
Residential Revaluation Report

2013 Mass Appraisal of Saltwater Neighborhoods
for 2014 Property Taxes

Prepared For
Steven J. Drew
Thurston County Assessor

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CERTIFICATE OF APPRAISAL

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, impartial and unbiased professional analysis, 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 with respect to the parties involved.
- I have no bias with respect to any property that is the subject of this report or to the parties involved with this assignment.
- my engagement in this assignment was not contingent upon developing or reporting predetermined results.
- my compensation for completing this assignment 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 opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- 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 not personally inspected all of the property that is the subject of this report. Other appraisers involved in the review of property are listed on the following page.
- no one provided significant mass appraisal assistance to the person(s) signing this certification. (If there are exceptions, the name of each individual providing significant mass appraisal assistance must be stated.)

Appraiser # 054, Appraisal Analyst ____ (signature on file) _____ Date _____

APPRAISAL TEAM

Often teams of appraisers complete one or more parts of a mass appraisal. Major contributors to this appraisal project include the following:

Physical Inspection Team: 006 - Residential Appraiser
 028 - Senior Appraiser
 029 - Senior Appraiser
 030 - Senior Appraiser
 037 - Senior Appraiser
 042 - Senior Appraiser
 050 - Senior Appraiser
 057 - Senior Appraiser

Sales Validation: 007 - Lead Appraiser
 013 - Appraiser Analyst
 035 - Appraiser Analyst
 054 - Appraiser Analyst
 056 - Appraiser Analyst

Analysis and Model Building: 052 - Chief Deputy

Final Review: 052 - Chief Deputy

MASS APPRAISAL CONCLUSIONS

Appraisal Date: January 1, 2013

Area Name / Number: Regions 2 and 3 Salt Waterfront and corresponding neighborhoods

Physical Inspection: Last inspected in 2010

Summary of Neighborhood Adjustments, Sales Ratios, and Assessed Value Changes:

2014 Saltwater Summary Statistics															
Nbhd	Region Grp	Land Factor	Bldg Factor	New Land Adj.	New Bldg Adj.	# Sales	Mean Ratio	Median Ratio	Wtd. Mean Ratio	PRD	COD	Avg. \$ Change	Med. \$ Change	Avg. % Change	Med. % Change
09YS	17	0.85	0.85	0.95	0.80	2	0.948	0.948	0.927	1.023	0.122	-\$18,189	-\$18,189	-4.78%	-4.78%
11VS	07	1.05	0.95	1.00	0.95	2	0.973	0.973	0.965	1.008	0.076	-\$30,323	-\$30,323	-6.58%	-6.58%
11XS	02	0.96	0.90	0.98	0.95	7	0.973	0.947	0.978	0.995	0.122	\$11,405	\$76	4.07%	0.03%
12ZS	05	0.98	0.95	0.98	1.00	2	0.946	0.946	0.943	1.002	0.042	-\$6,351	-\$6,351	-1.86%	-1.86%
13YS	14	0.95	1.00	0.95	1.06	16	0.904	0.959	0.876	1.032	0.124	-\$5,426	-\$8,991	-1.08%	-1.83%
13ZS	04	0.98	0.95	0.95	0.90	18	0.945	0.944	0.945	1.000	0.135	-\$22,942	-\$34,693	-6.68%	-8.46%
15XS	09	1.07	1.12	1.12	1.30	9	0.975	0.941	0.963	1.013	0.070	\$34,067	\$28,868	5.32%	4.92%
17ZS	22	0.95	1.00	1.00	1.15	7	0.954	0.942	0.956	0.998	0.040	\$9,830	\$19,084	3.51%	5.29%
18YS	08	0.97	0.88	1.00	1.00	9	0.976	0.943	0.969	1.007	0.089	\$18,655	\$11,850	6.09%	3.11%
20ZS	06	0.91	0.95	0.90	0.90	12	0.933	0.951	0.910	1.026	0.096	-\$26,909	-\$27,154	-5.14%	-6.76%
Overall						84	0.946	0.944	0.930	1.017	0.103	-\$3,682	-\$6,559	-0.83%	-1.83%

Sales used in Analysis: Sales used in the analysis are validated following the guidelines laid out in the Sales Verification Procedure. Multi-parcel and multi-building sales are generally excluded as not being representative of this market area. Mobile home and condominium sales are also excluded from the analysis and valuation of standard single family residential construction. Mobile home and condominium sales are analyzed separately for the purpose of appraising these property types.

