessed improvement value), indicating a loss range of 35% to 21%.

*An Impact Study of the Effect of High Voltage Power Lines on Rural Property Value in Southwestern Indiana (Kurt C. Kielisch, Appraisal Group One, 2010).* This study was based in southwest Indiana in Gibson County. It was focused on large agricultural land and the impact of a high voltage transmission lines (HVTL) varying in size from monopole to large steel lattice towers. The study included 32 land sales of which 10 were HVTL sales. The time period was January 1<sup>st</sup>, 2006 to December 31<sup>st</sup>, 2009. Adjustments were made for time, location and other utility easements (if any) and the results were graphed to compare the non-HVTL land sales to the HVTL land sales. The study concluded that the power lines negatively impacted the property with an impact range from -5% to -36% with the average impact being -20%.

### Other Value Issues

Another issue relating to the presence of the transmission line is potential for the creation of an Utility corridor. Such a corridor is a where several utility transmission lines are placed, such as gas transmission pipelines and communication lines. Indeed, the State of Wisconsin made it a legislative rule that future placement of such utilities are to be given preference to existing utility corridors.<sup>2</sup> An electric transmission line meets the definition in this statute as an existing corridor. This corridor concept continues to grow in the perception of the public as such rules become more commonly known. The reality of such an event happening is the placement of the Arrowhead-Weston Power line, which was often placed within an existing utility corridor such as an oil transmission pipeline, smaller electrical transmission lines or abandoned electric transmission line easements. The very power line that is the focus of this analysis is further proof of the corridor effect for it has been expanded, enlarged and added circuits within the existing easement.

Other factors to consider regarding the valuation of HVTL impacted rural properties are agricultural equipment concerns operating under and near the line, health issues of workers in close proximity of the lines, health concerns of farm animals in close proximity of the lines, stray voltage, the concerns of public in relation to electro-magnetic fields, safety issues regarding bare wires of the transmission line and other concerns addressed in the literature study to follow.

In conclusion, it can be stated with a high degree of certainty that there is a significant negative effect ranging from -10% to -30% of property value due to the presence of the high voltage electric transmission line. The actual loss depends on factors of land use, location of the power line and its size.

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<sup>2</sup> Wis. Stats 1.12(6)(a).



# The Effect of Underground Storage Tanks on Residential Property Values in Cuyahoga County, Ohio

*Robert A. Simons\**  
*William Bowen\**  
*Arthur Sementelli\*\**

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**Abstract.** This study considers the effect of underground storage tanks on residential sales price. These effects are tested with a hedonic pricing model for all 1992 residential sales in Cuyahoga County, Ohio. Three types of tanks were tested: non-leaking tanks registered with the State of Ohio, leaking tanks that are currently not registered, and registered leakers. Results show that close proximity (same block or within 300 feet) to registered, non-leaking tanks and to unregistered leakers did not significantly affect sales price. However, proximity to a leaking, registered tank demonstrated a reduction in price of over 17%.

<http://ideas.repec.org/a/jre/issued/v14n11997p29-42.html>

## Introduction

This research investigates the relationship between both leaking and non-leaking underground storage tanks on residential sales values. We focus on one urban county and use registered tanks and known leaking tanks during the 1988–1993 period. The data source for the tank information is the State of Ohio's Bureau of Underground Storage Tank Regulations (BUSTR). We study 16,990 residential sales in Cuyahoga County, Ohio during 1992. A total of 83 residential sales were close enough to underground storage tanks to be featured in our analysis.

The rest of the paper provides a literature review, a discussion of the model and data sets used, and a map of most tank sites. We provide a hedonic model of residential sales, which includes three types of underground tanks. Where residential sales are close to tank sites, we find the expected negative effect on nearby residential sales among tanks that have *both* the nuisance effect of an ongoing business and a reported leak. Close proximity to either an unregistered leaking tank site or to a site with registered tanks that had not leaked had a small negative sign, not significantly different from 0. We believe our research is the first to address the relationship of UST (underground storage tanks) to residential property values.

## Literature Review

There is a well-documented relationship between the nuisance and hazard effect of the by-products of economic development and their negative effect on surrounding

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Date Revised—May 1995; Accepted—January 1996.

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residential property. Studies have been conducted on Superfund toxic waste sites by Kohlhasse (1991); on landfills by Thayer, Albers and Rahmatian (1992), Reichert, Small and Mohanty (1992), Nelson, Genereux and Genereux (1992), and Smolen, Moore and Conway (1992); existing hazardous waste sites by Michaels and Smith (1990), Kiel (1994), and Thayer, Albers and Rahmatian (1992); and proposed radioactive waste sites by Michaels and Smith (1990). Other studies on related negative externalities have been performed on high voltage and transmission power lines by Delaney and Timmons (1992), Colwell and Foley (1979), and Colwell (1990). Additional research on the relationship between groundwater contamination and residential values has been performed by Page and Rabinowitz (1993). We are not aware of any studies on underground storage tanks and their relationship to residential property values.

Results from available studies generally support the notion that there is a negative relationship between proximity to these sites and residential sales values. This relationship becomes less apparent with increasing distance from the site, tapering off to no effect at some distance, depending on how large the site is. The nature of the toxicity can also affect the reduction in values. Thayer et al. (1992) found a larger negative effect for hazardous waste than for nonhazardous materials.

The mechanisms by which apparent negative effects of proximity to proposed hazardous land uses are capitalized into lower housing values include the markets' assimilation of publicly available information, especially the announced plans of government agencies (Kiel, 1994; Kohlhasse, 1991; Smolen et al., 1992). Homeowners may also perceive separate diminution of value attributable to a nuisance associated with close proximity to a site, as well as more general negative effects related to potential health hazards as per Reichert et al. (1992). Proximity to visually obvious hazardous sites may also deter potential buyers from making offers on homes, thus affecting sales price by reducing demand.

Measurement of the proximity to environmentally objectionable land uses was typically measured from only one site, or the nearest site. Most of the studies have employed a concentric ring approach, with distance typically measured in quarter-mile increments from the subject site. Colwell (1990) and Colwell and Foley (1979) used a nonlinear decay function for distance from pre-identified power lines and time after sale.

Nearly all the studies cited have focused on a very small number of large, contaminated sites. We have a highly dispersed set of sites over 2,500 tank locations, with differing levels of actual or potential land-based toxic releases. All our sites were active or had leaks during the 1988–1993 period. We use the conventional definition of a tank leak, which excludes surface spills and includes leaks from below the plumbing union where the dispensing unit meets the underground storage tank. We measure relatively small distances, e.g., within several hundred feet.

## The Model

We employ a multiple regression model where the unit of observation is individual parcels. The hedonic platform features residential sales as the dependent variable to be explained. Proximity to a registered or leaking tank site is included as one of several independent variables, the others being property characteristics, location and season of sale. This approach is similar to that employed in other studies concerned with the effect of proximity to environmentally objectionable sites to property value (Colwell, 1990;

## **Contaminated Waterways and Property Valuation**

*Randall Bell*. **The Appraisal Journal**. Chicago: Fall 2008. Vol. 76, Iss. 4; pg. 344, 11 pgs

### **Abstract (Summary)**

Throughout the United States, there are countless contaminated waterways, including lakes, rivers, and ocean coastlines. Indeed, it is difficult to find a waterway that is free of environmental issues.

Contamination comes from factors that are purely natural as well as man-made. Some contamination comes from point sources, such as specific treatment plants or factories, while other contamination comes from general sources, such as storm water runoff. This article addresses the factors to consider when studying the effects, if any, that contaminated waterways have on the values of nearby properties. Further, it provides likely reasons as to why allegations rarely arise that contaminated waterways have caused a diminution in the value to nearby properties. [PUBLICATION ABSTRACT]

<http://www.realestatedamages.com/Articles/Randy/Article-ContaminatedWaterways.pdf>

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# Buried oil tanks can break home sale deals

Sunday, October 16, 2011    Last updated: Sunday October 16, 2011, 10:44 AM

BY KATHLEEN LYNN

STAFF WRITER

The Record

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When Marianne and Matthew Schottenfeld began thinking of selling their [Waldwick](#) home in early 2009, a real estate agent advised them to remove the underground heating-oil tank.

"We thought it was going to be pretty painless and inexpensive," Matthew said. "But the contractor discovered that the tank was corroded, and oil had leaked into the ground. It was downhill from there."

The Schottenfelds' property is completely clean now, but it took more than \$60,000 and 2 1/2 years. Although their case is extreme, it illustrates the trouble these hidden tanks can create for homeowners, buyers and sellers.



AMY NEWMAN/STAFF PHOTOGRAPHER

An underground 1,000-gallon oil tank being removed from a front lawn in Teaneck. Many buyers will walk away from properties if they learn of the existence of such a tank, often preferring houses heated with natural gas.

"They're very frightening things," said Richard Kelly,

**For more information**

an [Oradell](#) real estate lawyer.

There are an estimated 120,000 buried residential oil tanks in New Jersey, according to the New Jersey Fuel Merchants Association. That number has been shrinking as homeowners remove the tanks, either by replacing them with aboveground tanks or switching to natural-gas heat.

In many cases, a home sale forces the issue. Because of the tanks' potential for pollution, most homebuyers demand they be removed before the deal can go forward.

"I haven't had a buyer in years who accepts a house with a tank in the ground," said Sheldon Neal, a Re/Max agent in [Oradell](#).

"Many buyers will say right up front, 'I want gas, I don't want to look at oil,' because of the perception that these tanks are a problem," said Deborah Graske of Abbott & Caserta Realtors in [Ho-Ho-Kus](#).

Mortgage lenders and homeowners' insurance companies also are wary of underground tanks. As a result, many real estate agents advise sellers to deal with the tanks before they even put the house on the market.

Sellers don't always know whether there's an oil tank on the property because a previous owner may have abandoned the tank and switched to gas heat years earlier. If there's a question, home inspectors often look for signs indicating there's an abandoned tank on the property, like old pipes or oil feed lines in the house. Inspectors specializing in oil tanks are sometimes called in to sweep the property with a metal detector to search out an old tank and do test borings of the soil nearby to see if there are any leaks.

If a tank is found, removing it typically costs around \$1,500 to \$2,000 — if it's not leaking. But if it has leaked oil, cleanup costs can run into the tens of thousands. That's what happened to the Schottenfelds, whose tank leaked oil into their neighbor's property as well as their own. Tests found that the leaks probably started 25 to 30 years ago.

Joe Solari, vice president of Aim Tank Services in [Wayne](#), said that in his experience about 60 percent of

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Check [nj.gov/dep/srp/unregulatedtanks](http://nj.gov/dep/srp/unregulatedtanks), the state Department of Environmental Protection's website on residential underground oil tanks. You can find a link to a list of contractors certified to remove the tanks.

removed tanks are leaky.

When a leak is discovered, the state Department of Environmental Protection must be alerted, and the cleanup process begins.

Insurance won't necessarily take care of the cost. Homeowners' policies in New Jersey generally won't pay for oil damage to the homeowner's property, although most cover damage to groundwater or a neighboring property, according to the state Department of Banking and Insurance.

Insurance companies try to limit their exposure to tanks. New Jersey Manufacturers Insurance Co., for example, will not cover liability for oil leaks unless the homeowner buys a special endorsement, which is offered only in the first year of coverage. And USAA won't write a new homeowners' policy for any property that has an underground tank, although it continues to renew policies on such properties.

Homeowners can get insurance through their oil companies, covering up to \$100,000 in cleanup costs on the homeowner's property. That insurance carries restrictions, including the requirement that if an underground tank is removed, the homeowner installs another tank and sticks with oil heat for at least a year, since the oil industry would like to keep the customers rather than see them switch to gas heat.

Jenni and Paul Harmon, newlyweds who recently bought a Cape Cod home in [Waldwick](#), accepted an underground oil tank only because there was a \$100,000 policy provided through the oil dealer. "It definitely gave us some peace of mind," said Paul Harmon, a customer service supervisor. The Harmons, nonetheless, plan to remove the underground tank within a few years.

Other buyers just want the tanks out immediately. "Even if there's insurance on the tank, maybe half of buyers just look to get rid of it," said Barbara Weismann, a real estate agent with Weichert in [Tenafly](#).

Some homeowners, especially in the past, have dealt with unneeded underground tanks by having them cut open, drained of oil and filled with sand or foam — a process called decommissioning or abandoning in place. In those cases, the town typically inspects the tank and issues documents saying the tank abandonment was properly handled.

But these days, the state DEP strongly advises that tanks be removed rather than abandoned.

"When you don't remove them from the ground, it's pretty hard to determine if there's a hole in there," said Gary Sanderson, coordinator of the DEP's residential tank program.

In fact, if you abandon a tank in place, you may find yourself paying a second time to have it removed later because many home buyers are asking that previously decommissioned tanks be taken out. That's what Kelly advises buyers to do because he's seen several cases where a tank leaked oil into the ground, even though it was apparently decommissioned properly.

Martin Fong and his wife, Elisa, recently found a [Leonia](#) house they liked but discovered it was heated by oil, with an underground tank still in use. Though tests suggested the tank was not leaking, the Fongs wanted it out.

"We definitely wouldn't want to get into a situation where we would have to be responsible for a cleanup and all these other headaches," said Fong, a finance professional.

The sellers provided a credit to pay for the tank removal and agreed to be liable for any clean-up costs. The Fongs converted to gas heat in September. To their relief, after the tank was removed, no oil was found in the ground.

Celia Riggio, a real estate agent with Terrie O'Connor Realtors in [Wyckoff](#), said an underground oil tank recently held up the sale of a three-bedroom [Hillsdale](#) ranch. The home was in "a wonderful neighborhood" and attracted a lot of attention from potential buyers, she said. But all balked at the oil tank, even after the seller offered a credit for the cost of removing the tank and converting to gas heat.

The home sold only after the sellers took care of the tank and the conversion to gas themselves.

"Although we knew the oil tank would be an obstacle, we underestimated just how big an obstacle it would prove to be," Riggio said. "I would advise any homeowner with an oil tank to convert to gas, if natural gas is an option, before putting their home on the market."

Kelly said he advises buyers not to just accept a credit for the removal of an oil tank, because if there's a

leak, the cost can be much more than expected.

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"You don't know what you're assuming," he said.

If a leak is discovered, the state advises homeowners to find a clean-up contractor on the DEP's list of certified companies, which can be found on the DEP's website. As with all home projects, homeowners should get several bids and check references before hiring a company, the DEP said.

The cost of cleanup depends on how extensive the contamination is, and whether the oil got into the groundwater. Costs range from about \$8,000 to more than \$100,000 for major leaks, though the DEP says \$15,000 to \$20,000 is a more typical range.

