Appraisal Myopia

Solutions for an Industry in Crisis
What Every Chief Appraiser Should Know

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INTRODUCTION

The appraisal industry is being confronted with challenges that are unprecedented in its history. In particular, residential appraisers are facing a level of scrutiny, competition and regulation that some have characterized as the "perfect storm". How appraisers navigate this storm will determine whether the industry sees clear skies and flourishes again or it follows the path of so many other seemingly indispensable professions that are no longer in existence or relevant today.

How is it that residential appraisers find themselves in such a precarious predicament? One can point to many outside factors such as HVCC that had such a devastating affect on the industry. But at the center of this "perfect storm" lies the fundamental issue: The GSE's and mortgage industry's reliance, and the resulting residential appraiser's laser-like focus, on the Uniform Residential Appraisal Report as the definitive, "gold standard" means of property valuation.

Appraisal books and classes have been written and developed to teach appraisers how to produce this report. Industry standards have been written to guide appraisers in performing this appraisal. Legislation has been written to regulate and enforce its use and even to define an acceptable range of fees for this report. Sophisticated software has been developed to produce this report with remarkable efficiency. Specialized technology has been created to efficiently transport this report between appraisers and their clients. Advanced review processes have been developed to ensure its compliance. Most recently, the data that defines this product has been standardized, further increasing its efficiencies, but at the same time commoditizing it even further.

The result has been Appraisal Myopia.

An entire multi-billion dollar industry has been created around a single 25 year old product that today is quickly becoming a commodity.

This narrow focus on a product instead of the broad, long term needs of the customer can hurt and even destroy companies and industries alike. A classic example is the railroad industry. It stopped growing because it focused solely on the railroad business. It should have thought of itself as being in the transportation business and provided the full range of transportation services (air, auto, and rail) to its customers. Blockbuster was in the business of renting videos for entertainment. It should have been in the entertainment business and taken advantage of technology to stream entertainment to their customers. It might still be around today if it had. Kodak's focus on film instead of digital technology allowed Sony and Nikon to dominate the market. If Kodak would have focused on what customers wanted instead of narrowly focusing on their film products they may have owned the market. There are countless other examples of companies failing to define their businesses properly. But these three illustrate the point that it is critical to understand one's business from a much broader perspective. This is especially true of the appraisal business today.

If we look at residential appraisers, what business are they in? It's safe to say, they are in the URAR business. In fact, they have been in the URAR business for over 25 years.

Today, residential appraisers are discovering that they have left the door wide open for outside competitors to enter the market with advanced, less expensive, faster services. Even more disconcerting, is the fact that even though the URAR business may be declining, the property valuation business is booming and they are missing out because they cannot adequately compete with a 25-year old product, regardless of how efficiently and cheaply it is produced.

Additionally, because of this narrow focus on the URAR and not on property valuation services in general, residential appraisers are finding that the very infrastructure that was built to so efficiently produce (and protect) the URAR is now keeping them from innovating and providing other valuation services. Even slight improvements in quality are hindered because the proprietary systems that transport the reports do not allow for deviations (i.e. innovations) from the highly standardized report format. It is the classic Catch 22.

Like Blockbuster residential appraisers find themselves facing the same "perfect storm" and looking for any means of survival.

If residential appraises are to survive and thrive once again, they will need to jettison their appraisal myopic tendencies and commit to providing the full range of valuation services faster and better than their non-appraiser competitors.

In other words, appraisers need to be in the Valuation Business, not the URAR Business.

So how does an industry go about changing its focus; reinventing itself and broadening its business scope to provide a greater range of valuation services? The answer is apparent when you pose the same question to other industries. What should the railroad industry have done? What should Blockbuster have done? What should Kodak have done?

In February of 2009, members of the Collateral Risk Network held a two day conference to discuss ways to re-engineer the appraisal process. A month later, in March of 2009, the Appraisal Institute held a similar conference, titled the "Collateral Matters Congress" to discuss ways to improve the appraisal process.

Both conferences arrived at similar conclusions - that the appraisal process needed an overhaul. Among the areas identified as needing "reengineering" were best practices and theory, valuation technology, mentoring and training, legislation, regulation, enforcement and open data standards.

This paper leverages the findings of the two conferences and aggregates the initiatives into three distinct categories: 1), improving the credibility of the appraiser; 2), improving the credibility of the value conclusion; and 3), improving the efficiency of the valuation process.

These improvements, when implemented collectively as a system, result in a valuation process that puts the appraisal profession on a path to meeting and exceeding the broad valuation needs of the lending, servicing, and non-lending markets.

REENGINEERING THE APPRAISAL PROCESS

The economic crisis of 2007 exposed glaring flaws in the valuation processes of single family appraisals. These flaws allowed inflated valuations to occur, appraiser fraud and identity theft to be committed; rampant appraiser pressure to be exerted; and most importantly, the overall credibility of real estate appraisals to be questioned.

In 2009, two conferences, the Collateral Risk Network and the Appraisal Institutes "Collateral Matters Congress" were held to assess the state of the appraisal industry and arrive at a consensus for change. Each conference produced a white paper offering new directions and highlighting the problem areas. The industry was deemed to need "reengineering" in the areas of appraisal best practices and theory, valuation technology, mentoring and training, legislation, regulation, enforcement and open data standards.

With these issues in mind, improving the competitiveness of appraisals comes down to implementing fundamental changes in three key areas of the valuation process:

1) improve the reliability of the valuation
2) improve the credibility of the appraiser
3) improve the overall efficiency of the appraisal process

On the following pages, methods for improving each of these key areas are discussed. These improvements, when implemented as a whole, produce a valuation system that meets and exceeds the broad valuation needs of the lending, servicing, and non-lending markets.

1. Improving Valuation Reliability

Historically, because of an appraiser's training, education and certified stature in the industry, their "opinion of value" was considered the gold standard in property valuation. However, if significant credibility in the value conclusion is lost, it could be catastrophic for the profession. Therefore, some form of unbiased, scientific or analytic support for the appraiser's "opinion of value" is needed to reinforce and validate that the value conclusion is highly credible and reliable.

This unbiased support for the value conclusion does not exist today. Today, the appraiser essentially relies on the format of the appraisal forms to drive the process and eventually reach an "opinion of value". Considering the wide spread use of sophisticated Automated Valuation Models and abundant access to data, the appraiser is noticeably lagging behind other valuation services by following a "forms approach" to valuation.

Our proposed solution is for appraisers to incorporate analytics into their valuation process.

To truly improve the credibility of the appraiser's final value conclusion with in the inclusion analytics, the appraiser needs to be in complete control of the analytics.

Pairing AVMs or "black box" analytics with the appraiser does not fundamentally enhance the credibility of the value conclusion nor the credibility of the appraiser's market analysis skills.

With this in mind, the following initiatives make analytics the core of the appraiser's valuation process, improve the credibility of the valuation and totally eliminate the traditional "forms approach" to appraising.

Incorporation of Regression Analysis

By incorporating regression analysis into the process, appraisers will start the shift from the "art of appraising" to the "science of appraising". Instead of comparing a few properties, hundreds of properties can be analyzed with a statistical degree of accuracy, strengthening the final value conclusion.

The analytics should be created by the appraiser as opposed to having the appraiser interact with a "black box" AVM. When the appraiser creates the regression model or valuation model specifically for a subject market, this process is known as Interactive Valuation Modeling. The resulting model is known as an **Interactive Valuation Model** or **IVM**.

Interactive Valuation Models

Interactive Valuation Models or IVMs are superior to Automated Valuation Models (AVM) in that the appraiser with local market expertise builds and "fine-tunes" the model to accurately account for the localized market characteristics. Contrast this to an AVM where the AVM may not even have adequate market boundaries, let alone account for the local characteristics.

Market Driven Adjustment Values

Adjustment values have traditionally been based on "handed down" values. By using regression these adjustments can be analytically derived for each market area. In regression terms, the adjustments are known as the coefficients of value and would represent the adjustment values for the differences in GLA or Site size for instance. Additionally credibility is attained by providing their statistical significance and accuracy.

Definition of the Market Boundaries

The neighborhood or market can be more precisely defined by overlying a polygon depicting the market boundaries on a street or satellite map. This simply eliminates any confusion that might arise by trying to describe the boundaries as is traditionally done.