At the direction of the Washington State Department of Revenue, sales of bank and HUD owned property were considered in the analysis of the residential real estate market. Overall, these sales had a minimal effect, reducing assessed values an additional one or two percentage points county wide. However, because sales of repossessed property were not evenly distributed across the County, the effect of including them was more significant in some neighborhoods. The effect on values was greatest in neighborhoods where the percent of bank owned property sales was the largest.

Number of Parcels in the Population: The population of residential vacant land and standard single family residences within Region 02 and 03 Salt waterfront neighborhoods equals approximately 3100 parcels.

Conclusion and Recommendation: Since the values recommended in this report improve uniformity, assessment level, and equity, we recommend posting them for the 2014 Tax Roll.

PREMISE OF THE APPRAISAL

Supporting Documents Used in the Mass Appraisal

"A mass appraisal is the process of valuing a universe of properties as of a given date using standard methodology, employing common data, and allowing for statistical testing."¹

A mass appraisal for ad valorem taxes is a complicated process involving large amounts of data, gathered and analyzed by teams of appraisers. We do not intend this document to be a self-contained documentation of the mass appraisal but to summarize our methods, data, and to guide the reader to other documents or files, upon which we relied. These documents may include the following:

- Individual property records maintained in a computer database
- Sales ratios and other statistical studies
- Market studies
- Model building documents
- Real estate sales database.
- Previous studies and reports filed in our office.
- Assessor's manuals for data collection analysis.
- Revaluation and sales verification manuals
- Property Tax Advisory Publications by the Washington State Dept. of Revenue.
- Title 84 RCW Property Tax Laws (Washington State Law)
- WAC 458 (Washington Administrative Code)

The Appraisal Standards Board of the Appraisal Foundation annually publishes the *Uniform Standards of Professional Appraisal Practice* (USPAP). These standards are written by appraisers to regulate their profession and are the minimum standards for the conduct of property appraisal in the United States. They cover real, personal, and business property. We rely upon these standards in the development and reporting of our assessed values.

CLIENT AND INTENDED USERS

This report was prepared for Steven J. Drew, Thurston County Assessor. Other intended users include the County Board of Equalization and the State Board of Tax Appeals.

¹ USPAP, Appraisal Standards Board of the Appraisal Foundation, p. 3

ASSUMPTIONS AND LIMITING CONDITIONS

The Appraisal Report, of which this statement is a part, is expressly subject to the following conditions:

This revaluation is a mass appraisal assignment resulting in conclusions of market value. No one should rely on this study for any purpose other than administration and distribution of ad valorem taxation. The opinion of value on any parcel may not be applicable for any use other than ad valorem taxation.

That the maps and drawings in this report are included to assist the reader in visualizing the property; however, no responsibility is assumed as to their exactness.

That the legal description as given is assumed correct. No survey or search of title of the property has been made for this report, and no responsibility for legal matters is assumed.

The report assumes good merchantable title and any liens or encumbrances that may exist have been disregarded.

The opinions and values shown in the report apply to the subject parcels only. The assessors made no attempt to relate the conclusions of this report to any other revaluations, past, present, or future.

The assumptions governing the use of multiple linear regression analysis have been met unless otherwise stated.