Once the cleanup is done, the contractor sends a report to the DEP (and the homeowner sends in a \$400 fee). If the DEP is satisfied, it issues a "no further action" letter, signaling that the property is free of contamination. The DEP issued about 2,600 "no further action" letters last year.

A state grant program may pay for part of the cost of a tank removal and cleanup, if a homeowner qualifies. To apply, you have to have income below \$250,000 and net worth below \$500,000 (not counting the primary residence and retirement plans.) Even if you meet those standards, you may not get a grant, because the state Economic Development Authority will make the decision based on your ability to pay.

Currently, there is a backlog of people waiting to get money from the program, and a homeowner who applies today may not get any money till 2014, the DEP says.

The Schottenfelds' oil leak is now completely cleaned up, and they have a "no further action" letter from the DEP. Most of the Schottenfelds' costs were covered by their homeowner's insurance, because the damage to the neighbor's property from the leaking tank triggered their liability coverage. But getting the claims paid was complicated, because the couple had switched insurance companies several times over the years, and they had to determine which policy was in force when the oil leaked.

In the end, the Schottenfelds expect their out-of-pocket costs to run about \$10,000 to \$15,000.





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- - Why is a tank a concern?
- - Responsibility & Liability
- - Property Values, Tanks & Contamination
- - Property Sales & Tanks
- - Incident Closure Scenarios
- - Tank News Articles & Links

#### NEXT STEPS:

- - How do I know if I have a tank?
- - What do I do If I have a tank?
- - What if I removed or filled my tank but did not check for contamination?
- - In-Use Tanks

#### DETAILED INFORMATION:

## Property Values, Tanks, and Contamination

**Because oil tank contamination cleanups can cost between \$15,000 to \$20,000 (or more), the status of the oil tank and the level of contamination will affect the property value.** Until cleaned up, the contamination caused by a leaking underground oil tank may be considered to be a "defect to the property" lowering the property value.

**When contamination levels are unknown, a buyer is at high risk of ending up with environmental liability and potential cleanup costs.** Because 88% of underground oil tanks have leaked, buyers must assume the worst case scenario until contamination levels are documented for soil and groundwater. This assumption may result in purchase offers under the fair market value of the property.

Unknown contamination levels also mean that the seller's and the potential buyer's exposure to third party lawsuits is also unknown.

**In most cases, this lower property value perception is unnecessary if the seller will remove tank and conduct the necessary assessment and cleanup.** Even if not all of the soil contamination can be safely removed, most sites will qualify for official incident closure by the State of North Carolina. This means that the buyer does not become responsible for the tank and contamination and also that the property is in compliance with State and Federal regulations.

**Mortgage companies may need to consider the potential cost of oil contamination cleanup when financing properties that are likely to have or have had an underground oil tank.** Mortgage companies may also be concerned about assuming tank and

- - Tank Closure:
- **Dos:**
  - *Removal with Assessment*
  - *Closure in Place (with state approval)*
- **DO NOTS:**
  - *Filling with Sand*
  - *Removal without Assessment*
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contamination liability if they are forced to foreclose on the property. Please see our

[Responsibility / Liability](#) page.

**This property devaluing is not as simple as determining if the oil tank has been removed from the property or not.** A tank removal is relatively inexpensive (\$1900). A contamination cleanup is expensive (\$15,000 to \$20,000).

**In fact, a tank removal without a proper assessment can be a larger financial problem and may devalue the property more than having the tank still present.**



#### Solution:

**Remove the tank and conduct a proper contamination assessment.** With both soil and groundwater contamination levels documented, the value of a property is better determined and a fair price for the property can be agreed upon by both the buyer and the seller.

**For properties for sale with a tank still present** on the property, PES recommends a "fast track property assessment described in [item #2](#) below. This will allow soil and groundwater levels to be determined within 4 to 6 weeks after tank removal.

If groundwater is contaminated above the North Carolina Groundwater standards, the State can restrict the use of groundwater by requiring irrigation wells to be properly abandoned. In this case, groundwater can not be used, even for irrigating. (This protects people from exposure to fuel oil contamination in groundwater.)

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## Working Paper: Do Housing Values Respond to Underground Storage Tank Releases? Evidence from High-Profile Cases across the United States

**Paper Number:** 2016-01

**Document Date:** 03/2016

**Author(s):** Dennis Guignet, Robin R. Jenkins, Matthew Ranson, Patrick J. Walsh

**Subject Area(s):** Economic Damages/Benefits; Agriculture: Land Use; Valuation

**JEL Classification:** Renewable Resources and Conservation: Land; Environmental Economics: Valuation of Environmental Effects; Air Pollution; Water Pollution; Noise; Hazardous Waste; Solid Waste; Recycling

**Keywords:** groundwater; hedonic; meta-analysis; property value; underground storage tanks; UST; vapor intrusion

**Abstract:** Underground storage tanks (USTs) containing petroleum and hazardous substances are ubiquitous. Accidental releases of these substances can present risks to local residents and the environment. The purpose of this paper is to develop monetized estimates of the benefits of preventing and cleaning up UST releases, as reflected in house values. We focus on 17 of the most high-profile UST releases in the United States with release discovery and other milestone events occurring at different points between 1985 and 2013. These data are the broadest analyzed for property value impacts of UST releases, as previous hedonic studies of USTs focused only on a single county, city, or subset of counties within a state. We employ a two-step methodology in which (i) site specific hedonic regressions are estimated using a difference-in-differences approach, and then (ii) an internal meta-analysis of the resulting estimates is conducted. The spatial and temporal variation among the 17 sites improves our identification of the treatment effects by reducing local idiosyncratic biases; thus providing greater confidence to a causal interpretation of the estimated average price effects. The results suggest significant heterogeneity in the price effects across sites, but on average reveal a 3% to 6% depreciation upon the discovery of a high profile release, and a similar appreciation after cleanup. These average effects diminish with distance, extending out to 2 or 3km from the site.

This paper is part of the [Environmental Economics Working Paper Series](#).

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- ♦ [Do Housing Values Respond to Underground Storage Tank Releases? Evidence from High-Profile Cases across the United States](#)  
(PDF) (128 pp, 3 MB)

LAST UPDATED ON MAY 27, 2016

## **Living with Hogs in Iowa: The Impact of Livestock Facilities on Rural Residential Property Values**

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### **Abstract**

To better understand the magnitude of the effects of livestock feeding operations on residential property values, we constructed a new dataset that merges data on home sales with data on the location and size of livestock feeding operations in five rural counties of Iowa. We estimated a hedonic model to explain variations in residential sales price with standard house attributes, such as number of bedrooms and square feet of living space, as well as the effects of distance and density of livestock feeding operation. We find that livestock operations have an overall statistically significant effect on property values. Predicted negative effects are largest for properties that are downwind and close to livestock operations. In addition, feeding operations that are moderate in size have more impact than do large-scale operations, most likely reflecting age, type, and management practices of the moderate-sized operations. The limited size of the estimated effects suggest that common sense rules, such as not locating feeding operations close to and upwind of residences, combined with modest compensatory payments could help rural residences co-exist with modern feeding operations.

### **Download Info**

<http://ideas.repec.org/p/ias/cpaper/03-wp342.html>

## Animal Production Systems

### Direct and Indirect Costs of Antimicrobial Use in Food Animals

## Concentrated Animal Feeding Operations and Proximate Property Values

### Abstract

**John A. Kilpatrick, *The Appraisal Journal*  
July 2001, Volume LXIX Number 3**

Concentrated animal feeding operations (CAFOs) are often called "feed-lots." They may include facilities where animals are raised or where animals are brought for slaughter. The common denominator is a large, perpetual inventory and density of animals.

Currently, the USDA and the EPA estimate that livestock in the United States produces 130 times the amount of manure produced by the entire human population of this country. Spills from CAFOs have killed fish in several states; phosphorus in land and water has been correlated with livestock density; and manure has caused eutrophication and degradation of U.S. waterways.

The trend toward CAFOs has been rapid and pronounced in the U.S., but federal and state laws generally are considered to have some gaps. In addition to water quality issues resulting from manure and waste run-off, these facilities attract flies and other insects and pests that parasitize the insects.

Professor John Ikert, an agricultural economist with the University of Missouri at Columbia, sums up the problems quite succinctly in a recent working paper when he says, "Piling up too much 'stuff' in one place causes problems." Writing specifically about swine CAFOs, he goes on to comment, "if you spread out the hogs and let hog manure lay where it falls in a pasture, it doesn't bother anyone very much. But if you start collecting it, flushing it, spreading and spraying it around--all normal practices in confinement hog operations--it becomes air pollution."

Because of the noxious and obvious problems associated with CAFOs, many states have enacted severe restrictions on permits. For example, in 1997 the legislature of typically livestock-friendly Oklahoma mandated setbacks and other pollution controls, and in 1998 that legislature enacted a moratorium on new livestock permits.<sup>1</sup> Kansas is another typically agriculture-friendly state that recently has enacted a moratorium on CAFO, and it is considering legislation to end CAFOs. In 1998, the North Carolina legislature, faced with unregulated establishment of CAFOs, enacted House Bill 1480, which mandated the registration of growers for integrators, extended a moratorium, and mandated substantial elimination of both atmospheric emission of ammonia and odor beyond the boundary of existing CAFOs. Minnesota enacted similar odor control legislation in 1997 and established both a complaint control protocol and an enforcement response protocol specific to CAFOs.

### CAFOs and the Value of Nearby Real Estate

A CAFO impacts the value of proximate properties to the extent that the CAFO is viewed, in the market, as a negative externality. As an externality, it is typically not considered to be economically "curable" under generally accepted appraisal theory and practice. Some of this loss in value may be attributable to stigma, when there are unknowns and risks associated with ownership of the property.

### Impairment and Value - An Overview

From an economic perspective, the rights enjoyed by a fee-simple owner fall into three categories:

1. Right of use and enjoyment



2. Right of exclusion
3. Right of transfer

It is important to note that in the U.S. property itself is not "owned," but rather the rights of the property are owned. The ability to delineate these rights, and the ability of owners to transfer some or all of these rights voluntarily is a necessary condition for property valuation.

### **Use and Enjoyment**

The first of these rights, that of use and enjoyment, is generally interpreted to mean that the owner may determine how property will be used, or if it is to be used at all. The right of use traditionally is limited in western culture by both public restrictions (e.g., eminent domain, police power) and private restrictions (e.g., liens, mortgages). Private restrictions are generally voluntary, and property owners willingly submit to the disutility of such restrictions in trade for some other economic benefit. For example, a property owner will issue a mortgage to a lender in trade for leverage in the purchase. Also, a homeowner will purchase in a subdivision with covenants and restrictions in trade for the assurance of uniform property use within the neighborhood. It is noteworthy that the voluntary acceptance of private restrictions is always in trade for some economic compensation. For example, a property owner may grant a scenic easement, which restricts the use and enjoyment of his or her property, but will expect to be compensated for that easement.

An impairment often places a restriction on the right of use without some economic compensation. This is illustrated in potential restrictions that may be placed on the use of real estate due to a physical impairment and can thus limit the property to something less than its highest and best use. For example, odor or flies from a nearby CAFO will restrict the use and enjoyment of impaired property without compensation.

### **Right of Exclusion**

The right of exclusion--often called the right of exclusive use or right of exclusive enjoyment--provides that those who have no claim on property should not gain economic benefit from enjoyment of the property. In other words, the right of use is exclusive to the property owner, and any violation of the right of exclusive use typically carries either payment of compensation to the rightful owner or assessment of a penalty. For example, if "A" trespasses on land owned by "B," then "A" will be guilty of a crime and a possible criminal penalty may be in order, as well as civil damages. Physical impairment, such as the odor or flies, in effect is a trespass on property rights and violates the right of exclusion.

Society places a high value on the right of exclusion, for justifiable reasons. Exclusion provides that both the current benefits of ownership as well as future benefits accrue only to the rightful owner, and his/her successors and assigns. In the absence of exclusion, the right of use is under constant threat of nullification without just compensation. In an economy without the right of exclusion, property owners would adopt short-term strategies for use, rather than long-term strategies. In an economic sense, this would lead to widespread inefficiency in the allocation of resources. Hence, the right of exclusion carries with it a significant societal good, and thus a significant, societally recognized Value.

### **Right of Transfer**

Finally, the right of transfer provides the owner with the ability to swap one resource for another. An impairment restricts the right of transfer, and may destroy the right of transfer altogether.

### **Effects of Negative Externalities on Property Values**

Real estate economics and appraisal practice uniformly recognize that many externalities such as contamination may have a negative impact on property values. For example, appraisers are required by the Uniform Standards of Professional Appraisal Practice (USPAP) to consider the impacts of such contamination in the value estimation process.

"Real estate economics and appraisal practice uniformly recognize that many externalities such as

contamination may have a negative impact on property value"

Fitchen was one of the first to look at the value of the rights of a property owner in the face of impairment-in that case, a toxic chemical pollution. As an anthropologist and a professor of anthropology, she looks principally at residential values and considers not only the real aspects of "violation of the home" by contamination (e.g., carcinogenic effects of polluting chemicals) but also the symbolic interference of what she calls "...a threat to the assumptions people have about themselves and the way life is supposed to be." She notes, "Toxic contamination also attacks the valued institution of homeowner-ship, violating many of the rights that are assumed to flow from the ownership of ones home, including the assumed right to control entry to it ....Chemical contamination may affect homeowners more seriously than renters, not only in terms of potential financial loss, but also in terms of devaluation of the achieved status of homeowners."

Edelstein also deals with this "home" theme, and calls impairment to or near a residence an "...inversion of home..." when "...the previous locus of family security and identity becomes instead a place of danger and defilement." He builds on previous works, such as Perin and Altrnan and Chemers, that show the very special place the home has in American society, culture, and economics. Perin states, "Not being a nation of shopkeepers, America is one of homeowners, busily investing in plant maintenance and expansion with both money and time, keeping the product attractive for both use and sale."

Edelstein specifically stresses the investment diminution aspect of the inversion of home principle. In citing case studies of experiences following neighborhood-wide impairment in the Legler section of Jackson Township in southern New Jersey, he shows that residents could not separate the psychological pride in home ownership from the question of economic value. Surveys of the population found uniformity of opinion that property values had diminished as a result of the problem. While previous studies had focused on the diminution of value from existing homes, Edelstein was one of the first to focus on the opportunity costs stemming from the inability to move. In short, homeowners were stuck holding unsellable homes with stagnant prices, while homes in other neighborhoods were soaring in value. Thus, the owners were harmed not only by the diminution of value in the existing residences, but by the opportunity costs inherent in lost gains from alternative home investments.

### **Value Loss: Stigma Issues**

Edelstein refers, in a general sense, to the issue of stigma as a mechanism for manifestation of value diminution in residential property. Stigma is an increasingly common term in appraisal and real estate economics literature, and refers to a very specific quantitative mechanism by which value is impacted by proximate contamination or negative externalities.