Transparency of the Valuation Process

Today, the appraiser's development of the appraisal is stored in a work file and never viewed by the end user or client. By including the development process and its intermediate results

as part of the report, transparency, credibility and reliability of the appraisal are dramatically improved.

Forward-Looking Valuations

Historically, the appraisal process has relied on similar "sold properties" to determine the subject's market value. By looking forward and thoroughly analyzing market activity and trends, market changes and the rate at which they may change can be forecasted.

Authentication of the Appraisal

Due to the extent of appraisal fraud, the end user of the appraisal needs assurances the report has not been altered. Implementing technology to certify the originality of the appraisal and value conclusion is needed.

2. Improving Appraiser Credibility

Improving appraiser credibility centers on trust and their experience level. Because of the number of cases of mortgage fraud, appraisal fraud and identity theft, trust must start ensuring the person is who they claim to be.

Identity Authentication

Ensuring trust in the person is accomplished by authenticating the appraiser's identity and making the authentication certification public so anyone evaluating the appraiser for employment can take the authentication into account.

Transparency of Credentials

Today all licensed appraisers can be found on the ASC.gov registry, but their credentials, experience, specialties cannot be found as easily. An appraiser's credentials, licenses, insurance coverage, specialties and even work history should be placed online for clients who are considering the appraiser for employment can review and evaluate.

Geographical Competence

The measure of an appraiser's geographic competence needs to be more credible. Today, the distance from the subject property to an appraiser's office is used as a measure of their geographic competence. It is assumed that the greater the distance, the less competent they are. Not only is this highly subjective, it is generally an inaccurate assumption.

A more analytical approach is to perform a geo-spatial cluster analysis of the appraiser's work history relative to the location of the subject property. This type of analysis produces a credible, unbiased "experience" score which can be used to rate an appraisers experience relative to the subject.

Education and Training in Applied Analytics

The process of valuing residential properties has remained relatively unchanged since the Society of Real Estate Appraisers and the American Institute of Real Estate Appraisers were formed in the 1930's to standardize the process. Today, paired analysis and the Sales Comparison Approach continue to be central to an appraisal.

With the advances in technology, much more advanced market analyses can be preformed. One just has to review the current offerings of Automated Valuation Models (AVM) to appreciate the level of sophistication that has been achieved.

Appraisers need to understand and harness this analytical power and incorporate it within their appraisal process. This requires a new level of education and training programs industry wide.

3. Improving the Efficiency of the Valuation Process

Sophisticated technology has been developed to make filling out appraisal forms very efficient. However, very little has been developed to improve the actual valuation process. Mostly, the process has been left to the individual appraiser to perform at their own discretion as long as the process was USPAP compliant. The following are some initiatives that will make the process more efficient.

Improving Data Management

Dedicated technology to help manage, sort, rank, scrub and munge data is needed. This is especially true if the appraiser is going to review and analyze considerably more data than is currently analyzed.

Front Loading Market Data

Provide appraisers with data "up front" so that all issues and characteristics concerning a property and its local market are available at the beginning of the valuation process. This dramatically improves the efficiency and thoroughness of the resulting valuation.

Improving Workflow

The steps in processing and analyzing market data can be programmed so that a computer-guided consistency is achieved. This is similar to the "Turbo Tax" approach to filling out a tax return. The workflow can be developed in a step-wise fashion so that the process ensures USPAP compliance and even generates, for instance, the appropriate Assumptions and Limiting Conditions for each particular assignment.

Automated Appraisal Form-Filling

The appraisal report needs to be generated automatically at the end of the valuation process. Zero amount of time should be spent filling out an appraisal form.

Data Standardization

For the optimal flow of property data between providers and users, the data needs to be standardized. The GSE initiative to standardize appraisal data based on the MISMO open data standards is definitely a step in the right direction.

APPENDIX A: IMPLEMENTATION RESULTS

For four years, Bradford Technologies has been working on the initiatives described above. The goal was to create best-in-class solutions that combat fraud, build trust, improve valuation reliability and speedup the overall process so appraisers could effectively compete at all levels of the property valuation space.

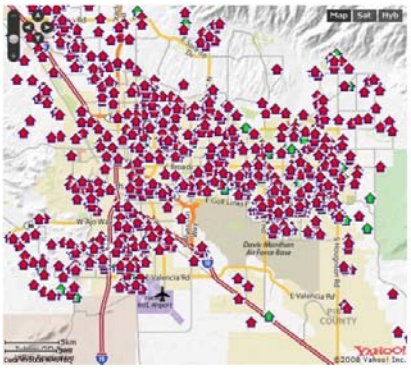
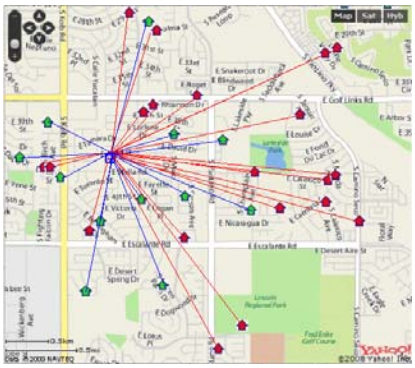
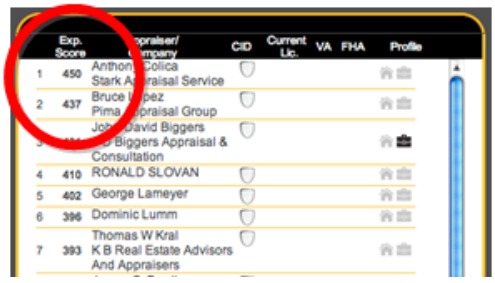
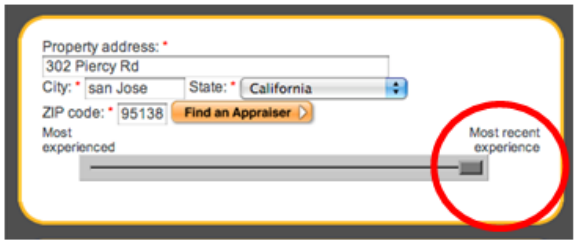
This effort culminated with the announcement in November 2009 of new computer-aided appraisal software (CompCruncher™); a new appraisal reporting format (CVR™) and an education and training curriculum (Interactive Valuation Modeling - IVM) designed to teach appraisers how to apply analytics and produce statistically supported valuations quickly.

These developments and new technologies were implemented and are available at the appraiser community website www.AppraisalWorld.com.

On the following pages, the new technologies developed are described starting with the selection of the appraiser and continuing through to the production of a statistically supported value conclusion produced in record time.

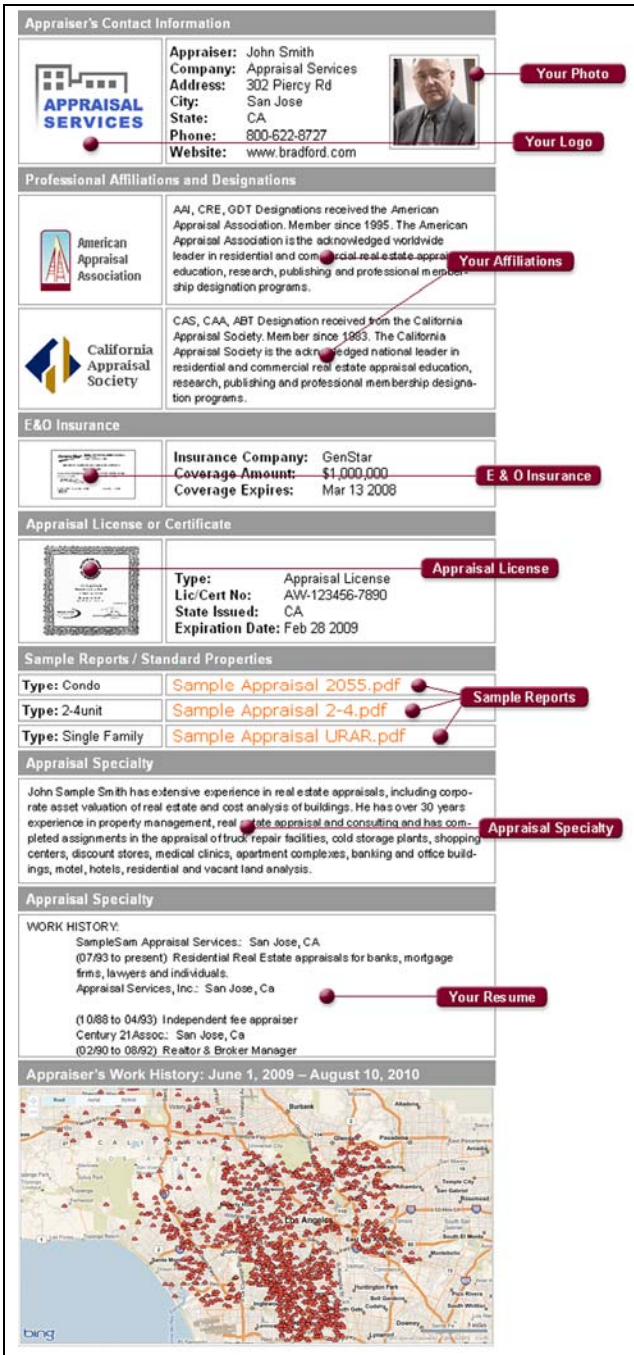
1. **Appraiser Selection: Geographic Competence Ranking**

