

# Business Opportunities for the CHMM, Valuating Environmental Stigma for the Real Estate Community

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**Abstract:** Environmental Stigma Damage is the reduction in property value caused by the increased risk associated with the historical presence of contamination on a property, or the belief that the property is still contaminated. Real estate appraisers and brokers often look to environmental experts to assist them with developing an appropriate stigma adjustment factor i.e., dollar amount to deduct from the value of an environmentally impaired property. A CHMM's diverse background in science and technology, regulatory compliance, environmental auditing, contaminant remediation, and health and safety uniquely qualifies them to provide this type of service to real estate professionals.

Determining how much to devalue a currently or previously contaminated property is not just the cost to remediate the site. Instead, ancillary costs associated with the inconvenience the property owner experiences during the site investigation and remediation stages, potential legal and administrative fees, third party claims, additional insurance premiums, an adverse change in regulatory statutes, a higher vacancy or lower rents from tenants, difficulty in obtaining a mortgage, and additional marketing time to resell the property in the future all have to be calculated into the final adjustment factor.

There is no universally accepted model for determining an environmental stigma adjustment factor when valuating contaminated property. Utilization of case studies and the reliance on the expert opinion of environmental professionals has become an accepted technique for deriving a "stigma adjustment factor" to apply to the market value of an environmentally impaired property. The broad based background of the CHMM can provide key assurances that the appraiser or broker can depend on to develop a reliable stigma adjustment factor. This paper presents one model that may be of assistance to the CHMM in developing an appropriate environmental stigma adjustment factor for real estate professionals.

## Introduction

The impact of environmental contamination on property value is difficult to quantify. Real estate appraisers often look to experts outside the real estate community to assist them in developing an appropriate environmental stigma adjustment factor. Environmental stigma damage is the reduction in property value caused by the increased risk (perceived or real) associated with the historical presence of contamination on a property, or the belief that the property is still contaminated. The stigma adjustment factor is converted to a dollar amount that is deducted from the final value of an environmentally impaired property. Environmental stigma damage is also about economic risk: risk to the property owner, risk to adjacent property owners, risk to the potential buyer, and risk to the lender. Who will pay for the clean-up, how long it will take, and how the clean-up will impact future property values is of utmost concern. The CHMM's diverse background in science and technology, regulatory compliance, environmental auditing, contaminant remediation, and health and safety uniquely them to assist real estate professionals in valuating contaminated property.

## Previous Attempts to Quantify Environmental Stigma Damage

In the 1970' and 80's, the value of an environmentally impaired property was described by the following Value Paradigm:

$$V_b - V_a = \text{compensation}$$

Where:  $V_b$  = Value before contamination

$$V_a = \text{Value after contamination}$$

Or

$$V_c - V_d = \text{damage}$$

Where:  $V_c$ =Value Clean

$$V_d = \text{Dirty Value}$$

In the 1990's, a more quantitative attempt was derived to describe costs that should be deducted from a property value due to environmental stigma or impairment:

$$I = U - C_{CAP} - C_R - C_F - M_U$$

Where: I = Impaired Value

U = Unimpaired Value

$C_{CAP}$  = Cost to implement Corrective Action Plan

$C_R$  = Cost of restrictions on use and/or liability prevention

$C_F$  = Impaired Financial Cost: finance cost penalties due to contamination

$M_U$  = Intangible Market Factors: uncertainty regarding engineering control costs, regulatory requirements, markets reaction to impairment, etc.

Today, most lenders use risk based criteria to decide whether to loan money to purchase or improve an environmentally impaired property. The lender's decision is based on the loan amount, the type of property, the intended usage, and the type of contaminant.

### **A Model Used to Estimate Environmental Stigma Damage**

Currently, there is no universally accepted model that is used to determine how much to devalue a property due to environmental impairment. However, one model that can utilize the diverse skills of the CHMM consists of a scoring system that assigns percentage points to key factors that contribute to price decrements. Diminution value can be divided into two categories: readily identifiable costs and estimated costs.

Readily identifiable costs include:

- Additional Site Investigation Costs
- Additional Remediation Costs
- Additional Monitoring Costs
- Addition Legal/Administrative Costs
- Costs due to higher vacancy or lower rents from tenants

Estimated costs include:

- Costs due to inconvenience experienced during investigation/remediation
- Costs due to an adverse change in regulations
- Third Party Claims
- Difficulty in Obtaining a Mortgage
- Additional Marketing Time to resell the property

### **Case Study 1: ABC Soft Drink Company, Lancaster, PA**

ABC Soft Drink Company owned and operated a soft drink distribution center in Lancaster, Pennsylvania. The parcel is 5.0 acres and has a 50,000 square foot storage warehouse, a two bay truck maintenance garage and a 3,500 square foot office building. A 10,000-gallon underground storage tank (used to fuel company trucks) leaked gasoline into the subsurface environment. The tank was removed. Soil and groundwater were cleaned up to the extent required by the Pennsylvania Department of Environmental Protection. However, the state required that on-site monitoring wells must remain in place on 50% of the site until groundwater quality levels reach a specified level. The wells are sampled on a quarterly basis. Precisely when "site closure" will occur is not clear, but given present trends from the most recent sampling, groundwater quality may reach acceptable levels in the next five years. Changes in ABC Soft Drink Company marketing forced the closing of the distribution center and the property was put on the market. The asking price is \$1,000,000.00

