AN IDAHO STUDY FOR THE IDAHO DEPARTMENT OF TRANSPORTATION

VALUATION OF INDIRECT LOSSES DUE TO PROXIMITY DAMAGES ON RESIDENTIAL PROPERTY IN IDAHO

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Executive Summary

Valuation of Indirect Losses Due to Proximity Damages on Residential Property in Idaho

Statewide transportation planning needs require forecasting and assessing property damages that result from a road project. As the traffic flow and traffic demands in Idaho change, the Idaho Transportation Department continuously evaluates transportation elements of comprehensive plans, determines impacts of proposed land use changes, and determines the transportation needs for the state. Meeting transportation needs often requires building or widening roadways, which necessitates that the state exercise their eminent domain right, the right to take private property for a public use upon payment of just compensation.

Two basic forms of damages have been identified in eminent domain litigation: the taking of the physical property; and concluded hypothetical damages occasioned by the taking to the remainder—the remaining land and improvements as they exist at a point in time after the road project has been completed. The problem in the past has been that the methods used to estimate the value of these damages employed limited comparable data, usually three to five direct comparisons, with subjective adjustments applied based on experience and arbitrary judgment.

In this study, a six region forecasting model was developed to explain residential property values in Idaho based on multivariate regression analysis. The model uses factors, or characteristics that commonly affect the sales price of a home, and less common characteristics such as street-traffic classification and setback from the street or road, to conclude what portion of home value is attributable to proximity and to street-traffic classifications.

A multi-regional or state wide model was developed and tested, as were separate models for each region. The regions from which data were collected and analyzed are: the Idaho Falls region, the Pocatello region, the Boise region, the Lewiston region, the Moscow region, and the Coeur d'Alene region. The statewide model, which incorporates statstically estimated adjustments for each region, was the strongest and most complete model. With it, statistically reliable as-is and hypothetical estimates of residential property values can be calculated within the tested regions statewide for residential properties that have been or will be affected by damages associated with designing new routes or widening existing streets and roads. The model will also assist in providing more quantative benchmarks for assessing whether damages have even occured at all.

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Introduction

Idaho's transportation system is comprised of about 60,000 miles of road, about 4,000 bridges, 1,900 miles of rail lines, 125 public airports, and the Port of Lewiston. Of Idaho's 58,588 miles of roads, approximately 9 percent, or 5,000 miles, are state–controlled, while 40 percent are federal. Of the total miles of non-federal rural roads, 14 percent are state, 44 percent are county, less than one percent are township, and 42 percent are municipal and other. The state highway system accounts for 54 percent of the state's vehicle miles of travel, while 41 percent of vehicle miles of travel occur on the interstates. From 1984 to 1998, vehicle miles of travel on the state highway system has increased more than 63 percent (*Idaho's Transportation System Defined*).

As the demands of the traveling public in Idaho change, traffic flow and traffic demands in Idaho change. As a result, the Idaho Transporation Department (ITD) is responsible for developing a 20-year long-range plan as well as the 3-year State Transportation Improvement Program (STIP). Working under the supervision of a Governor Appointed Board, ITD has six planning districts that work with a variety of transportation planning organizations and groups, including six regional planning and development organizations. Meeting the state's transportation needs often requires widening roadways or designing new routes, which necessitate that the state exercise their eminent domain right. Eminent domain is the right of the state to take private property for a public use upon payment of just compensation.

In *Real Estate Valuation In Litigation* second ediition, (1995), James Eaton identifies two basic forms of damages in eminent domain litigation. One is the taking of the physical property. The other is the concluded damages occasioned by the taking to the remainder parcel. The amount of damages is determined by computing values concluded by doing an appraisal on the property in its present state ("as-is") and an assumed or supposed ("hypothetical") value of the property at a point in time after the road project has been completed (chapter 14).

The Idaho Department of Transportation spends a great deal of taxpayer money to compensate residential property owners for estimates of residual property damage resulting from a road project. More specifically, measuring damages caused by the remainder's proximity to the improvement being constructed, e.g., a highway, has not been empirically examined on a statewide or regional level, and the relationship between estimates for just compensation for anticipated damages and the actual loss of market value to the residential property has not been empirically identified.

In 1997, the right of way division of ITD organized a task force to consider the parameters of a comprehensive study in an effort to develop consistency and reliability in concluding residential property proximity damages. After three years of gathering studies and literature from federal agencies and other state transportation departments, the task force contacted the Univesity of Idaho Agricultural Economics and Rural Sociology Department requesting a proposal to complete the study for Idaho. In November 2000, the grant was issued and administered through NIATT, National Institute for Advanced Transportation Technology, the transportation engineering division of the Unversity of Idaho.

The Idaho Transporation Department is the lead agency for the research project with a five-member technical oversight committee. The committee members include:

- Doyle Pugmire, Appraisal Coordinator, ITD
- Leonard Hill, Right of Way Manager, ITD
- Rick Machmeier, Right of Way, Appraisal Review, ITD
- Scott Frey, FHWA
- Karl Vogt, Attorney General's Office, ITD

Problem Statement: The Real Property Aquisition Appraisal Process.

It has become essential for real estate appraisers to use a standard definition of "Proximity Damage" as well as a standard formula in the value computations in order to avoid subjective and flawed estimates of value.

"There are many perspectives that lend themselves for proximity study… its physical or environment affects, its social affects,its health affects, etc." (p. 2) *The Appraisal Journal*, *Transportation Research Record*, *Right of Way Journal,* and *Real Estate Valuation in Litigation* provide extensive information on the valuation process of typical and atypical properties, as well as complex and noncomplex appraisals. These publications describe regulations for eminent domain appraisals, following *Uniform Standards of Professional Appraisal Practice* and *Uniform Appraisal Standards for Federal Land Acquisitions.*

While appraisers do not conclude just compensation, they are required to measure the diminution in value based on material facts and circumstances that would influence a buyer or seller. (Eaton, 1995, p. 20) The Federal Highway Administration appraisal guidelines outline technique and methodology, which state:

> The ***sales comparison approach*** should be developed and relied upon whenever there is adequate market data.
>
> The approach shall include adequate research to identify all pertinent similar properties for which sales, listings, or rental data are available.
>
> All comparable information will be confirmed by the buyer, seller, broker or other person having knowledge of the price, terms and conditions or the reason for not so confirming shall be stated.
>
> Significant adjustments for similarities and dissimilarities such as time, location, physical and economic characteristics, and motivation for the transaction shall be individually explained.
>
> Substantial lump sum adjustments that cannot be quantitatively or qualitatively supported are not acceptable.

Using the specific methods defined by the Federal Highway Administration appraisal guidelines, it becomes evident that proximity damages have a discernable affect on property values.

Proximity damages are specifically defined as "[a]n element of severance [compensable] damages that is caused by the remainder's proximity to the improvement being constructed, e.g., a highway; may also arise from proximity to an objectionable characteristic of a site or improvement, e.g., dirt, dust, noise, vibration." (Eaton, 1995, p. 314) Distinguishing proximity damages from other factors that effect value, e.g., square footage, condition, effective age, room count, lot size, are ideally concuded by measuring properties with identical or similar features. It is near impossible to find recently sold properties that are substantially the same, with exception to proximity to the characteristics that create dirt, dust, noise, and vibration. As a consequence, the direct sales comparison technique is highly limited in these types of appraiser problems.

Literature Review.

The major studies that have been performed with respect to proximity damages focused primarily on "comparison control" research method and "before and after" research method. Initial studies employed several other methodologies. One study conducted in the late 1970's addressed multiple regression process with proximity as one of the variables. All of the material surveyed consisted of studies researching the socioeconomic impacts of freeway projects. Private research firms for the State of California, and the State of Washington transportation department conducted two of the studies reviewed. Six additional studies that were evaluated for methodology were research papers presented to the California Transportation Board. Most of the publications were from the 1970 to 1980 era, a period of high growth and progressive transportation modifications, primarily in freeway design and construction, including integration with existing housing developments.

Most of the studies conducted found an absence of a reliable predictive model to approximate damages, likely caused by a number of factors. However, these studies do point to recurring patterns

in the effects of freeways on residential property values. Most of the studies completed were "comparison control" method in which an impact area adjacent or close to a freeway was compared to a control area farther removed from the freeway.

Professional research material was reviewed for additional information. *Appraisal Journal* is a professional journal that discusses new valuation methods, and current concerns and developments in the field of real estate appraising. It often references the appraisal of atypical and complex properties and methods. It does not address the problem of proximity valuation, but does recommend use of before and after valuation techniques for appraisal problems for which no market indicators exist.

The national refereed journal, *Right of Way Journal* provided more background to the problem of residential proximity damages than any other available source. An article based on a speech presented to the International Right of Way Association International Seminar in Baltimore, Maryland on June 17, 1998, cites the process derived by Salt Lake City's Property Management Department, based on a study conducted in a portion of the city. The findings can be summarized as follows:

> The council compared a selection of properties that had sold, been subject to a taking, and then resold.
>
> In addition to the traditional components of an appraisal, the appraisers for this study did a comparison in the before and after, and included a residential front yard proximity study report. Values on intrinsic damages derived from the market were concluded from the before and after comparison of value.
>
> The appraisers did consistently find a decrease in the market value of the properties in the after condition, or when the distance between the residential property and the road decreased. Damages were expressed in the form of a percentage of the before value.[1]

[1] It should be noted that the street-traffic classification co-efficient in the Salt Lake City study remained constant, and that the location of the house with respect to the distance from the road varied. In the model presented in this report, the distance from road variable and the street-traffic classification variable both vary.

A query was made by ITD in 2001 with all State Transportation Departments. Responses to the query showed that no study has yet been performed that uses research multivariate regression analysis to estimate the market value of road characteristics (expressed as independent variables) as they affect the sales price of a residential property (the dependent variable). Multivariate regression analysis involves selecting independent variables (I.V.'s) that, when working together, create an outcome (the dependent variable). As an example, a 1,500 square-foot (first I.V.) above average quality construction home (second I.V.) with three bedrooms (third I.V.), two bathrooms (fourth I.V.) and a two-car garage (fifth I.V.) sitting on a 7,000 square foot lot (sixth I.V.) with a fifty-foot set-back from a road (seventh I.V.) with 500 to 1,000 cars per day (eighth I.V.) located in Moscow, Idaho (ninth I.V.) creates a value of $137,000 (the dependent variable). The independent variables selected, and their reliability of predicting values, are selected by using statistical processes discussed later in the Methods section.

Objectives

Compensation for proximity damages (reduced value of the remaining property after a road is built or widened) is based on the assumption that the value of residential property is diminished as a direct result of proximity to a high traffic road. The methods being used to estimate the values of these damages employ limited comparable data, usually three to five direct comparisons, and subjective adjustments based on perception and arbitrary judgment. An objective study based on a method in which numerous home sales are identified in an impact area adjacent or close to a high traffic road, and numerous home sales away from high traffic impact areas is needed to emperically conclude if damages do exist, and to quantify such damages.

The general objective of this research was to determine what features or characteristics of roads, if any, affect the sale prices of adjacent residential properties, and to quantify such effects. Specific objectives of this study are:

1. Identify significant independent variables that affect the values of single-family homes in major population regions of Idaho, in order to isolate road related factors.

2. Evaluate models of value of single family homes for different regions of Idaho, relative to models for the state as a whole to determine what model or models could be most useful to estimate single family residential property values throughout Idaho.

3. Evaluate any empirical evidence of road effects to conclude a standardized method for applying damage measurement in analyzing estimated losses of market value due to road projects.

Setting: The State of Idaho.

The following is a brief overview of the geographic information and demographics of Idaho[2]

10 largest cities by population (2000):

Boise, 85,787; Nampa, 51,867; Pocatello, 51,466; Idaho Falls, 50,730; Meridian, 34,919; Coeur d'Alene, 34,514; Twin Falls, 34,469; Lewiston, 30,904; Caldwell, 25,967; Moscow, 21,291

Land area: 82,747 sq mi. (214,315 sq km)

Geographic center: In Custer Co., at Custer, SW of Challis

Number of counties: 44, plus small part of Yellowstone National Park

Largest county by population and area: Ada, pop. 312,337 (2001); Idaho, 8,485 sq mi.

State forests: 881,000 ac.

State parks: 27 (43,000+ ac.)

2001 resident population est.: 1,321,006

2000 resident census population (rank): 1,293,953 (39). **Male:** 648,660 (50.1%); **Female:** 645,293 (49.9%). **White:** 1,177,304 (91.0%); **Black:** 5,456 (0.4%); **American Indian:** 17,645 (1.4%); **Asian:** 11,889 (0.9%); **Other race:** 54,742 (4.2%); **Two or more races:** 25,609 (2.0%); **Hispanic/Latino:** 101,690 (7.9%). **2000 population 18 and over:** 71.5%; **2000 population 65 and over:** 11.3%; **median age:** 33.2.

Idaho is the 13th largest state in the U.S. in land area, 11th smallest in population, and 11th least densely populated. Approximately 73 percent of Idaho's population and jobs, and just under 100

[2] Though popularly believed to be an Indian word, "Idaho" is an invented name whose meaning is unknown.

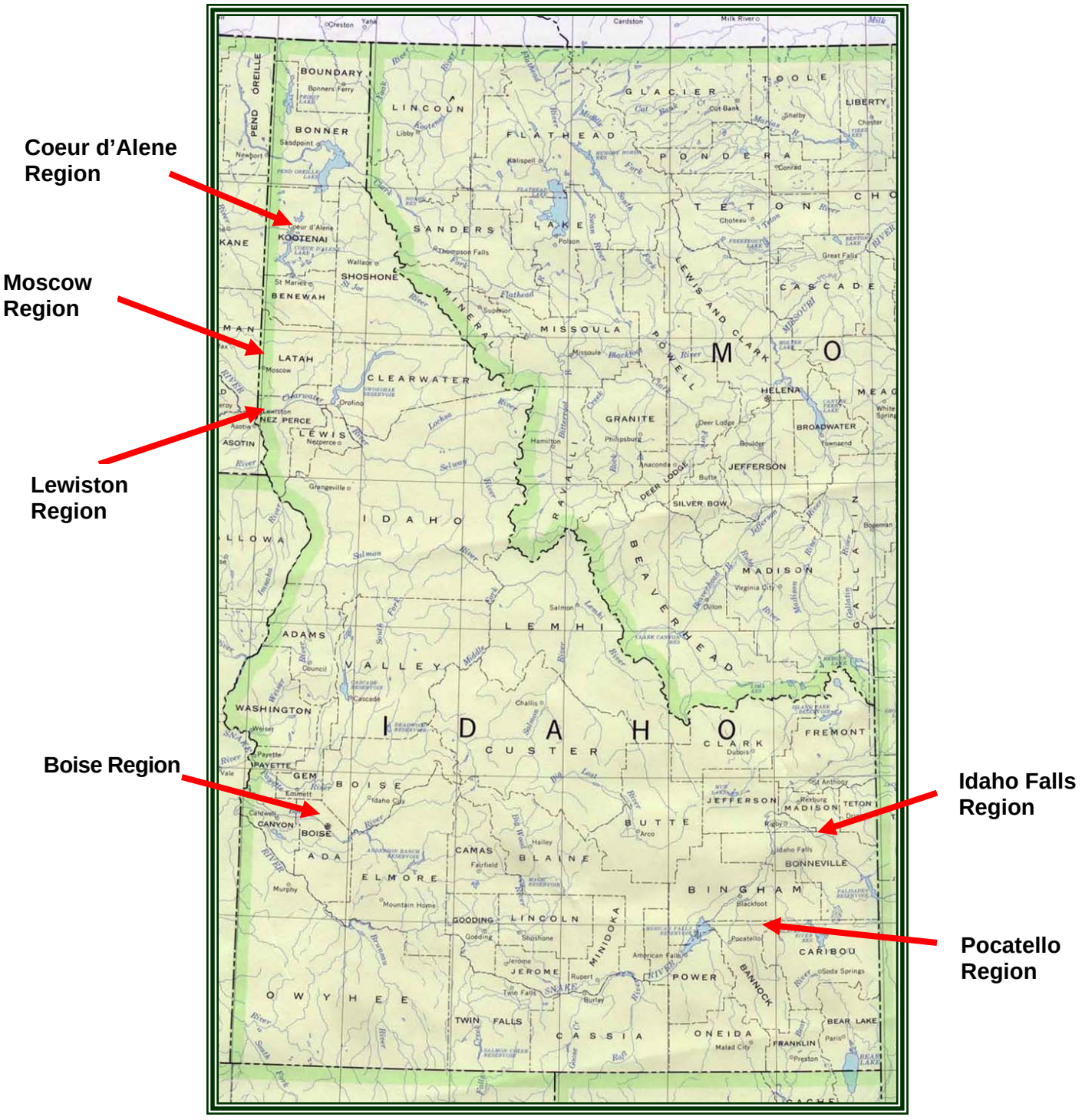
percent of the land, is non-urban. Approximately 94 perent of Idaho's roads are rural. Federally owned lands amount to 62 percent of the state's land area.