Every appraisal order starts with the selection of the appraiser. One of the most important criteria in the selection process is the appraiser's geographic competence. By performing a geo-spatial cluster analysis on their work history, all subjectivity in determining their geographic competence is removed. This analysis is in operation today at AppraisalWorld.com and is used every time a search for an appraiser is initiated.

	**Appraiser's Work History** This is a representation of an appraiser's work history. Up to 1500 appraisals are considered in the cluster analysis. The work history consists of the location, the type and the date of the appraisal.
	**Geo-Spatial Cluster Analysis** The appraiser's work history (time, distance, and type of valuation) is analyzed relative to the subject property. The analysis is performed for all appraisers that have performed appraisals within a certain range of the subject property. The analysis results in a score. Note that a different subject property will result in a different score for the same appraiser.
	**GEAR Score** A Geographic Experience Appraisal Report (GEAR) score is calculated for each appraiser. The appraiser's are then ranked by their GEAR Score relative to the subject property. A different subject will produce a different ranking.
	**Most Recent vs. Most Experienced** Because time (date of appraisal) is considered in the cluster analysis, the appraiser with the most recent experience versus the most overall experience relative to the subject property can be identified.

2. Transparency of Appraiser Credentials

To establish greater trust and reliance on the appraiser, greater transparency of their experience and credentials is needed. An online service called the Appraiser's Portfolio has been developed to store the appraiser's credentials. This service provides the appraiser with the convenience of storing, managing, updating their credentials online while allowing prospective clients to gain a greater appreciation and reliance by being able to review the appraiser's credentials online.



Appraiser's Portfolio

This service allows an appraiser to store, manage and display their appraisal credentials including work history online. A standardized format makes it easy for a prospective client or appraisal management company to quickly review and make a determination on the qualifications of the appraiser for the assignment. Following is the information displayed about an appraiser.

- Appraiser Contact Information
- Company Logo (optional)
- Appraiser Photo (optional)
- **Identify Authentication***
- Appraisal Affiliations
- **CVR Specialist Certification**
- E&O Insurance Certificate
- Appraisal License(s) Certificates*
- Sample Appraisal Reports
- Sample Complex Appraisal Reports
- Summary of Specialties
- Continuing Education Classes
- Resume
- **Work History***

* The appraiser's work history is displayed in a "live" map allowing clients to quickly zoom in and view where and where not the appraiser has performed property valuations.

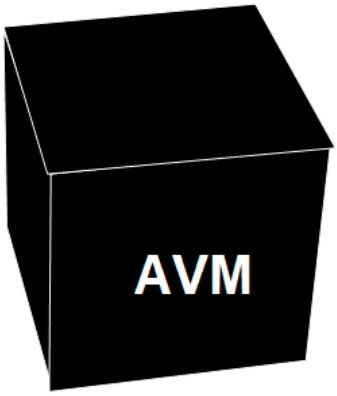
* Identity Authentication is performed by an online third party. CVR Specialists have their identity authenticated.

* Appraisal Licenses are verified by reviewing their status in the ASC.gov registry.

3. New Technology: Computer-Aided Appraisal Software

The software attacks the problem of improving valuation reliability by doing things a computer does best and focusing the appraiser on market analysis instead of form-filling. This is in contrast to alternative valuation services which couple the appraiser with an AVM. The key difference is "Black Box" technology versus "Clear Box" technology.

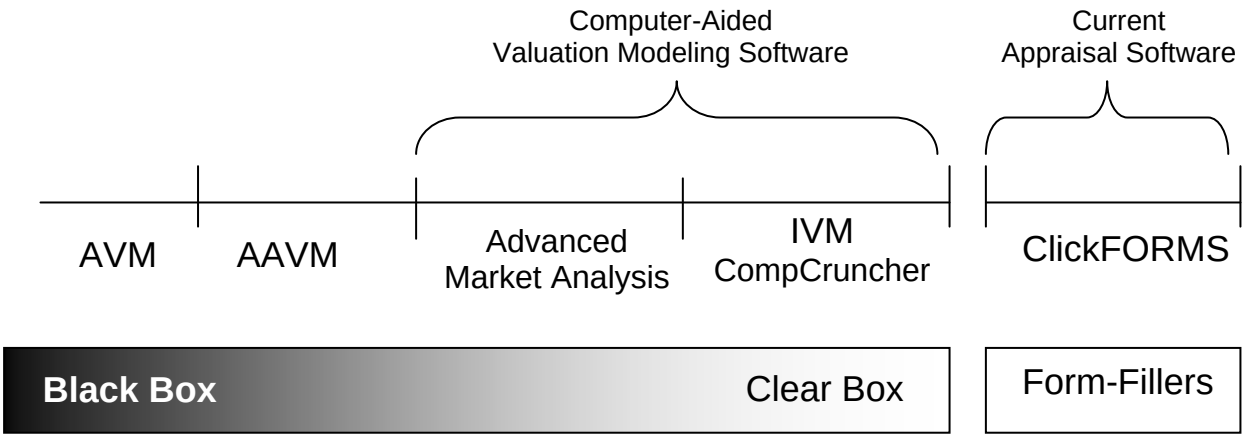
Black Box



Clear Box

Any process paired with an AVM will be driven by the Black Box and only understood by its creators. Open or Clear Box analytics can be understood by all. This is a dramatic shift in perception and brings full transparency to the appraisal process in addition to statistical support for the components of value, market trends and most importantly, the value conclusion.

The chart below illustrates where Interactive Valuation Modeling fits in the overall market of valuation services and products.



4. Education and Training in Statistics and Analysis

All appraisers learn statistics, but very few learn how to apply it to property valuations. With the introduction of new computer-aided appraisal software and the ability to interactively create valuation models, education and training of appraisers becomes critical. It is paramount that appraisers receive the education and most importantly, the hands-on training to competently apply regression analysis and understand the statistical significance of the results.

Because there were not any courses that offered hands-on training in applied regression analysis, Bradford Technologies developed an Interactive Valuation Modeling (IVM) Education and Training curriculum. The program is composed of:

- Self-paced, online introduction to statistics and regression fundamentals.
- Evaluation Test to ensure basic understanding of the concepts.
- Data Mapping of the appraisers MLS data for use in the analysis.
- 10 Sample Practice Valuations to introduce the appraiser to the workflow, market area definition, market analysis, development of the valuation model, identification of market components of value and their statistical significance and finally reconciliation of the regression results and the sales and listings comparison approaches. Each of the 10 samples teaches the appraiser how to recognize and handle issues that can arise in the analysis due to poor date, insufficient data or a complex market.
- 10 Practice Valuations using on properties located in the appraisers market area and they have performed an appraisal on previously. The purpose of these sessions of to introduce the appraiser to possible issues they will encounter in their specific market and to ensure they can skillfully and confidently apply the analytics.

The practice valuations are completed in day long sessions guided remotely by a team of three trainers. Two days are needed to complete the 20 training valuations (10/day). Up to 15 appraisers can be trained per session. Utilizing three trainers ensures each appraiser has ample one-on-one assistance to acquire the understanding, confidence and skill to interactively create a credible valuation model, apply it and reconcile the results.