The earliest references to stigma as a quantitative concept in real estate economics appear to be in the writings of Patchin and Mundy. The latter study differentiated between the cost to cure and the cost of stigma. The former is an out-of-pocket expense born either by the property owner or some other responsible party, while the latter manifests in property value diminution even in the absence of a cost to cure. For example, a property that is completely cured may continue to suffer a diminution in value, and hence damages, because of stigma.

Kilpatrick outlines the quantitative model by which the value of income producing property is reduced by the effects of stigma manifested via increases in market driven capitalization rates. He outlines four components of income producing property value impacts: net operating income, actual cost-to-cure, ongoing increases in maintenance, and stigma. In his model, the stigma losses actually overwhelm the other three factors as a component of value diminution. He concludes that under many circumstances the stigma impacts are actually the greater portion of value losses to property owners.

### **Other Proximate Contamination Issues**

The issue of value loss for proximate contamination or other impacts has been considered in a number of studies, and includes how the citing of an externality, such as a CAFO, can impact nearby values. Some of the earliest researchers, such as Blomquist, looked at the impact of locating a power generating plant, while



Guntermann showed that landfills have a negative impact on the value of surrounding industrial property, and that this value loss has a spatial component. Kinnard and Geckler had similar findings for nuclear facilities, as did Kinnard and Kiel for hazardous waste sites.

In a similar vein, Colwell analyzes the property value diminution associated with proximity to power lines, and Kirshner and Moore show that water quality can impact nearby residential property values. Simons's study of pipeline ruptures shows that diminution in value occurs on properties up to two miles from the site of a petroleum spill.

### **Case Studies**

The following cases illustrate the effects of CAFOs and the impact of CAFOs on property value.

#### **Minnesota Case Study**

A homeowner in Minnesota lives about two miles from one swine CAFO and about three-quarters of a mile from a second CAFO. When these CAFOs were first opened in the early 1990s, she was initially a supporter. However, she and her family immediately began suffering illnesses, which they attributed to the proximate CAFOs. She contacted the Minnesota poison control center and for the first time learned about the dangers of hydrogen sulfide emissions. She kept track of her illnesses and weather conditions (e.g., wind and direction) and concluded that her illnesses were caused by the emissions from the CAFOs. Testing was warranted, and on at least one occasion the reading was above 1,000 ppb hydrogen sulfide, well above danger levels.

#### **North Carolina Study**

Palmquist, et. al, were the first to quantitatively determine that the distance from a residence to a CAFO has an impact on residential values. However, their study looked only at residences already near CAFOs and measured the impacts of additional CAFO capacity (either new CAFOs or additional livestock at existing CAFOs) located at 0.5-, 1.0-, and 2.0-mile distances from the residence. Nonetheless, they established a methodological model for spatial impacts of CAFOs.

#### **University of Minnesota Study**

In 1996, the Minnesota Department of Agriculture commissioned a study by researchers at the University of Minnesota on the topic of value diminution resulting from proximate CAFOs. In addition to substantial secondary research in the area, the study authors also conducted primary research into value impacts in that state. Specifically, they conducted a hedonic price analysis on 292 rural residences that were sold during 1993-1994 in two Minnesota counties. They found a statistically significant pricing impact related both to the existence of a CAFO as well as the distance from the CAFO. In other words, not only does a CAFO have a significant impact on property value, but the nearer the CAFO, the greater the impact. The researchers also found that CAFOs tend to be located near older or lower valued homes. Hence, the pricing impacts in a simple empirical study may be muted by other negative impacts to value, and high-valued residences may be impacted to a greater degree by CAFOs than would be suggested by their findings.

#### **University of Missouri Study**

Following the methodology of the Minnesota study, researchers at the University of Missouri were able to quantify both the average value impact of a CAFO and the impact by distance. An average vacant parcel within 3 miles of a CAFO experienced a value loss of about 6.6%. However, if that parcel was located within one-tenth of a mile from the CAFO (the minimum unit of measure in the study) and had a residence on it, then the loss in value was estimated at about 88.3%.

#### **Pasco, Washington Case Study**

A 309-acre family farm that had been operated for many years produced alfalfa, asparagus, corn, apples, peaches, nectarines, cherries, melons, and a range of garden produce. A CAFO was adjacent to the residence (about 1/4 mile away), and consequently the farm product was impacted by dust, flies, fly fecal matter, and odor. The farm was appraised for litigation purposes and a value diminution of over 50% was determined, using traditional farm appraisal methods. The CAFO settled the lawsuit by purchasing the plaintiffs farm and

relocating the residents to a nearby farm that was not impacted by the CAFO externalities.

### **Michigan Horse Farm Case Study**

A horse-breeding operation (owner-occupied farm) is located approximately 1,000 feet from a recently constructed large scale, pork processing facility. The use and enjoyment of the home has been diminished by airborne externalities, and the ability to use the site as a farm may be compromised as a result of flies carrying animal blood and feces that contain antibiotics and other nuisances. In 2000, the property owner appealed for a property tax reassessment representing a devaluation of over 50% from fair market value, and the county attorney concurred with that appeal.

### **Michigan Residence Case Study**

A family purchased a "fixer upper" residence in rural Vicksburg, Michigan in 1995. In 1997, a large-scale pork processing facility was located about 700 feet from the home. The reduction in air quality was so severe as to force the residents to abandon their home and move elsewhere. To date, they have not been able to sell the home. The owner of the processing facility offered to compensate them for 60% of the fair market value of the home (i.e., a 60% diminution in value). As of this writing, litigation is pending.

### **Summary and Conclusions**

The above suggests that the establishment of a CAFO may result in value diminution to other nearby properties. The amount of the value loss is typically an inverse function of distance (closer properties diminish more), a function of property type (newer, nicer residences lose more), and a function of property use (farm will lose value due to diminished productivity and comparative marketability to other farm lands). While the appraisal profession has only begun to quantify the loss attributable to CAFOs, it is clear from the above case studies that diminished marketability, loss of use and enjoyment, and loss of exclusivity can result in a diminishment ranging from 50% to nearly 90% of otherwise unimpaired value.

When appraising a property located proximate to a CAFO, the appraiser needs to consider seven specific issues, each of which will have an impact on the value conclusions:

1. Type of subject property,
2. Distance to the CAFO,
3. Physical manifestations (e.g., air quality, insects),
4. Engineering/scientific testing performed (e.g., air quality),
5. Impacts on property use (e.g., habitability, rental income or vacancy),
6. Marketability evidence (e.g., time on market of comparable properties), and
7. Impact on highest and best use.

While there is little disagreement that a CAFO has an impact on surrounding property values, the degree of impact is clearly a function of the inter-play of these factors.

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**University of Missouri Extension**

MP748, Revised October 2011

# Animal Feeding Operations and Residential Value: Summary of Literature

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This literature review evaluates and summarizes the impacts of animal feeding operations (AFOs) on surrounding residential and nonresidential land prices. It is based on 14 studies on the impact of AFOs on rural residence and property values. The following points provide a general summary of the results of these studies.

- All studies indicated that the impact of AFOs on property value was localized or limited to properties near the AFO.
- Seven of the 14 studies indicated that AFOs reduced nearby residential property values,<sup>1, 5, 8, 9, 10, 11, 13</sup> and five indicated that AFOs have the potential to either increase or decrease housing values depending on AFO size, concentration or species.<sup>3, 6, 7, 12, 14</sup>
- One study indicated AFOs can potentially increase or decrease prices of county farmland without residences, depending on density and scale of the operation.<sup>6</sup>
- One study indicated no impact of AFOs on agricultural land value.<sup>4</sup>
- A single study compared the local effect of an AFO on land prices with the impact of the AFO on the local economy and found local economic benefits exceeded negative impact on residential real estate values.<sup>1</sup>

This review summarizes the factors found to affect the size of the impact of AFOs on rural property values. These factors are distance, size and concentration, animal species, housing value, management factors and economic benefits.

## Distance

Distance is commonly used to explain the impact of AFOs on property value. The studies focused on sales of residences within 10 miles of AFOs. The conclusions indicate that the negative impact of AFOs on residential value diminishes quickly as the distance between the AFO and the residence increases.

- An Iowa study found that homes downwind of a livestock facility during the summer season were negatively impacted. As the distance between the livestock facility and home increased, the impact decreased.<sup>5</sup>
- Another Iowa study found that houses located within 2, 2.5 and 3 miles of a CAFO (concentrated animal feeding operation) resulted in losses of 17 percent, 15 percent and 6 percent, respectively.<sup>8</sup>
- A Pennsylvania study indicated that an AFO located within 0.3, 0.5 and 0.75 miles of a residence decreased the residential value by 6.4 percent, 4.1 percent and 1.6 percent, respectively.<sup>13</sup>
- A Colorado study was less clear on the impact of distance on residential values. It generally concluded an additional beef cattle or dairy operation near a residence correlated positively with sale prices but an additional hog or sheep operation was negatively related to sale prices of nearby residences.<sup>12</sup>
- A study conducted by the Indiana Business Research Center found that nearness to livestock operations yielded different results depending on the classification of the residence. General results indicated that AFOs decreased the value of town and nontown residential properties and increased the value of farm properties. Results also indicated all property values decreased if the residence was located downwind of an AFO.<sup>7</sup>
- The results of a Minnesota analysis indicated that nearby feedlots are associated with higher property values. This finding was contrary to what was initially expected. The explanatory variable "nearby" indicates that the location of a new feedlot within 3 miles of a home that has no feedlot would increase median home values by \$1,750, or 6.6 percent. The authors of the study concluded that this result could be due to an employment effect, wherein feedlot owners buy nearby residences to provide housing for their workers or to avoid complaints from homeowners.<sup>14</sup>

Because of poor sales data in Missouri, a traditional economic analysis of AFOs on residential values, as in all other studies mentioned, could not be performed. The Missouri study attributed all economic impact to the land containing a residence rather than to the actual residence. This data problem yielded confusing results. The study found that if no house was on the land, the value of the land did not decrease due to nearness to an AFO. If land within 3 miles of an AFO contained a residence, however, the land decreased in value an average of \$112 an acre. Recognizing that the land without a home did not decrease in value due to the AFO, any observed land value decrease when a house was present is due to an unmeasured decrease in residential value. Because the size of the land associated with individual homes is not a factor in the study, no quantitative impact on residential values could be determined.<sup>4</sup>

## Size and concentration

Several studies sought to evaluate the effects of facility size and animal concentration on residential property values. Two studies indicated that the higher concentration of animals increased the negative impact on residential values.<sup>1, 10</sup> A Michigan study estimated that residential property values decreased 1.71 percent for every additional 1,000 hogs nearby.<sup>1</sup> This study may be biased, however, because it focused only on sales of houses near AFOs that had received odor complaints. A North Carolina study also showed that increased density of livestock increased the negative impact of an AFO on residential values.<sup>10</sup>

The Iowa study that found that nearness to an AFO decreased residential values also found that increasing size diminished the negative impact of the AFO. This counterintuitive outcome was conjectured to result from the awareness that larger AFOs are newer and have better manure management facilities.<sup>5</sup>

That same Iowa study also mentioned the impact of a new hog facility where none other existed within 3 miles of a home. The authors hypothesized that a new small facility located within 1/4-mile upwind would be expected to diminish home values 14 to 16 percent. This hypothesis fails to account for the previous conjecture that small facilities are old and not as well managed.<sup>5</sup>

Another Iowa study indicated that larger concentrations of animals negatively impacted houses more than 3 miles from the livestock facility.<sup>8</sup>

A North Carolina study used a manure index (as a proxy for concentration of livestock) rather than individual AFOs to estimate the effect on property values. The manure index was calculated by converting animal-head capacities into tons of manure produced annually to determine the cumulative effect from all farms in each distance ring on housing values. The results indicated that if a new 2,400-head facility with an initial manure index of 33.107 was built within ½ mile, 1 mile or 2 miles of a house, the house's values would decline 4.75 percent, 0.57 percent or 0.56 percent, respectively.<sup>11</sup>

An Illinois study indicated that a 1 percent increase in swine farm density would result in a 0.129 percent reduction in county farmland prices, meaning more hogs equals lower farmland prices. However, results indicated that a 1 percent increase in average swine operation scale would result in a 0.069 percent increase in county farmland prices, meaning larger operations increase county farmland prices. This study also examined the effect of the transformation of the Illinois swine industry from 1980 to 1999 and found that in most years the transformation had a positive effect on farmland values.<sup>6</sup>

An Indiana study summarized the concentration effect, the number of AFOs within ½ mile to 10 miles of a home. The hypothesis was that the nearness of an AFO may not be as influential on housing prices as the concentration of AFOs in a particular area. The results indicate positive effects on property values where multiple AFOs are located between ½ and 3 miles from a property.<sup>7</sup>

Lastly, an Ohio study's results indicated that a new 1,000-animal unit livestock facility within 500 feet would slightly increase the value of a residential property previously surrounded by other facilities. But if the house was not surrounded by other facilities within 3 miles, a new animal facility would slightly depreciate its value. The results of this analysis indicate that the appreciation or depreciation of property value is tied to the density of the animal production inventories surrounding the property.<sup>3</sup>

The Colorado study again had confusing results. Increasing the size of beef and dairy operations decreased the value of residences, although the operations' presence generally increased the value of residences. In contrast, increasing the size of swine operations increased the value of residences, although the operations' presence generally decreased the value of residences. The peculiar results of the Colorado study may be due in part to the specific location of the study, which was the northern front range of the Colorado Rockies and included the commuter towns northwest of Denver and the entire greater metropolitan area of Greeley.<sup>12</sup>

## Animal species

The Colorado study indicated that an additional beef or dairy operation near a residence will have a positive effect on housing sales prices, but an additional hog or sheep operation would have a negative effect on housing values. Interestingly, poultry operations were found to positively affect housing values within 2 miles and negatively affect values within 2 to 3 miles.<sup>12</sup>

Research conducted by the Indiana Business Research Center found that the type of animal confinement also has an effect on property values. General results found swine and beef operations to be positively related to town, nontown and farm residence values, and dairy operations to be negatively related to all three. However, depending on the pricing categories of these homes (low, medium, high), results could exhibit an opposite effect.<sup>7</sup>

## Housing value

The Colorado study indicated that the less expensive housing market (under \$150,000) has an overall less negative impact than the expensive housing market (over \$200,000). Results showed that hog operations have a more negative impact on less expensive houses than beef and dairy operations. In the more expensive housing market, sheep operations had the largest negative effect of 0.45 percent (\$1,215.38) and poultry operations had the lowest negative effect of 0.008 percent (\$21.42).<sup>12</sup>

A Minnesota study concluded that older, lower-priced homes were more affected by feedlot proximity, and newer, higher-priced homes were not affected at all.<sup>14</sup>

The Indiana study showed that mid-priced (\$100,000 to \$150,000) and higher-priced (over \$150,000) nontown residential properties are positively affected by the number of AFOs within 1 mile. However, mid-priced properties are negatively affected by the number of pig animal units within 1 mile. Sale prices of mid-priced town residential properties were most likely to be influenced by surrounding AFOs, particularly by the type of operation.<sup>7</sup>

## Management practices

Only two studies considered the impact of management practices on residential real estate values. A Pennsylvania study found that AFOs without conservation plans negatively impacted residential values more than AFOs with conservation plans.<sup>13</sup> An Iowa study hypothesized that the lesser effect of large AFOs on land prices compared to smaller AFOs may have been due to better management of manure storages, land application of manure and site selection for the operation.<sup>5</sup>

## Economic benefits

The Michigan study concluded that the economic benefits from local hog operations exceeded the economic costs on property value.<sup>1</sup> Similarly, the Indiana study concluded that housing markets benefit from having large-scale feeding operations nearby based on the results that AFOs positively affect values of houses located ½ to 3 miles away.<sup>7</sup>

In an interesting lawsuit in Nebraska, a man successfully argued that the presence of his AFO negatively impacted the assessed value of his expensive home. Reducing his assessed value allowed him to pay less property tax on his home.<sup>2</sup>

## Summary

The studies summarized in this guide are inconclusive. The impact of animal feeding operations on residential values is not answered simply. Distance between an AFO and a home, concentration of AFOs and livestock, animal species, housing values and AFO management will affect the impact of AFOs on the value of nearby residences. Livestock production generally increases economic activity in rural areas and may reduce residential values, particularly of residences located near and downwind of an operation.