Unless otherwise stated in this report, the existence of hazardous substances, including without limitation asbestos, polychlorinated biphenyl, petroleum leakage, or agricultural chemicals, which may or may not be present on the property, or other environmental conditions, were not called to the attention of nor did the appraiser become aware of such during the appraiser's inspection. The appraiser has no knowledge of the existence of such materials on or in the property unless otherwise stated. The appraiser, however, is not qualified to test such substances or conditions. If the presence of such substances, such as asbestos, urea formaldehyde foam insulation, or other hazardous substances or environmental conditions, may affect the value of the property, the value estimates is predicated on the assumption that there is no such condition on or in the property or in such proximity thereto that it would cause a loss in value. No responsibility is assumed for any such conditions, not for any expertise or engineering knowledge required to discover them.

SPECIAL ASSUMPTIONS, LIMITING, AND HYPOTHETICAL CONDITIONS

We assume that none of the subject land is contaminated or that any contamination would affect the value except as shown in individual property records or otherwise stated.

Because of budget restraints, we have not inspected all comparable sales. We have inspected the interiors of only a small percentage of the properties.

JURISDICTIONAL EXCEPTION

Washington exempts all or a portion of the market value on specific types of property including "open space," agricultural, forest, home improvement, and some low-income housing.

PURPOSE AND INTENDED USE

The intended use of this appraisal is for administration of ad valorem taxation. After certification by the Assessor, these values will be used as the basis for assessment of real estate taxes payable in 2014. We do not intend the values to be used for or relied upon for any other purpose.

This report serves as a record of the revaluation which is subject to review and change by the County Board of Equalization, the Washington State Board of Tax Appeals, and the courts.

TRUE AND FAIR VALUE

The basis of all assessments is the true and fair value of property. True and fair value means market value (Spokane etc. R. Company v. Spokane County, 75 Wash. 72 (1913); Mason County, 62 Wn. 2d (1963); AGO 57-58, No. 1/8/57; AGO 65-66, No. 65, 12/31/65)

The true and fair value of a property in money for property tax valuation purposes is its "market value" or amount of money a buyer willing but not obligated to buy would pay for it to a seller willing but not obligated to sell. In arriving at a determination of such value, the assessing officer can consider only those factors which can within reason be said to affect the price in negotiations between a willing purchaser and a willing seller, and he must consider all of such factors. (AGO 65,66, No. 65, 12/31/65)

DATE OF APPRAISAL

Properties are appraised as of January 1, 2013.

This report was completed May 17, 2013.

PROPERTY RIGHTS APPRAISED

This appraisal is of the fee simple interest in the real property. The fee simple estate is the absolute ownership unencumbered by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat.²

PERSONAL PROPERTY NOT INCLUDED IN THE APPRAISAL

No personal property was included in the value. Fixtures are generally accepted as real property. Business value is intangible personal property and it is not appraised.

² *The Dictionary of Real Estate Appraisal. 3d ed. Appraisal Institute, p.140*

MARKET AREA AND PROPERTIES APPRAISED

The subject of this mass appraisal is the residential property (excluding mobile homes and condominiums) contained in the market area designated as the Region 02 and 03 saltwater front neighborhoods. Regions are generally influenced by the same broad market trends. This area includes approximately 2600 properties and is shown on the map on page 9 of this report.

Our property records contain photographs, sketches, legal descriptions and other characteristics of land and buildings on each property.

CITY AND NEIGHBORHOOD DESCRIPTION

Region 02 and 03 Saltwater front properties include all residential properties in Thurston County along the south Puget Sound, and some properties just off the water deemed to have a saltwater influence. The primary access roads include Steamboat Island Road, Cooper Point Road, East Bay Road, Boston Harbor Road, Libby Road, and Johnson Point Road.

This region is further broken into 10 residential neighborhoods that are designed to reflect similar land and building characteristics and neighborhood amenities. The neighborhoods and their codes are shown on pages 10-12. They are all considered to be stable in terms of the life cycle of a neighborhood.

ZONING

Thurston County exercises jurisdiction over land use and community planning. The regulations for use and development can be found in its ordinances. We show property zoning as a land characteristic on our digital maps.