Certificate of Achievement

In recognition of the successful completion of the course of study incorporating Real Estate Statistics and Regression Analysis and the demonstrated competency in the performance of the Collateral Valuation Process,

JOHN SMITH, JR.

Is Hereby Granted the Certification

Collateral Valuation Specialist

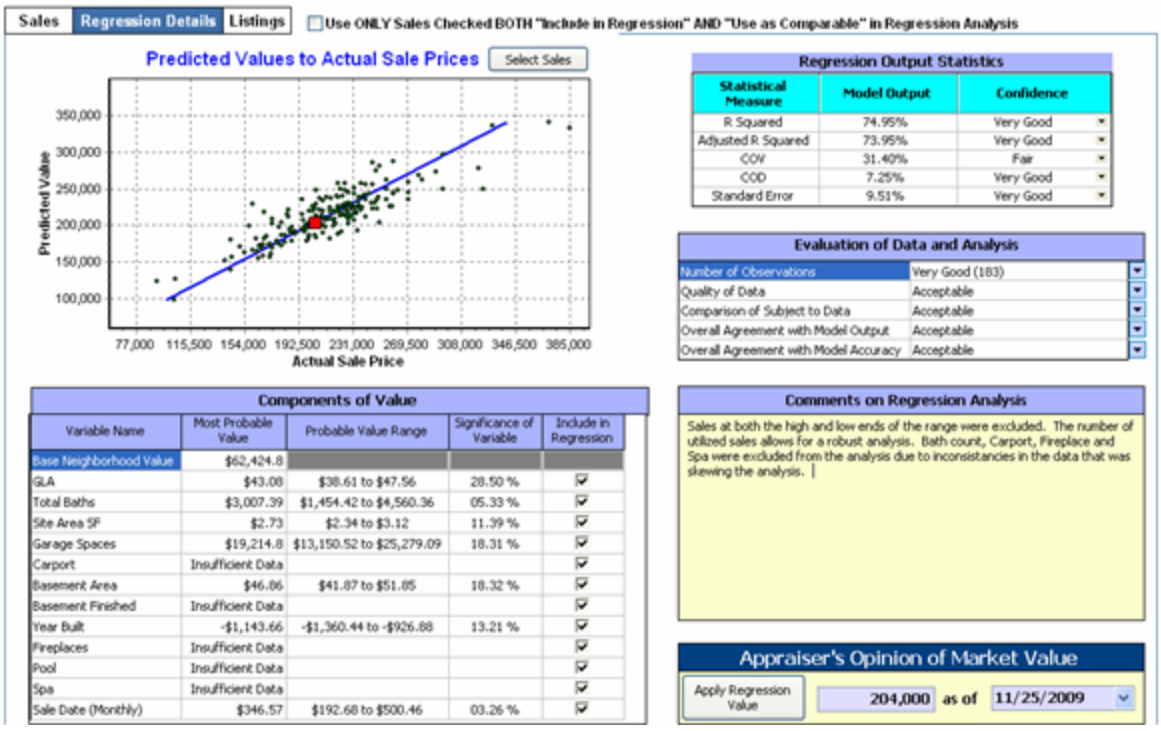
Conferred this: 25nd day of June, 2010

Mark R. Linné, MAI, SRA, CRE CAE, ASA, FRICS
EVP of Education & Analytics
AppraisalWorld, Inc.

Upon successful completion of the CVR Education and Training program, the appraiser attains the designation of “CVR Specialist” and is awarded the certificate of achievement show to the left.

5. Transparency of Analysis and Process

In the CVR Education and Training program, the appraiser is taught the fundamentals of statistics and regression. Using an Interactive Valuation Modeling approach, the appraiser drives the modeling process to determine the coefficients that make up the property values in the market. This process sets the statistical significance of the coefficients (property characteristics such as GLA, site, etc.) and predicts with statistical accuracy the market value of the subject.



6. Transparent Presentation of the Appraisal

In a typical 1004 appraisal, the forms are filled out, three or six comparables are displayed in the sales comparison grid and reconciled value conclusion is presented. The actual work product of the appraisal is stored in the appraiser's work file and never seen by the client.

Part of the new approach is to bring the work product to the front, so the entire valuation process is transparent to the end user or client. This effort resulted in a new presentation format called the Collateral Valuation Report (CVR™). There is a desktop and drive-by version. Its main features are the following:

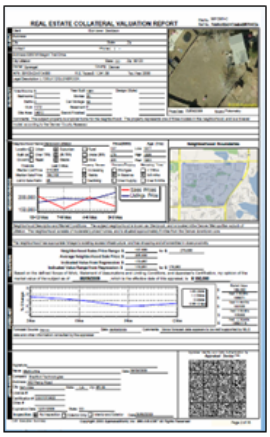
Executive Summary
This page describes the subject along with a photo if it, the market area is outlined on a map, charts illustrate the market characteristics, the approaches to value are summarized and the value conclusion presented. Optionally, a value forecast can be presented predicting the value 30,60 and 90 days out continuing with an economic forecast of values at 180, 270 and 360 days out.

Detailed Market Analysis
This page presents the details the market analysis. The area is graphically defined on a map and its relation to the metropolitan area is shown. The market trends are shown in tabular and chart form as well as an economic forecast of the market values 90, 180, 270 and 360 days out.

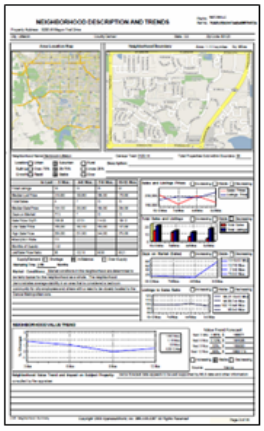
Regression Analysis Results
The results of the regression analysis and the valuation model created are shown on this page. It illustrates the over all accuracy using a scatter plot of predicted vales to actual sales; the components of value of properties in the market, the top 10 properties identified as being most similar and comments by the appraiser of the significance of the analysis.

The remainder of the report consists of the addendums showing the sales comparison approach, the listings comparison approach, exterior inspection, additional comments, location map, flood map and the scope of work, assumptions and limiting conditions and certification.