12 percent of the state's jobs are in the rural agriculture sector, and 1 percent are the mining sector. Most jobs in Idaho's rural areas are in sectors also common in urban areas: construction, transportation and utilities (12 percent); manufacturing (15 percent); business and trade (26 percent); and services and government (34 percent). (Idaho's Transportation System Defined)

This study concentrated on the following six major population centers in Idaho: (Figure 1)

1. **The greater Pocatello - Bannock County region**
2. **The greater Idaho Falls - Bonneville County region**
3. **The greater Boise – Ada County region**
4. **The greater Lewiston - Nez Perce County region**
5. **The greater Moscow - Latah County region**
6. **The greater Coeur d'Alene - Kootenai County region**

Figure 2. Identification of Major Idaho Population Centers



The Model.

The general model used in this study is a multivariate regression model with residential property value as the dependent variable. Independent variables considered in the study are possible factors explaining residential property values. These variables were specified based on two criteria, as follows:

1. Variables generally considered to be consistent factors that affect residential property values in the direct comparison approach appraisal method, under typical sales conditions with a typically motivated purchaser and seller, and
2. Variables concluded to impact value related to road proximity, based on review of forty to fifty proximity damage files at the Idaho Transportation Department.

General sources of data on specified variables were:

1. Real estate mutliple listing service (MLS) information from each of the six regions of Idaho considered in this study.
2. County assessors' field sheets and computer data bases where MLS data were not complete.
3. Idaho Transportation Department (ITD), COMPASS, Ada County Highway District, and local traffic engineering departments' traffic count data. These data were collected according to the street-traffic count classifcations shown in Table 1.
4. On-site inspections of each property considered.

Table 1. ***Street-Traffic Count Classification***			
Model Identificaiton	**Classification**	**Street Use**	**Traffic Count**
Base Case	Local-A	Residential	0-100 cars per day
1	Local-B	Residential	101-500 cars per day
2	Local C	Residential	501-1000 carps per day
3	Collector	Traffic Circulation	1001-5000 cars per day
4	Minor/Rural Arterial	Through-travel, leaving, entering	5,000-10,000 cars per day
5	Principal Arterial*	Through-travel	10,000+ cars per day

*Interstates are included in this classification.

The *Federal Highway Guide for Functional Highway Classification* notes that area definitions for urban and rural areas have fundamentally different characteristics as to density and types of land use, density of streets, and highway networks. Since data for this study were collected in areas of greater than 5,000 population, urban classifications apply. [3] COMPASS and Federal Highway street classification information was correlated with traffic count data obtained from ITD, Ada County Highway District, and local traffic engineering departments.

A list of independent variables analyzed and the general source of data for each of these variables were presented in Table 2. Data were collected on about 1,800 MLS listed residential home sales that represent about 10 percent of the market for the period analyzed (1998 through mid - 2002).

[3] The word "road" may be interchangebly used with "street" within the report, both having the same meaning. COMPASS and the Federal Highway Administration also use the term "street" and "road" interchangeably within their publications.

Table 2. Variables Analyzed and General Data Sources for Each Variable*

Variable	*General Data Source*
Date of Sale	MLS Data Sheets
Year built	MLS Data Sheets and Assessor
Effective age	On-site inspections and MLS
Quality of consturction	On-site inspections
Gross Living Area	MLS Data Sheets
Above Grade Bedroom Count	MLS Data Sheets
Above Grade Bathroom Count	MLS Data Sheets
Total Basement Square Feet	MLS Data Sheets
Basement Square Feet Finished	MLS Data Sheets
Heating System	MLS Data Sheets
Cooling System	MLS Data Sheets
Number of Fireplaces	MLS Data Sheets
Patios/Decks	MLS Data Sheets
Fencing	MLS and on- site inspections
Automatic Sprinkling System	MLS Data Sheets
Shops & Outbuildings	MLS and on-site inspections
Car Storage (includes garages and carports)	MLS and on-site inspections
Lot Size	MLS Data Sheets and Assessor
Zoning	MLS Data Sheets and City P & Z
Location	MLS and On-Site Inspections

Table 2, continued

Variable	*General Data Source*
Setback of house from road (curb to living area)	On-site Inspection – measurement using measuring wheel
Fronts/backs to road*	On-site inspection
Traffic Count**	ITD, ACHD, local traffic data
Speet Limit**	On-site Inspection
Number of lanes**	On-site Inspection
Road Classification	On-site Inspection

*See setback explanation following.

**Traffic count, speed limit, and number of lanes data are used to conclude the overall road classification

All of the variables included in the study are considered to be in excess of *Uniform Standards of Professional Appraisal Practise* and *Uniform Appraisal Standards for Federal Land Acquisitions* requirements. Additional data collected and on file include: Addresses, legal descriptions where available, MLS reference numbers, dates of sales, tax parcel numbers (when made available in the MLS data), financing, sales concessions, list prices, and number of days on market.

The meanings of most of the variables specified in Table 2 are stright forward. However, the following variables deserve additional explanation:

- Setback of home from the road. An onsite inspection was made for each property to measure the distance, in feet, of the home set-back from the road travelway. If there was more than one road abutting the site, the road with the most proximity characteristics was used as the measuring point, measuring to the front, side, or back as it applied.

- Effective age. Onsite inspection and specific property information garnered from realtor comments on the MLS data sheet were used to conclude the effective age of the home. Specific information such as a new roof, new carpets, new heating system, new kitchen cabinets,etc. were accounted for in concluding the effective age of the home. Condition was originally considered as a separate variable, but was found to be highly correlated with effective age, indicating that condition is often inherent in effective age, causing multicollinearity, and was thus eliminated as an independent variable.

- Quality of Construction Classification. The quality of construction of the home is based on classifications used by the Oregon Cost Manual, correlating classes 1-8 to "below average," "average," "above average," and "good." Oregon Cost Manual class 8 homes are considered to be excellent quality construction homes and were not used in any of the models. Oregon Cost Manual classifications of construction are included in the Appendix, H through L. Parameters for construction quality are, from the Oregon Cost Manual:

  Classes 1 and 2 = "Below Average" Construction Quality

  Class 1 Description: Structures in this class are built at low cost in keeping with the overall simple design and modest construction. Emphasis is on basic shelter. These houses fall far short of sound minimum building standards.

  The structures often lack a planned design. Building additions are common and may contain materials not compatible with the original construction, resulting in a poor plan and/or appearance. Undersized or overspaced structural members are common, leading to sagging and buckling of the building. Some desirable service features are either lacking or of minimal quality. Interior components may consist of one small bedroom, one small bath, and a combination kitchen, dining room and iiving room.

  These dwellings usually are found in older deteriorating urban neighborhoods, in remote recreation areas, or in areas that lacked building code requirements.

  Class 2 Description: Buildings in this class provide modest low-cost housing. These structures fall below current building code requirements for overall construction. Emphasis is on space, instead of style, design, appeal, or functional utility.

The design is usually a simple rectangle with very plain features. Many dwellings have poorly adapted additions or enclosures of porch areas. Interior and exterior cover materials are plain and inexpensive. One bathroom is standard with low grade fixtures. The quality of workmanship and materials is generally not product of skilled labor.

Classes 3 and 4 = "Average" Construction Quality

Class 3 Description: Houses in this class are generally built to meet the specifications of government financing programs (FHA and FmHA). Emphasis is on functional utility rather than styling. These homes just meet the current minimum building code.

A simple rectangular shape is most common. Exterior dimensions are usually in multiples of four feet to minimize waste of building materials. There is no exterior ornamentation. Front entries typically open directly into the living area. Interior features are plain and economical. Bathrooms feature economy grade fixtures. Appliances may or may not be built in, and are the most affordable on the market. The overall concept is to provide housing for the economy market.

Class 4 Description: These residences were generally built by contractors following a stock plan. Emphasis is still on functional utility. However, these homes can have some styling features such as hardwood floors, brick veneer or other ornamentation.

The quality of materials and workmanship is fair. Usually the front exterior is designed to provide some curb appeal while other exterior walls are plain. Windows, doors, plumbing and heating are normally comprised of "competitive" grade materials. The class 4 home will have modest entry way. Bathroom fixtures will be of fair quality. Built in appliances will be of fair quality, and the quantity will depend on the floor plan. Service features such as cabinetry, electrical outlets and lighting are basic but not numerous.

Class 5 = "Above Average" Construction Quality

Class 5 Description: These buildings constitute an average quality home, built for speculation, or on order by the volume builder. The dwellings reflect poplular combinations of styling, design, functional utility, and convenience of floor plan. These homes are acceptable to a broad portion of the market.

Exterior ornamentation such as brick veneer, railings, or cornice trim may be present. These homes will have a larger entry area, often multi-storied, with some type of outside window area to give an even more expansive feeling. Typically, windows will be larger and more numerous, with accent windows being common. Bathroom fixtures will be of average quality and may include china lavatories, and entry level designer faucets. Built in appliances often include separate ovens and cooktops. Interior features may consist of a small amount of average qualtiy hardwood paneling, or painted or stained wainscoating.

Classes 6 and 7 = "Good"

Class 6 Description: These dwellings provide housing with emphasis on convenience of floor plan and overall attention to appearance detail. Care is taken to achieve attractive architectural balance in terms of period or classic architectural

style and design. The effect often is evidenced by greater irregularity of exterior shape and roof design.

Workmanship and materials are of good quality. The exterior of the house has ample ornamentation, such as good qualtiy brick veneer or similar styling features. Windows will be of wood clad quality and design. Entry areas will be ample in size and geight, with good quality hardwood or tile floor cover. Baths feature good quality fixtures that may include designer characteristics. Appliances will often include double ovens, built in microwaves, downdraft cooktops, and trash compactors. Millwork and trim will be of good qualtiy painted or stained hardwood, or comparable materials. Interior wall finishes are of good quality.

Class 7 Description: These residences are custom built. They usually are designed by professional home planners and built by specializing contractors, possibly under architectural supervision. Special effort is made to bring out good styling and design features most outwardly noticeable in the exterior wall, roof and interior construction detail. Care has been taken to ensure convenience in floor plans, window placement, built-ins and adaptation of the house to the site.

All materials and labor are of better quality. The front of the house usually has large amounts of better quality brick veneer or other comparable materials with similar styling features and ornamentation. Windows are usually of wood and constructed to integrate with the design of the house. The entry way will be large with raised ceiling heights, and hardwood, tile, or marble floor cover. Three formal rooms off the entry are common in this class house. Special interior detail may include ample quantity of built-ins, solid core raised panel doors, and better quality designer plumbing fixtures in the kitchen and baths.

Class 8 Descrition = not used in the study, but included in the report for clarification.

These homes are the best quality custom dwellings. They are professionally designed by an architect and constructed by well-qualified specialized builders, to the individual desires of a client owner. The architect and contractor maintain quality control throughout construction. Design is not primarily governed by cost consideration and may feature special wall and roof designs to achieve a particular classic style or period effect. Spacious entryways, lofted ceilings and varied floor levels are common. Materials and workmanship are of superior quality. Care is taken to ensure optimum site adaptation. Great attention to detail will be found throughout these structures. The kitchen and baths feature the best quality plumbing fixtures. Interior trim is decorative and intricate. Lighting systems and windows are custom designed to enhance interior features or create special effects. A large number of custom built features and convenience items generally are present. These residences typically give a sense of grandeur. Due to the unlimited range of this class of house, the factor book only reflects the very beginning of the cost scale.

Data:

1,800± residential home sales that represent approximately 10% of the market for the period covered were selected from the multiple listing services that cover the six regions of Idaho considered in this study. In addition, some home sales on major and minor arterials and on connectors were specifically selected for comparison. The parameters of the study include $40K to $600K homes that have sold in the greater area of the six identified regions of Idaho between 1998 and 2003 – the time parameters depended on the relative volume of home sales in each area. The Boise, Coeur d'Alene, Moscow, and Lewiston regions have higher sales volumes, allowing for a narrower time range. The data were initially entered into an Access data base. The following five figures demonstrate the information that was entered for the 1,800± homes.