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MP748, revised October 2011

### Related MU Extension publications

## FEATURES

## abstract

animal feeding and processing operations have grown more concentrated, with each facility handling much larger numbers of animals than traditional farms. the larger concentration of animals impacts the quality of surrounding air and water. In addition, the facilities impact the economic conditions of the communities where they are located. all of these factors can potentially affect the value of nearby houses. this article summarizes the current literature on how animal operations may affect the value of residential properties located near such facilities; this information will be useful to practicing appraisers faced with valuing houses in these communities.

# Animal Operations and Residential Property Values

by John A. Kilpatrick, PhD, MA I

**A**nimal operations (AOs) may be broadly defined as facilities in which animals are raised or brought for slaughter. The common denominator is a large perpetual inventory and density of animals.<sup>1</sup>

Although livestock and poultry production has more than doubled in the United States since the 1950s, the number of animal operations has decreased by 80%.<sup>2</sup> Food animal production in the United States has shifted to concentrated facilities where animals usually are raised in confinement. This concentration of animals brings environmental concerns related to air and water quality as well as animal and human health. As a result, animal operations are subject to regulation by the US Environmental Protection Agency (EPA), the US Department of Agriculture (USDA), and a variety of state entities. Laws and government regulations related to animal operations include specific definitions based on the function and size of the operations. For example, the EPA defines *animal feeding operations* (AFOs) as

agricultural enterprises where animals are kept and raised in confined situations. AFOs congregate animals, feed, manure and urine, dead animals, and production operations on a small land area. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures, fields, or on rangeland.<sup>3</sup>

To qualify as an AFO, an animal operation must confine animals for at least 45 days in a twelve-month period.<sup>4</sup> According to the EPA, there are approximately 450,000 AFOs in the United States.<sup>5</sup> The EPA also designates certain AFOs as *concentrated animal feeding operations* (CAFOs) based on the confinement of large numbers of animals and the pollutant discharge. At CAFOs, there is a higher concentration of waste that increases the potential impact on air, water, and land quality.<sup>6</sup> CAFOs are regulated by the EPA under the Clean Water Act,

1. Quite a few documents were reviewed to develop this discussion; see subsequent footnotes and Drew L. Kershen and Chuck Barlow, "Concentrated Animal Feeding Operations and Water, Air, Land, and Welfare," report on the American Bar Association (ABA) Special Committee on Agricultural Management Roundtable II on Environmental Challenges in Animal Feeding Operations (September 23, 1999).
2. EPA, *Literature Review of Contaminants in Livestock and Poultry Manure and Implications for Water Quality* (EPA 820-R-13-002, July 2013), 3; <http://water.epa.gov/scitech/cec/upload/Literature-Review-of-Contaminants-in-Livestock-and-Poultry-Manure-and-Implications-for-Water-Quality.pdf>.
3. EPA, "What is a CAFO?," <http://www.epa.gov/region07/water/cafo/>.
4. Ibid.
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as environmental concerns arise when waste runoff is discharged onto adjacent landscapes and waterways.<sup>7</sup>

As the structure of the livestock industry has trended toward concentration of more animals in fewer operations, state and local governments also have acknowledged the problems associated with large operations by enacting legislation imposing stricter regulations on CAFOs and increasing separation distances.<sup>8</sup> For example, in North Carolina the following mandatory setbacks are imposed on new or expanded farms with 250 or more hogs: 1,500 feet from occupied residences, 500 feet from any residential property boundary to swine houses and lagoons, and 75 feet from any residential property boundary to sprayfield boundaries.

Overall, the empirical evidence indicates that residences near AOs are significantly affected, and data seems to suggest a valuation impact of up to 26% for nearby properties, depending on distance, wind direction, and other factors. Further, there has been some suggestion that properties immediately abutting an AO can be diminished as much as 88%. One study estimates the total negative impact to property values in the United States at \$26 billion.<sup>9</sup> Mitigation makes a marginal impact. Not only are residences affected, but nearby small farms can be impacted by such factors as water degradation and insects.

## Environmental Impacts and Regulation of Animal Operations

AOs are generally recognized to affect the surrounding environment in several key ways: air quality and

odors (ammonia, hydrogen sulfide, methane, and particulate matter), greenhouse gas and climate change, insect vectors (often carrying resistant strains of pathogens), groundwater and surface water contamination, and a variety of pathogens.<sup>10</sup>

Data from the USDA and the EPA estimate that livestock in the United States produce 130 times the total amount of manure as the entire human population of the country. For example, one hog excretes nearly three gallons of waste per day or 2.5 times the average human's daily total. A 3,000-sow AO will produce about 25 tons of manure a day.<sup>11</sup> A similar number of chickens will produce about 700 pounds of manure per day (plus or minus 30%), containing about 9 pounds of nitrogen gas, 7.5 pounds of phosphorus pentoxide (a powerful irritant and corrosive) and over 4 pounds of potassium oxide, a highly reactive deliquescent that reacts violently with water to produce potassium hydroxide.<sup>12</sup> Manure from livestock production can contain bacteria (salmonella, E. Coli 0157:H7), parasites, viruses, and antimicrobials (antibiotics and vaccines).<sup>13</sup> Excessive levels of phosphorus in land and water have been correlated with livestock density; and manure has caused eutrophication and degradation of US waterways.<sup>14</sup>

AOs are regarded as potential sources for contamination because of the large amounts of manure that they produce, and because the proximity in which the animals are confined allows for disease to be easily transferred.<sup>15</sup> A 2006 outbreak of E. coli 0157:H7 was associated with the consumption of fresh spinach that had been in contact with water contaminated with animal feces.<sup>16</sup> One of the

7. The USDA and EPA first regulated animal operations under the 1999 "Unified National Strategy for Animal Feeding Operations," see <http://water.epa.gov/polwaste/npdes/afo/Animal-Feeding-Operations-Regulations.cfm>. The USDA Economic Research Service presents a discussion of regulatory issues related to animal waste at <http://www.ers.usda.gov/topics/animal-products/animal-production-marketing-issues/policy-regulatory-issues.aspx#regulatory>. Up-to-date information on the Clean Water Act is available at <http://www2.epa.gov/laws-regulations>.

8. Joseph Herriges, Silvia Secchi, and Bruce A. Babcock, "Living with Hogs in Iowa: The Impact of Livestock Facilities on Rural Residential Property Values" (Iowa State University Center for Agricultural and Rural Development working paper, August 2003).

9. Doug Gurian-Sherman, *CAFOs Uncovered: The Untold Cost of Confined Animal Feeding Operations* (Cambridge, MA: Union of Concerned Scientists, 2008).

10. Carrie Hribar, *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities* (National Association of Local Boards of Health, 2010), available at [http://www.cdc.gov/nceh/ehs/docs/understanding\\_cafos\\_nalboh.pdf](http://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf).

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13. EPA, *Literature Review of Contaminants in Livestock and Poultry Manure*.

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15. "National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs); Final Rule" *Federal Register* 68 (February 12, 2003). Note that portions of this were subsequently overturned in *Waterkeeper Alliance v. EPA*, 399 F.3d 486.

16. "FDA Finalizes Report on 2006 Spinach Outbreak," FDA (March 24, 2007), <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2007/ucm108873.htm>.

leading causes of food and waterborne illness in the United States is this *E. coli* 0157:H7 organism, which is a specific strain of the *Escherichia coli* bacteria commonly found in the intestines of healthy cattle. One means of transfer of *E. coli* to humans occurs when untreated manure is able to enter water sources or used for fertilization.<sup>17</sup> The EPA acting under the Clean Water Act has designated AFOs as point sources of pollution and requires that they have zero discharge or apply for a permit that requires an extensive waste management plan. Despite regulatory efforts to segregate manure-related contaminants from the water supply, contaminants still may enter the supply because of flooding, leeching into the soil, or through disregard of regulations.

In addition to water quality issues related to manure and waste run-off, animal operations facilities attract flies and other insects and parasites.<sup>18</sup>

As noted in Kilpatrick, state entities began regulating AFOs in the late 1990s.<sup>19</sup> In 2000–2001, the EPA began levying fines against concentrated beef production facilities in the Northwestern United States that met two criteria: the facility confined animals for at least 45 non-consecutive days per year and the confinement area was devoid of vegetation. The rules generally applied to any operation with 300 head of cattle or more. At the time of the regulations, the EPA estimated that this would affect between 26,000 and 39,000 AFOs in the United States.<sup>20</sup>

On December 11, 2002, the EPA issued its final revised regulations.<sup>21</sup> The regulations affirmed the prior definitions of AFOs and CAFOs, provided for an explicit duty to apply for a permit, established required performance standards and best management practices, and explicitly required nutrient management plans.<sup>22</sup>

## Overview of AO Impacts on Property Values

An AO can affect the value of proximate properties in two ways. First, AOs have a substantial indirect negative economic impact on surrounding communities, including property values in those communities, via shifts in sources of purchases and other inputs in the factors of production. An early study by Chism and Levins reports that smaller farms make nearly 95% of their expenditures locally, while larger operations spend less than 20% locally.<sup>23</sup> Gomez and Zhang study 1,106 rural communities and conclude that economic growth rates in communities with conventional farming are 55% higher than in those with AOs.<sup>24</sup> They document the negative impact of AOs on the economy of the surrounding community, as revealed by sales tax receipts and reduced local purchases. They note that conventional farmers buy most or all of their supplies locally, thus stimulating the local community and, by extension, stimulating the local real estate market. On the other hand, AOs bypass local retailers and import the factors of production. Gomez and Zhang state that AOs exacerbate the economic negative impact by “importing” large quantities of pollution and the attendant costs; they also find AOs cause “disruption of local social and economic systems, pollution problems resulting from intensive agriculture, and negative impacts on the quality of life in rural communities.” This finding replicates those of an earlier study by Abeles-Allison and Connor, which showed AOs have the effect of crowding out more traditional farmers and decreasing purchases in local stores.<sup>25</sup>

Hence, local communities suffer the negative economic byproducts without the attendant economic benefits.

17. “Disease Listing, *Escherichia Coli* 0157:H7, Gen Info,” Centers for Disease Control and Prevention, <http://www.cdc.gov/ecoli/>.

18. Stuart A. Smith, “Concentrated Animal Feeding Operations—Resources for Environmental Responsibility” (working paper prepared by Smith-Comeskey Ground Water Sciences, April 1, 2000); for additional information see <http://www.groundwaterscience.com/resources/tech-article-library/100-concentrated-animal-feeding-facilities-resources-for-environmental-responsibility-.html>.

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20. Peggy Steward, “Cattlemen Find CAFO Rules Confusing,” *Capital Press Agricultural Weekly* (March 9, 2001): 9.

21. Claudia Copeland, “Animal Waste and Water Quality: EPA Regulation of Concentrated Animal Feeding Operations (CAFOs),” Congressional Research Service Report for Congress No 7-5700, February 16, 2010. The regulations were published in the *Federal Register* on February 12, 2003 and went into effect on April 14, 2003.

22. <http://water.epa.gov/polwaste/npdes/afo/>. Permitting is under the EPA’s National Pollutant Discharge Elimination System (NPDES) program, which regulates the discharge of pollutants from point sources; CAFOs are defined as point sources by the Clean Water Act.

23. John W. Chism and Richard A. Levins, “Farm Spending and Local Selling: How Do They Match Up?” *Minnesota Agricultural Economist* 676 (1994): 1–4.

24. Miguel Gomez and Liying Zhang, “Impacts of Concentration in Hog Production on Economic Growth in Rural Illinois” (Illinois State U. working paper presented at annual meeting of American Agricultural Economics Association, July 30–August 2, 2000).

25. M. Abeles-Allison and L. Connor, *An Analysis of Local Benefits and Costs of Michigan Hog Operations Experiencing Environmental Conflicts* (Agricultural Economic Report 536, Department of Agricultural Economics, Michigan State University monograph, 1990).

## Legal and Regulatory Actions

Legal and regulatory actions also can reveal the impacts of AOs on nearby properties. For example, in 2000, Central Industries operated a large-scale poultry rendering plant near Central, Mississippi. As part of the process, large quantities of poultry processing byproducts were brought to this facility for further processing. The plant had been subject to a number of flooding events, spreading bacteria-laced poultry byproducts into nearby creeks and downstream rivers. Poultry byproducts were discovered up to 50 miles away from the rendering plant. For violations of the Clean Water Act, company officers were fined varying amounts up to \$300,000 each, and the company was fined \$14 million.<sup>45</sup> Researchers found property value diminution of up to 60% for farms closest to the plant, and transaction prices impacted as far as 11 miles away.