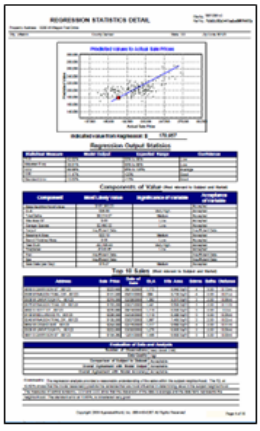
Executive Summary With Forecasting



Detailed Market Analysis



Regression Analysis



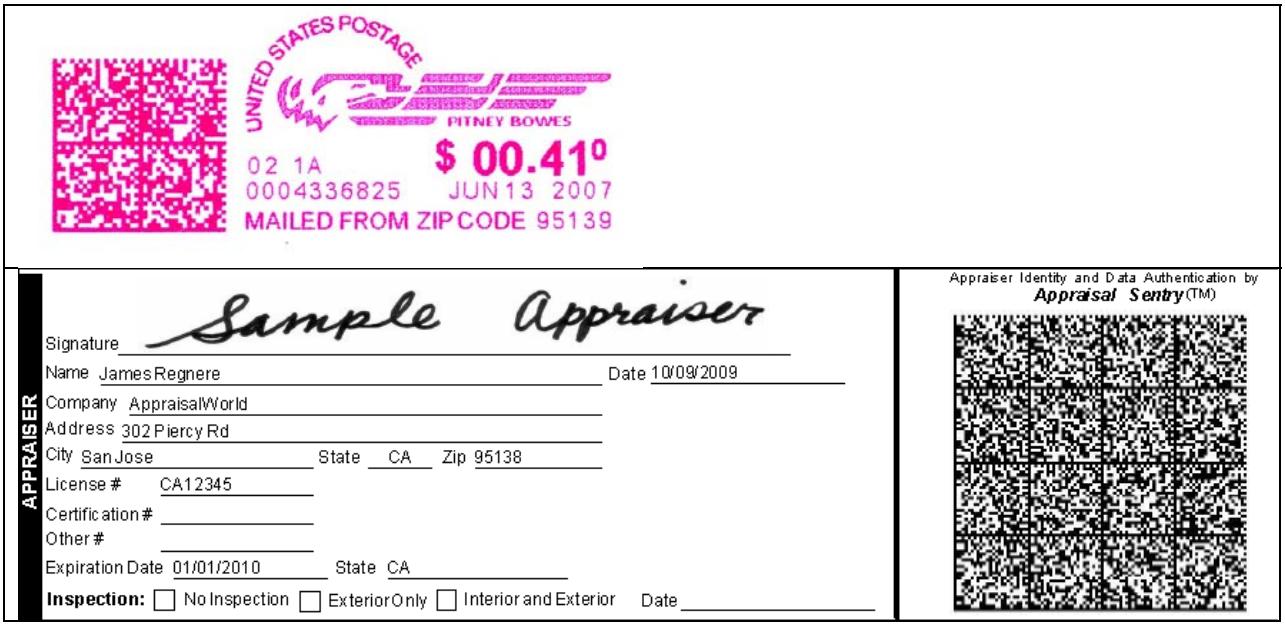
7. Reducing Report Fraud

Fraud is a main concern when trying to improve the credibility and trust of the appraisal process. Trust in the individual was addressed by authenticating their identity and making the results easily verifiable online.

Report fraud needs to be addressed in a different manner. We chose to partner with Appraisal Matrix who had pioneered the use of Data Matrix technology to ensure the validity of appraisal data contained within a report. Incidentally, this is the same technology that is used by the postal service to prevent postal fraud.

The technology is called On Document Verification. It utilizes a two dimensional data matrix to encode the salient features of the appraisal and appraiser. The encoding is robust enough that up to 60 percent of the matrix can destroyed and the all the data can still be recovered.

Each Collateral Valuation Report, upon signing by the appraiser, has its salient data encoded in into a two dimensional data matrix. That matrix is then affixed to the report for all to see assuring the client the data can be trusted and relied on. Additionally, a numerical security "digest" representing the entire document including the affixed data matrix is created and stored online line creating essentially two layers of security for the report. If there is any doubt as to the authenticity of the value conclusion or any data in the report, the digest can be verified and/or the data matrix can be decoded by scanning the matrix with standard 2D data matrix decoding software. Optionally, the CVR PDF can be uploaded to appraisalworld.com for online decoding.

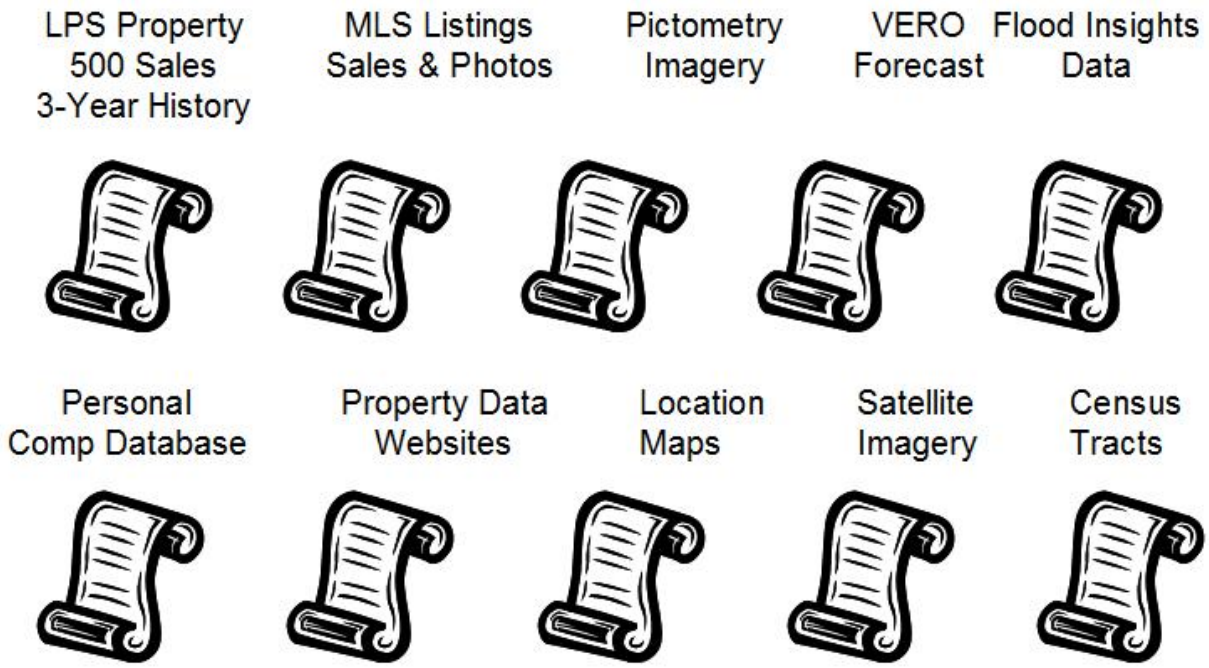


8. Process Efficiency: Front Loading of Data

To make the computer-aided appraisal process more efficient, data needed for the analysis is "front-loaded" into the system. Bradford Technologies partnered with national suppliers of property, imagery and economic data so that the appraiser had all the information to perform the analysis and produce a credible appraisal report in record time.

For instance, instead of reviewing just a few similar properties for the appraisal, we partnered with LPS to provide the appraiser with up to 500 sales within the market area with three years of sales history.

Below is an illustration of the data that is front loaded for the appraiser.

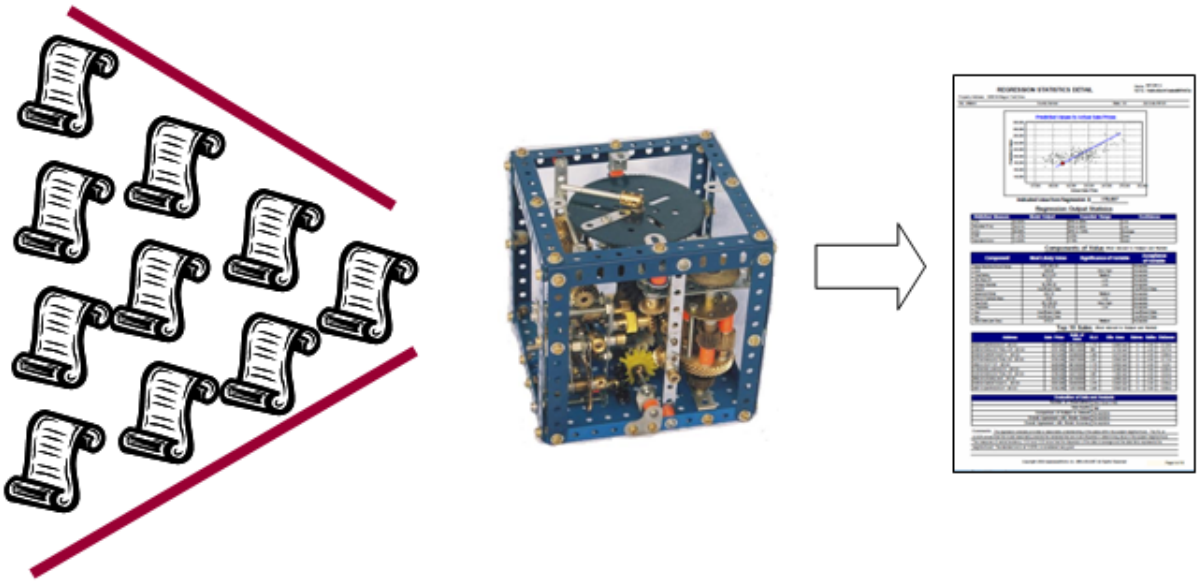


9. Process Efficiency: Streamlining of the Workflow

Special software was developed to streamline the entire valuation process. Today, appraisal software consists of sophisticated form-filling software. This software is focused on data management and data analysis. The form is filled out automatically at the end of the valuation process.

This development introduced a new category of appraisal software called “Computer-aided Appraisal” Software and expanded on this concept by providing the appraiser with the capability to interactively create valuation models or Interactive Valuation Models (IVMs).