Figure 3. Primary Data

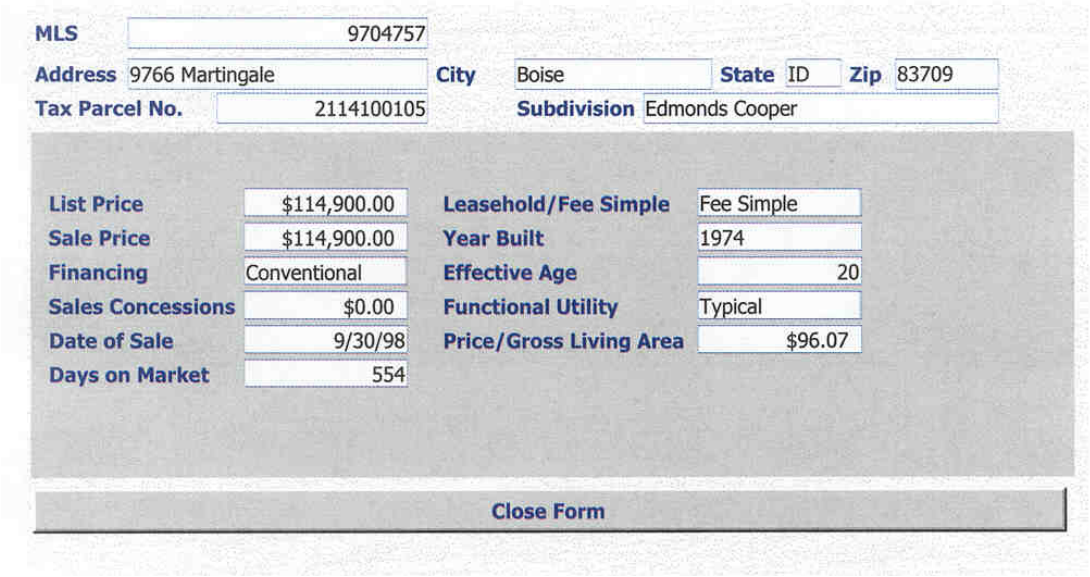


Figure 4. Building Description

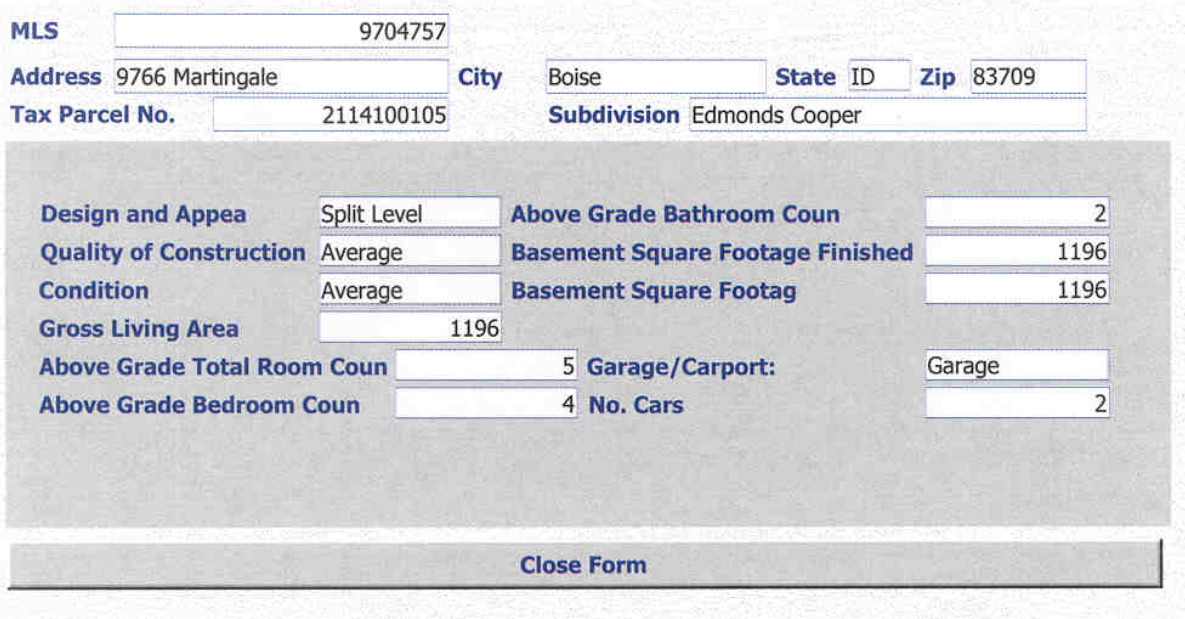


Figure 5. Amenities

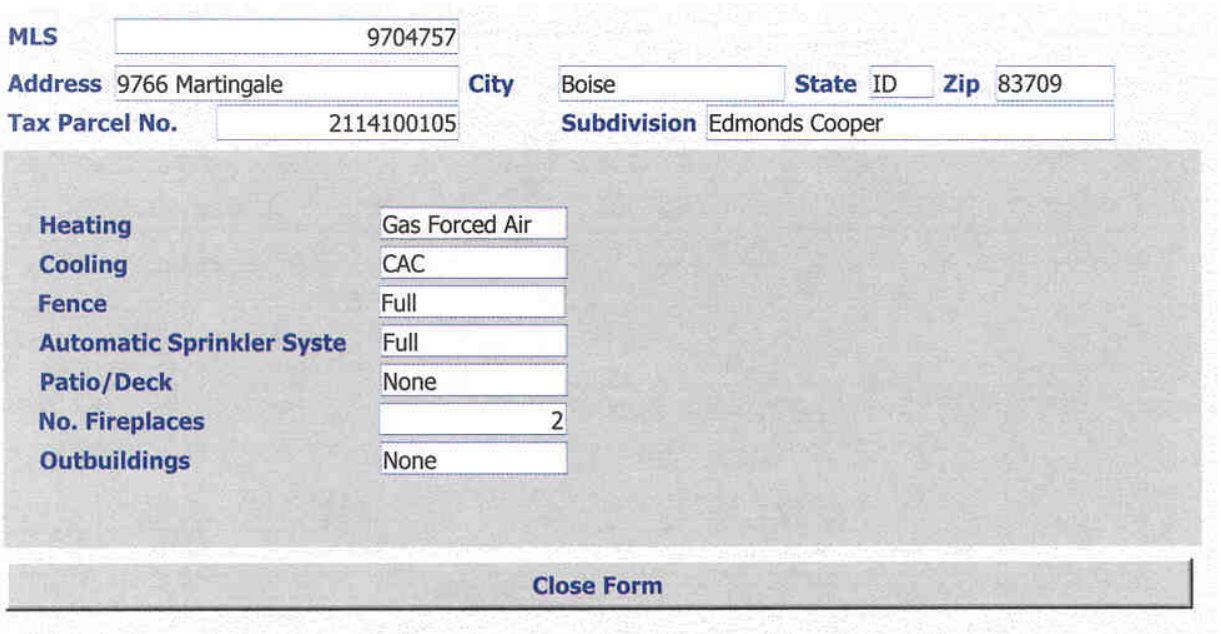


Figure 6. Land Description

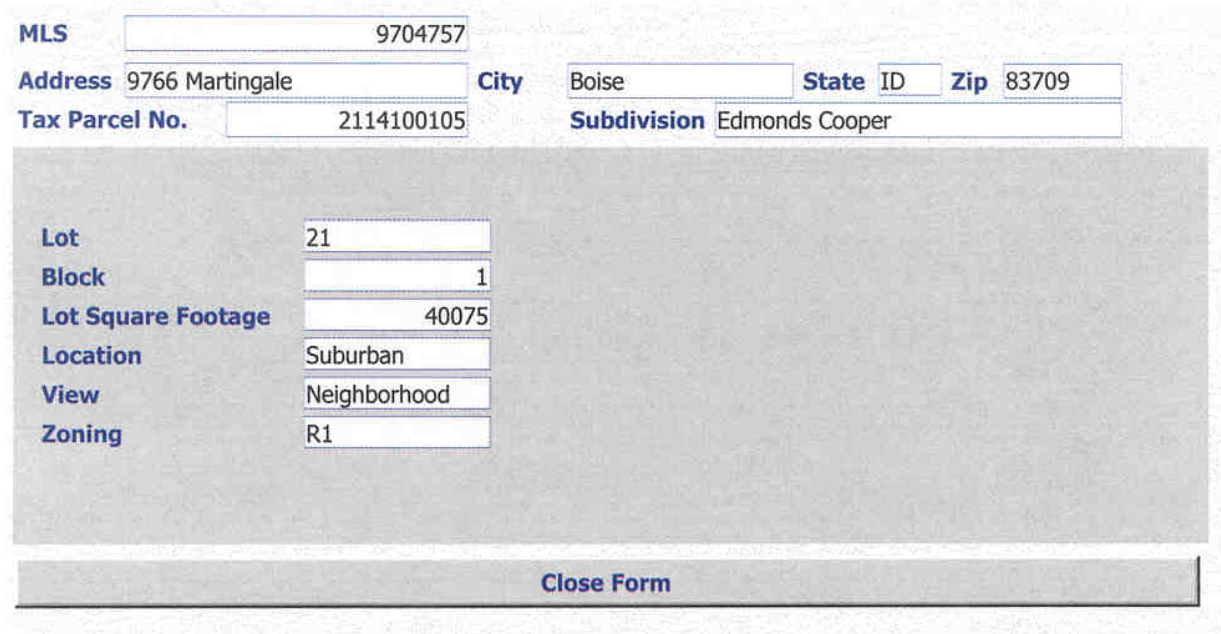
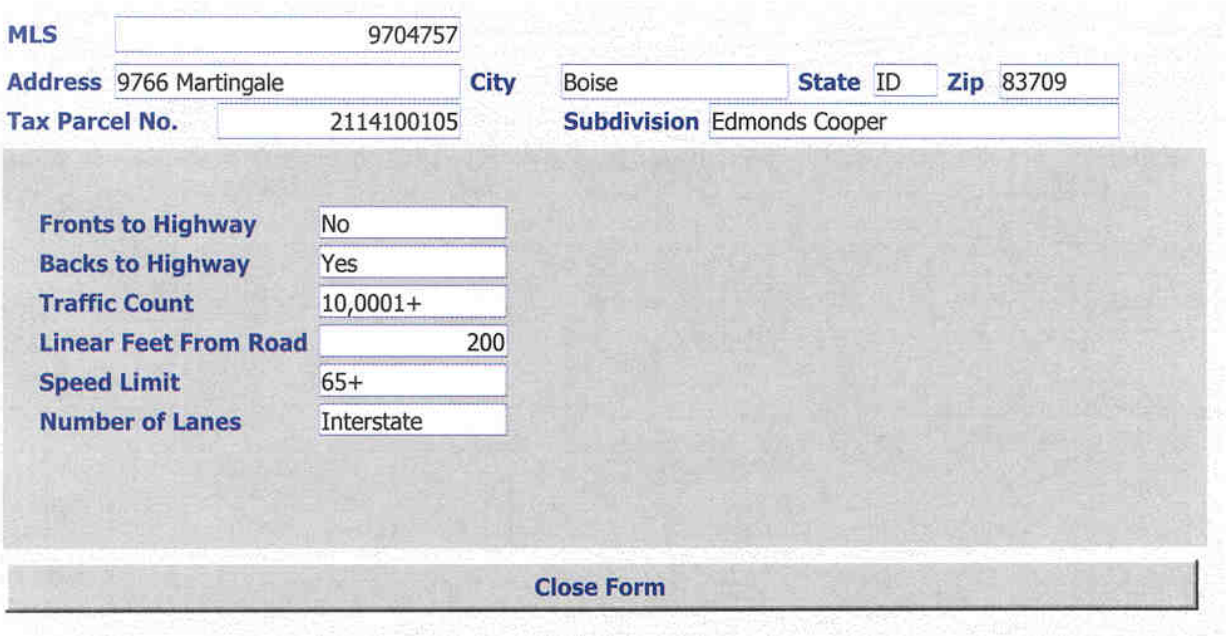


Figure 7. Road Data



The data were transferred to an Excel spread sheet and statistical analysis was performed using MiniTab Statistical Software Package. MINITAB® is used by over 400 universities world-wide and companies such as GE, 3M, Ford Motor Company, and leading Six Sigma consultants rely on MINITAB to make data-driven decisions. MINITAB includes: basic and advanced statistics, regression and ANOVA, SPC, DOE, reliability analysis, power and sample size, time series and forecasting, and Gage R&R.

How The Model Works

The variables were selected as predictors of the value of a residential property in each city. The focus of the study is on road characteristic variables, however, all factors considered to influence value were included to develop a more effective model. The goal of using multivariate regression analysis is to isolate those effects being studied from the larger bundle of characteristics that cause home values to increase or decrease. The value of these individual characteristics, that as a whole explain most of the variability in sales price, are expressed in terms of coefficients, i.e. square feet of

gross living area, square feet of basement, square feet of finished basement, effective age of dwelling, quality of construction and so forth.

The variables representing the base case for categorical variables are specified following each model, i.e. Boise and Moscow are the base case in the state model and require no adjustment for location. All other locations required a corresponding (-) adjustment for their respective location. "Local –A" Street Classification indicates a residential street with a traffic count of 1-100 cars per day and is the base case, requiring no adjustment. All other catetories require a corresponding adjustment as follows:

The original structure of the Road Classification variable was in categories of 0-100 cars per day, 101-500, 501-1000, 1001-5000, 5001-10,000, and 10,001+. This categorization caused problems for the Idaho Falls, Pocatello, Lewiston, Coeur d'Alene, Moscow, and Boise regression analysis. These categories exhibited multicollinearity[4] with many other variables, and removing variables from the analysis resulted in large biased estimators for the traffic count categories; another problem encountered was an incongruent pattern in coeffecient values and category significance. A solution was found by re-categorizing the road classifications for each city until logical and significant coefficients were obtained. For the Idaho model, all road classification categories were significant as originally identified and no re-categorization was necessary. For the Lewiston model, street-traffic count classification was deemed insignificant as a determinant of sales price at every possible combination of the street-traffic count classification variable.

Multicollinearity present in any of the models was dealt with by either re-categorization techniques, as well as consolidation of many road factors into just two variables: distance of the house from the road or street, and road classification (see Table 1). It was found that characteristics

[4] Multicollinearity is a statistical term that means two independant variables are highly correlated and exhibiting highly similar effects on the dependent variable (sales price).

such as number of lanes and speed limit were highly correlated with the street-traffic count classifications, resulting in large biased estimators.

Because some road factors are inherent in the existence of other road factors, the logical correction for multicollinearity and/or insignificance was to remove one of the variables (usually the one that was least significant). This was also justified by the insignificance of number of lanes and speed limit as predictors of sales price. For example, a typical home buyer would not likely separate the unappealing attributes of high traffic from the number of lanes or speed limit the road has. These characteristics are generally considered together as one attribute of the property. In the same respect, regression analysis cannot separate the affect on value that traffic count, speed limit and number of lanes have *separately*. However, the damages from these road characteristics are captured in whole by the road classification which accounts for the traffic count variable, likely because changes in the number of lanes and/or speed limit of a road result from changes in a road classification and traffic count.

REGIONAL MODELS

For Pocatello, initial results yielded a significant setback variable for values of 60 linear feet from road and less. However, further research indicated that the significance of the road classification variables, as grouped in the model shown in Appendix A, are directly dependent on the exclusion of setback as an indicator of value. In essence, the value contained in setback is being captured by the road classification variables and is thus intrinsically included in the model. Similar results appeared in all individual Idaho regional models, however the setback variable and road classification variables were individually significant in the Idaho State Model. This is likely explained by the fact that the Idaho State Model contained sufficient data to be able to recognize the variation in the model for each variable, while the individual regional models were not able to recognize the variation.

The setback variable in the Boise Regional model does not hold a high level of significance as a predominant factor affecting the sales price of a Boise residential property; also, it only applies to setbacks of 150 feet or less. By including the setback variable, the significance level for the road classification of "Local-B, 101 – 1000" falls as compared to the model where setback is excluded. The setback and road classification variables are inter-related due to the intrinsic nature of road characteristics, which are often considered a bundle of features that affect a home in similar ways.

In the Lewiston Regional model the traffic count variable was re-categorized in every possible ordinal combination, but no statistically significant relationship between the traffic count variable and sales price could be established. A potential reason for this is simple lack of dissimilar observations in the dataset. However, the model predicts that setback does influence the value of a home in Lewiston up to 100 linear feet, after which an increase in setback no longer attributes to an increase in the value of the home. Lewiston is also the only region that placed significance on "shop" values.

As in the Lewiston Regional model, the Moscow Regional Model road classification variable was re-categorized in every possible ordinal combination, with marginal significance at the classifications of 'Local-A and Local-B, below 10,000 cars per day' and 'Collector, Minor/Rural Arterial, and Principal Arterial, above 1,000 cars per day.' The model did not indicate setback as a significant variable, and as explained in the Pocatello region model, appears to be intrinsic in the road classification co-efficient.

Additional regional anomolies occurred in properties in the Fort Russell District of Moscow which are on the historical registry, are generally larger, better quality homes that are highly sought after within the Moscow real estate market. Turnover is low within the district, with values increasing at a higher rate than the average rate. The indicator variable was included to

account for any differences that occur in sales price that are the direct effect of the property being located within the Fort Russell district of Moscow.

Again, the road classification variable in the Coeur d'Alene Regional Model was re-categorized in every possible ordinal combination, but no statistically significant relationship between this variable and sales price could be established. Setback does influence the value of a home in Coeur d'Alene up to 100 linear feet, after which an increase in setback no longer attributes to an increase in the value of the home.

Property values in Coeur d'Alene are greatly a function of location, specifically proximity to Lake Coeur d'Alene, golf courses, views of the mountains and lake, and locations within gated communities. Because evidence of explicit differences in value exist with respect to locations in the greater Coeur d'Alene area, an indicator variable was assigned to and reserved for those homes in the most excellent locations of Coeur d'Alene. Homes in this category tended to represent the highest valued homes within the area, with views and/or ammenities not common to the greater market. The coefficient was highly statistically significant as a predictor of sales price.