HIGHEST AND BEST USE

True and fair value -- Highest and best use. Unless specifically provided otherwise by statute, all property shall be valued on the basis of its highest and best use for assessment purposes. Highest and best use is the most profitable, likely use to which a property can be put. It is the use which will yield the highest return on the owner's investment. Any reasonable use to which the property may be put may be taken into consideration and if it is peculiarly adapted to some particular use, that fact may be taken into consideration. Uses that are within the realm of possibility, but not reasonably probable of occurrence, shall not be considered in valuing property at its highest and best use. [WAC 458-07-30 (3)]

The highest and best use concept is based upon traditional appraisal theory and reflects the attitudes of typical buyers and sellers. The market sets the highest and best use based on the theory of wealth maximization for the owner with consideration given to community goals.

To estimate highest and best use, four elements are considered:

1. Possible use. What uses of the site in question are physically possible?

2. Permissible legal use. What uses of the site are permitted by zoning and deed restrictions?
3. Feasible use. Which possible and permissible uses will produce a net return to the owner of the site?
4. Highest and best use. Among the feasible uses, the use which will produce the highest net return or the highest present worth?

The highest and best use of the land or site if vacant and available for use may be different from the highest and best use of the improved property. This is true when the improvement is not an appropriate use, but it contributes to the total property value.

For the purpose of this appraisal the highest and best use of all vacant and improved property is considered to be single family residential or related to single family residential use.

SCOPE OF THE APPRAISAL

Under state law, the assessor receives a copy of each Real Estate Excise Tax Affidavit and is therefore privy to the sale price, date, and description of all real estate sales. Our staff compiles and verifies this data into our sales database as explained in our sales verification procedure.

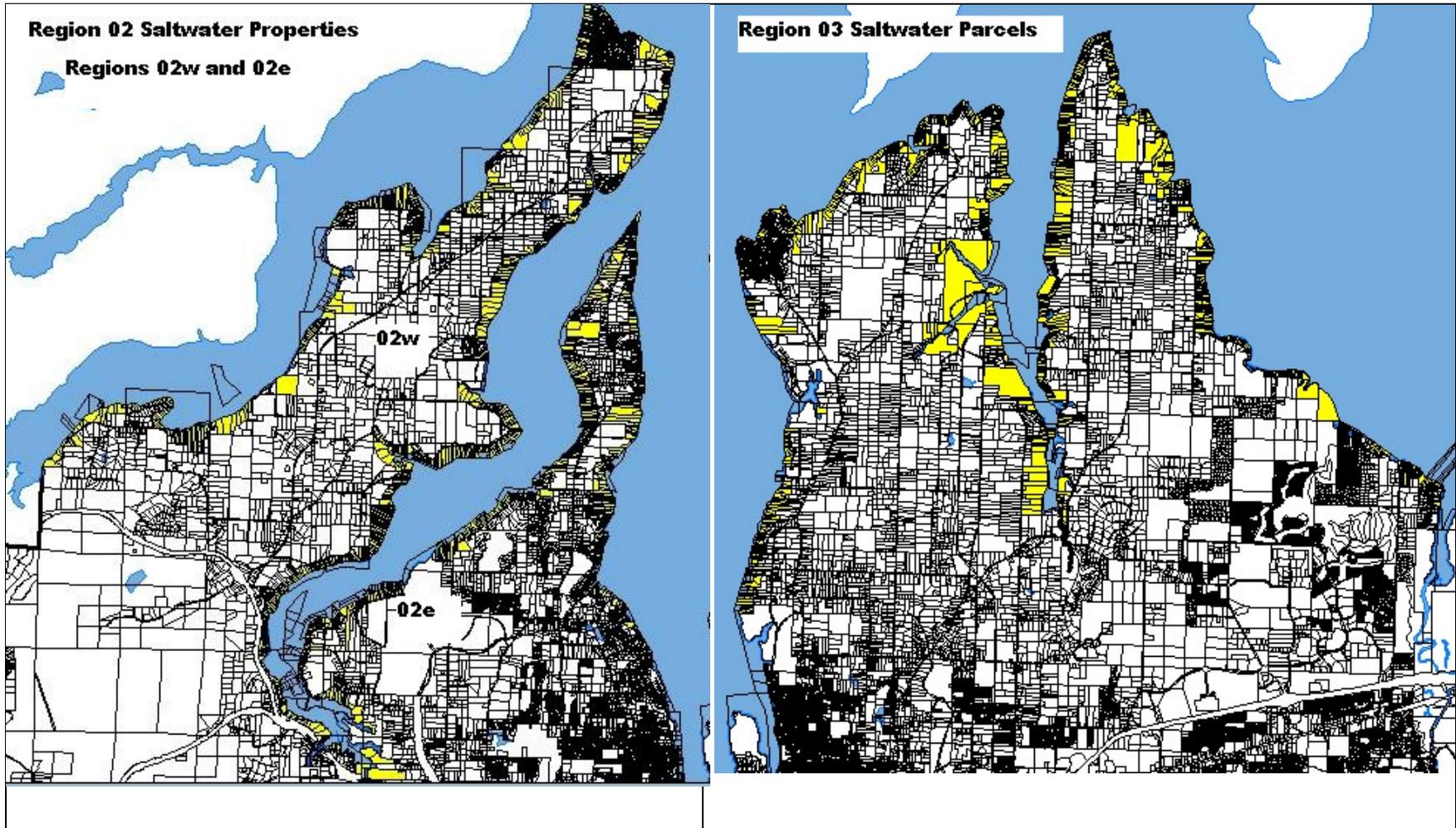
Thurston County is on a six-year revaluation cycle. Every property is revalued annually. At least once each six years, each property is inspected and its data refreshed. The assessor collects property characteristic data as discussed in our Residential Data Standards Manual. Other than new construction, the last physical inspection of residential property in the waterfront areas of Region 2 and Region 3 was during the first half of 2010. A region map is included on next page followed by maps of the various salt waterfront neighborhoods within regions 2 and 3.