Below is an illustration depicting the over all work flow of the valuation process. The property data is front loaded into the system, the appraiser suing “clear box” technology interactively creates a valuation model of the market area and after reconciling the analysis with sales and listings comparisons outputs the reports to a transparent appraisal report.



10. The Value Conclusion: Now Statistically Supported

Using the processes and technology described in this paper, the value conclusions compare favorably with value conclusions arrived at by performing full interior/exterior inspection 1004s.

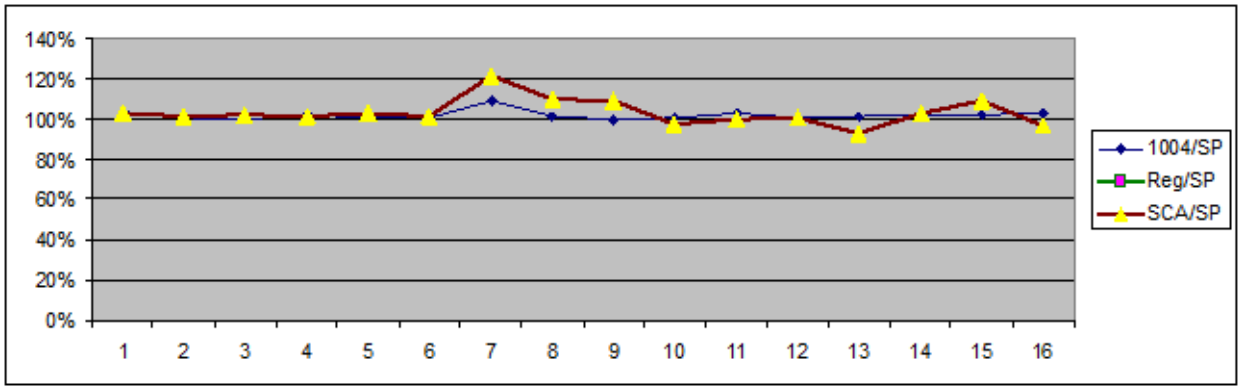
Below is a chart showing side by side comparison of the final contact sales price, the appraisal prediction, the prediction by regression and the final (CVR sales) value conclusion reconciled in the CVR report.

These valuations were performed by the Wright Realty Company in Laredo, Texas. Texas is a non-disclosure state so the data used were comparables from the firms own comparables data base and data from the local MLS.

Wright Realty Co. **CVR Program Test Results**

Address	Contract Price	Appraisal Value	% Difference	CVR Regression Value	% Difference	CVR Program Sales Value	% Difference
1413 A	$ 152,000.00	$ 158,100.00	104%	$ 156,983.00	103%	$ 156,000.00	103%
1521 S	$ 189,000.00	$ 189,800.00	100%	$ 190,820.00	101%	$ 191,000.00	101%
1640 D	$ 162,000.00	$ 162,200.00	100%	$ 165,072.00	102%	$ 166,000.00	102%
1717 P	$ 119,000.00	$ 121,900.00	102%	$ 121,166.00	102%	$ 121,000.00	102%
3105 I	$ 158,900.00	$ 160,000.00	101%	$ 162,023.00	102%	$ 163,500.00	103%
3138 H	$ 200,000.00	$ 201,000.00	101%	$ 217,834.00	109%	$ 203,000.00	102%
4023 D	$ 97,000.00	$ 106,000.00	109%	$ 109,000.00	112%	$ 117,500.00	121%
6403 A	$ 100,000.00	$ 101,000.00	101%	$ 102,724.00	103%	$ 110,000.00	110%
11011 P	$ 201,930.00	$ 202,200.00	100%	$ 201,955.00	100%	$ 220,000.00	109%
11161 C	$ 124,900.00	$ 125,500.00	100%	$ 127,224.00	102%	$ 122,000.00	98%
1008 S	$ 166,800.00	$ 171,500.00	103%	$ 170,540.00	102%	$ 166,500.00	100%
204 R	$ 159,990.00	$ 161,000.00	101%	$ 144,880.00	91%	$ 161,000.00	101%
820 R	$ 190,890.00	$ 193,400.00	101%	$ 153,950.00	81%	$ 177,000.00	93%
304 LC	$ 288,000.00	$ 293,900.00	102%	$ 289,500.00	101%	$ 295,500.00	103%
602 S.L	$ 82,000.00	$ 83,500.00	102%	$ 68,707.00	84%	$ 89,500.00	109%
1207 A	$ 150,000.00	$ 154,300.00	103%	$ 145,674.00	97%	$ 145,500.00	97%

The chart below shows the 1004 value conclusion vs. the reconciled CVR value conclusion. It is important to note that the regression value is not used as the final value. It is the reconciliation of all the approaches along with the appraisers expertise that makes the conclusion so reliable.



11. Appraiser Productivity

The entire process from start to finish: loading the data, building the valuation model, analyzing the results, performing the sales and listing comparison and finally reconciling the approaches and arriving at a value conclusion takes less than one hour.

This new approach to property appraisals improves the reliability of the valuation; the credibility of the appraiser; and the overall efficiency of the process.

Interactive Valuation Modeling implemented in specialized computer-aided appraisal software is the future path for the appraisal industry.

Providing appraisers control of "clear box" valuation technology and full access to the abundant property data on the internet will move appraisers from the "the art of appraising" into "the science of appraising".

References:

www.AppraisalWorld.com

Informational Webinars
www.AppraisalWorld.com/webinar

CompCruncher – Computer-Aided Appraisal Software
www.AppraisalWorld.com/CompCruncher

CVR Education and Training & CVR Specialist Certification
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"Visual Valuation – Implementing Valuation Modeling and Geographic Information Solutions".
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APPENDIX B: THE COLLATERAL VALUATION REPORT (CVR)

On the following pages, the features of a statistically supported valuation report with emphasis on process transparency are illustrated using the Collateral Valuation Report.

Note that the base CVR report can easily be expanded to include information from Drive-by Inspections, from Interior and Exterior Inspections of the subject property and a host of other sources of other geospatially related property information to produce highly supported valuation.

- CVR Desktop
- CVR Drive-by Inspection
- CVR Interior and Exterior Inspection

Name of Borrower. The borrower's name is placed at the top for easy and quick identification of the report.

Executive Summary. The Collateral Valuation Report was designed so that the first page presents all the salient information in an executive summary format.

Property Photo. The subject photo is on the front page. This makes it easy to view the property and ensure it's the correct property being used for collateral.

Date and Source of Photo. The date and source of the photo is indicated to ensure relevancy and reduce fraud.

Market Area Graphically Illustrated. The market area is graphically illustrated on a map showing the subject and surrounding area.

Neighborhood Demographics. The standard neighborhood demographic information typically found on a 1004 is also found on the CVR.

Market Trends. The trends for sales and listings for the market area are graphically shown in a chart for easy and better interpretation of the activity in the market area.

Value Reconciliation. The value ranges in the market area, the indicated value by regression and the range are show in one place for easy reconciliation of the overall values in the market area.

Appraiser's Opinion of Value. The appraiser's opinion of value and the effective date of the value are indicated.

12-Month Value Forecast. Using economic data the value of the collateral is forecasted for 90,180, 270 and 360 days out. The values are show as well as a trend chart for a better understanding of the anticipated values in the market and of the collateral.

Report Fraud Prevention. This technology is called "On Document Verification". Encrypted in the data matrix is all the pertinent information about the appraiser and the report. If there is any indication of fraud, the data matrix can be decrypted to reproduce the original report data. This is the same technology used by the postal service to prevent mail fraud.

Appraiser's Identity Authenticated. The identity of all CVR Certified appraisers has authenticated by Appraisal Sentry using "out of pocket" credentials.