In numerous counties across the country tax assessors have granted property value reductions as a result of proximity to AOs. For example, Beasley reports that Clark County, Illinois, established a property tax abatement for fifty homes around a swine AO. Homes within 0.5 mile were determined to have values diminished by 30%, ranging down to a 10% reduction in value for homes at 1.5 miles.<sup>46</sup>

Aiken reports that the Nebraska Court of Appeals ruled that county board of equalization erred in not considering a rural residence's proximity to a swine facility in determining the residence's valuation. The owner of the facility also built a house 0.75 mile away and obtained an easement to spray the hog manure on the cropland across the road from the house. The court ordered the county to ignore the fact that the swine were also the property of the owner. The court cited Nebraska livestock nuisance decisions that show that hog odors would influence the home's value. Upon the ruling, the county accepted a determination by a local, independent appraiser that the value was diminished 30%.<sup>47</sup>

Spears reports that in the summer of 2003, health officials declared about 40 kilometers of beaches on

Table 1 Property Tax Reductions in Areas Around AOs

Area	Amount of Reduction	Property Type
Grundy Co, MO	30%	
Mecosta Co, MI initially:	35%	Dwellings only
later changed to:	20%	Land and structures
Midland Co, MI	20%	
DeWitt Co, IL	30%	
McLean Co, IL	35%	
DeKalb Co, AL	Base reassessment, variable rates	
Renville Co, MN	Base reassessment, variable rates	Dwellings only
Humbolt Co, IA	20%-40%	Dwellings only
Frederick Co, MD	10%	
Muhlenberg Co, KY	18%	Dwellings only

Lake Huron permanently unsafe because of *E. coli* bacteria emanating from nearby AOs. This became the first new pollution hot spot on Canada's side of the Great Lakes in almost twenty years. Lab tests demonstrated that the *E. coli* levels in the streams feeding Lake Huron, and draining off nearby AOs, exceeded water quality standards by as much as 41,000 percent.<sup>48</sup>

Ready and Abdalla expand upon the hedonic analyses of others and reviewed the amenity and disamenity impacts of agriculture in Berks County, Pennsylvania, including different types of open space (publicly owned, eased, vacant, pasture/crops), landfills, airports, mushroom production, and AOs. The study determines that "only landfills have a worse effect on adjacent property values,"<sup>49</sup> and further states, "a sewage treatment plant has less depressing effects on nearby housing prices

45. US Department of Justice Press Release, November 2, 2000.

46. Lee Beasley, "Cumberland Hog Facility May Affect Clark County Homeowners Property Values," *Guardian Publishing* (2001).

47. J. David Aiken, "Property Valuation May Be Reduced by Proximity of Livestock Operation" *Cornhusker Economics*, Department of Agricultural Economics, University of Nebraska-Lincoln (May 2002).

48. Tom Spears, "Ontario's West Coast Permanently Polluted," *The Ottawa Citizen* (November 15, 2003); also R. E. Dines, Deborah Henderson, and Louise Rock, "The Case Against Intensive Hog Operations" (working paper, February 2004).

49. Richard C. Ready and Charles W. Abdalla, "The Amenity and Disamenity Impacts of Agriculture: Estimates from a Hedonic Pricing Model," *American Journal of Agricultural Economics* 87, no. 2 (May 2005): 314-326.

than a factory farm operation.” The study also finds that the clustering of AOs within a certain area is the controlling factor, not the location of the nearest operation when considering proximity. The study reports a value impact of -4.1% from AOs within 800 meters, and at least -6.4% from within 500 meters, both of which were half the impact of a landfill at comparable distances. The study did not find any statistically significant difference in the effects based on AO size or species.

Herriges, Secchi, and Babcock expand upon previous work on AO price effects by using variables to quantify the effects in a hedonic analysis of proximity, size, and direction of nearest facility. Direction from site was included to determine the effect of being downwind, and the odor and pest issues associated with AOs. Results from this study indicate that a moderate-size facility has a value impact up to -6% within 1.5 miles and -26% within a 0.25 mile.<sup>50</sup>

Finally, Keske documents ten lawsuits over AO nuisance in which the plaintiff prevailed, with jury awards ranging up to \$50 million (Table 2). The size of these awards suggests that preventive measures, even if expensive, might be cost effective.<sup>51</sup>

### Summary of AO Empirical Findings

The establishment of an AO results in value diminution to nearby properties, both through a negative

externality as well as through indirect economic impacts. The amount of the value loss is an inverse function of distance (closer properties diminish more), a function of property type (newer, nicer residences lose more), and a function of property use (farms will lose value due to diminished productivity and comparative marketability to farm lands further away; residential use will no longer be a highest-and-best use). The empirical studies and case studies results indicate diminished marketability, loss of use and enjoyment, and loss of exclusivity that can range up to nearly 90% of otherwise unimpaired value for homes that are adjacent to the facility. Negative impacts are noted at distances exceeding 3 miles, and in the case of a flood or other weather event, waste from the facility can be spread over far greater areas, extending the area of negative impact (Table 3).

### Mitigation of Impacts

There is surprisingly little empirical evidence of attempts to mitigate either the physical impacts or the perception of negative externality of AOs given the fairly consistent evidence of negative impacts on surrounding property values. The most significant and transcendent impacts are to surrounding community values and economics and to air quality. However, neither of these is well suited to mitigation efforts. Generally, mitigation fall into three categories: waste management plans, tree windbreaks, and anaerobic

Table 2 Damage Awards Related to AOs

Year/State	Jury Award	Case/Remarks
1991/NE	\$375,600	<i>Kopecky v. National Farms</i> , swine operation
1996/KS	\$12,100	Swine settlement – parties undisclosed in news article
1998/KS	> \$15,000	<i>Twietmeyer v. Blocker</i> , beef operations
1999/MO	\$5,200,000	<i>Hanes v. Continental Grain</i> , swine operation
2001/OH	\$19,182,483	<i>Seelke v. Buckeye Egg Farm</i> , poultry
2002/IA	\$33,065,000	<i>Blass v. Iowa Select Farms</i> , swine operation
2004/OH	\$50,000,000	<i>Bear v. Buckeye Egg Farm</i> , poultry
2006/AL	\$100,000	<i>Sierra Club v. Whitaker</i> , swine
2006/MO	\$4,500,000	<i>Turner v. Premium Standard Farms</i> , swine
2007/IL	\$27,000	State of Illinois (respondent unreported), swine

Source: Catherine M. H. Keske, “Determining the Economic Feasibility of Anaerobic Digestion in Colorado: Guidelines for Animal Farm Producers,” CSU Extension Fact Sheet 1.229 (2012).

50. Herriges, Secchi, and Babcock, “Living with Hogs in Iowa.”

51. Catherine M. H. Keske, “Determining the Economic Feasibility of Anaerobic Digestion in Colorado: Guidelines for Animal Farm Producers,” CSU Extension Fact Sheet 1.229 (2012), <http://www.ext.colostate.edu/pubs/livestk/01229.pdf>.



Table 3 Summary of Studies of AO Value Impacts

Case Study	Value Loss	Remarks
Ables-Allison and Connor (1990)	\$430 within 5 miles	Greatest impact within 1.6 miles
Taff, Tiffany, and Weisberg (1996)	N/A	AO sited near older, less-expensive homes
Palmquist, Roka, and Vukina (1997)	9%	Average up to 2 miles
Hamed Johnson, and Miller (1999)	6.6%—88%	Largest loss if within 0.10 mile
ABA Presentation (1999)	N/A	Confirmed respiratory problems
Central Industries (2000)	60% for farms closest to plant	USDOJ cases, values by appraisal
Beasley (2001)	Up to 30%	Impacts 10% at 1.5 miles
Aiken (2002)	30% @ 0.75 mile	Confirmed by court and local appraiser
Spears (2003)	N/A	40 km of beaches closed due to AO emissions
Herriges, Secchi, and Babcock (2003)	26% at 0.25 mile	Moderate-size AO, 6% at 1.5 miles
Weida (2004)	40% at 0.50 mile	10% at 2 miles
Ready and Abdalla (2005)	Residence at 0.25 mile > 6.4% Residence at 0.50 mile 4.1%	Roughly half the impact of a landfill
Kim and Goldsmith (2008)	23.5% at 1 mile	18% average within 3-mile radius
Isakson and Ecker (2008)	44%	Directly downwind and within 2 miles

Source: Catherine M. H. Keske, "Determining the Economic Feasibility of Anaerobic Digestion in Colorado: Guidelines for Animal Farm Producers," CSU Extension Fact Sheet 1.229 (2012).

digestion. Nonetheless, such mitigation does not appear to have an economically material impact on nearby property values.

### Waste Management Plan

Laws or regulations typically require wastewater runoff treatment. However, some facilities go beyond that with actual waste management plans. There is some evidence that such plans will have marginal impact, as noted in the Ready and Abdalla study, which found a residential value differential of 4.2% versus 1.1%. Notably though, some of the most severe impacts have occurred near facilities with mandated waste management plans, particularly when and after those plans failed. For example, in one four-month period, the Central Industries facility studied by Ready and Abdalla committed approximately 1,114 permit violations, exceeding the pollutant limitations set forth in the company's permit by hundreds of percentage points and exceeding its permitted flow rate by millions of gallons. Hence, the efficacy of a waste management plan must be taken in the light of potential impacts of violations.<sup>52</sup>

### Planting Trees

The University of Delaware, College of Agriculture and Natural Resources, studied the planting of windbreaks around poultry houses to reduce odor, dust, feathers, and noises, and suggests that this approach can also ameliorate nitrogen in the groundwater.<sup>53</sup> However, several aspects regarding this mitigation study should be noted:

1. The study focus is on protecting the poultry houses themselves, not adjacent or nearby neighbors.
2. Establishment of an effective windbreak takes quite a few years and quite a few trees.
3. A windbreak may partially ameliorate view problems but does not seem to address the major issues of odor and other airborne contaminations (particles, insects, etc.).

### Anaerobic Digestion Facility

The purpose of Keske's study was to provide guidance on the financial feasibility of a biogas-fueled cogeneration facility.<sup>54</sup> The study recognizes the significant production of flammable biogas by AOs and notes the feasibility of biogas-fueled cogeneration

52. Ready and Abdalla, "The Amenity and Disamenity Impacts of Agriculture."

53. George W. Malone, "Environmental and Production Benefits of Trees for Poultry Farms," U. Delaware Cooperative Extension Service (2001).

54. Keske, "Determining the Economic Feasibility of Anaerobic Digestion."

is limited by a number of factors. First, the up-front costs can be prohibitive—typically \$1.2 million, and up to \$5 million depending on the technology used. Also, annual operating costs are significant, and while these technologies are sold with the promise of offsetting electric bills, Keske notes that in the study area (Colorado) electricity rates are already lower than other parts of the United States. Hence, AO operators should be “particularly wary of relying on anaerobic digestion to generate revenues by selling electricity to the utility.” Finally, Keske notes that for a biogeneration facility to be feasible, at least two of the following criteria must be met:

1. The AO meets the definition of a confined AFO.
2. The waste stream can be combined with the waste stream of another operation or business (e.g., food manufacturing, municipal waste).
3. The AFO already receives frequent odor complaints.
4. The AFO produces swine or chickens (the two most egregious sources of biogas).
5. The AFO incurs more than \$5,000/month in average electricity or heating charges.

Keske notes that given the high threshold of cost of this mitigation approach, the approach is feasible only if it outweighs costs associated with not implementing a mitigation plan. As previously mentioned, to support this Keske documents ten lawsuits in which claimants were awarded as much as \$50 million for agricultural nuisance (Table 2). Notably, the two largest awards cited (\$50 million and \$19 million) were for poultry operations.<sup>55</sup>

## Summary and Conclusions

Since *The Appraisal Journal's* previous review of AO effects on proximate property values,<sup>56</sup> new study approaches have been identified. First, there has been an increased use of GIS by local governments, which has given researchers the ability to

conduct more thorough investigations. GIS provides researchers with more data—in abundance and in detail—and allows researchers to better locate which factors, and to what degree, have an effect on value.

Second, in conjunction with more data and use of GIS, there are substantial improvements in the hedonic analyses performed. Keske noted that early studies (such as the Taff, Tiffany and Weisberg study and the Palmquist, Roka, and Vukina study) were conducted on fewer than 300 sales transactions each, while the later study by Ready and Abdalla reviewed 8,090 sales, and the Herriges, Secchi, and Babcock study examined 1,145 sales transactions.

Third, because of the increased use of GIS and the results from the hedonic analysis in newer case studies, it has been shown that an AO's basic impact is related to proximity and size, but there are also other factors, such as the operations' waste management practices, that can reduce or exacerbate that impact. Overall, the new studies confirm the valuation impacts reported in earlier studies, as they range from 3.1% to 26% loss depending on multiple factors, and that properties immediately abutting an AO can be diminished as much as 88%. More importantly, however, is the discussion of the impact of other site-specific factors that were considered as part the hedonic analyses.

With respect to mitigation efforts, the Ready and Abdalla study of Berks County (Pennsylvania) shows that at 800 meters an operation with a waste management plan diminishes a house's value 1.1%, while an operation without such a plan would diminish the value 4.2%. Also related to this is the effect of operation size on property values. Both the Ready and Abdalla study and the Herriges, Secchi, and Babcock study show that a larger facility in close proximity would not necessarily decrease the value of a nearby property more than a smaller facility. Both of the studies concluded that this effect could be attributed to unmodeled characteristics such as waste management practices and other site-specific attributes.

55. Ibid.

56. Kilpatrick, "Concentrated Animal Feeding Operations."

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## Web Connections

*Internet resources suggested by the Y. T. and Louise Lee Lum Library*

eXtension Land-Grant University Cooperative Research Information

—Geospatial Technology

[http://www.extension.org/geospatial\\_technology](http://www.extension.org/geospatial_technology)

—Animal Manure Management

[http://www.extension.org/animal\\_manure\\_management](http://www.extension.org/animal_manure_management)

Food & Water Watch—Factory Farms

<http://www.foodandwaterwatch.org/food/factoryfarms/>

Texas A&M University, Texas Animal Management Issues Clearinghouse

<http://tammi.tamu.edu/index.html>

US Department of Agriculture, National Agricultural Library

<http://www.nal.usda.gov/topics>

US Environmental Protection Agency

—Agriculture Center

<http://www.epa.gov/agriculture>

—Drinking Water Regulations

<http://water.epa.gov/lawsregs/rulesregs/sdwa/currentregulations.cfm>

—Animal Feeding Operations Overview

<http://water.epa.gov/polwaste/npdes/afo/index.cfm>

## Legal Briefs

## Who Pays for the Stigma of Environmental Contamination?

By Carol C. Honigberg, JD, and Steven M. Nolan, JD

**A** national effort to identify and clean up environmental contamination has raised several issues relating to cleanup costs. Recently, a debate has emerged over who is responsible for covering costs when a property loses market value because of its proximity to a contaminated site. The costs, known as stigma damages, sometimes can be passed on to the owners of the contaminated sites.

Environmental stigma cases generally fall into two categories. The first, incomplete cleanup stigma, occurs when contamination spreads from one parcel to a neighboring property. After the neighboring property has been cleaned up to the satisfaction of all regulatory agencies, it still cannot recover its former value because of lingering public fears that contamination remains. The second, called marketplace stigma, occurs when a property has not been contaminated but is close enough to contaminated property to lose value if the public fears the contamination will spread.

