

# **EDR Insight**

## **Methodology for Property Assessment Market Map**

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**Environmental Data Resources**

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EDR has been analyzing and tracking the environmental due diligence market industry and routinely reporting metrics like average Phase I ESA pricing and turnaround time back to the industry since 1993. The EDR Insight Property Assessment Market Model is an outgrowth of this ongoing research, and represents the first such effort to define the entire property assessment industry in a structured, consistent way.

This brief paper explains in some detail the methods used by EDR Insight to arrive at its market size assessments for 10 types of property assessments. The following sections outline the approach, assumptions and data sources used for each assessment type.

## 1.0 PURPOSE

EDR Insight developed the Property Assessment Market Map to generate defensible, credible estimates of market size in ten industry segments. This methodology is the result of extensive outreach to environmental due diligence consultants, commercial real estate lenders and other stakeholders to property transactions.

The market for property assessments is diverse, ranging from a variety of environmental assessments beyond the Phase I environmental site assessment, as well as non-environmental assessments.

The Phase I ESA market has traditionally been the primary basis of the majority of EDR's market and industry analysis. However, the initial development of this model allows EDR Insight the ability to apply its extensive experience in monitoring and analyzing shifts in demand for Phase I ESAs into other segments of the environmental due diligence industry—and more broadly, into non-environmental property assessments.

The model seeks to quantify the size of the market for 10 types of property assessments, and document how the drivers for these types of services are changing over time as traditional markets mature and new areas of the property assessment market gain traction.

## 2.0 INDUSTRY SEGMENTATION

As a first step toward estimating the size of the U.S. property assessment industry, the components and units of measure needed to be clearly defined. Each segment in EDR Insight's market model is defined by the type of property assessment service offered, and consists of both environmental services and non-environmental services. Within the scope of this definition, EDR Insight identified 10 main assessment types. Environmental services include various tiers of environmental due diligence from desktop screens to Phase II environmental site assessments. Non-environmental services include services dedicated to assessing commercial properties in the areas of energy, structure, seismic risk and property valuations. Table 1 lists the specific assessment types included in the Property Assessment Market Model.

**Table 1. 10 Property Assessment Types**

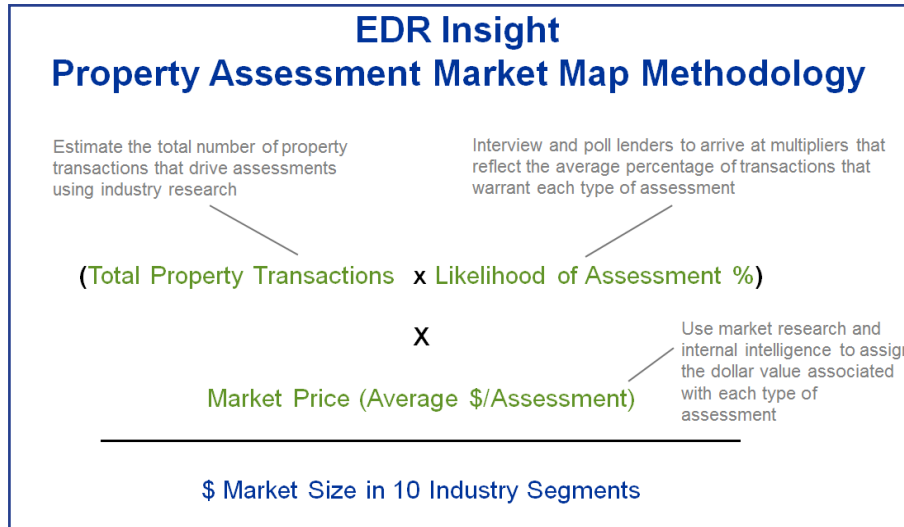
Desktop Screens
Transaction Screens
Phase I Environmental Site Assessments
Phase II Environmental Site Assessments
Vapor Intrusion Screens
Building Energy Performance Assessments
Seismic Assessments
NEPA Assessments
Property Condition Assessments
Appraisals

This initial definition of key property assessment types will continue to evolve as a result of EDR Insight’s own research, including outreach to stakeholders in the commercial real estate market. This process is critical for identifying any new types of property assessments that emerge beyond the more traditional Phase I ESAs, Phase II ESAs and appraisals.