Figure 8. COMBINED CITY REGIONS

IDAHO MODEL

Table 3. RESULTS OF THE IDAHO MODEL

LN Sales Price = 6.97 - 0.0133 Effective Age + 0.466 LN Gross Living Area - 0.0121 Above Grade Bedroom Count + 0.0384 Above Grade Bathroom Count + 0.0610 LN Basement Square Footage Finished + 0.0353 Natural Log Basement Square Footage + 0.0712 No. Car Storage + 0.0754 LN Linear Feet From Road - 0.0253 'Local-A,101 - 500 TC' - 0.0377 'Local-B, 501 – 1,000 TC' - 0.0617 'Collector, 1,001 – 5,000 TC' - 0.0742 'Minor/Rural Arterial, 5,001 – 10,000 TC' - 0.152 'Principal Arterial, 10,001+ TC' + 0.0705 LN Lot Size - 0.162 Coeur d'Alene - 0.340 Idaho Falls - 0.209 Lewiston - 0.296 Pocatello + 0.0419 Above Quality Construction + 0.238 Good Quality Construction

Predictor	Coefficient	SE Coefficient	T	P
Constant	6.972	0.1937	36.00	0.000
Effective Age	-0.0133059	0.0008254	-16.12	0.000
LN Gross Living Area	0.02872	0.46552	16.21	0.000
Above Grade Bedroom Count	-0.012134	0.009537	-1.27	0.204
Above Grade Bathroom Count	0.03841	0.01369	2.81	0.005
LN Basement Square Footage Finished	0.06096	0.01114	5.47	0.000
LN Basement Square Footage	0.03533	0.01891	1.87	0.062
No. Car Storage	0.071165	0.009611	7.40	0.000
LN Linear Feet From Road	0.07538	0.02474	3.05	0.002
*Local A, 101-500 TC	-0.0253	0.01936	-1.31	0.192
*Local B, 501-1,000 TC	-0.03769	0.02113	-1.78	0.075
*collec, 1,001-5,000 TC	-0.0617	0.02148	-2.87	0.004
*M/R Arterial, 5,001-10,000 TC	-0.07419	0.02641	-2.81	0.005
*Princ Arterial, 10,000 + TC	-0.15233	0.02637	-5.78	0.000
LN Lot Size	0.07051	0.01009	6.99	0.000
*Coeur d'Alene	-0.16155	0.03069	-5.26	0.000
*Idaho Falls	-0.33966	0.02635	-12.89	0.000
*Lewiston	-0.20863	0.02882	-7.24	0.000
*Pocatello	-0.29591	0.02621	-11.29	0.000
*Above Quality Construction	0.04193	0.01289	3.25	0.001
*Good Quality Construction	0.23843	0.03362	7.09	0.000

S = 0.1662 R-Sq = 87.1% R-Sq(adj) = 86.8%

The variables with asterisks represent the presence or absence of that attribute. The coefficient is multiplied by 1 if the home has the attribute, otherwise 0. As with the other individual Idaho regional city models, "Good Construction Quality" is a categorization that was assigned to only Class 6 and 7 homes based on the Oregon Cost Manual. The road classification variables were all

significant in their original categorizations. Setback is significant at values of less than 100 linear feet from the road.

Each city-region was given an indicator variable to test for differences in sales price due to which city the home is located in, where Boise was the original base case. After it was determined that home prices in Moscow are not significantly different from those of Boise, the base case was re-defined to include both the Moscow and Boise sample. In use, the property should acquire the indicator variable value for that city or region in which it is most closely related, either in market association or geographic location.

In the above model, dependent variables and some independent variables are expressed in natural logarithm form. Transformation of some variables to this format is necessary to meet the assumptions of Ordinary Least Squares Regression, namely that there cannot be non-linear relationships or non-constant variance between the residential versus fitted values. However, in normal form, there is a non-linear relationship between sales price and multiple independent variables. The independent variables requiring the natural logarithm transformation are those scalar variables that have high ranges of value.

For those independent variables requiring the transformation (denoted by LN preceding that variable's name), the coefficient represents the percentage change in sales price given a *one percent* change in the value of the variable. For all other variables, the coefficient represents the percentage change in sales price given a *one-unit* change in the variable. For indicator variables, the coefficient represents the percentage change in sales price if that attribute does exist. For example, the predicted value of a home declines by 15.23% if it is located on a Principal Arterial or Interstate with over 10,000 traffic count per day as compared to a home located on a Local-A street, with 0-100 traffic count.

The following table demonstrates how the model works. The home being tested is a good quality, one story 1990's era home and is located in Boise, Idaho. Variables of interest are shown in the "Specific Variables of the Subject Property" column.

It is important to note that any extenuating factors that highly affect the value of the property in the before condition and are not specified in the model may need to be accounted for. An example would be a guesthouse located on the property, or a swimming pool. This would be accounted for in the "Other Adjustments" category in the model.

Table 4. Model Input and Results

IdahoTransportation Department
Proximity Damages Determination

Appraised Value - In the before:	$125,000
% Contributable to Land:	20%
% Contributable to Improvements:	80%
Effective age of house:	5
Gross Living Area:	1350
GLA Bedroom count:	3
GLA Bathroom count:	2
Basement Square Footage Total:	0
Basement Square Footage Finished:	0
Number Car Storage:	2
Construction Quality:	Good
Lot Size in Square Footage:	22500
Region:	Boise
Linear Feet from Road (Before):	150
Road Classification (Before):	1001-5000 cars per day
Linear Feet from Road (After):	70
Road Classification (After):	5001-10000 cars per day

Results	
Appraised Value in the Before	**$125,000**
Concluded Model Value In the Before	**$121,134**
Reconciliation of Values	**$ 3,866**
Adjusted Model Value in the Before	**$124,939**
Adjusted Model Value in the After	**$116,499**
Concluded Proximity Damages:	**$ 8,440**
Damages as a percent of value in the Before	**6.75%**
Portion of Damages Attributable to Land:	**$ 1,688**
Portion of Damages Attributable to Improvements:	**$ 6,752**

This example is a 3 bedroom, 2 bath 1,350 SF home located in Boise on a 22,500 SF lot with an effective age of 5 years and good quality construction. The home is currently located 150 feet from a road that has a classification of 1001-5000 cars per day. The road project will create a setback of 70 feet and a road classification* change. In the example used, this home would suffer 6.75%, or $8,440 due to proximity damages.

*Note: The road classification in the model is categorical data, not scalar data; meaning the road is identified by category rather than by the specific number of cars per day.

The following tables show how the values are concluded in the above example.

Table 5. Model Calculations

BEFORE	General Variable Needing Log Form	Model Coefficients	Specific Variable Of Subject Property	Converting Column D to LN Format (Where Specified in Column B)	Coefficient *Variable (Column C*Column E)
Constant		6.972			6.972
Effective Age		**-0.0133059**	**5**	**5**	**-0.0665295**
LN GLA	X	0.46552	1350	7.207859871	3.355402927
Above Grade BR Count		-0.012134	3	3	-0.036402
Above Grade BA Count		0.03841	2	2	0.07682
LN BSMT SF Fin	X	0.06096	1	0	0
LN BSMT SF	X	0.03533	1	0	0
No. Car Storage		0.071165	2	2	0.14233
LN Sample Setback	X	0.07538	150	5.010635294	0.377701688
100-500		-0.0253	0	0	0
501-1000		-0.03769	0	0	0
1001-5000		-0.0617	1	1	-0.0617
5000-10,000		-0.07419	0	0	0
10,001+		-0.15233	0	0	0
LnLotSize	X	0.07051	22500	10.02127059	0.706599789
CDA		-0.16155	0	0	0
IF		-0.33966	0	0	0
Lewiston		-0.20863	0	0	0
Pocatello		-0.29591	0	0	0
Above Quality		**0.04193**	**0**	**0**	0
Good Quality		0.23843	1	1	0.23843
				Summed Results:	**11.7046529**
				Exponent of Summed Results (Value):	$ 121,134.03

Table 6. Model Adjustment to Appraiser's Value

BEFORE, ADJUSTED	General Variable Needing Log Form	Model Coefficients	Specific Variable Of Subject Property	Converting Column D to LN Format (Where Specified in Column B)	Coefficient *Variable (Column C*Column E)
Constant		**6.972**			**6.972**
Effective Age		-0.0133059	**5**	5	-0.0665295
LN GLA	**X**	**0.46552**	**1350**	**7.207859871**	3.355402927
Above Grade BR Count		-0.012134	**3**	3	-0.036402
Above Grade BA Count		0.03841	**2**	2	0.07682
LN BSMT SF Fin	X	0.06096	**1**	0	0
LN BSMT SF	X	0.03533	**1**	0	0
No. Car Storage		0.071165	**2**	2	0.14233
LN Sample Setback	X	0.07538	**150**	5.010635294	0.377701688
100-500		-0.0253	**0**	0	0
501-1000		-0.03769	**0**	0	0
1001-5000		-0.0617	**1**	1	-0.0617
5000-10,000		-0.07419	**0**	0	0
10,001+		-0.15233	**0**	0	0
LnLotSize	X	0.07051	**22500**	10.02127059	0.706599789
CDA		-0.16155	**0**	0	0
IF		-0.33966	**0**	0	0
Lewiston		-0.20863	**0**	0	0
Pocatello		-0.29591	**0**	0	0
Above Quality		0.04193	**0**	0	0
Good Quality		0.23843	**1**	1	0.23843
				Summed Results:	11.7046529
				Exponent of Summed Results (Value):	$121,134.03
Other Adjustments, Dollar Value			$3,866	Other Items	0.030927753
				New Sum:	11.73558066
				Exponent of Total (Total Value)	124938.9701

Table 7. Adjusted Value In the "After"

AFTER	General Variable Needing Log Form	Model Coefficients	Specific Variable Of Subject Property	Converting Column D to LN Format (Where Specified in Column B)	Coefficient *Variable (Column C*Column E)
Constant		6.972			6.972
Effective Age		-0.0133059	5	5	-0.0665295
LN GLA	X	0.46552	1350	7.207859871	3.355402927
Above Grade BR Count		-0.012134	3	3	-0.036402
Above Grade BA Count		0.03841	2	2	0.07682
LN BSMT SF Fin	X	0.06096	1	0	0
LN BSMT SF	X	0.03533	1	0	0
No. Car Storage		0.071165	2	2	0.14233
LN Sample Setback	X	0.07538	70	4.248495242	0.320251571
100-500		-0.0253	0	0	0
501-1000		-0.03769	0	0	0
1001-5000		-0.0617	0	0	0
5000-10,000		-0.07419	1	1	-0.07419
10,001+		-0.15233	0	0	0
LnLotSize	X	0.07051	22500	10.02127059	0.706599789
CDA		-0.16155	0	0	0
IF		-0.33966	0	0	0
Lewiston		-0.20863	0	0	0
Pocatello		-0.29591	0	0	0
Above Quality		0.04193	0	0	0
Good Quality		0.23843	1	1	0.23843
				Summed Results:	11.63471279
				Exponent of Summed Results (Value):	112951.3855
Other Adjustments, Dollar Value			$3,866	Other Items	0.030927753
				New Sum:	11.66564054
				Exponent of Total (Total Value)	116499.2997

The conclusions of the calculations in Tables 5, 6 and 7 relate to the "Results" section shown in the right hand side of Table 4. It is important to note that any extenuating factors that highly affect the value of the property in the before condition that are not common and thus are not specified in the model. Reconciliation in this form utilizes common calibration techniques to account for extreme differences between actual and predicted values.

Conclusion

Many variables in the general method of residential property values used in this study were consistently significant among all cities, while other variables, such as the presence of a shop, were significant in some areas and not in others. The general theme of the street-traffic count classification variables was significance of either street-traffic count classifications or setback, but not both. Other road variables, including number of lanes and speed limit, were likely captured by street-traffic count classifications, and were not significant on their own.

The Idaho Model adequately represents the general housing characteristics affecting all areas in the state. The original sample size is approximately 1,800± homes in total, representing a very good sampling of the total number of residential homes within the state, capturing ranges in size, quality, age, room count, and lot size up to 5 acres. Both setback and the street-traffic count classification variables were significant in the Idaho Model, where value was sufficently captured in part due to the variation and the large aggregate number of observations in the whole state.

Evaluation of this model for the purposes of the Idaho Transportation Department shows a need for compensation to homeowners for intrinsic damages to property resulting from any decreases in the setback value and/or increases in traffic count. Other compensation to homeowners will be in the traditional form of actual land lost.

The R-squared value of the All Cities Idaho Model is 87.1%. According to this model, 87.1% of the variation in sales price of the home is explained by variation in the variables listed in the equation. Approximately 12.9% of the variation in sales price is unexplained by this model. This is consistent with all individual regional city models. Through regression analysis, the researchers have derived, with notable accuracy, the factors that affect residential value within the six combined regions of Idaho. Using this technique, many factors have been isolated that affect value by including them in

the model. By having the dependent variable be the selling price of the home instead of damages incurred, we have derived a solid equation that is less arbitrary and more apt to account for differences in property types.

Deliberate time and care have been taken to assure that this study meets the guidelines of Uniform standards of Professional Appraisal Practice Standard 6, Mass Appraisal Development and Reporting. The complete form of Standard Six is in the Appendix M section of this report.

Finally, the researchers have been aware of, and continue to make deliberate efforts to ensure that the study possess techniques that meet the "Daubert/Kumho" court test. In the Law Seminars International presentation given at the Boise Eminent Domain and Inverse Condemnation seminar in March 2003, Daniel R. Front of Holland & Hart LLP, Denver, Colorado identified four nonexclusive factors to consider in exercising the trial judge's "gatekeeping" obligation.

> In Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 589 (1993), the United States Supreme Court held that Fed. R. Evid. 702 imposes a special obligation upon a trial judge to ensure that expert testimony is not relevant, but reliable. In Daubert, the Supreme Court identified four nonexclusive factors to consider in excercising this "gatekeeping" obligation: (1) whether a theory or technique can be and has been tested; (2) whether it has been subjected to peer review and publication; (3) whether, in respect to a particular technique, there is a high known or potential rate of error and whether there are standards controlling the technique's operation; and (4) whether the theory or technique enjoys general acceptance within a relevant scientific community. (Effective Use of Experts Including Daubert/Kumho Challenges p. 1)

At the time of this publication, the University of Idaho College of Agricultural and Life Sciences is sponsoring an ITD Proximity Damages Model Methods and Applications 8-hour course in Idaho Falls, Moscow, and Boise to instruct ITD fee and staff appraisers on methodology and applications of the model; and is in the process of submitting a professional article for publication in the Appraisal Institute Journal, ASFMRA Journal, and International Right of Way Association. *Valuationn Modeling for Appraisal Application lecture notes are included in the appendix.*

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APPEXDIX A - OREGON COST MANUAL CONSTRUCTION CLASSES 1 THROUGH 8

Conventional
Class — 1

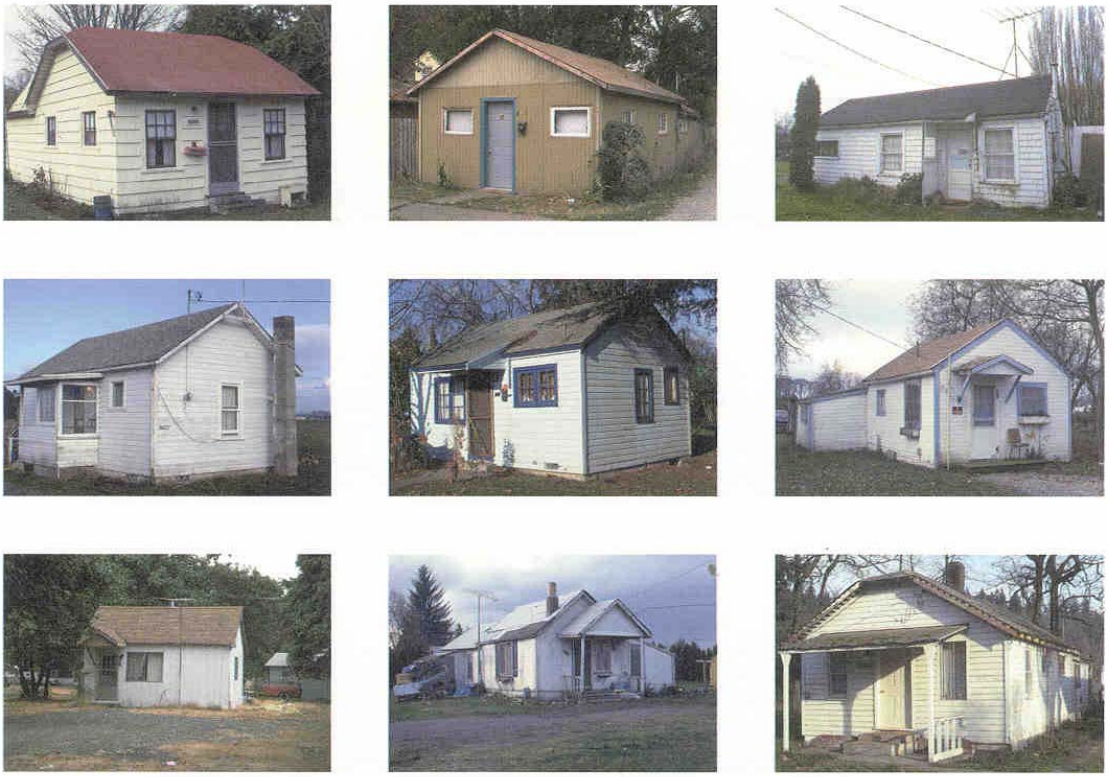
Class Features

Structures in this class are built at low cost in keeping with the overall simple design and modest construction. Emphasis is on basic shelter. These houses fall far short of sound minimum building standards.