REAL ESTATE COLLATERAL VALUATION REPORT

SUMMARY APPRAISAL REPORT

File No. 4811 Kingston Avenue
Ref No. 00001563

CLIENT

Client TerraForma Lending — Borrower James Rogers
Address 2445 Septimus Drive — City Littleton — ST CO — Zip
Contact Sample Appraiser — Phone (303) 875-5677

SUBJECT

Address 4811 Kingston Avenue — City Highlands Ranch — STCO — Zip 80126
Owner Kim Jones — County Douglas
APN 2231-18-2-10-013 — R.E. Taxes $ 1,960.41 — Tax Year 2008
Property Interest Appraised: ☐ Fee Simple ☐ Other
Highest and Best Use:
Legal Description LOT 392 HIGHLANDS RANCH # 120C 0.093 AM/L

Total Rooms 3 — Year Built 1998 — Design (Style) 2-Story
Bedrooms 3 — Stories 2+B
Baths 3 — Car Storage G2
GLA 1680 — Basement 464
Site Area 3920 — Bsmnt Finished

Photo Date 03/15/2009 — Source Appraiser

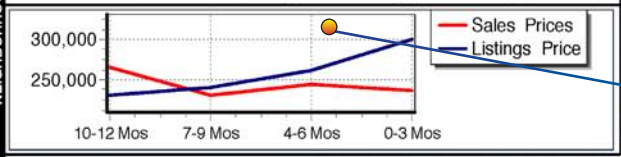
Comments: The subject property is a typical improvement for the neighborhood. Given the diversity of the Highland's Ranch neighborhood, it represents a newer home within this area.

NEIGHBORHOOD

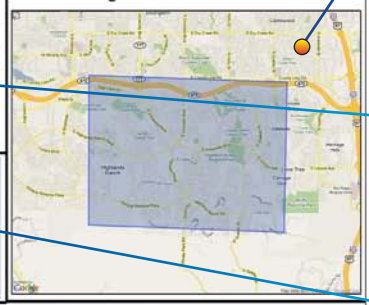
Neighborhood Name Highlands

				Price($000)	Age (Yrs)
Location	☐ Urban	☒ Suburban	☐ Rural	185	Low 3
Built-Up	☒ Over 75%	☐ 25-75%	☐ Under 25%	450	High 35
Growth	☐ Rapid	☒ Stable	☐ Slow	380	Pred 12

Trends	Last 3 Mos.	Property Values	Demand/Supply	Marketing Time
Median List Price	299,900	☐ Increasing	☐ Shortage	☐ < 3 Mos
Median Sale Price	235,000	☒ Stable	☒ In Balance	☒ 3-6 mths
List to Sale Ratio	96.25	☐ Declining	☐ Over Supply	☐ Over 6 mths



Neighborhood Boundaries



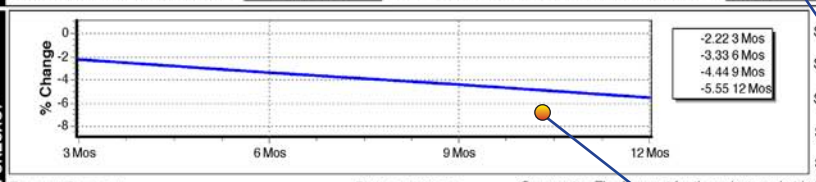
Neighborhood Description and Market Conditions: The Highlands Ranch neighborhood is located proximate to Highway C-470, between Interstate 25 and Santa Fe Drive in the southern tier of the Denver Metropolitan area. The neighborhood consists of more than 20,000 housing units and is considered to represent one of the more desirable neighborhoods in the area. Housing stock varies widely in this neighborhood, with home prices ranging from $200,000 to more than $1,000,000.

VALUATION

Neighborhood Sales Price Range: $ 185,000 to $ 450,000
Average Neighborhood Sale Price: $ 380,000
Indicated Value from Regression: $ 249,576
Indicated Value Range from Regression: $ 249,574 to $ 249,579

Based on the defined Scope of Work, Statement of Assumptions and Limiting Conditions, and Appraiser's Certification, my opinion of the market value of the subject as of 12/01/2009, which is the effective date of this appraisal, is $ 252,500.

FORECAST



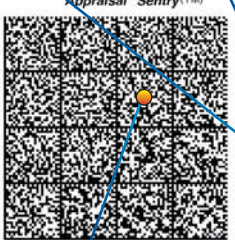
	Market Value
	$ 252,500
Next 3 Months	$ 246894.5
Next 6 Months	$ 244091.75
Next 9 Months	$ 241289
Next 12 Months	$ 238486.25

Forecast Source Veros — Date 02/05/2010 — Comments: The forecast for the suject market is for continued declines.

APPRAISER

Signature Sample Appraiser
Name Sample Appraiser — Date 02/11/2010
Company Bradford Technologies
Address 302 Piercy Rd
City San Jose — State CA — Zip 95138
License # CA5778
Certification #
Other #
Expiration Date 01/01/2011 — State CA
Inspection: ☒ No Inspection ☐ Exterior Only ☐ Interior and Exterior — Date

Appraiser Identity and Data Authentication by Appraisal Sentry(TM)



Market Area Graphically Illustrated. Enlarged view of the boundaries of market area. Sales and listing within this area are used in the performance of the market analysis.

Area Location Map. The market area is graphically displayed on a location map to visually illustrate the location of the subject and the market area relative to other surrounding landmarks.

Neighborhood Characteristics. The neighborhood characteristics indicating location, build-up and growth are shown.

12-Month Market Activity. Sales and listing activity for the market area is tabulated for the last 12 months.

12-Month Market Activity Charts. Sales and listing activity for the last 12 months is graphically displayed for fast, clear understanding of the market.

Market Analysis Results. Important market factors such as market absorption and months supply of housing in the market are calculated and shown.

Listing Price to Sales Price Ratio. This important indicator of market condition is calculated quarterly and its trend charted on the right.

12-Month Neighborhood Value Forecast. Using economic data, the value of properties in the market area are forecasted over a 12 month period.

NEIGHBORHOOD DESCRIPTION AND TRENDS

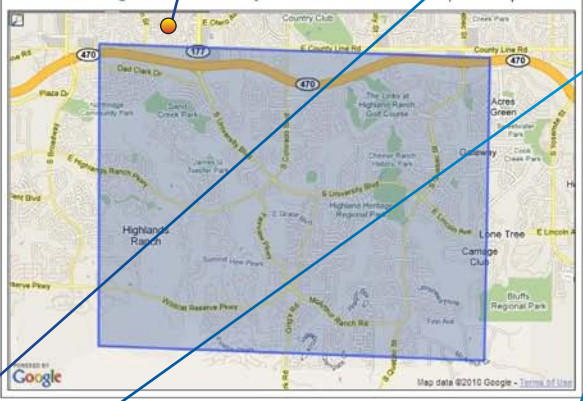
File No. 4811 Kingston Avenue
Ref No. 00001563

Property Address 4811 Kingston Avenue

City Highlands Ranch | County Douglas | State CO | Zip Code 80126

Area Location Map

Neighborhood Boundary Area: 14.818 sq miles Sq Miles



Neighborhood Name Highlands | Census Tract 0141.18 | Total Properties Sold within Boundary 207

Location ☐ Urban ☒ Suburban ☐ Rural
Built-Up ☒ Over 75% ☐ 25-75% ☐ Under 25%
Growth ☐ Rapid ☒ Stable ☐ Slow

Description: The subject is located within the Highlands Ranch neighborhood, in the south-central Denver Metropolitan area. This planned neighborhood provides excellent linkage to employment centers, retail/shopping and other amenities.

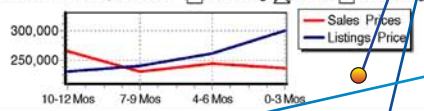
In Last:	3 Mos.	4-6 Mos.	7-9 Mos.	10-12 Mos.
Total Listings	266	224	112	89
Median List Price	299,900	259,900	239,900	229,900
Total Sales	53	74	36	44
Median Sale Price	238,000	243,000	229,900	265,000
Days on Market	2	6	34	2
Sale Price / SqFt	146.1	145.06	131.26	137.81
Low Sale Price	195,000	193,000	209,500	204,000
High Sale Price	450,000	387,500	385,000	385,000
Absorption Rate	17.67			
Months of Supply	4.33			
List/Sale Price Ratio	96.25	96.63	94.68	94.55

Supply/Demand ☐ Shortage ☒ In-Balance ☐ Over-Supply

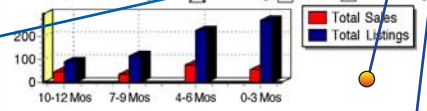
Marketing Time 3.0 Months

Market Conditions: Given the nature of this neighborhood, market conditions have remained stable with sales and listings generally in balance.