### 3.0 GENERAL CONSTRUCT OF THE PROPERTY ASSESSMENT MARKET MODEL

This demand-driven market model measures changes in the market’s need for particular types of property assessment services and the average market value, or price. EDR Insight’s model tracks and quantifies the reliance of the commercial real estate industry on various types of property assessments. Lending on commercial properties accounts for the majority of activity in the property assessment market and thus forms the foundation of the Property Assessment Market Model. The model therefore is a demand-driven one based primarily on inputs from financial institutions to track changes in specific types of assessments over time.

The schematic below outlines the general approach used in the model to generate market size estimates for each of the 10 assessment types. At its foundation, the property assessment model first arrives at the total number of commercial real estate transactions being conducted on a quarterly basis using a variety of data sources. Then, the model applies “market sector multipliers,” quantitative inputs that define the percentage of total transactions that undergo each type of property assessment. The product of these two sets of inputs generates the number of assessments conducted in each of the 10 market segments. This value is multiplied by the current average market price for each service to arrive at the model’s key output: market size estimates in each industry segment and the market, as a whole.



## 4.0 DATA SOURCES

EDR Insight's property assessment model aggregates the estimated revenue in each type of service defined by the model to arrive at a total size of the U.S. property assessment market. To do this, the model relies on three main data sources:

1. The number of transactions in specific sectors that drive demand for property assessments;
2. Estimates of the percentage of these transactions that undergo specific types of property assessments; and
3. Average market pricing data for property assessments.

This section outlines the data sources and assumptions used as inputs to the Property Assessment Market Model. EDR's market position allows for contact with risk managers at financial institutions across all size categories that routinely lend on commercial properties. This demand-driven model therefore relies on direct and frequent outreach to key individuals at financial institutions as its key source of primary inputs.

### 4.1 Commercial Real Estate Transactions

Demand for property assessments is associated with an extremely wide range of drivers; most notably, commercial real estate transactions. In addition to traditional property lending and investment, demand for property assessments is also tied to such market forces as the expansion of networks for telecom companies, merger and acquisition activities, lending under U.S. Small Business Administration programs, the rating and issuance of loans packaged as commercial mortgage backed securities, foreclosures and refinancing, among others.

To capture as reliable and complete an estimate of total property transactions that drive demand for property assessments as possible, EDR Insight identified data sources to provide the inputs outlined in Table 2. The estimated number of properties associated with each line item in Table 2 is updated on a quarterly basis. The total across each input represents the total number of U.S. property transactions in a given quarter.

**Table 2. Transactions Per Year: Data Sources and Assumptions**

Variable	Data Source	Assumptions and Notes
CRE Transactions: Large > \$5M	Real Capital Analytics	RCA estimates it captures 90-95% of market
CRE Transactions: Small < \$5M	Boxwood Means/MBA	Small cap loan volume
Deal Fails	EDR intell/client outreach	Accounts for % of deals failing after EDD
Desktop Screens advancing to Phase Is	Internal EDR analysis	
SBA 7(a) and CDC Loans	U.S. SBA	Assume 25% w/CRE component (SBA intell)
Mergers and acquisitions	Dealogic/Thompson	Apply multiplier of \$ volume/properties (Thompson)
Telecom	PCIA	
CMBS	Trepp	Assume \$ volume/properties
Foreclosures/refis	MBA/EDR Intell	
FDIC-driven Phase Is	FDIC	Estimate based on asset volume of banks (falling)
Distressed asset deals	Real Capital Analytics	Includes properties sold/worked out, REO sales
Engineering/Industrial projects	Engineering News Record	Accounts for high-end audits beyond bank-driven, part of larger construction projects
Retail/Big box	Site Selection/CRE	Studies for new locations
Oil & Gas asset transfers	Internal Intell	Transfers of assets (wells, pipelines, gas stations)