The structures often lack a planned design. Building additions are common and may contain materials not compatible with the original construction, resulting in a poor plan and/or appearance. Undersized or overspaced structural members are common, leading to sagging and buckling of the building. Some desirable service features are either lacking or of minimal quality. Interior components may consist of one small bedroom, one small bath, and a combination kitchen, dining room and living room.

These dwellings usually are found in older deteriorating urban neighborhoods, in remote recreation areas, or in areas that lacked building code requirements.

Class Illustrations



Conventional
Class — 2

Class Features

Buildings in this class provide modest low-cost housing. These structures fall below current building code requirements for overall construction. Emphasis is on space, instead of style, design, appeal, or functional utility.

The design is usually a simple rectangle with very plain features. Many dwellings have poorly adapted additions or enclosures of porch areas. Interior and exterior cover materials are plain and inexpensive. One bathroom is standard with low grade fixtures. The quality of workmanship and materials is generally not the product of skilled labor.

Class Illustrations









Conventional
Class — 3

Class Features

Houses in this class are generally built to meet the specifications of government financing programs (FHA and FmHA). Emphasis is on functional utility rather than styling. These homes just meet the current minimum building code.

A simple rectangular shape is most common. Exterior dimensions are usually in multiples of four feet to minimize waste of building materials. There is no exterior ornamentation. Front entries typically open directly into the living area. Interior features are plain and economical. Bathrooms feature economy grade fixtures. Appliances may or may not be built in, and are the most affordable on the market. The overall concept is to provide housing for the economy market.

Class Illustrations

Conventional
Class — 4

Class Features

These residences were generally built by contractors following a stock plan. Emphasis is still on functional utility. However, these homes can have some styling features such as hardwood floors, brick veneer or other ornamentation.

The quality of materials and workmanship is fair. Usually the front exterior is designed to provide some curb appeal while other exterior walls are plain. Windows, doors, plumbing and heating are normally comprised of "competitive" grade materials. The class 4 home will have a modest entry way. Bathroom fixtures will be of fair quality. Built in appliances will be of fair quality, and the quantity will depend on the floor plan. Service features such as cabinetry, electrical outlets and lighting are basic but not numerous.

Class Illustrations

Conventional
Class — 5

Class Features

These buildings constitute an average quality home, built for speculation, or on order by the volume builder. The dwellings reflect popular combinations of styling, design, functional utility, and convenience of floor plan. These homes are acceptable to a broad portion of the market.

Exterior ornamentation such as brick veneer, railings, or cornice trim may be present. These homes will have a larger entry area, often multi-storied, with some type of outside window area to give an even more expansive feeling. Typically, windows will be larger and more numerous, with accent windows being common. Bathroom fixtures will be of average quality and may include china lavatories, and entry level designer faucets. Built in appliances often include separate ovens and cooktops. Interior features may consist of a small amount of average quality hardwood paneling, or painted or stained wainscoating.

Class Illustrations

Conventional
Class — 6

Class Features

These dwellings provide housing with emphasis on convenience of floor plan and overall attention to appearance detail. Care is taken to achieve attractive architectural balance in terms of period or classic architectural style and design. The effect often is evidenced by greater irregularity of exterior shape and roof design.

Workmanship and materials are of good quality. The exterior of the house has ample ornamentation, such as good quality brick veneer or similar styling features. Windows will be of wood clad quality and design. Entry areas will be ample in size and height, with good quality hardwood or tile floor cover. Baths feature good quality fixtures that may include designer characteristics. Appliances will often include double ovens, built in microwaves, downdraft cooktops, and trash compactors. Millwork and trim will be of good quality painted or stained hardwood, or comparable materials. Interior wall finishes are of good quality.

Class Illustrations

Conventional
Class — 7

Class Features

These residences are custom built. They usually are designed by professional home planners and built by specializing contractors, possibly under architectural supervision. Special effort is made to bring out good styling and design features most outwardly noticeable in the exterior wall, roof and interior construction detail. Care has been taken to ensure convenience in floor plans, window placement, built-ins and adaptation of the house to the site.

All materials and labor are of better quality. The front of the house usually has large amounts of better quality brick veneer or other comparable materials with similar styling features and ornamentation. Windows are usually of wood and constructed to integrate with the design of the house. The entry way will be large with raised ceiling heights, and hardwood, tile, or marble floor cover. Three formal rooms off the entry are common in this class house. Special interior detail may include ample quantity of built-ins, solid core raised panel doors, and better quality designer plumbing fixtures in the kitchen and baths.

Class Illustrations









Conventional
Class — 8

Class Features

These homes are the best quality custom dwellings. They are professionally designed by an architect and constructed by well-qualified specialized builders, to the individual desires of a client owner. The architect and contractor maintain quality control throughout construction.

Design is not primarily governed by cost consideration and may feature special wall and roof designs to achieve a particular classic style or period effect. Spacious entryways, lofted ceilings and varied floor levels are common. Materials and workmanship are of superior quality. Care is taken to ensure optimum site adaptation. Great attention to detail will be found throughout these structures. The kitchen and baths feature the best quality plumbing fixtures. Interior trim is decorative and intricate. Lighting systems and windows are custom designed to enhance interior features or create special effects. A large number of custom built features and convenience items generally are present. These residences typically give a sense of grandeur. Due to the unlimited range of this class of house, the factor book only reflects the very beginning of the cost scale.

Class Illustrations









APPENDIX B - USPAP MASS APPRAISAL GUIDELINE

STANDARD 6

In developing a mass appraisal, an appraiser must be aware of, understand, and correctly employ those generally accepted methods and techniques necessary to produce and communicate credible appraisals.

Comment: STANDARD 6 is directed toward the substantive aspects of developing and communicating competent analyses, opinions, and conclusions in the appraisal of a universe of properties. Mass appraisals are used primarily for purposes of ad valorem taxation. But depending upon the purpose of the appraisal and the availability of statistical data, mass appraisal procedures may also be appropriate for the valuation of any universe of properties, but only when written reports are made and the results of statistical testing are fully disclosed and explained. The reporting and jurisdictional exceptions applicable to public mass appraisals prepared for purposes of ad valorem taxation do not apply to mass appraisals prepared for other purposes.

Mass appraisals can be prepared with or without computer assistance and are often developed by teams of people. The validity of mass appraisal conclusions is frequently tested or contested by single-property appraisals. Single-property appraisals should conform to STANDARDS 1 and 2 for real property and STANDARDS 7 and 8 for personal property. In the context of STANDARD 6, the terms appraisal and mass appraisal both refer to the appraisal of a universe of properties, whether real property, personal property, or both.

The JURISDICTIONAL EXCEPTION may apply to several sections of STANDARD 6 because ad valorem tax administration is subject to various state, county, and municipal laws. Standards Rule 6-1

In developing a mass appraisal, an appraiser must:

Standards Rule 6-1 (a) be aware of, understand, and correctly employ those generally accepted methods and techniques necessary to produce a credible appraisal;

Comment: Departure from this binding requirement is not permitted. Mass appraisal uses:
1. Division of tasks,
2. Standardized data collection and analysis,
3. Properly specified and calibrated valuation models, and
4. Standards and measurements of the accuracy of the data collected and values produced.

This rule recognizes that the principle of change continues to affect the manner in which appraisers perform mass appraisals. Changes and developments in the real estate field have a substantial impact on the appraisal profession. Revisions in appraisal theory and practice result from:

- changes in the cost and manner of constructing and marketing commercial, industrial, residential, and other types of real estate;

- changes in the legal framework in which real property rights and interests are created, conveyed, mortgaged, and taxed;
- corresponding changes in appraisal theory and practice; and,
- social and economic changes.

To keep abreast of these changes and developments, the appraisal profession is constantly reviewing and revising appraisal methods and techniques and devising new methods and techniques to meet new circumstances. For this reason it is not sufficient for appraisers to simply maintain the skills and the knowledge they possess when they become appraisers. Mass appraisers must continuously improve their skills to remain proficient.

Standards Rule 6-1 (b) not commit a substantial error of omission or commission that significantly affects a mass appraisal;

Comment: Departure from this binding requirement is not permitted. Standards Rule 6-1(b) is identical in purpose to Standards Rule 1-1(b).

Standards Rule 6-1 (c) not render a mass appraisal in a careless or negligent manner.

Comment: Departure from this binding requirement is not permitted. Standards Rule 6-1(c) is identical in purpose to Standards Rule 1-1(c).
Standards Rule 6-2

In developing a mass appraisal, an appraiser must observe the following specific appraisal guidelines:

Standards Rule 6-2 (a) consider the purpose and intended use of the appraisal; (29)

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29. See Statement on Appraisal Standards Number 9.

Standards Rule 6-2 (b) identify any special limiting conditions;

Comment: Although appraisers in ad valorem taxation should not be held accountable for limitations beyond their control, they are required by this guideline to identify cost constraints and to take appropriate steps to secure sufficient funding to produce appraisals that comply with these standards.

Expenditure levels for assessment administration are a function of a number of factors. Fiscal constraints may impact data completeness and accuracy, valuation methods, and valuation accuracy. While appraisers should seek adequate funding and disclose the impact of fiscal constraints on the mass appraisal process, they are not responsible for constraints beyond their control.

Standards Rule 6-2 (c) identify the effective date of the appraisal;

Standards Rule 6-2 (d) define the value being considered; if the value to be estimated is market value, the appraiser must clearly indicate whether the estimate is the most probable price:

(i) in terms of cash; or
(ii) in terms of financial arrangements equivalent to cash; or
(iii) in such other terms as may be precisely defined; if an estimate of value is based on below-market financing or financing with unusual conditions or incentives, the terms of such financing must be clearly set forth, their contributions to or negative influence on value must be described and estimated, and the market data supporting the valuation estimate must be described and explained;

Comment: For certain types of appraisal assignments in which a legal definition of market value has been established and takes precedence, the Jurisdictional Exception may apply.

Standards Rule 6-2 (e) identify the real estate and personal property, as applicable;

Comment: The universe of properties should be identified in general terms and each individual property in the universe should be identified with the information on its identity stored or referenced in its property record.

Standards Rule 6-2 (f) in appraising real property:

(i) identify and consider any personal property, trade fixtures, or intangible items that are not real property but are included in the appraisal;

Comment: This guideline requires the appraiser to recognize the inclusion of items that are not real property in the overall value estimate. Expertise in personal property (see STANDARD 7) or business (see STANDARD 9) appraisal may be required to allocate each overall value to its various components. Separate valuation of such items is required when they are significant to the overall value.

(ii) consider whether an appraised physical segment contributes pro rata to the value of the whole;

Comment: This guideline does not require the appraiser to value the whole when the subject of the appraisal is a physical segment. However, if the value of the whole is not considered, the appraisal must clearly recognize that the value of the property being appraised cannot be used to estimate the value of the whole by mathematical extension.

Standards Rule 6-2 (g) identify the property interest(s);

(i) consider known easements, restrictions, encumbrances, leases, reservations, covenants, contracts, declarations, special assessments, ordinances, or other items of similar nature;
(ii) consider whether an appraised fractional interest or partial holding contributes pro rata to the value of the whole;

Comment: This guideline does not require the appraiser to value the whole when the subject of the appraisal is a fractional interest or a partial holding. However, if the value of the whole is not considered, the appraisal must clearly reflect that the value of the property being appraised cannot be used to estimate the value of the whole by mathematical extension.

Standards Rule 6-2 (h) in appraising real property, consider the effect on use and value of the following factors: existing land-use regulations, reasonably probable modifications of such regulations, economic supply and demand, the physical adaptability of the property, neighborhood trends, and the highest and best use of the property; and

Comment: This guideline sets forth a list of factors that affect use and value. In considering neighborhood trends, an appraiser must avoid stereotyped or biased assumptions relating to race, age, color, gender, or national origin or an assumption that race, ethnic, or religious homogeneity is necessary to maximize value in a neighborhood. Further, an appraiser must avoid making an unsupported assumption or premise about neighborhood decline, effective age, and remaining life. In considering highest and best use, an appraiser should develop the concept to the extent required for a proper solution of the appraisal problem.

Standards Rule 6-2 (i) recognize that land is appraised as though vacant and available for development to its highest and best use and that the appraisal of improvements is based on their actual contribution to the site.

Comment: This guideline may be modified to reflect the fact that, in various market situations, a site may have a contributory value that differs from the value as if vacant.
Standards Rule 6-3

In developing a mass appraisal, an appraiser must:

Standards Rule 6-3 (a) identify and consider the appropriate procedures and market information required to perform the appraisal, including all physical, functional, and external market factors as they may affect the appraisal;

Comment: Such efforts customarily include the development of standardized data collection forms, procedures, and training materials which are used uniformly on the universe of properties under consideration.

Standards Rule 6-3 (b) employ generally accepted techniques for specifying property valuation models; and

Comment: The formal development of a model in a statement or equation is called model specification. Mass appraisers must develop mathematical models that, with reasonable accuracy, represent the relationship between property value and supply and demand factors, as represented by quantitative and qualitative property characteristics. The models may be specified using the cost, sales comparison, or income approaches to value. The specification format may be tabular, mathematical, linear, non-linear, or any other structure suitable for representing the relationship between market value and observable property characteristics. The appropriate approaches should be used in appraising a class of properties. The concepts of accepted techniques apply to both real and personal property valuation models.

Standards Rule 6-3 (c) employ generally accepted techniques for calibrating mass appraisal models.

Comment: Departure from binding requirements (a) through (c) is not permitted. Calibration refers to the process of analyzing sets of property and market data to determine the specific parameters of a model. The table entries in a cost manual are examples of calibrated parameters, as well as the coefficients in a linear or non-linear model. Models should be calibrated using generally accepted techniques, including, but not limited to, multiple linear regression, non-linear regression, and adaptive estimation.
Standards Rule 6-4

In developing a mass appraisal, an appraiser must observe the following specific appraisal guidelines, when applicable:

Standards Rule 6-4 (a) collect, verify, analyze, and reconcile such data as are necessary and appropriate to:

(i) estimate cost new of the improvements;
(ii) estimate accrued depreciation;
(iii) estimate value by sales of comparable properties;
(iv) estimate value by capitalization of income. i.e. rentals, expenses, interest rates, capitalization of income. ie. rentals, expenses, interest rates, capitaliation rates and vacancy data.