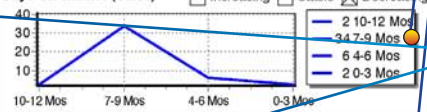
Sales and Listings Prices ☐ Increasing ☒ Stable ☐ Decreasing



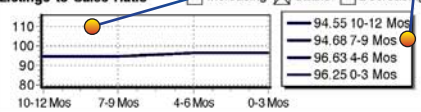
Total Sales and Listings ☒ Increasing ☐ Stable ☐ Decreasing



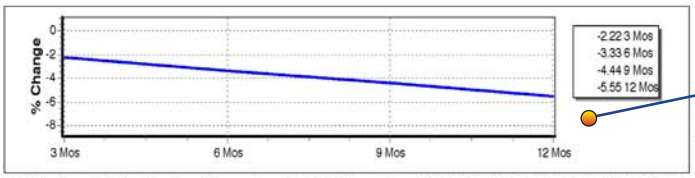
Days on Market (Sales) ☐ Increasing ☐ Stable ☒ Decreasing



Listings to Sales Ratio ☐ Increasing ☒ Stable ☐ Decreasing



NEIGHBORHOOD VALUE TREND



Value Trend Forecast

Next 3 Mos	-2.22%	$ 246894.5
Next 6 Mos	-3.33%	$ 244091.75
Next 9 Mos	-4.44%	$ 241289
Next 12 Mos	-5.55%	$ 238486.25

☐ Increasing ☒ Stable ☐ Decreasing

Source Veros

Neighborhood Value Trend and Impact on Subject Property: The forecast for the suject market is for continued declines.

Regression Analysis. The collateral valuation conclusion is supported by the regression analytics applied to sales and listing data. Up to 500 sales with 3 year sales history may be analyzed during this process.

Scatter Plot. A picture is worth a thousand words and in this case the accuracy of the correlation of the actual sales price to the predicted sales price is graphically illustrated.

Regression Metrics. The actual measure of accuracy of the regression analysis is show in this table along with the indicated confidence of the appraiser in the metrics.

Components of Value. Regression can identify the components of a property that contribute to its overall value. The value, its significance and whether the component is acceptable is indicated in this table.

Top 10 Sale Comparables. The sales are ranked by an analytical process. The top comparables in the market area to the subject property are shown in the table.

Evaluation of Analysis. The appraiser rates the analysis and the goodness of data that went into the analysis process.

REGRESSION STATISTICS DETAIL

File No. 4811 Kingston Avenue
Ref No. 00001563

Property Address 4811 Kingston Avenue
City Highlands Ranch | County Douglas | State CO | Zip Code 80126

Indicated Value from Regression: $ 249,576

Regression Output Statistics

Statistical Measure	Model Output	Confidence
R Squared	41.34%	Acceptable
Adjusted R Squared	39.48%	Acceptable
COV	6.94%	Very Good
COD	5.67%	Very Good
Standard Error	5.16%	Very Good

Components of Value (Most relevant to Subject and Market)

Component	Most Likely Value	Significance of Variable	Acceptance of Variable
Base Neighborhood Value	$194,659.64		Accepted
GLA	$23.77	High	Accepted
Total Baths	$6,344.95	Medium	Accepted
Site Area SF	$.7	Low	Accepted
Garage Spaces	Excluded		Excluded
Carport	Insufficient Data		Insufficient Data
Basement Area	$12.57	Medium	Accepted
Basement Finished	Insufficient Data		Insufficient Data
Year Built	-$1,096.78	Medium	Accepted
Fireplaces	$668.6	Low	Accepted
Pool	Insufficient Data		Insufficient Data
Spa	Insufficient Data		Insufficient Data
Sale Date (Monthly)	-$135.47	Low	Accepted

Top 10 Sales (Most relevant to Subject and Market)

Address	Sale Price	Date of Sale	GLA	Site Area	Bdrms	Baths	Distance
10081 MACKAY Dr , 80130	$240,000	11/16/2009	1,677	5,662 SqFt	3	3.00	0.27 mi
4849 Kingston Ave , 80130	$250,000	09/30/2009	1,691	3,920 SqFt	3	3.00	0.03 mi
9689 Adelaide Cir , 80130	$258,000	09/29/2009	1,678	5,662 SqFt	3	3.00	0.37 mi
10086 Cairns Ct , 80130	$279,000	09/25/2009	1,707	6,098 SqFt	3	3.00	0.11 mi
4916 Waldenwood Dr , 80130	$252,500	10/05/2009	1,649	8,276 SqFt	3	3.00	0.34 mi
4914 Collingswood Dr , 80130	$249,900	08/31/2009	1,677	6,534 SqFt	3	3.00	0.41 mi
4851 Collinsville Pl , 80130	$243,000	08/24/2009	1,708	4,356 SqFt	3	3.00	0.11 mi
10338 Rotherwood Cir , 80130	$273,000	09/17/2009	1,768	5,662 SqFt	3	3.00	0.37 mi
5559 E Wickerdale Ln , 80130	$268,000	08/26/2009	1,678	6,969 SqFt	3	3.00	0.86 mi
9882 Aftonwood St , 80126	$232,300	10/15/2009	1,513	4,791 SqFt	3	4.00	0.39 mi

Evaluation of Data and Analysis	
Number of Observations	Very Good (228)
Data Quality	Acceptable
Comparison of Subject to Dataset	Acceptable
Overall Agreement with Model Output	High
Overall Agreement with Model Accuracy	Acceptable

Comments: There was a sufficiency of sale data to produce an appropriate indication of value from the regression analysis. With 228 sales, this dataset was appropriate and rich enough to provide ample evidence of value. The R squared and Adjusted R squared were both adequate for a well-designed model. The measures of dispersion in the COV and COD, in tandem with the Standard Error at 5.16% were both determined to represent a highly predictive valuation with minor error.

About Jeff Bradford

Mr. Bradford is the Founder and CEO of Bradford Technologies, developers of ClickFORMS, AppraisalWorld and the new statistically supported CVR appraisal. Previous to founding Bradford Technologies, Mr. Bradford was extensively involved in designing and developing computer-aided analysis systems for predicting system behavior in the engineering field. Today, he is focused on bringing innovation and computer-aided valuation techniques to the appraisal industry. Mr. Bradford holds three master's degrees: Master of Business Administration and Master of Science in Computer Engineering from Santa Clara University in Santa Clara, California, and a Master of Science in Engineering from the University of Texas at Austin. He also has a Bachelor of Science degree in Mechanical Engineering from New Mexico State University in Las Cruces New Mexico

About Mark R. Linné

Mark R. Linné, MAI, SRA, CAE, FRICS has been a leader in the design, deployment and adoption of interactive valuation technologies for more than a decade. Mr. Linné is an author, editor, speaker, columnist, inventor, AVM expert, data standards proponent, software developer and veteran appraiser who has focused on technology, data and valuation modeling and their roles in appraisal. Mr. Linné is the co-author of two previous books for the Appraisal Institute: "A Guide to Appraisal Valuation Modeling" and "Practical Applications in Appraisal Valuation Modeling". He an author and the editor of the Appraisal Institute's newest book: ***Visual Valuation: Integrating Valuation Modeling and Geographic Information Solutions***. Mr. Linné is also the co-author of the IAAO text "***Property Assessment Valuation***" published in 2010. Mr. Linné serves as Executive Vice President-Education and Analytics for AppraisalWorld, Inc.

About Bradford Technologies, Inc./ AppraisalWorld, Inc.

Bradford Technologies, located in Silicon Valley, has been serving the appraisal industry for over 24 years and was recently recognized by Mortgage Technology magazine as one of the Top 50 Service Providers in the industry. The company is known for its innovative appraisal solutions, from its hassle-free appraisal processing software, ClickFORMS to its new online community and services portal AppraisalWorld, Bradford Technologies is dedicated to building trust and reliability in the appraisal profession and providing cutting edge solutions for appraisers, appraisal management companies, lenders and consumers. It's most recent innovation is a statistically supported, USPAP compliant appraisal, the Collateral Valuation Report (CVR), along with a complete statistics education and training course to teach and certify appraisers in the science of real estate market analytics. With these tools, the company's clients are powerfully positioned to meet the needs of the valuation marketplace. For more information, visit: www.bradfordsoftware.com and www.appraisalworld.com.