An adjacent business, Lancaster Auto, wants to buy the property to expand their business. Lancaster Auto's bank wants to know the property appraisal value with an appropriate stigma adjustment factor. The bank's appraisal company has retained a CHMM to develop an appropriate dollar value that can be deducted from the asking price of the property to reflect environmental impairment due to the leaking underground storage tank.

An empirical scoring model is utilized to develop an appropriate stigma adjustment factor. This model uses a "low, medium, and high" classification to characterize key factors that contribute to price decrements. Each key factor is assigned a point score; the points are totaled and then converted to a percentage. The percentage is converted to a dollar value that is deducted from the sale price of the property. This is the stigma adjustment factor.

Each Classification is rated as follows:

- Low gets 0 to 3 points
- Medium gets 4 to 6 points
- High gets 7 to 9 points

To convert points to percentage:

- Low Stigma gets 0 to 33 points and is worth 0 to 15%
- Medium Stigma gets 44 to 66 points and is worth 15% to 40%
- High Stigma gets 77 to 100 points and is worth 40 to 100%

**Example using ABC Soft Drink Company**

Key "Stigma Source Factors" that Contribute to Price Decrements	Low	Medium	High
Additional Site Investigation Costs-The site has already been cleaned up to the satisfaction of the state regulatory authority. ABC already paid for the investigation costs. A low score is assigned.	1		
Additional Remediation Costs-The site has met the state's clean-up standards so more remediation is highly unlikely, but not impossible. A low score is assigned again.	1		
Additional Monitoring Costs-There is no solid estimate on how long it will before groundwater quality levels meet with the state's approval, but 5 years seems to be a good prediction. A low score is assigned.	3		
Additional Legal/Administrative Costs-This cost is relatively low but attorneys will still have to review environmental reports until the property finally receives a no further action letter from the state. A low score is assigned.	3		
Inconvenience during Investigation/Remediation- This factor is rated high because 50% of the site is covered with monitoring wells that have to be sampled every three months for an undetermined about on time.			7
Adverse Change in Regulations-This factor is rated very low because it is highly unlikely that the existing regulations will change.	0		
Third Party Claims- This factor is rated low, but there is still a possibility that a portion of the contamination from the leaking gasoline tank has found it's way off-site and may generate a third party claim by the adjacent property owner.	3		
Higher Vacancy or Lower Rents from Tenants-This factor does not apply because Lancaster Auto is purchasing the entire property for it's own use.	0		
Difficulty in Obtaining a Mortgage- This factor is also on the low side but has some value because some lenders have a risk policy of not granting loans for the purchase of environmentally impaired property or loaning the money at a higher interest rate.	3		
Additional Future Marketing Costs to Resell- This factor is low but it may cost additional money to resell the property because of the "perceived risk" a contaminated property has.	2		
Additional Marketing time to resell in future-It may take additional time to resell this property because of the "perceived risk" a contaminated property has. A low rating is assigned.	2		

TOTAL POINTS	18	0	7
Market Stigma Factor = 25 points			

The property received a stigma score of 25 points. This converts to about 11.5%. The environmental stigma damage dollar value deducted from the property value is 11.5% of \$1,000,000 or \$115,000.

The above model represents one model a CHMM may use is assisting real estate professionals in valuating environmentally impaired property.

### **Business Opportunities for the CHMM in Real Estate**

The CHMM can provide a useful service to real estate professionals by valuating contaminated property. A partial list of business opportunities for CHMM's interested in working in the real estate appraisal market can be found in your local phone book yellow pages and at the following internet links:

The American Real Estate Society (ARES)	<a href="http://www.aresnet.org/">www.aresnet.org/</a>
American Real Estate & Urban Economics Association	<a href="http://www.areuea.org/">www.areuea.org/</a>
American Society of Appraisers	<a href="http://www.appraisers.org/">www.appraisers.org/</a>
The Appraisal Foundation	<a href="http://www.appraisalfoundation.org/">www.appraisalfoundation.org</a>
The Appraisal Institute	<a href="http://www.appraisalinstitute.org/">www.appraisalinstitute.org/</a>
Mortgage Bankers Association of America	<a href="http://www.mbaa.org/cref/">www.mbaa.org/cref/</a>
National Association of Industrial and Office Properties	<a href="http://www.naiop.org/">www.naiop.org/</a>
Industrial and Office Office and Real Estate Specialists	<a href="http://www.sior.com/index.htm">www.sior.com/index.htm</a>

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