Comment: This rule requires appraisers engaged in mass appraisal to take reasonable steps to ensure that the quantity and quality of the factual data that are collected are sufficient to produce credible appraisals. For real property, systems for routinely collecting and maintaining ownership, geographic, sales, income and expense, cost, and property characteristics data should be established. Geographic data should be contained in a complete set of cadastral maps compiled according to current standards of detail and accuracy. Sales data should be collected, confirmed, screened, adjusted, and filed according to current standards of practice. The sales file should contain, for each sale, property characteristics data that are contemporaneous with the date of sale. Property characteristics data should be appropriate to the mass appraisal models being used. The property characteristics data file should contain data contemporaneous with the date of appraisal. It may contain historical data on sales. The data collection program should incorporate a quality control program, including checks and audits of the data to ensure current and consistent records.

Standards Rule 6-4 (b) base projections of future rental rates, expenses, interest rates, capitalization rates, and vacancy rates on reasonable and appropriate evidence.

Comment: This guideline requires an appraiser, in developing income and expense statements and cash flow projections, to weigh historical information and trends, current market factors affecting such trends, and reasonably anticipated events, such as competition from developments either planned or under construction.

Standards Rule 6-4 (c) consider and analyze terms and conditions of any available leases.

Standards Rule 6-4 (d) consider the need for and extent of any physical inspection.
Standards Rule 6-5

In applying a calibrated mass appraisal model an appraiser must:

Standards Rule 6-5 (a) value improved parcels by accepted methods or techniques based on the cost approach, the sales comparison approach, and income approach, as applicable;

Standards Rule 6-5 (b) value sites by generally accepted methods or techniques; such techniques include but are not limited to the sales comparison approach, allocation method, abstraction method, capitalization of ground rent, and land residual technique;

Standards Rule 6-5 (c) when estimating the value of a leased fee estate or a leasehold estate, consider and analyze the effect on value, if any, of the terms and conditions of the lease;

Comment: In ad valorem taxation the appraiser may be required by rules or law to appraise the property as if in fee simple, as though unencumbered by existing leases. In such cases, market rent would be used in the appraisal, ignoring the effect of the individual, actual contract rents.

Standards Rule 6-5 (d) consider and analyze the effect on value, if any, of the assemblage of the various parcels, divided interests, or component parts of a property; the value of the whole should not be estimated by adding together the individual values of the various parcels, divided interests, or component parts; and

Comment: When the value of the whole has been established and the appraiser seeks to estimate the value of a part, the value of any such part must be tested by reference to appropriate market
data and supported by an appropriate analysis of such data.

Standards Rule 6-5 (e) consider and analyze the effect on value, if any, of anticipated public or private improvements, located on or off the site, to the extent that market actions reflect such anticipated improvements as of the effective appraisal date; appraise proposed improvements only after examining and having available for future examination;

(i) plans, specifications, or other documentation sufficient to identify the scope and character of the proposed improvements;
(ii) evidence indicating the probable time of completion of the proposed improvements; and
(iii) reasonably clear and appropriate evidence supporting development costs, anticipated earnings, occupancy projections, and the anticipated competition at the time of completion.

Comment: Ordinarily, proposed improvements are not appraised for ad valorem tax purposes. Appraisers, however, are sometimes asked to provide estimates of value of proposed improvements so that developers can estimate future property tax burdens. Sometimes condominiums and units in planned unit developments are sold with an interest in unbuilt community property, the pro rata value of which, if any, should be considered in the analysis of sales data.
Standards Rule 6-6

In reconciling a mass appraisal an appraiser must:

Standards Rule 6-6 (a) consider and reconcile the quality and quantity of data available and analyzed within the approaches used and the applicability or suitability of the approaches used; and

Standards Rule 6-6 (b) employ generally accepted mass appraisal testing procedures and techniques to ensure that standards of accuracy are maintained.

Comment: Departure from binding requirements (a) and (b) is not permitted. It is implicit in mass appraisal that, even when properly specified and calibrated mass appraisal models are used, some individual value estimates will not meet standards of reasonableness, consistency, and accuracy. However, appraisers engaged in mass appraisal have a professional responsibility to ensure that, on an overall basis, models produce value estimates that meet attainable standards of accuracy. This responsibility requires appraisers to evaluate the performance of models, using techniques including, but not limited to, goodness-of-fit statistics, hold-out samples, analysis of residuals, and appraisal-to-sale ratio data. They also should review individual value estimates before they are used.
Standards Rule 6-7

A written summary report of a mass appraisal for ad valorem taxation or a written report of a mass appraisal for any other purpose should clearly communicate the elements, results, opinions, and value conclusions of the appraisal.

Documentation for a mass appraisal for ad valorem taxation may be in the form of (1) property records (2) reports, (3) manuals, (4) regulations, (5) statutes, and (6) other acceptable forms.

Each written report of a mass appraisal for any purpose other than ad valorem taxation must:

Standards Rule 6-7 (A) clearly and accurately set forth the appraisal for any purpose other than ad valorem tazation must:

Standards Rule 6-7 (B) contain sufficient information to enable the person(s) who receive or rely on the report to understand it properly;

Standards Rule 6-7 (C) clearly and accurately disclose any extra ordinary assumptions or limiting condition that directly affects the appraisal and indicate its impact on value.

Furthermore, each written report of a mass appraisal for any purpose other than for ad valorem taxation, and, when provided, a written summary report of a mass appraisal for ad valorem taxation must:

Standards Rule 6-7 (a) state the purpose and intended use of the appraisal; (30)

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30. See Statement on Appraisal Standards Number 9.

Standards Rule 6-7 (b) disclose any assumptions or limiting conditions that result in deviation from generally accepted methods and techniques or that affect analyses, opinions, and conclusions;

Comment: One limiting condition that must be disclosed is whether or not any physical inspection was made.

Standards Rule 6-7 (c) set forth the effective date of the appraisal;

Comment: In ad valorem taxation the effective date of the appraisal may be prescribed by law. If no effective date is prescribed by law, the effective date of the appraisal, if not stated, is presumed to be contemporaneous with the data and appraisal conclusions.

Standards Rule 6-7 (d) define the value to be estimated;

Standards Rule 6-7 (e) identify the properties appraised including the property rights;

Comment: The report should document the sources for locating, describing, and listing the property. When applicable, include references to legal descriptions, addresses, parcel identifiers, photos, and building sketches. In mass appraisal this information is often included in property records. When the property rights to be appraised are specified in a statute or court ruling, the law should be referenced.

Standards Rule 6-7 (f) describe and justify the model specification(s) considered, data requirements, and the models chosen;

Comment: The user and affected parties must have confidence that the process and procedures used conform to accepted methods and result in credible value estimates. In the case of mass appraisal for ad valorem taxation, stability and accuracy are important to the credibility of value estimates. The summary report should include a discussion of the rationale for each model, the calibration techniques to be used, and the performance measures to be used.

Standards Rule 6-7 (g) describe the procedure for collecting, validating, and reporting data;

Comment: The summary report should describe the sources of data and the data collection and validation processes. Reference to detailed data collection manuals should be made, including where they may be found for inspection.

Standards Rule 6-7 (h) describe calibration methods considered and chosen, including the mathematical form of the final model(s); describe how value estimates were reviewed; and, if necessary, describe the availability of individual value estimates;

Standards Rule 6-7 (i) in the case of real property, discuss how highest and best use was determined;

Comment: The mass appraisal summary report should reference case law, statute or public policy that describes highest and best use requirements. When actual use is the requirement, the report should discuss how use-values were estimated.

Standards Rule 6-7 (j) identify the appraisal performance tests used and set forth the performance measures attained;

Standards Rule 6-7 (k) provide any additional information necessary to more fully explain the appraisal including departures permitted by the DEPARTURE PROVISION; and

Standards Rule 6-7 (l) contain a signed certification by the appraiser in a manner consistent with applicable laws, rules or regulations and generally accepted appraisal practices for mass appraisals prepared for ad valorem taxation; and for mass appraisals prepared for other purposes, contain a signed certification in accordance with Standards Rule 6-8.

Comment: Departure from binding requirements (a) through (l) is not permitted.
Standards Rule 6-8

Each written mass appraisal for purposes other than ad valorem taxation must contain a signed certification that is similar in content to the following form:

I certify that, to the best of my knowledge and belief:

- the statements of fact contained in this report are true and correct.
- the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, unbiased professional analyses, opinions, and conclusions.
- I have no (or the specified) present or prospective interest in the property that is the subject of this report, and I have no (or the specified) personal interest or bias with respect to the parties involved.
- my compensation is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.
- my analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice.
- I have (or have not) made a personal inspection of the property that is the subject of this report. (If more than one person signs the report, this certification must clearly specify which individuals did and which individuals did not make a personal inspection of the appraised property.) (31)
- no one provided significant professional assistance to the person signing this report. (If there are exceptions, the name of each individual providing significant professional assistance must be stated.)

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31. See Advisory Opinion AO-2. References to Advisory Opinions are for guidance only and do not incorporate Advisory Opinions into the Standards Rules.

APPENDIX C – EXCEL INSTRUCTIONS

EXCEL INSTRUCTIONS

Note: to install Excel's regression function, you go to Tools, then Add-Ins, and check 'Analysis ToolPak." You may be prompted to install the Analysis ToolPak using the Microsoft Office software disc.

Correlation Matrix for Multiple Regression (Used to Test for MC)

- Tools
  - Data Analysis
    - Click on Correlation
      - Select input range box and retrieve data
      - Select an output option (where to put results)
      - Verify that appropriate box is checked if the column labels were included in the selected range of data

Excel is picky. Verify that all x variables are in adjacent columns with no non-numeric data present

Regression Analysis

- Tools
  - Data Analysis
    - Click on Regression
      - Select y (dependent) variable range box and retrieve data
      - Select x (independent) variable(s) range box and retrieve data
      - Verify that appropriate box is checked if the column label ere included in the selected range of data
      - Select the output range box and show Excel where on your sheet you want the regression results

Again, Excel is picky. Verify that all x variables are in adjacent columns with no non-numeric data present. This means that data has to be copy/paste with any insignificant variable columns taken out of the data set before re-running regression

When you are running your final regression (i.e. all variables are significant): under 'Residuals' at the bottom of the Regression dialog box, check 'Standardized Residuals' and 'Residual Plots.' Examine residual plots for patterns indicating non-normality.

APPENDIX D – A GUIDE TO USING PROXIMITY DAMAGE VALUATION MODEL

A GUIDE TO USING the Proximity Damage Valuation Model

Overview

Statewide transportation planning needs require forecasting and assessing property damages that result from a road project. As the traffic flow and traffic demands in Idaho change, the Idaho Transportation Department continuously evaluates transportation elements of comprehensive plans, determines impacts of proposed land use changes, and determines the transportation needs for the state. Meeting transportation needs often requires widening roadways, which necessitates the state to exercise their eminent domain right, the right to take private property for a public use upon payment of just compensation. (page 21, Real Estate Valuation in Litigation).

Two basic forms of damages have been identified in eminent domain litigation: the taking of the physical property; and concluded hypothetical damages occasioned by the taking to the remainder—the remaining land and improvements as it exists at a point in time after the road project has been completed. The problem in the past has been that the methods used to estimate the value of these damages employ limited comparable data, usually three to five direct comparisons, and subjective adjustments based on experience and ordinal judgment.

This study developed a six region forecasting model based on multiple regression analysis using factors, or characteristics, that directly affect the sales price of a home; and indirect characteristics such as street-traffic classification and setback from the street or road, to conclude indirect correlation between value relative to proximity and to street-traffic classifications. Aggregation of the data from all regions to form a state-wide model has resulted in a successful method of estimating intrinsic damages due to road projects for the Idaho Transportation Department.

The home sales represent a systematic sample of the population in each region, however, conclusions from each model infer that the regions studied in Idaho have some sociologically and demographic differences, yet the same major home attributes are important for all areas. An example of a difference would be the importance of central air conditioning in Lewiston, where this is not an important feature to home buyers in Pocatello or Idaho Falls.

Street or road characteristics, however, generally vary between the significance of setback *or* variations of the street-traffic classification variables for each city, but not both. For the Idaho Model, where all individual city observations were tested as a group, all street-traffic classification variables and the setback variable (distance between the street or road and dwelling) are significant.

Objectives of the Study

Compensation for proximity damages (reduced value of the remaining property after a road is rebuilt or widened) is based on the assumption that the value of residential property is diminished as a direct result of proximity to a high traffic road. An objective study was needed to empiracally conclude first, if proximity damages do exist, and second, the corresponding co-efficient that reflects the amount of damages, if any.

The Idaho Department of Transportation spends a great deal of taxpayer money to compensate residential property owners for estimates of residual property damage as a result of a road project. More importantly, the validity of the underlying assumption—that proximity damages are a fixed and uncorrectable problem—has not been empirically examined on a statewide or regional level, and the relationship between estimates for just compensation for anticipated damages and the actual loss of market value to the residential property has not been empirically identified. The goal of this research was to answer the question: What features or characteristics of a road, if any, affect the sales price of residential properties adjacent to that road?

Data Sources

Major pieces of data that the study required included detailed sales information on residential properties that have sold in Pocatello, Idaho Falls, Boise, Lewiston, Moscow, and Coeur d'Alene since 1998 as follows:

- COMPASS and Federal Highway street classification information correlated with traffic count data
- Anaysis of demographic data for each region
- Onsite inspection of each property to measure the distance, in feet, of the home set-back from the road.
- Onsite inspection and specific property information garnered from Realtor comments on the MLS data sheet to conclude effective age of the home. It should be noted that condition is inherent in effective age, i.e. if the condition of a house is good, the effective age is lower.
- Classification of quality of construction based on Oregon Cost Manual, correlating classes 1-8 (see appendix for description of classes) to "below average," "average," "above average," and "good."

Inputs for the model were developed by identifying primary criteria considered to be consistent variables affecting value that are used in the direct comparison appraisal method, under typical sales conditions with a typically motivated purchaser and seller. Additional inputs concerning road characteristics were researched by reviewing forty to fifty proximity damage settlement files at the Idaho Transportation Department to conclude the variables impacting value related to road proximity. The types of variables identified from these files were: distance the house is located from the road, classification of street (road) as defined by Federal Highways Administration correlated with a traffic count classification. This classification also accounts for speed limit and number of lanes and whether the road is a principal arterial, a minor arterial, a rural arterial, a collector, or local street. If the road is a principal arterial or collector street with greater than 5000 cars per day, it was identified whether the home faced or backed this major roadway. The road variables were aggregated into the parameters of the model.

Model Parameters

The parameters of the study include $40K to $600K homes that have sold in the greater area of six regions of Idaho between 1998 and 2002 – the time parameters depended on the relative volume of home sales in each area. The higher sales volume, the stricter the parameters were on the age of the closed sales in that area. Information was collected from each applicable Multiple Listing Service and County Assessor's Office.

Data

1,800± residential home sales that represent approximately 10% of the market for the period covered were selected from the multiple listing services that cover the six regions of Idaho considered in this study. In addition, some home sales on major and minor arterials and on connectors were specifically selected for comparison. The parameters of the study include $40K to $600K homes that have sold in the greater area of the six identified regions of Idaho between 1998 and 2003 – the time parameters depended on the relative volume of home sales in each area. The Boise, Coeur d'Alene, Moscow, and Lewiston regions had higher sales volumes, allowing for a narrower time range. The data were initially entered into an Access data base. The following five figures demonstrate the information that was entered for the 1,800± homes.

Acknowledgements and, Authors

The Idaho Transporation Department is the lead agency for the research project with a five-member technical oversight committee. The committee members include:

- Doyle Pugmire, Appraisal Coordinator, ITD
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- Rick Machmeier, Right of Way, Appraisal Review, ITD
- Scott Frey, FHWA

Authors of the study include:

- Ruby Miles Stroschein, Certified General Appraiser and employee of the University of Idaho
- Dr. James Nelson, a graduate professor at the University of Idaho in the College of Agricultural Economics and Rural Socialology
- Sarah E. Miles, Appraiser Trainee and Statistical Analyst

The following table lists the variables that were identified for each property in the model.