## 4.2 Property Assessment Multipliers

For each assessment type, the Property Assessment Market Model requires a “multiplier,” defined as the percentage of the total U.S. property transactions that undergo each type of assessment. For example, a multiplier of 50% for Phase I ESAs translates into one out of every two property transactions triggering demand for a Phase I ESA. This set of inputs is based primarily on EDR Insight’s ongoing surveys of risk managers at financial institutions. Survey results are routinely compared to similar questions in EDR Insight’s quarterly surveys of environmental due diligence professionals for consistency and to stay abreast of any trends that might suggest adjustments in the model’s assumptions about the frequency of certain types of assessments. The significance of the multipliers in the model is that they will allow the market to reflect any changes in the industry’s reliance on certain levels of due diligence. If, for instance, awareness and interest in screening properties for vapor migration/intrusion intensifies due to rising lawsuits or the release of new federal guidance or some other factor, the multiplier would be expected to increase over time as more lenders require this type of property screening.

The only exception to this approach is for the Building Energy Performance Assessment segment. Various state and local energy disclosure regulations require building owners to have properties audited for energy efficiency, in addition to any lender-driven BEPA work. Outreach to lenders suggests that the market sector multiplier for BEPAs would be relatively small (5-10%) at this point. However, to account for the growing number of metros (e.g., New York City, San Francisco) with active programs that require building owners to comply with energy disclosure requirements, the model assumes that disclosure drives demand for energy performance audits. The Institute for Market Transformation routinely estimates the number of buildings affected by such programs and the model then assumes only a percentage undergo BEPA assessments based on outreach to environmental consultants active in this market space. The data inputs for each multiplier are shown in Appendix A.1 along with min, max, median and standard deviation.

## 4.3 Average Market Price

The last key input to the Property Assessment Market Model is the average market price for each assessment type. For average price data, EDR Insight relies exclusively on its ongoing surveys of risk managers at commercial real estate lending institutions. The distribution of responses from these quarterly lender surveys typically includes:

- 60 to 70 percent from community banks
- 20 to 25 percent from regional banks
- 10 to 15 percent from large national/international lending institutions

In addition, these surveys will be augmented with regular contact between EDR Insight and key contacts in the lending sector. These contacts routinely provide feedback on any changes in:

- commercial real estate lending levels;
- pricing for the services of environmental due diligence professionals;
- environmental risk tolerance;
- forecasts of due diligence activity; and
- the banks' reliance on particular levels of environmental due diligence.

The key to this method is that EDR Insight is continually collecting primary data directly from the sector that is primarily driving demand for property assessments and using that data to model industry size.

It is important to note that these surveys go to contacts not just within EDR's own client base, but to individuals at lending institutions that EDR does not serve. It became important over time to broaden survey efforts beyond EDR client base to ensure that the average market price assumptions accurately reflect the broader market, not just entities that routinely do business with EDR. The job titles typically associated with respondents to EDR Insight's quarterly lending surveys include: lending/loan officers, commercial lending managers, credit officers, risk managers, and at the larger institutions, vice presidents of environmental risk. The average pricing inputs by assessment type are shown in Appendix A.2 along with the corresponding min, max, median and standard deviation.

## 5.0 PEER REVIEW

The assumptions built into EDR Insight's Property Assessment Market Model have undergone intensive review by key staff within EDR as well as key individuals in the lending and environmental due diligence industries. This ongoing effort is important for testing the model's assumptions on key drivers, average market pricing and multipliers by assessment type. This methodology will be updated as any significant changes in the market warrant adjustments to the model's assumptions.

### Environmental Professionals

In both the development and ongoing maintenance of the model, EDR Insight is also relying on regular contact with a trusted group of environmental due diligence consultants. This outreach will continue in order to ensure accuracy in the

model's assumptions and to identify any emerging sources of demand for environmental assessments that may necessitate changes to the structure of the model.

EDR Insight also routinely surveys environmental consultants on a quarterly basis. While not directly used as model inputs, the results are compared to the lender survey results to ensure that the range is consistent with inputs to the model. It should be noted that the average Phase I ESA price based on surveys of environmental consultants is typically higher than the pricing data collected in lending surveys. This trend is attributable to the highly competitive market for Phase I ESAs among consultants serving lender clients. The EP survey collects data not just from consultants who serve lenders, but also who serve private sector investors like REITs and hedge funds that are typically associated with higher average Phase I ESA pricing.