### Recovering Stigma Damages

The ability to recover stigma damages varies based on which category a situation falls into. A tendency exists to allow recovery in incomplete cleanup cases, such as in the landmark 1994 decision from the 3rd U.S. Circuit Court of Appeals, *In re: Paoli RR. Yard PCB Litigation*. In *Paoli*, high levels of PCBs had spread from the defendant's railroad yard to the plaintiffs' neighboring properties.

The court held that a plaintiff may recover stigma damages if the plaintiff's property had physical damage with a possibility that not all contamination was removed, and if remediation did not restore the property's value. Other courts have awarded damages in similar circumstances.

Courts have been reluctant, however, to award damages to the owners of property that never was contaminated. In *Berry v. Armstrong Rubber Co.*, the 5th U.S. Circuit Court of Appeals held that property owners could not recover damages under Mississippi law without evidence of physical damage to the owners' land.

A significant problem in marketplace stigma cases is the difficulty in establishing limits to the defendant's liability if marketplace stigma is accepted as grounds for recovery. Thus, in *Golen v. Union Corp.*, the Pennsylvania Superior Court held that no recovery could be made for loss of market value when the defendant's contaminated site did not interfere with the plaintiff's use of the property.

Still, recovery has been allowed for marketplace stigma. The best known case is *DeSario v. Industrial Excess Landfill*, in which more than 1,700 landowners within a two-mile radius of a contaminated landfill were awarded damages.

### Recent Developments

In March, the 7th U.S. Circuit Court of Appeals allowed a property owner to recover what amounted to marketplace stigma damages in *NRC Corp. v. Amoco Oil Co.* NRC Corp. owned a large tract of undeveloped farmland in Indiana, of which it leased a corner parcel to Amoco for a gas station and permitted the installation of underground storage tanks.

In 1986, about 30 gallons of gasoline spilled onto the parcel while the storage tanks were being filled. Amoco reported the spill to state authorities and undertook some cleanup measures. NRC requested a remediation plan on several occasions and a commitment for remediation, but Amoco did not respond. Ultimately, Amoco implemented a corrective plan that the state's department of environmental management approved.

NRC sued Amoco for loss of use of the property during remediation. The court found that the property was unmarketable until the corrective plan was approved. The court further found that the market demanded a full indemnification agreement for any possible environmental contamination during remediation, and because no such agreement was in place, the property remained unmarketable.

The court then determined that although there was no evidence the gasoline had spread, the stigma affected a 2-acre area. The court calculated the parcel's rental value from the date Amoco's lease terminated to the date remediation was projected to be done. NRC was allowed to recover damages even though Amoco had sought to renew its lease (NRC declined) and even though NRC made no attempt to lease the parcel during remediation. NRC was awarded just over a half million dollars in lost rent and response costs.

However, the court took pains to indicate that *NRC* is not a stigma damages case. Its ruling was based on language in the lease that required Amoco to indemnify and "save harmless [NRC] from all claims, mechanics liens, damages, demands, actions, costs, and charges arising out of or by reason of the operation of the business herein authorized during the term of this lease." The court found that nothing in the indemnification provision limited Amoco's liability to the leased property when calculating damages or costs arising from the gas station.

Many courts will recognize incomplete cleanup damages, but stigma cases vary depending on the affected property's location and the courts there. As *NRC* shows, other ways may exist to award what appear to be stigma damages without adopting marketplace stigma as a valid basis for recovery.

Carol C. Honigberg, JD, is a partner in the real estate group at Reed, Smith, Hazel, & Thomas LLP in Falls Church, Va.



# The Impact of Environmental Contamination on Condo Prices: A Hybrid Repeat—Sale / Hedonic Approach

*Bradford Case, Peter F. Colwell, Chris Leishman and Craig Watkins*

*[Real Estate Economics](#)*, 2006, vol. 34, issue 1, pages 77-107

**Abstract:** We extend the literature on the impact of externalities using an approach based on a hybrid of hedonic and repeat-sales methods. The externality in question is groundwater contamination in Scottsdale, Arizona. The use of condominium sales allows us to assume that major physical characteristics remain unchanged, but location parameters may be altered by urban growth and development as well as contamination. We find an economically significant discount for properties located in the contaminated area. Interestingly, it does not appear until several years after the contamination becomes publicly known, and it seems to have disappeared before the end of the study period.

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## Developer, Broker Sued for Not Disclosing Nearby Landfill

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# \* Developers and brokers must tell of off-site ills

By TOM HESTER.

Homebuilders and brokers have a duty to disclose the presence of off-site environmental problems, such as toxic landfills, which might affect the value of property, a state appeals court said yesterday.

A three-judge panel ruling on what it described as a civil and environmental lawsuit, affirmed the responsibility of developers and real estate agents to disclose.

"We conclude," the decision said, "that the developer-seller of residential housing in multiple-home developments and their agents have a duty to disclose the existence of off-site environmental problems, which, one, are unknown to the buyers; two, are known or should have been known to the seller or its broker, and, based on reasonable foreseeability, might materially affect the value or desirability of the property involved in the transaction. Since the brokers are agents of the seller, their duty to the purchaser is at least coextensive with that of the seller."

The case involved 93 people including at least 50 children from 21 families in two Voorhees Township housing developments in Camden County. The decision means those homeowners can sue the builders and real estate brokers for allegedly failing to inform them that their new homes stood within a half-mile of the closed but toxic Buzby Landfill.

The homeowners are pursuing the class-action suit on behalf of between 150 and 200 families who purchased homes at the Woods or Voorhees and Las Brisas developments erected by the Chesnet Corp. and the C81uso Management Corp., both of Voorhees, in the early 1980s. The court held the plaintiffs also can sue Fox & Lazo Inc., brokers who sold homes for the builders.

The suit alleges the market value of the homes was diminished at the time of purchase because of close

## Developers, brokers must disclose off-site ills

*Continued from Page 141*

proximity to the landfill. The complaint also alleges violation of the state consumer fraud law, common law, and negligent misrepresentation and concealment.

The homeowners are seeking financial damages.

"Imposition of this duty (to disclose) comports with modern notions of justice, fair dealing and sound public policy or protection of homebuyers in large developments who have limited bargaining," Judge James L. Coleman wrote for the court. "They also tend to rely on the seller's and broker's knowledge concerning factors affecting the market value. Where, under a duty to disclose, the duty to speak con-

### Appeals court boosts homeowners who suffer loss in value, enjoyment

stitutes unfair conduct likely to cause harm."

Judges Peter W. Thomas and Paul G. Levy concurred with Coleman. In handing down the decision, they overruled state Superior Court Judge Theodore Z. Davis in Camden, who had tossed the homeowners' suit out of court.

The judge noted the houses were marketed, in one case, through an advertisement that proclaimed, "You can enjoy the contentment and satisfaction or knowing your children are growing in the healthy, fresh country air or this ideal wooded community." Brochures emphasized the existence of nearby amenities such as country

clubs and shopping malls.

"However," the judges added, "neither the brochures, the newspaper advertisements nor any sales personnel mentioned that a landfill is located within half a mile or some of the homes. Each apartment-family asserts that it relied upon the brochures and the advertisements in purchasing its home."

From 1972 until it was closed in 1978, the Buzby landfill was used to dump chemical and liquid wastes, garbage and trash. In 1981, the state Department of Environmental Protection and Energy (DEPEJ) formulated an emergency plan to clean up the landfill. In the 1980s, sampling or

nearby lakes and wells revealed "trace" levels of heavy metals and organic pollutants. In 1983, court papers state, the state Real Estate Commission wrote the Camden County Board of Realtors "because of the potential effects on health, and because of its impact on the value of property, location of property near a hazardous waste site is a bit of information that should be supplied to potential buyers. Disclosures in selling such property should be disclosed to potential sellers."

Court papers also note that in 1985 the DEPEJ told the Voorhees government to warn prospective homebuyers in the landfill area of the pollution danger.

The homeowners purchased the suburban upper middle-class houses between 1984 and 1987, court papers state.

"This is a landmark decision," said Mark R. Rosen of Haddonfield, counsel for the homeowners. "It is a major victory for consumers throughout the state because it is the final nail in the coffin or caveat emptor-let the buyer beware. The court is saying it is extending the protections or law to people making the most important decision of their lives."

Rosen said similar duty-to-disclose cases are pending at the Superior Court level around the state.

Alan Greenberg of Marlton, counsel for Canetic Corp. and Canuso Management said he intends to "give serious consideration" to appealing the almost six-year-old case to the state Supreme Court.

Gregory R. McCloskey or Moorestown represented Fox & Lazo.



CONCERNED CITIZENS  
COUNCIL FOR  
RURAL AWARENESS

PO Box 111  
Richmond, Michigan 48062  
313/727-2066

Propey Val es Fact Pack 143  
C.K.A.W.J

The Concerned Citizens for Rural Awareness  
is pleased to be a part of this Press Conference and  
an active participant making history in what C.R.A.W.  
believes to be a precedent setting decision by the  
State Tax Tribunal.

For years, the SMDA operating under the guise of "the  
public good" saw fit to landfill millions of tons of  
combined garbage and other waste and unidentified  
solvents in the backyards of a few rural, politically  
powerless, Macomb County residents.

Over the span of some 15 years, as this monster 157  
acre dump stinks, leaches and pollutes, the residents  
have had their entire lives diminished, and have faced  
the loss of value on their personal property which  
creates a severe economic hardship on their limited  
resources.

Until now, no State agency has been willing to recognize  
much less respond favorably to the citizens endless  
requests for relief from their desperate situation.  
When private property is destroyed by storage of our  
garbage and that encroachment pollutes and contam-  
inates water, land and air we all, as citizens, must  
help neighbors find relief. Easier said than done.

Americans are accustomed to paying taxes. In fact,  
Michigan (not withstanding the Federal Government)

*Nothing we do . . . can be accomplished alone*





CONCERNED CITIZENS  
COUNCIL FOR  
RURAL AWARENESS

Post Office Box 131  
Richtonville, Michigan 49071  
313/727-2066

Property Values Fact Pack 144

imposes over 20 taxes of assorted category designations.

But in retrospect, one of the most difficult situations

||

to deal with is the insult of having property polluted

by everyone else's garbage and unwanted waste treated

by the local tax assessor as EQUAL to the uncontaminated

property surrounding and adjacent to your own home.

Unaffected neighbors enjoy the full, unimpaired use of

their unpolluted property while you are deprived of those

rights and yet taxed at the same rates.

The Council for Rural Awareness (C.R.A.W.) will continue

to work with and fight for the justice of property tax

relief for any and all citizens whose lives are being

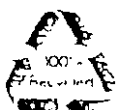
impacted in this manner and will offer support to

Representative William Browne's legislation providing

this type of relief for similarly oppressed Michigan

resident.

Nothing we do . . . can be accomplished alone



STATE OF MICHIGAN  
MICHIGAN TAX TRIBUNAL  
SMALL CLAIMS DIVISION

Property Values Fact Pack 145

Edward Bielat,  
Petitioner

v MTT Docket Nos. 93707, 100295

Macomb Township,  
Respondent

and

Mary E. Gramlich,  
Petitioner

v MTT Docket Nos. 93709, 100292

Macomb Township,  
Respondent

and

Thomas Carrata, )  
Petitioner )

v ) MTT Docket Nos. 93939,  
100232 and 105960

Macomb Township, )  
Respondent )

and

Wildie & Gloria V. Richter, |  
Petitioners )

v ) MTT Docket Nos. 95072, 100779  
and 105819

Macomb Township, |  
Respondent )

OPINION AND JUDGMENT

Tribunal Judge Presiding  
Ted Mrozowski

**•findi 3 of Fact**

These matters, residential homestead real property tax assessment appeals, were heard at Mt. Clemens, Michigan on February 20, 1986. Thereafter., on March 19, 1986, the Chairperson of the Tribunal requested, pursuant to Ttl\ Section JG(2) that the State

Tax Commission conduct appraisals on each property for the years under appeal, which we e then submitted to the Tribunal on January 29, 1987. The parties, afforded an opportunity to respond, submitted further information and these causes are now ready for decision. They have been consolidated for purposes of decisio , the facts and the legal issues being similar.

Petitioners appeal the assessments placed against the subject properties located in Macomb Township, Macomb County. The tax years under appeal are 1985, 1986 and 1987. The assessments on the rolls are summarized below:

<u>Docket No.</u>	<u>Tax Year</u>	<u>Tax I _0. 'No.</u>	<u>Assessment</u>
.93709 et. al	1985	08-10-400-004	\$16,390
	1986,		8,195
	1987		8,195
93939 et al	1985	08-10-400-007	\$ 4,630
	1986		2,315
	1987		2,315
95072 et al	1985	08-15-100-004	\$22,160
	1986		11,080
	1987		11,080
	1985	08-15-100-005	\$11,110
	1986.		5,555
	1987		5,555
93707 et al	1985	08-15-100-007	\$25,000
	1986		12,500
	1987		12,500

The average level of assessment in the district was 50% for each tax year at issue.

Petitioners contend that the assessments on the rolls exceed 50% of true cash value for the tax years at issue. In support of that contention, Petitioners testified that the subject properties are all located within a one mile radius of South Macomb.Disposal Authority (SMDA) dumps No.9 and 9A.

Petitioners further contend that subject properties have been contamin ted by leachate (leaking from SMDA sites 9 and 9A), a vile smelling contaminate which has invaded the soil and, in some cases, the water and air of subject properties.

**Petitioners st te th t, because f this contamination, their** properties are worthless. They question the values of the dwellings due to the illness experienced by their families.

Petitioners further state that, before they realized their properties and their water wells were contaminated, they used that water for drinking, washing their bodies, clothes, homes, etc. and the waste water from their cleaning has been processed through their septic fields, concentrating the leachate with all its contaminants in their septic systems.

Petitioners assert that they are forced to use water (bottled and bulk) provided by the township and state. In addition, Petitioners' bulk water supply is drawn from fire hydrants located in the township, delivered to the residences by a questionable tank truck, and stored in plastic septic tanks located on their properties. In some instances, these septic tanks are maintained in their garages rendering these garages and other covered buildings useless for parking automobiles and storage of miscellaneous items.

Petitioners testified that their soil is contaminated, rendering even the small pleasure of a vegetable and flower garden useless inasmuch as they may not eat the vegetables for fear of contamination and may not bring the flowers in the home for the same reason.

Petitioners also testified that, during the winter months, their homes carry the strong noxious odor of rotting eggs which has been directly linked to the leachate invasion. In addition, Petitioners assert that their plumbing systems (fixtures and shower walls) show signs of discoloration and contamination directly linked to the leachate invasion.