Variable	*General Data Source*
Date of Sale	MLS Data Sheets
Year built	MLS Data Sheets and Assessor
Effective age	On-site inspections and MLS
Quality of consturction	On-site inspections
Gross Living Area	MLS Data Sheets
Above Grade Bedroom Count	MLS Data Sheets
Above Grade Bathroom Count	MLS Data Sheets
Total Basement Square Feet	MLS Data Sheets
Basement Square Feet Finished	MLS Data Sheets
Heating System	MLS Data Sheets
Cooling System	MLS Data Sheets
Number of Fireplaces	MLS Data Sheets
Patios/Decks	MLS Data Sheets
Fencing	MLS and on- site inspections
Automatic Sprinkling System	MLS Data Sheets
Shops & Outbuildings	MLS and on-site inspections
Car Storage (includes garages and carports)	MLS and on-site inspections
Lot Size	MLS Data Sheets and Assessor
Zoning	MLS Data Sheets and City P & Z
Location	MLS and On-Site Inspections
Setback of house from road (curb to living area)	On-site Inspection – measurement using measuring wheel
Fronts/backs to road*	On-site inspection

Traffic Count**	ITD, ACHD, local traffic data
Speet Limit**	On-site Inspection
Number of lanes**	On-site Inspection
Road Classification	On-site Inspection

All of the variables included in the study are considered to be in excess of *Uniform Standards of Professional Appraisal Practise* and *Uniform Appraisal Standards for Federal Land Acquisitions* requirements. Additional data collected and on file include: Addresses, legal descriptions where available, MLS reference numbers, dates of sales, tax parcel numbers (when made available in the MLS data), financing, sales concessions, list prices, and number of days of market.

The meanings of most of the variables specified in the previous table are stright forward. However, the following variables deserve additional explanation:

- Setback of home from the road. An onsite inspection was made for each property to measure the distance, in feet, of the home set-back from the road travelway. If there was more than one road abutting the site, the road with the most proximity characteristics was used as the measuring point, measuring to the front, side, or back as it applied.
- Effective age determination. Onsite inspection and specific property information garnered from Realtor comments on the MLS data sheet were used to conclude the effective age of the home. Specific information such as a new roof, new carpets, new heating system, new kitchen cabinets,etc. were accounted for in concluding the effective age of the home. Condition was originally considered as a separate variable, but was found to be highly correlated with effective age,

indicating that condition is often inherent in effective age, causing multicollinearity, and was thus eliminated as an independent variable.

Quality of Construction Classification. The quality of construction of the home is based on classifications used by the Oregon Cost Manual, correlating classes 1-8 to "below average," "average," "above average," and "good." Oregon Cost Manual class 8 homes are considered to be excellent quality construction homes and were not used in any of the models. Parameters for construction quality are, from the Oregon Cost Manual. Construction classifications are attached for clarification.

Using Regression Modeling

The following itemized list corresponds to numbers 1 through 18 on the Excel Spreadsheet Regression Model.

1. Enter the appraised value in the "before" condition, or prior to the road project.

2. Enter the approximate percentage of value that is contributable to the to the land in Cell B6.

3. Enter the approximate percentage of value that is contributable to the improvements to the land itself in Cell B7. Numbers 2 and 3 should not exceed 100% when summed.

4. Enter the effective age of the house in Cell B10. The effective age is one of the most critical steps in inputting data. Effective age is calculated based on the condition of the bone structure (frame and foundation), and reflects upgrades to the bone structure; both long-lived and short-lived such as additions, windows, electrical, plumbing, roofing, kitchens, bathrooms, floor coverings, heating systems, etc.

Note: The effective age determinate in the model are based on comments gleaned from the MLS data sheet and from exterior on-site inspection.

5. Using the ANSI Standard, enter the total above grade gross living area (GLA) of the house, measured in square feet in B11.

6. Using the dropdown menu in Cell B12, enter the total above grade bedroom count.

7. Using the dropdown menu in Cell B13, enter the total above grade bathroom count. Three-Quarter bathrooms are expressed as full bathrooms.

8. Enter the total square footage of the basement in Cell B14. If there is no basement, enter “0”.

9. Enter the total square footage of the basement that is finished in Cell B15. Again, if the home has no basement or if the home has an unfinished basement, enter “0”..

10. Using the dropdown menu in Cell B16, enter the number of cars this garage or carport can store in a typical fashion. Note: There is no difference in the model between garages or carports.

11. Using the dropdown menu in Cell B17, enter the quality of construction. This variable is a measure of the quality of construction, more thoroughly explained in the Single Family Residential Conventional Construction Classes attached.

    Note: The Oregon Cost Manual Construction Quality Classifications were followed in concluding construction quality. Construction quality class 8 was generally outside the parameters of the Idaho data set. It is important to follow these guidelines.

12. Enter the size of the subject lot in Cell B18 in the before condition, measured in square footage.

13. Using the dropdown menu in Cell B19, enter the region, or region closest to the subject.
    Boise = Ada County Region
    Coeur d'Alene = Kootenai County Region
    Idaho Falls = Bonneville County Region
    Lewiston = Nez Perce County Region
    Moscow = Latah County Region
    Pocatello = Bannock County Region

14. In Cell B20, enter the number of linear feet measured from the edge of the road or right of way to the closest living area of the house, in the before condition.

15. Using the drop down menu in Cell B21, enter the road classification in the before.

16. In Cell B22, enter the number of linear feet measured from the edge of the road or right of way to the closest living area of the house, in the after condition.

17. Using the dropdown menu in B23, enter the road classification in the after condition.

18. The Results Box is a summary of findings. Here should be the appraiser's value in the before, the model's concluded value in the before, and a reconciliation of values. This is necessary for two reasons:

    a. The model is based on natural logarithms for both the dependent variable and some of the independent variables. This, simply stated, means that damages are expressed as percentages of value, and the respective value that each variable adds to the whole is not a linear function. It is hence imperative that the

appraiser's concluded value in the before be similar to the model's concluded value so the percent base is accurate.

b. There are many variables affecting value that cannot and are not captured by coefficients in the model. Reconciliation is necessary in order to prevent the overstatement or understatement of value to again assure that the base for damage calculation is accurate.

Proximity damages are shown as:

1. A total dollar amount
2. As a percentage of value in the before (a percentage diminution of total value)
3. As a dollar amount of damages contributable to land and improvements.

All Cities - Idaho Model

The Idaho model was run multiple times with various categorizations, and under various assumptions. The final result, shown on the next page, uses all original categorization of the traffic count variables and setback values of 100 and less. Setback loses significance quickly at values any greater.

The Idaho Model is a log/log model, meaning that the dependent variable (sales price) is in natural logarithm form, as has been the case for all individual city models in order to correct for non-constant variance. The difference between this model and the other models is that those scalar independent variables that have a high range of value are also expressed in logarithmic form. While transforming the dependent variable corrected for non-constant variance, a transformation on scalar independent variables with extreme ranges was necessary to correct for non-linearity.

Correlation matrix for variables in final model, before transformation
Correlations: Sale Price, Effective Ag, Gross Living, Above Grade , Above Grade

All Cities - Idaho Model Correlations

	Sale Price	Effective	Gross Liv	Above Gr	Above Gr	Basement	Basement	No. Cars
Effective	-0.563							
	0.000							
Gross Liv	0.729	-0.409						
	0.000	0.000						
Above Gr	0.462	-0.348	0.583					
	0.000	0.000	0.000					
Above Gr	0.640	-0.495	0.653	0.627				
	0.000	0.000	0.000	0.000				
Basement	0.239	-0.136	0.079	-0.019	0.021			
	0.000	0.000	0.001	0.427	0.396			
Basement	0.198	-0.113	0.091	0.007	0.025	0.627		
	0.000	0.000	0.000	0.781	0.298	0.000		
No. Cars	0.477	-0.457	0.396	0.322	0.407	0.090	0.143	
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Sample Li	0.375	-0.266	0.303	0.206	0.267	0.103	0.113	0.225
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OneHundA	0.092	-0.094	0.087	0.148	0.135	0.065	0.062	0.081
	0.000	0.000	0.001	0.000	0.000	0.011	0.016	0.002
Five Hund	-0.108	0.076	-0.103	-0.042	-0.078	0.045	0.017	-0.072
	0.000	0.003	0.000	0.100	0.002	0.078	0.507	0.005
One Thous	-0.131	0.148	-0.111	-0.157	-0.167	-0.032	-0.036	-0.141
	0.000	0.000	0.000	0.000	0.000	0.209	0.157	0.000

Five Thous	-0.161	0.177	-0.124	-0.135	-0.164	0.019	0.019	-0.123
	0.000	0.000	0.000	0.000	0.000	0.463	0.464	0.000
TenPlus A	-0.156	0.169	-0.054	-0.080	-0.105	-0.059	-0.019	-0.061
	0.000	0.000	0.037	0.002	0.000	0.022	0.460	0.019
LNLotSiz	0.434	-0.192	0.390	0.227	0.283	0.204	0.201	0.262
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CDA 1	0.110	-0.160	0.021	0.015	0.059	-0.078	-0.041	0.112
	0.000	0.000	0.375	0.522	0.014	0.001	0.088	0.000
IF1	-0.137	-0.026	-0.051	-0.062	-0.113	0.125	0.220	0.016
	0.000	0.282	0.036	0.011	0.000	0.000	0.000	0.509
Lewiston	-0.094	0.145	-0.076	-0.117	-0.095	0.048	-0.015	-0.115
	0.000	0.000	0.002	0.000	0.000	0.049	0.531	0.000
Pocaltello	-0.155	0.068	-0.093	-0.076	-0.093	0.136	0.144	-0.109
	0.000	0.005	0.000	0.002	0.000	0.000	0.000	0.000
Abv Qual	0.136	-0.215	0.143	0.104	0.139	0.131	0.063	0.119
	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000
Good Qual	0.600	-0.274	0.422	0.215	0.331	0.107	0.099	0.243
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	Sample Li	**OneHund A**	**Five Hund**	**One Thou**	**Five Thou**	**Ten Plus A**	**LNLotSiz**	**CDA 1**
OneHund A	0.052							
	0.045							
Five Hund	-0.102	-0.268						
	0.000	0.000						
One Thous	-0.004	-0.281	-0.224					
	0.876	0.000	0.000					
Five Thous	-0.078	-0.166	-0.133	-0.139				
	0.002	0.000	0.000	0.000				
Ten Plus A	0.033	-0.189	-0.151	-0.158	-0.093			
	0.199	0.000	0.000	0.000	0.000			
LNLot Size	0.573	0.055	-0.042	-0.036	-0.062	-0.059		
	0.000	0.036	0.112	0.170	0.019	0.024		
CDA 1	0.056	0.023	-0.072	-0.074	-0.067	-0.120	-0.042	
	0.022	0.379	0.005	0.004	0.009	0.000	0.092	
IF1	-0.043	0.092	0.006	0.022	-0.042	0.003	-0.027	-0.201
	0.075	0.000	0.829	0.385	0.104	0.895	0.280	0.000

Lewiston	-0.063	-0.091	-0.060	0.021	0.044	0.045	0.002	-0.136
	0.009	0.000	0.020	0.424	0.086	0.078	0.952	0.000
Pocatello	-0.035	-0.079	0.130	0.036	0.152	0.030	0.045	-0.200
	0.154	0.002	0.000	0.161	0.000	0.238	0.069	0.000
Above B	0.082	0.045	-0.083	0.029	-0.007	0.003	0.108	-0.093
	0.001	0.078	0.001	0.268	0.800	0.897	0.000	0.000
Good B	0.181	-0.072	-0.063	-0.049	-0.071	-0.071	0.136	0.128
	0.000	0.005	0.014	0.059	0.006	0.006	0.000	0.000

	IF1	**Lewiston**	**Pocatello**	**Above B**
Lewiston	-0.206			
	0.000			
Pocatello	-0.303	-0.205		
	0.000	0.000		
Above B	0.060	-0.030	0.017	
	0.013	0.211	0.476	
Good B	-0.119	0.016	-0.102	-0.207
	0.000	0.511	0.000	0.000

No multicollinearity is present.

Regression Analysis – Log/Log Model: LNSalesPrice versus Effective Age, LnGLA, ...

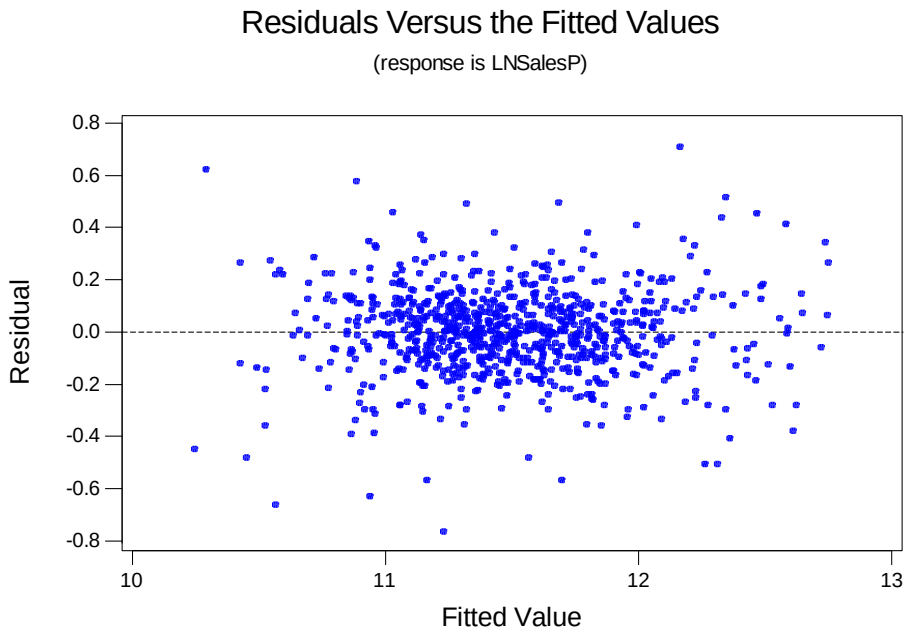
The regression equation is
LNSalesPrice = 6.97 - 0.0133 Effective Age + 0.466 LnGLA - 0.0121 Above Grade Bedroom Count + 0.0384 Above Grade Bathroom Count + 0.0610 LnBSMTSFFin + 0.0353 LnBSMTSF + 0.0712 No. Cars + 0.0754 LNSampleSetback - 0.0253 OneHundA - 0.0377 FiveHundA - 0.0617 OneThousA
- 0.0742 FiveThousA - 0.152 TenPlusA + 0.0705 LNLotSize - 0.162 CDA1 - 0.340 IF1 - 0.209 Lewiston1 - 0.296 Pocatello1 + 0.0419 AboveB + 0.238 GoodB

Predictor	Coefficient	SE Coef	T	P
Constant	6.972	0.1937	36.00	0.000
Effective Age	-0.0133059	0.008254	-16.12	0.000
LnGLA	0.46552	0.02872	16.21	0.000
Above Grade Bedroom Count	-0.012134	0.009537	-1.27	0.204
Above Grade Bathroom Count	0.03841	0.01369	2.81	0.005
LnBSMTSF Finished	0.06096	0.01114	5.47	0.000
LnBSMTSF	0.03533	0.01891	1.87	0.062
No. Cars	0.071165	0.009611	7.4	0.000
LN Sample Setback	0.07538	0.02474	3.05	0.002
One Hund "101-500"	-0.0253	0.01936	-1.31	0.192
Five Hund "501-1,000"	-0.03769	0.02113	-1.78	0.075
One Thous "1,001-5,000"	-0.0617	0.02148	-2.87	0.004
Five Thous "5,001-10,000"	-0.07419	0.02641	-2.81	0.005
Ten Plus "10,000+ "	-0.15233	0.02637	-5.78	0.000
LN Lot Size	0.07051	0.01009	6.99	0.000
CDA 1	-0.16155	0.03069	-5.26	0.000
IF1	-0.33966	0.02635	-12.89	0.000
Lewiston	-0.20863	0.02882	-7.24	0.000
Pocatello	-0.29591	0.02621	-11.29	0.000
Above B	0.04193	0.01289	3.25	0.001
Good B	0.23843	0.03362	7.09	0.000

S = 0.1662 R-Sq = 87.1% R-Sq(adj) = 86.8%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	20	147.8628	7.3931	267.52	0.000
Residual Error	791	21.8601	0.0276		
Total	811	169.7229			


Residuals Versus the Fitted Values
(response is LNSalesP)
Residual
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
10
11
12
13
Fitted Value

Effective Use of Experts Including Daubert/Kumho Challenges

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Law Seminars International
January 30, 2003

intellectual rigor

I. INTRODUCTION

"We tell ourselves stories in order to live ..."[1]

II. GATEKEEPERS: WHAT THE COURTS SAY ABOUT EXPERTS

In *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589 (1993), the United States Supreme Court held that Fed. R. Evid. 702 imposes a special obligation upon a trial judge to ensure that expert testimony is not only relevant, but reliable. *See also Thomas v. FAG Bearings Corp.*, 846 F. Supp. 1382, 1393-94 (W.D. Mo. 1994). In *Daubert*, the Supreme Court identified four nonexclusive factors to consider in exercising this "gatekeeping" obligation: (1) whether a theory or technique can be and has been tested; (2) whether it has been subjected to peer review and publication; (3) whether, in respect to a particular technique, there is a high known or potential rate of error and whether there are standards controlling the technique's operation; and Standa govern use (4) whether the theory or technique enjoys general acceptance within a relevant scientific community. 509 U.S. at 592-94. As the "gatekeeper," the trial court must determine whether expert testimony will assist the trier of fact, and must exclude unreliable expert testimony. *See Thomas v. FAG Bearings Corp.*, 846 F. Supp. at 1393-94; Fed. R. Evid. 702 (and 2000 Committee Notes thereto).