### 6.0 FUTURE ENHANCEMENTS

Based on feedback to date, potential areas for improving the market model may include:

- Distinguishing between small- and large-cap loans to acknowledge the correlation between loan size and complexity of assessments (i.e., larger loans are more likely to trigger more complex assessments).
- Expanding outreach beyond the lending and environmental consulting sectors to include a panel of reviewers from the investment community (e.g., REITs, hedge funds and other institutional investors).
- Incorporating inputs from other sectors beyond lenders that drive demand for property assessment services.
- Adding solid forecasting elements to generate quarterly forecasts within each of the ten model segments.
- Identifying key individuals in the non-environmental sectors of the property assessment market (e.g., appraisals) to peer review assumptions.

### 7.0 MARKET SENSITIVITY

Every attempt is made to accurately reflect all of the major categories of property deals or other activity that trigger both environmental and non-environmental assessments. Over time, the model will highlight shifts in demand away from certain segments and into others. Thus, the model will deliver not just market size estimates, but also track changes over time that signal which types of services appear to be reaching maturity while new ones gain traction.

### 8.0 SCHEDULE FOR PUBLICATION OF QUARTERLY UPDATES

The appendix includes the model's inputs for multipliers and average pricing for each assessment type. The total number of U.S. transactions is updated each quarter.

Approximately six weeks after the close of each quarter, after inputs from each of the data sources identified in Table 1 become available, EDR Insight will publish the Quarterly Property Market Update.

## APPENDIX - Model Inputs

### A.1 Multipliers

The table below summarizes the multiplier assumptions for each of the 10 property assessment types. For inputs based on survey data, also shown are the minimum and maximum values, median and standard deviation for each multiplier.

Market Sector	Multiplier***	Min	Max	Median	Standard Deviation
Phase I ESAs****	55%	0%	100%	50%	21%
Phase II ESAs	12%	0%	100%	20%	17%
Transaction Screens	39%	0%	100%	30%	27%
Vapor Intrusion Screens	8%	0%	50%	0%	11%
DTS	75%				
BEPA	*				
Seismic	5%	**			
NEPA	11%	**			
PCA	36%	0%	100%	20%	31%
Appraisals	95%	60%	200%	99%	19%

**Notes:**

\*Number of properties undergoing BEPA assessments is derived from an analysis conducted by the Institute for Market Transformation which estimated the number of commercial buildings impacted by state or local energy disclosure requirements.

\*\*Denotes insignificant sample size from lender surveys. Multipliers are based on outreach to EDR contacts with experience in these markets.

\*\*\*Multipliers are applied to total U.S. transactions to arrive at an estimate for the number of properties undergoing each type of assessment.

\*\*\*\*The number of Phase I ESAs is also adjusted upward to account for the number of desktop screens that trigger a Phase I ESA based on an internal EDR analysis.



## A.2 Average Market Pricing Inputs

The table below summarizes the average pricing data used in the model for each type of assessment. For inputs based on survey data, also shown are the minimum and maximum values, median and standard deviation.

Market Sector	Average Market Price	Min	Max	Median	Standard Deviation
Phase I ESAs	\$2,288	\$750	\$6,500	\$2,000	\$969
Phase II ESAs	\$4,720	\$1,500	\$12,000	\$2,000	\$2,387
Transaction Screens	\$625	\$250	\$1,800	\$500	\$269
Vapor Intrusion Screens	\$145	\$0	\$ 600	\$150	\$146
Desktop Screens	\$80	\$0	\$150	\$75	\$39
Property Condition Assessments	\$3,557	\$100	\$9,000	\$3,000	\$2,337
Appraisals	\$2,513	\$1,200	\$4,500	\$2,700	\$ 902
BEPA	\$600	*			
Seismic	\$950	*			
NEPA	\$2,000	*			

Note:

\* Denotes insignificant sample size from lender surveys. Average market price inputs are based on outreach to EDR contacts with experience in these markets.