Petitioners testified that, as a result of this contamination, they would be forced to make full disclosure to a potential buyer of all of the items aforementioned.

Respondent contends that the assessments on the roll do not exceed 50% of the true cash value. In support of that contention Respondent submitted information regarding sales of three other properties in the area.

Respondent asserted that a home in the area sold for \$106,000 in 1983 with no problems. Furthermore, a second home in the area sold for \$180,000 in 1984 and no contamination was reported.

Respondent further testified that in 1985 another home in the area sold for \$85,000. No contamination was reported. Respondent stated that this particular home happens to be located 4,001 feet from the landfill.

Respondent testified that its department would be willing to cut the assessments on the rolls in half due to the aforementioned condition of the subject dwellings and, in fact, the 1986 and 1987 assessments are half of the 1985 assessments.



Having considered all the evidence and testimony presented, we find that the Petitioners' evidence was persuasive that the assessments on the rolls do exceed 50% of true cash value. The subject dwellings suffer from functional obsolescence which, although potentially curable, diminishes their value. In addition, the subject properties also suffer from economic obsolescence due to their proximity to the landfill. He further find that the subject properties ground Water and soil have been contaminated and that, as long as that contamination continues, the subject properties have only a nominal val e of \$100.

### Conclusions of La

Section 37 of the Tax Tribunal Act provides in pertinent part:

(1) In arriving at its determination of a lawful assessment, the tribunal shall determine the amount by multiplying its finding of true cash value *by* a percentage equal to the ratio of the average level of **assessment in relation to true cash values in the assessment district.**

(2) The lawful assessment as determined by the tribunal shall be subject to equalization and shall be equalized by application of the equalization factor which is uniformly applicable in the assessment district for the year in question, which, after equalization, shall not exceed 50% of the true cash value of the property on the assessment date.

(3) The petitioner shall have the burden of proof in establishing the true cash value of the property and the assessing agency shall have the burden of proof in establishing the ratio of the average level of **assessmerlts in relation to true cash values in the assessment district** and the equalization factor which was uniformly applied in the assessment district for the year in question...MCLA 205.737.

**True cash value, or "cash value,"** is defined in Section 27 of the General Property Tax Act as follows:

**As used in this act, "cash value" means the usual selling price at the place where the property to which the term is applied is at the time of assessment, being the price which could be obtained for the property at private sale, and not at forced or auction sale ...**  
MCLA 211.27.

As the Michigan Court of Appeals noted in Safran Prlntino Co v City of Detroit, 88 lichApp J76 (1979), the advantages and disadvantages of location, quality of soil, zoning, existing use,

**present economic income of the structures, quantity and value of** standing timber, water power and privileges, mines, minerals, quarries, and other valuable deposits are factors to be used as guidelines in determining the fair market value, or true cash value, of property for tax purposes.

The Court also noted, in Tatham v City of Birmingham, 119 Mich App 583 (1982), that, for tax assessing purposes, true cash value need not be determined exclusively by reference to the usual selling price. The Tribunal may use market analysis, reproduction cost less depreciation and capitalization of income.

However, the method that is selected must be the one most likely to yield accurate results.

In the instant cause we have determined that the contamination of the subject properties' soil and ground water renders it unlikely that a potential buyer would have been found on any of the tax dates at issue. We further found that the past and present contamination renders that true cash value of the subject property nominal. We are of the opinion that said value is likely to continue until such time as the contamination or its source have been eliminated. We conclude that the condition does diminish the value of the subject property while it exists. We hold that the cost approach, as adjusted, is the method most likely to yield accurate results under the facts of the instant appeal.

#### JUDGMENT

IT IS HEREBY ORDERED AND ADJUDGED that the true cash value and lawful assessments shall be:

<u>Year</u>	<u>Tax I.D. No</u>	<u>TCV</u>	<u>Level</u>	<u>Assessment</u>
1985	08-10-400-004	\$100	50%	\$50
1986		100	50%	50
1987		100	50%	50
1985	08-10-400-007	\$100	50%	\$50
1986		100	50%	50
1987		100	50%	50
1985	08-15-100-004	\$100	50%	\$50
1986		100	50%	50
1987		100	50%	50
1985	08-15-100-005	\$100	50%	\$50
1986		100	50%	50
1987		100	50%	50
1985	08-15-100-007	\$100	50%	SSO
1986		100	50%	50
1987		100	50%	50

IT IS FURTHER ORDERED AND ADJUDGED that the assessor shall correct or cause the assessment rolls for 1985, 1986 and 1987 to be corrected to reflect the lawful assessments as shown above, subject to the processes of equalization, within 20 days of the date of entry of this Judgment. The resulting assessments, as equalized, shall not exceed 50% of the Tribunal's finding of true cash value.

IT IS FURTHER ORDERED AND ADJUDGED that the tax collecting officer having the roll in his possession shall correct or cause the tax rolls and tax bills for 1985, 1986 and 1987 to be corrected in accordance with the above corrections of assessment and shall issue a refund or collect additional taxes, if appropriate, within 20 days of the date of entry of this Judgment. A refund shall include a proportionate share of any property tax administration fees paid, a proportionate share of penalty and interest paid on delinquent taxes, and interest shall accrue at the rate of 9% per year for periods after March 31, 1985.

The school districts affected are New Haven Public and Macomb County Intermediate.

MICHIGAN TAX TRIBUNAL

By 

ENTERED: October 7, 1987

## Landfill case

## Jury awards \$1.6 million in cancer suit

MJH:Jn, Wrs. -AP- A Circuit Court jury has awarded \$1.6 million to two rural Middleton families who said that their drinking water supply was poisoned by a landfill and caused skin cancer for one family member.

The jury ruled Friday that Refuse Hideaway and its operator, John DeBeck, were "outrageous" in their operation of the dump.

Jurors awarded \$1.15 million in punitive damages, saying that Refuse Hideaway should pay \$1 million and DeBeck should pay \$150,000. The two families had sought \$4.3 million.

The verdict favored Al and Jean Stoppleworth, and Craig and Anita Schultz. The dump closed in 1988 after authorities found wells tainted

with toxic chemicals.

"I wanted the punitive more than anything. It hits them for their total disregard for us and their attitude that we didn't exist and that what they did to our lives didn't really matter," said Stoppleworth.

James Olson, attorney for the Schultzes, said that, "by their verdict for punitive damages, the jury showed its outrage against things like this happening."

The jury also awarded compensatory damages to each couple for medical expenses, loss of market value in their homes, fear of getting cancer and relocation expenses, bringing the total award to \$1.6 million.

The well pollution, found by the State Department of Natural Re-

sources, is believed to have affected the wells of the two families for at least a decade, according to evidence.

Along with ordering the landfill closed, the US Environmental Protection Agency ordered a \$5 million clean up.

Since the pollution was discovered, the two families have been drinking bottled water and using water that has undergone extensive filtering.

Neither DeBeck nor his attorney, David Neeb of Milwaukee, were in the courtroom when the jury verdict was read.

DeBeck did not testify during the weeklong trial.

Neeb was not available for comment after the verdict.

# Landfill neighbors awarded \$1.6 million

By Pamela C. Hunt

The Spic. and Time

The jury that ordered a landfill owner to pay more than \$1 million in damages to two families whose wells are contaminated has sent a message to other polluters, one attorney says.

"We had really pitched our case, to a large extent, to ask the jury to send a message to other landfills and people involved with other things that involve the environment," said Jim Olson, attorney for Craig and Anita Schultz.

The Schultzes and Al and Jean Stoppleworth filed a lawsuit against landfill owner John DeBeck and his Refuse Hideaway dump in 1988.

They claimed their homes are worthless because pollution from the dump has contaminated their wells, requiring them to use bottled water.

After deliberating 4 1/2 hours Friday, a Dane County jury awarded the two couples about \$1.6 million. Most is in punitive damages — \$1 million against Refuse Hideaway and \$150,000 against DeBeck — that will be divided equally between the plaintiffs.

Al Stoppleworth, who had fought the landfill since 1972 when he tried to prevent it from being opened, said he was treated as a "non-person" when the landfill operators were told of the contamination. The verdict, he said, made Stoppleworth feel vindicated.

# Court slashes assessment of property near dump

By Bruce Reid  
Evening Sun Staff

Neighbors of Rarford County's landfill have been trying for more than a year to prove that hazardous chemicals are leaching from the dump, fouling their wells and threatening their health. So far, they haven't been successful.

Now, one neighbor of U.S. 130-acre landfill north of Bel Air has won what she calls a "major victory" — a 50 percent cut in her property tax bill.

The Maryland Tax Court, in Baltimore, agreed with Jocelyn Allen's contention that the landfill has reduced the value of her property. The court cut her property assessment

roughly in half, from \$107,000 to about \$56,000, which means a \$50 reduction in taxes each year.

County Attorney Victor K. Duntan said he will appeal the ruling in circuit court. But he said the tax court decision granted the county's request to intervene in the case.

In documents filed with U.S. tax court, county lawyers said they fear the assessment reduction for the Allen property could open the door to other tax cuts. Allen said other residents are considering seeking tax relief but none has sought it yet.

"Our contention is that Mrs. Allen presented evidence of any adverse effect of the landfill," Bullock said.

Allen said in an interview. "She said that the landfill has contaminated her property. There's got to be a little more to that."

Allen, who lives on Dublin Road about a half-mile from the landfill, acknowledges that 10 hazardous chemicals have been found in her well. Solvents and other potentially dangerous chemicals have been detected in other residents' wells nearby, but county officials say contamination of only one well can be traced to the landfill.

"My claim is that the contamination is spreading and the county is doing nothing to control it," Mrs. Allen said.

She said of the tax court's ruling:

"It's finally been recognized that the landfill is a detriment."

County lawyers, calling Mrs. Allen's claims against the landfill "baseless allegations," point out that Allen decided two years ago to build a new home on her property. That amounts to a subjective acknowledgment that the Scarboro landfill site does not have any adverse impact on her property value, according to court documents.

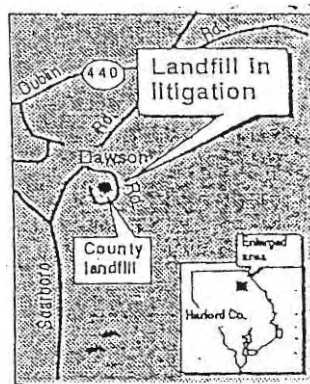
Allen, a spokeswoman for the Dublin-Scarboro Improvement Association, and 30 neighbors have filed a federal lawsuit claiming that the landfill has contaminated U.S. properties. No trial date has been set.

The county has filed a counter-

claim in U.S. District Court. But one couple living near the landfill, Lloyd and Shirley Deckman, has contaminated the dump and may fouling their neighbors' wells. The Deckmans have denied the accusations.

Herbert Hensley, who lives about a half-mile from the landfill, said he and other residents are waiting for new tax bills to arrive before seeking assessment reductions. He said the bills usually come by July 1.

"We're sort of between a rock and a hard place," Hensley said. He explained that some residents fear that they will not be able to sell their homes at full value, so an assessment reduction is appropriate.



Evening Sun Staff

# Property owner sues Landfill owner

By Tom White

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Tires, garbage and mud lie on the hillside opposite Sharon G.arnes's house.

The garbage comes from local and out-of-state garbage haulers who pay \$5 a ton to dump their loads at the Fleming Landfill in Monday Hollow near Sissonville.

Carries, head of West Virginia Citizens for a Clean Environment, says the dump is illegal, endangers her drinking water and has slashed the value of her stone and brick A-frame house.

"I feel like my rights have been violated and I'm not gonna stand for it," she said.

Garnes sued landfill owner John Fleming on Christmas Eve. In documents filed in Kanawha County Circuit Court, she said Fleming:

"I Violated his landfill permit by exceeding his 120-cons-a-week limit.

.. Operates his landfill without a state Department of Natural Resources permit..

.., Has caused "irreparable harm" by endangering ground water, increasing truck traffic and reducing property values.

.. Garnes and her husband, Julian, asked for \$50,000 in damages and court orders temporarily shutting down the landfill.

Fleming said he could not comment on the charges until speaking with his lawyer.

Fleming's son Mark said the landfill, which opened in 1978, ac-



— Sharon G.arnes

\Ang-ry about dumping:

cepts tires and household garbage only. He said the landfill accepts about five garbage trucks a day from West Virginia and up to four tractor-trailer loads a day from Pennsylvania.

Landfill operators cover over the garbage with dirt w wastes can leach out. Two green ponds lie in the center of the landfill.

This is not the first time the Flemings have been in court because of their landfill. The attorney general fined them up to \$50,000 for dumping violations earlier this year, documents show.

The fine was lifted when Fleming submitted a draft cleanup plan, Garnes said.

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# Avoiding Environmental Contamination of Residential Properties

Mobility magazine, October 2009

Environmental contamination comes in many different forms, from methamphetamine labs to leaking underground storage tanks, and several states recently have enacted legislation that encourages investigation and disclosure of environmental issues affecting residential properties. Pantano writes that avoiding the health and financial hazards associated with environmental contamination is another step in completing a smooth employee relocation.

By Vanessa N. Pantano

Recently, The New York Times printed an article on clandestine drug labs, or meth labs, and their effects on residential properties. A home that is a former meth lab can cause severe health problems to its occupants, as well as incredible financial burden. After purchasing a home that had once been a meth lab, an unsuspecting family found their lives virtually ruined. Their three young children came down with serious respiratory problems, the parents with kidney ailments, and their dog died. Then they realized it would cost \$30,000 to remediate the issues in the home to make it livable. They thought they had bought a beautiful four-bedroom home in a nice neighborhood to raise their family. Unfortunately, that plan went horribly wrong. Sadly, it could have been avoided.

Environmental contamination of residential properties comes in many different forms. Residents in Tallevast, Florida, recently found out that it will take 50 years to remediate pollution that has contaminated their groundwater and soil. Many locals became

sick after relying on well water in this area, unaware that it had been contaminated by an industrial plant that closed down more than a decade earlier. Vapor intrusion—indoor air contamination caused by contaminants in the soil—has become another concern.

From meth labs to leaking underground storage tanks, stories like these arise each day around the country. And they are not restricted to particular parts of the country or financial demographics of neighborhoods.

Years after several New Jersey families built their dream homes in an upscale neighborhood 30 miles outside of New York City they were notified that the development had been built on pesticide-contaminated soil from a former orchard. Home-owners now are faced with houses whose property values have plummeted and pose long-term health hazards from the contaminants found in the soil. The township and developer claim they had no legal obligation to notify prospective buyers about this potential problem. Was anyone obligated to notify these homeowners? Existing state and federal environmental law does not provide a clear answer in this case. This issue has now gone to trial for resolution.