In *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999), the United States Supreme Court clarified that the *Daubert* factors and the trial court's "gatekeeping" obligation apply not only to scientific testimony, but to all expert testimony "based on

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[1] *The White Album*, J. Didion, p. 11 (1979).

'technical' and 'other specialized' knowledge." *Id.* at 141. *Kumho Tire* held that the *Daubert* factors might also be applicable in assessing the reliability of non-scientific expert testimony, depending upon "the particular circumstances of the particular case at issue." *Id.* at 1175. Other factors may also be relevant. *Id.* at 1176 ("[W]e conclude that the trial judge must have considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable.").

In *E.I. du Pont de Nemours & Co. v. Robinson,* 923 SW 2d 549 (Tex.1995), the plaintiff argued that a contaminted fungicide had damaged the Robinsons' pecan orchard. Plaintiff's expert employed a method called "comparative symptomology" as a basis for concluding that the fungicide caused the damage to the trees. The trial judge excluded plaintiffs' expert's testimony as not being consistent with *Daubert* and directed a verdict in favor of the defendant. The Texas Supreme Court ultimately agreed with the trial court, adopting *Daubert*.

The Texas Supreme Court explained that its reasoning was based upon a determination that judges were capable of understanding and evaluating scientific reliability:

> There is a difference between reliability of the underlying theory or the unique and the credibility of the witness who proposes to testify about it. An expert witness may be very believable, but his or her conclusions may be based upon unreliable methodology. As *Du Pont* points out, a person with a degree should not be allowed to testify that the world is flat, that the moon is made of green cheese, or that the earth is the center of the solar system. 923 SW 2nd at 549.

reliable methodology

The Court's decision that the expert's testimony was unreliable rested upon several grounds: no testing to exclude other possible causes of damage had been conducted;

the expert appeared to have reasoned from an end result in order to hypothesize what needed to be known; and his opinion was formed solely for the purposes of litigation.

U.S. v. 14.38 Acres of Land, 80 F. 3d 1074 (5th Cir. 1996) is a good example of a *Daubert/Kumho* analysis in an eminent domain context. That case involved a taking for the construction of a new levee in Leflore County, Mississippi. The landowner's engineer testified that in the event a flood breached the failing old levee, the new levee would ensure that water would pond and remain on the landowner's property. The landowner's appraiser testified that the highest and best use of the property remaining would thus change from cotton farming to lower-value soybean farming and the risk of flooding would decrease the value of the residence. The government attacked those opinions based upon the admitted uncertainty over the extent of flooding. The trial court agreed and held the landowner's valuation testimony inadmissible. The appellate court disagreed saying:

> We think that the district court applied too stringent a reliability test in this regard. In *Daubert*, the Supreme Court held that the common-law, "general acceptance" test for the admissibility of novel scientific evidence articulated in *Frye v. United States*, 54 App.D.C. 46, 293 F. 1030 (1923), did not survive the advent of the Federal Rules of Evidence, and articulated standards for determining the reliability of scientific expert testimony for purposes of admitting the evidence at trial. The case did not otherwise work a sea change over federal evidence law. *See United States v. Sinclair*, 74 F.3d 753, 757 (7th Cir. 1996) ("*Daubert* does not create a special analysis for answering questions about the admissibility of all expert testimony."). Rather, *Daubert* articulates what the Federal Rules of Evidence, as well as a trial court's traditional role, alin [sic] the initial "gate keeping" task of establishing whether proffered evidence is sufficiently reliable and relevant, and thus presumptively admissible unless excludable on some other ground. *See Daubert*, 509 U.S. at ----, 113 S.Ct. at 2799 ("the Rules of Evidence . . . do assign to the trial judge the task of ensuring

> that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand. As the Court in *Daubert* makes clear, however, the trial court's role as gatekeeper is not intended to serve as a replacement for the adversary system: "Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Daubert*, 509 U.S. at ----, 113 S.Ct. at 2798.
>
> In this case, the experts' inability to predict the extent of flooding to Coker's property as a result of future heavy rains does not render their testimony entirely speculative and therefore unreliable for purposes of admissibility. Indeed, common sense suggests that the Government would not have gone to the expense of taking private property and erecting a levee for the purpose of "flood control in Yazoo River Basin" were the possibility of flooding in the area mere "speculation and conjecture." That prospective buyers of the property would have an increased fear of flooding, thereby decreasing the market value of the property, is a matter that the fact finder may properly consider in assessing the diminution, if any, of the property's value. 80 F.3d at 1078.

The Fifth Circuit also looked to the engineer's review of maps, photos and data, an inspection of the property and discussion with other knowledgeable professionals and stated that they were matters to be tested in the "crucible of adversary proceedings" and not based for "truncating that process."

Another interesting case is *Tarrant Regional Water District v. Grogg*, 43 S.W.3d 609 (Ct.App. Tex. 2001) (*review granted* June 13, 2002) which involved the admissibility of expert valuation testimony which was based upon a unique computer model of flood conditions specifically created for the case. The government brought a *Daubert/Kumho* attack against the valuation testimony arguing that the computer model did not meet the *Daubert/Kumho* standards. The Texas Court of Appeals found that the computer met those standards:

> The hydrologists did not believe traditional computer models, like those used by the District, could accurately analyze the available data about the flooding. So, they created a tailor-made model, which in the field of hydrology is an accepted practice. The model they created used techniques and performed studies in a manner accepted and customary in the industry. The model merely helped with their calculations but did not advance a new or novel hydrological theory. . . . The hydrologists did follow the route of the water from the Reservoir to the ranch by using the computer models employed by the District. . . . The hydrologists used reliable data from numerous sources, as described above. 43 SW 3d at 617.

City of Harlingen v. Estate of Sharboneau, 1 S.W. 3d 282 (Ct. App. Tex. 1999) (*reversed on other grounds*), a Texas highest and best use case, is also interesting. There, the court's "gatekeeper" functions were invoked in connection with the qualifications of the landowner's appraiser. Using a "beekeeper" analogy borrowed from another case, the *Harlingen* court stated:

> If one wanted to explain to a jury how a bumblebee is able to fly, an aeronautical engineer might be a helpful witness. Since flight principles have some universality, the expert could apply general principles to the case of the bumblebee. Conceivably, even if he had never seen a bumblebee, he still would be qualified to testify, as long as he was familiar with its component parts. On the other hand, if one wanted to prove that bumblebees always take off into the wind, a beekeeper with no scientific training at all would be an acceptable expert witness if a proper foundation were laid for his conclusions. The foundation would not relate to his formal training, but to his firsthand observations. In other words, the beekeeper does not know any more about flight principles than the jurors, but he has seen a lot more bumblebees than they have.
>
> *Id.* at 724.25. As with the other situations discussed in *Gammill*, here Patterson's testimony is more like the hypothetical beekeeper's than the engineer's. Patterson testified that he had performed many appraisals in the Rio Grande Valley over a period of twenty years. During this time, he had appraised many different types of property,

> including single-family residences and land developments. Patterson graduated from Baylor University, where he received real estate training. His report indicates that he was licensed by the State of Texas as a General Real Estate Appraiser at the time of this appraisal. Patterson associated himself with several professional groups and had taught real estate appraisal courses at Hill Junior college and Baylor University. He stated that he had used the subdivision development method of appraisal on many other occasions.
>
> Certainly there are scientific components to real estate appraisal, but Patterson's understanding of the fundamental principles of his practice were presented to the court during the direct examination. His qualifications were placed into evidence as well. We cannot say that the trial court abused its discretion as a "gatekeeper" in accepting Patterson's qualifications and testimony. 1 S.W.3d at 285.

Finally, *Northern States Power Company v. Burlington Northern and Santa Fe Railway Co.*, 200 WL 1809143 (Minn. App. 2001) (unpublished) rejected the *Daubert* "gatekeeper" formula and declined to apply a heightened evidentiary standard to real estate appraisal methodology:

> Second, Minnesota, unlike the federal courts, has applied the heightened evidentiary standard only to novel scientific evidence, rather than all expert testimony. *See id.* at 812, 814. In *Goeb*, the court noted *Kumho*'s clarification that *Daubert* extends to technical and other specialized knowledge under rule 702. *Id.* at 812. The court further noted *Kumho*'s explanation that the *Daubert* factors are designed to be helpful rather than definitive and will not apply in every circumstance. 2000WL at 1809144.

III. WHAT JURORS SAY

A. What is an expert?

JUROR ONE:	No, he's not out of it because he still has his research in Georgia Tech.
JUROR TWO:	Well, he's teaching.
JUROR ONE:	Right.
JUROR THREE:	No, he said he wasn't teaching.

JUROR TWO: He wasn't teaching?
JUROR THREE: No.
JUROR TWO: Well, he's in charge of the teaching.
JUROR THREE: Yeah, yeah. And he doesn't do anything hands on, and he's not really teaching. He's sort of a . . . he's a director.
JUROR TWO: Well, he never done anything hands on, did he?
JUROR THREE: Not really. But he – you know, he was definitely no dummy.
JUROR TWO: Oh, certainly not. I mean, he's a nice guy, and I think that's the reason, you know, that he presents that image.
JUROR THREE: They tried to sort of, you know, disqualify him by saying, "Oh, yeah but you never did anything hands on." But . . .
JUROR ONE: The judge didn't . . .
JUROR TWO: Well, the judge seemed . . .
JUROR THREE: Yes, too bad, you're an expert.
JUROR TWO: . . . to think that his testimony would . . .
JUROR THREE: Was he an expert?
JUROR TWO: . . . be of some value, you know.
JUROR THREE: I guess he was an expert. *Jury Comprehension in Complex Civil Cases,* ABA Section of Litigation, 1990, Transcripts, p.4.

See Richey, *Proposals to Eliminate the Prejudicial Effect of the Use of the Word "Expert" Under the Federal Rules of Evidence in Civil and Criminal Jury Trials,* 154 F.R.D. 537 (1994).

B. What about the "experts"?

With respect to a certain expert's damage presentation one juror said:

> "He was a wonderful old duffer of a guy who talked all around in circles and presented charts and all kinds of things to prove that she (the plaintiff) was going to lose enormous amounts of money, and confused the plaintiff's lawyers, the defendants' lawyers, the judge, and all of the jury."

And another said:

> "If we were all doctors of economics, I think we would have understood him perfectly. He was helpful, but I think that he could have said it in half the time and without a lot of the other language that he put in to try to impress us.

A third juror commented that the expert:

> ". . . turned the jury off with a feeling that he was going to hang the plaintiff around the neck of whoever took liability, until she was a hundred and twelve."

Here's how the lawyers evaluated that same expert:

> "One of the most colorful economists you could ever hope to see. He was one of the most dramatic and accessible ways of presenting dry economic testimony you've ever seen, and he livened up the courtroom." *Jury Comprehension in Complex Cases*, p.41.

C. What about the lawyers?

JUROR ONE: She kept introducing about 90,000 different things. I think I'm just going through them right now. This guy did some paperwork, all totally worthless.

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JUROR ONE: God, these are terrible copies. I don't see why they even bother putting this stuff in evidence if you can't read it.

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JUROR ONE: This would be so much more interesting is somebody had murdered somebody to get this stuff, you know.

* * * * *

JUROR ONE: I don't think I'd want to be a lawyer. This is boring.
JUROR TWO: You get to lie a lot.
JUROR ONE: Yes.
JUROR THREE: And you get plenty of headaches
JUROR TWO: No, this. . .
JUROR FOUR: And eyestrain.
JUROR ONE: You say big words.

Jury Comprehension in Complex Cases, Transcripts, p.5.

D. What about damages?

JUROR ONE: Did he say what they thought that was worth?
JUROR THREE: Yes, he said it was $25 million.
JUROR ONE: He did? See, I started writing it down. He was . . .and (name of lawyer deleted) was going so darn fast.
JUROR THREE: Forty percent of what number did he put _____ went back then years?
JUROR ONE: Oh . . .
JUROR THREE: And it was $25 million . . .
JUROR ONE: . . .yeah.
JUROR THREE: . . . that he had figured it was . . .

JUROR ONE: Yeah. I didn't buy that at all. About a hundred thousand dollars. You know, when you start talking millions, I can't relate to that.
JUROR TWO: No, I can't either.
JUROR ONE: It doesn't mean anything to me.
JUROR TWO: I can't either, no.
JUROR ONE: You know, I don't know . . .
JUROR THREE: I can't relate to $10.
JUROR ONE: Yeah, really. Yeah, I'm having trouble paying the $8 parking every day. My God, I can't relate to . . . *Id.*

E. Juror's questions in a partial taking case:

1. **Experience**

Was the appraiser a "preferred appraiser?"

How often has he provided appraisal services for public utilities?

How much work has he done in that same county prior to the evaluation?

Jurors respected experience and expertise. When the appraiser appeared to "waffle," however, in response to questions about specific experience with respect to projected future development in a particular county he compromised his credibility.

2. **Appraisal Process**

What information was he given *before* he conducted his investigation and completed his appraisal?

How long did his appraisal take?

How many comparative properties did he look at?

What are his criteria for a comparable property?"[2]

[2] Mock jurors provided detailed information regarding the criteria they would look for when evaluating the applicability of comparable properties. Important comparable criteria to jurors include: location (including the county and proximity to amenities, nuisances, etc.); size, date of the sale; land use; topography; and zoning restrictions. On a related note, jurors particularly wanted to see sales data from property surrounding facilities of a comparable size and operation to the proposed facility.

What does he know about the existing plant and how did he factor this information into his evaluation?

What does he know about the proposed plant and how did he factor this information into his evaluation?

Several mock jurors questioned where the landowner's appraiser derived his valuation formula. Was there an "industry standard" he could have referenced?

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