New Jersey has certain environmental laws and guidelines in place, as do many other states. But the distinction between “recommended soil testing” and “required soil testing,” for example, makes all the difference in situations such as this one. Various states have laws and policies regarding notification of toxic waste sites, but what if this is not the particular issue at hand? Small loopholes and technicalities in wording can affect people’s homes and lives in a big way.

## Have Something to Say About ‘Green’ Issues? Join Us At the Forums

What environmental issues are you facing in your day-to-day work? How has the new “green” rage affected your business, and the expectations of your transferees? Worldwide ERC® has two resources you will find helpful:

**The Green Forum**—a discussion group of your colleagues talking about everything from how to be green at your workplace to how to handle environmental issues affecting the real estate transaction. To read prior posts and to join the forum today, go to [www.WorldwideERC.org](http://www.WorldwideERC.org) and click on “Communities” at the top of the screen.

**Unique Property Database**—Worldwide ERC® members have contributed to this database of properties with unique problems such as power lines in the backyard, historical homes, and houses close to cemeteries. You name it—it is covered in the database. This valuable resource tells you the listing price, appraised values, and closing price of these unique properties, along with comments from the appraisers and third-parties. To find this valuable resource go to [www.WorldwideERC.org](http://www.WorldwideERC.org) and then click on “Resources,” “U.S. Real Estate,” and then “Unique Property Database.”



## Technology and the Information Revolution

To those who are impacted, this is serious business. Historically, environmental information has not made its way into the residential property transaction. But, as technology has evolved, more information becomes available and is easily accessible. It is a fact that today's consumer expects more information relative to everything they purchase. This transparency in everyday life is rapidly becoming the norm—we venture online and find product reviews, vehicle history reports, opinions about a company's service levels, and blogs about everything under the sun. But, something happens when we begin the home purchase process. As the biggest financial investment most of us make, the process can become overwhelming. In fact, it is one reason employers rely on the relocation industry to provide a higher standard of care for their employees than they would typically get when transferring themselves. But, who is responsible for environmental due diligence in the residential market? Is it really needed? Are these stories “one in a million?”

Unfortunately not.

Lenders, builders, and buyers all follow the standard of care in the commercial real estate industry where various levels of environmental due diligence and evaluation are used to protect the buyer and the lender before completion of the transaction. When homes and families are involved, the stakes are just as high. Government environment, health, and safety organizations at all levels, e.g., federal, state, and county, spend significant resources to collect and make available this important information and various private entities publish it. This is because, regardless of the part of the country, we live in an industrial world where human activity leaves a significant footprint. The presence of certain environmental contaminants can negatively affect a family's health and the value of their investment. Should this information not be disclosed to a potential buyer, even if it is not required by law? At what point does “common law” come into play?

## The Legal System and Common Law

Recently, several states have enacted legislation that encourages investigation and disclosure on residential properties. Effective October 2008, Connecticut law (08-186) raises awareness of prevalent neighborhood environmental contamination by providing liability protection to homesellers and their agents who urge buyers to research the possible presence of toxic contamination around a property. The law states that any property with fewer than five families living on it should include a disclosure document during the closing process.

This law gets to the heart of the issue at hand: what is reasonable due diligence versus reasonable disclosure? A similar law in Arizona (33-423) releases sellers from liability if they purchase an environmental report from a third-party provider and give it to the buyer. Listing 10 separate categories, the disclosure report includes military facilities, expansive soil, flood zones, Superfund sites, and more. At the very least, this law raises awareness that certain environmental checks should be done prior to purchasing

a home.

California's Natural Hazard Disclosure (NHD) Act requires that a disclosure report be provided to the buyer by the seller prior to closing on every residential property transaction. This particular law covers things such as fault lines, liquefaction (mudslides), and forest fire zones. However, in parts of the state, an environmental report accompanying this NHD report has become standard of care. This more extensive report includes issues such as meth labs, leaking underground tanks, hazardous waste sites, and landfills, among others.

New York City Environmental Attorney Larry Schnapf writes, "These laws are not intended to coddle purchasers but to provide them with information to make an informed decision. It is only when the seller interferes with that process by misrepresenting conditions or not disclosing material information that would not be available to a buyer in the exercise of reasonable diligence that the seller should be liable under the common law."

In the case of a corporate relocation, a consultant is hired to make the daunting moving process as smooth and easy as possible. Avoiding the health and financial hazards associated with environmental contamination is another step in completing a smooth transition. A small amount of environmental due diligence goes a long way in protecting the best interest of your clients. This protects the corporate client from ending up with a house in inventory that requires expensive remediation. It also assures the transferee that their new home is safe.

Says Steven Wester, CRP, GMS, president of Global Mobility Solutions, Scottsdale, Arizona, "We began using environmental due diligence tools for our customers this past summer. We believe it's a key component to providing customers the highest level of service. Much like radon, except that it can occur anywhere in the country, we see environmental due diligence as the standard of the future."

## References

There are free resources available online and in person through local, state, and federal government agencies regarding specific environmental information. Environmental data reports also are available for purchase through third-party providers. Stories like those mentioned above appear everyday across the country. State laws, policies, and procedures vary and should be investigated individually.

Many real-life examples of the hazards and repercussions of a lack of environmental due diligence can be found at [www.contaminatednation.blogspot.com](http://www.contaminatednation.blogspot.com).

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- The Rock River Times - <http://rockrivertimes.com> -

## Guest Column: Landfill lawsuit likely

Posted By [Brandon Reid](#) On July 18, 2012 @ 7:00 am In [Commentary](#), [Guest Column](#) | [2 Comments](#)

**By Paul Gorski**

The Winnebago County Board voted to allow the landfill expansion, and now it seems the board may not have followed the evaluation rules for approving a landfill, guidelines clearly defined in Illinois Environmental Protection Agency (IEPA) publication IEPA/BOL/98-021, revised March 2003, which reads as follows:

*The law specifies that the site location suitability be evaluated only in accordance with the following criteria:*

- *The facility is necessary to accommodate the waste needs of the area it is intended to serve;*
- *The facility is designed, located and proposed to be operated so that the public health, safety and welfare will be protected;*
- *The facility is located so as to minimize incompatibility with the character of the surrounding area and to minimize the effect on the value of the surrounding property;*
- *The facility is located outside the boundary of the 100-year flood plain;*
- *The plan of operations for the facility is designed to minimize the danger to the surrounding area from fire, spills or other operational accidents;*
- *The traffic patterns to and from the facility are designed to minimize the impact on existing traffic flow;*
- *If the facility will be treating, storing or disposing of hazardous waste, an emergency response plan for the facility will be developed to include notification, containment and evacuation procedures to be used in case of an accidental release.*

- *If the facility will be located within a regulated recharge area, any applicable requirements specified by the Board for such areas have been met. This criterion should be read together with groundwater protection provisions of the Environmental Protection Act;*
- *If the facility is to be located in a county where a solid waste management plan has been adopted, the facility must be consistent with that plan.*

Nowhere in those guidelines do you see consideration for economic development. However, nearly all the focus in the press seems be the fees and jobs coming to the county from the landfill. If the county board approved the landfill for economic reasons outside the guidelines, that will help lay the groundwork for a legal challenge.

What you do find in the guidelines: is the landfill necessary? Technically, no, as we also have the Veolia landfill in Ogle County. Also, will the landfill be operated to protect public health and welfare? Given that the landfill has been emitting noxious odors for almost four years, the answer to this question is a generous “maybe.” Lastly, has the landfill been located to minimize the effect on local property values? Likely not.

The landfill expansion may cause a domino effect in decreasing property values. Land near the landfill has been identified as an economic development zone. These types of zones can spur growth, but generally drive down property values in the larger community because of the tax breaks assigned to these zones. Many local land owners feel property values will be hurt by the landfill expansion. So, the landfill expansion may drive down property values for the economic development area, which may have its own negative effect on regional property values.

Questions about the hearing process and the criteria used to approve the landfill give ample reason to challenge the board’s decision. If a challenge is to come, it will likely come from local land owners.

*Paul Gorski is a Cherry Valley Township resident and a former Winnebago County Board member.*

*From the July 18-24, 2012, issue*



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# Blue Ridge Landfill pledges to control odor amid lawsuits, property value decline



*Among other changes, Republic Services Inc. said it is adding more gas wells like this one to contain odors from decomposing waste. (Courtesy Republic Services Inc.)*

By **Matt Dulin** | 6:00 am May 18, 2018 CDT | Updated 8:31 am May 18, 2018 CDT

Blue Ridge Landfill has a state-approved plan to remedy its odor problem, but residents who have borne the brunt of it say the measures are not bringing relief swiftly enough.

In a letter to the corporate owner of the landfill on May 3, state Rep. Ed Thompson, R-Pearland, urged its CEO to take the matter more seriously, as odor complaints have not abated.

"I believe you have had the resources to correct this problem from the beginning but have chosen not to," Thompson's letter reads.

The landfill, which has operated for almost 30 years at the border of Fort Bend and Brazoria counties, where Broadway Street ends at FM 521, has become the subject of two lawsuits and testimony from residents before Thompson's state House subcommittee on landfills and air quality.



The plan, ordered by the Texas Commission on Environmental Quality in July and accepted April 10, includes expanding the landfill's odor-control practices, conducting regular monitoring on- and off-site and setting up a complaint hotline.

Republic Services Inc., which owns the landfill, said it has already invested \$7 million in improving odor controls and gas collection since 2016. In a statement, the company said it plans on making more investments in 2018.

"I believe there is an engineering solution to this, but this isn't it," said Ed Mears, one of a group of Shadow Creek Ranch residents bringing attention to the odor since 2015.

On the west side of Shadow Creek Ranch, which borders the landfill along FM 521, a swath of homes has seen its property value take a hit—as much as \$10 million in value has been lost in the past two years alone, based on an analysis of over 6,000 property values in the neighborhood by Community Impact Newspaper.

While residents file complaints, make public statements and seek legal action, some Fort Bend cities have stepped up in defense of the landfill, and lawmakers are looking for ways to strengthen the enforcement of environmental regulations.

## Controlling odor

In July, the TCEQ finalized an enforcement order citing Blue Ridge's odor problem and a failure to properly monitor its surface emissions. It imposed a \$43,712 fine, of which Blue Ridge paid \$17,485 and offset another \$17,485 by funding an environmental project. The remainder, \$8,742, could be waived if TCEQ determines its order was fulfilled.

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Under the plan accepted by the TCEQ on April 10, the landfill will implement changes and closely monitor the problem over the next five years.

"We are confident and optimistic that it's going to result in effective measures to reduce odors," TCEQ Area Director Kelly Keel Linden told the state House subcommittee on landfills and air quality.

In addition to minimizing and monitoring odors, the plan also calls for setting up an odor hotline, but reports it receives will not be shared with TCEQ. That means residents will have to contact the hotline and the agency if they want to both be on the public record and also notify the landfill directly.

"It's a joke. ... I told them a hotline would be a mistake," said resident Rosa Saade, who was told about the hotline when she made a complaint and visited TCEQ officials in March. "So they take the call, then what? Will anything change?"

As of May 1, the state has received 4,893 complaints from the neighborhood, and 157 had been investigated. Investigations might not take place until days or weeks after a report, and may not necessarily be conducted at the same time of day or in the same weather as the complaint, said Mears, who also testified before the state House subcommittee along with Saade, Dalia Kasseb and others.

## Cities vs. cities

In July, the same month that TCEQ issued its order, the city of Pearland filed a lawsuit asking a Travis County District Court to shut down what it called "illegal activity" at the landfill.

According to the city, the odor control plan does not affect the lawsuit. City officials declined to comment further on the litigation, which has not had any movement since November.

"I wish there was more we could do and that there was something that could be done to bring a quicker resolution to this issue," Pearland Council Member Trent Perez said. "All of us want this fixed. But there's no tool we have that's yet unused to fight this."

On the other side of the landfill, Fort Bend cities have stepped up in its defense. Arcola City Council issued a letter in November calling on its county commissioner, Vincent Morales, to intervene if the lawsuit moved forward.

But, Morales said, there was nothing he could do.

"If there wasn't a lawsuit, there are some things we can do," Morales said. "I could bring people together to form a citizen advisory panel, a CAP."

Morales said he formed one in response to complaints around the Long Point Landfill in Needville. The group includes residents who have complained about odors, and they get to meet directly with landfill management, he said.

Blue Ridge is the only landfill that pays Fort Bend tipping fees, which is assessed for every ton of waste it receives. The landfill has contributed more than \$4 million in fees since 2008, according to county records. Tipping fees are also paid to TCEQ.

## Real estate problem

On top of the city's lawsuit, a group of Shadow Creek residents are seeking a class-action lawsuit and \$5 million in damages. A pretrial conference is set for July.

Mears said the smell was not a problem prior to 2015, and added that many of the residents who first organized to bring attention to the odors have simply left. Personally, he said, he prefers to stay.

"This is solvable," he said. "But we are frustrated."

The smell is one of several factors making the area a difficult sell for real estate agents. The area is zoned to Fort Bend ISD, while the rest of the neighborhood is zoned to Alvin ISD, for example.

"You would hope that on a resale of a brand-new home in a desirable area, your value would be going up. ... But not in this part of Shadow Creek," said Randall Martin, a Realtor in the Pearland area for 11 years. "In many cases, sellers are taking prices below the listing ... and houses are sitting on the market longer."

Based on Community Impact Newspaper's analysis, which drew on appraisal data from Fort Bend and Brazoria counties, the neighborhood of over 6,000 homes has gained value overall, but about two-thirds of the 1,500 homes on the Fort Bend County side, have lost value in the past two years.

Mears said filing complaints can put homeowner against homeowner, as those who do go on the record might draw more negative attention to the neighborhood.

"That's not a good situation either. No one wants that," he said.

Shadow Creek Ranch began selling homes in the early 2000s, but many of the affected properties are five years old or newer. In the older section of Shadow Creek Ranch, values have risen for the vast majority of homes, with an average increase of 8 percent.

## Staying put

One thing critics and officials agree on: The landfill is not going anywhere. In fact, based on TCEQ's annual report on municipal waste, it has more than 90 years of capacity based on current usage, but the Houston-Galveston region had only 38 years of capacity across its 26 landfills as of 2016.

"There's not enough landfills in Houston," said Perez, who was recently appointed to TCEQ's Municipal Solid Waste Management and Resource Recovery Advisory Council. "So, practically speaking, shutting down [Blue Ridge] is not an option."

As demand for landfill space grows and development creeps farther out, the potential for conflict grows, Thompson said.



"There are a lot of these landfills and solid waste facilities around the state that we need to have conversation around," he said.

The subcommittee under Thompson has discussed the need for increasing the buffer zone around landfills, raising the fines on infractions cited by TCEQ and providing the agency more funding to better investigate complaints and fully vet new permits. Thompson said he hopes with more information from his committee, he can revive a bill he pursued in the last session to address the issue.

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