The appraisal considers the cost approaches to value with sales used to calibrate the model to a specific neighborhood. Neighborhood adjustments are widely used to adjust for time and location and are a normal and standard part of the cost approach to value. The Marshall Swift cost manual provides what they call current cost multipliers and local area multipliers to adjust for time and location. Because this is a national valuation service, we fine tune their cost rates even further to consider differences between neighborhoods and local market trends. Whether we make these adjustments to the raw land and cost rates or to the preliminary cost values, does not impact the mathematical calculation and does not affect the final result. It is more convenient to apply the time and location adjustments to the preliminary cost values, because it makes the statistical updating of values from year to year much easier.

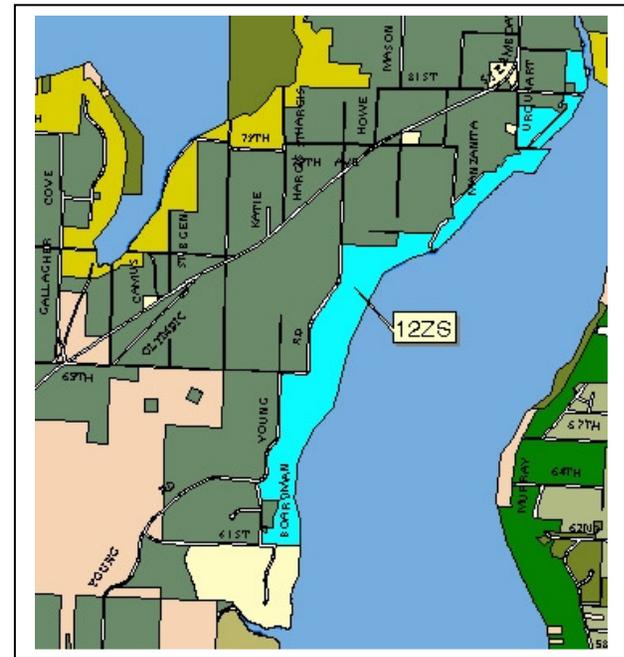
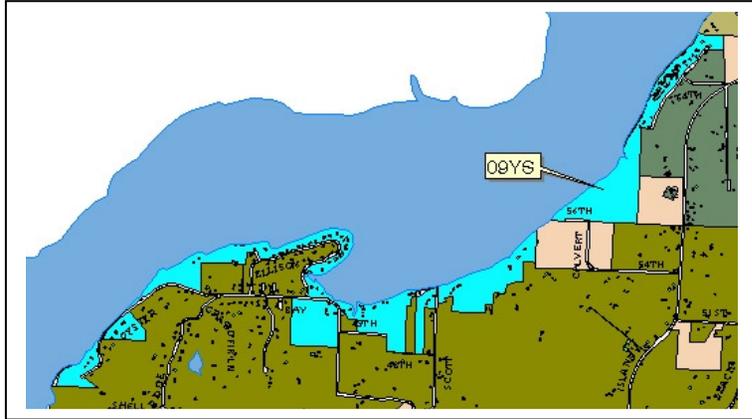
A market model (strict sales approach) has not been developed for 2013 due to time and budget limitations. The use of an income approach was not considered to be applicable because homes in this area are not typically purchased for their income potential.

The flow chart on page 15 describes the land model developed as part of the mass appraisal process and how it is used in the sales adjusted cost approach. The model is discussed in more detail starting on page 16.

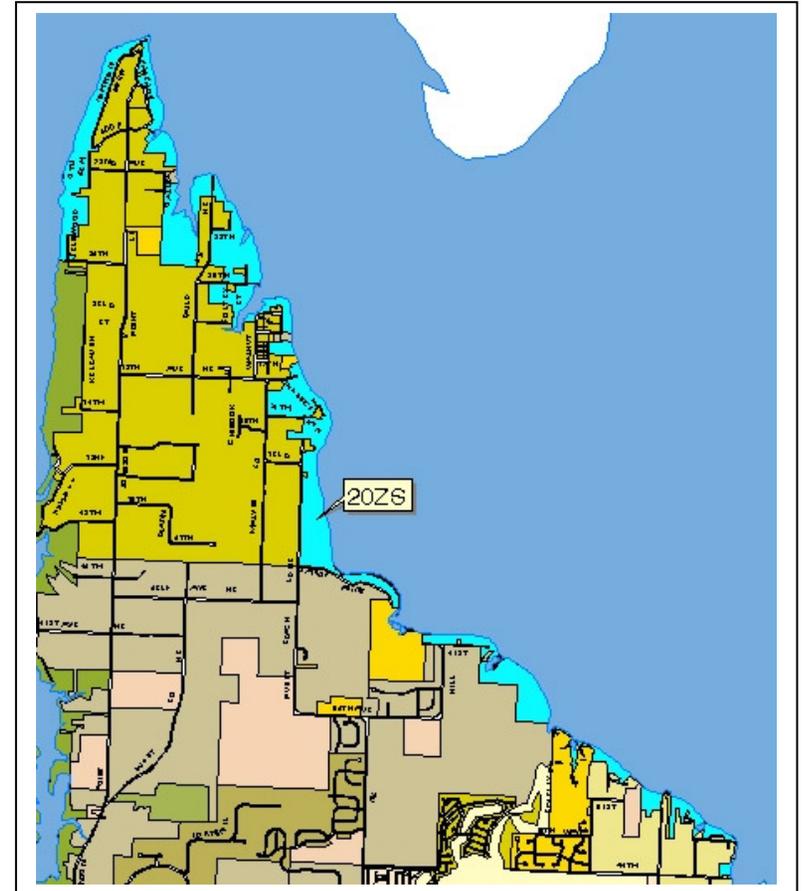
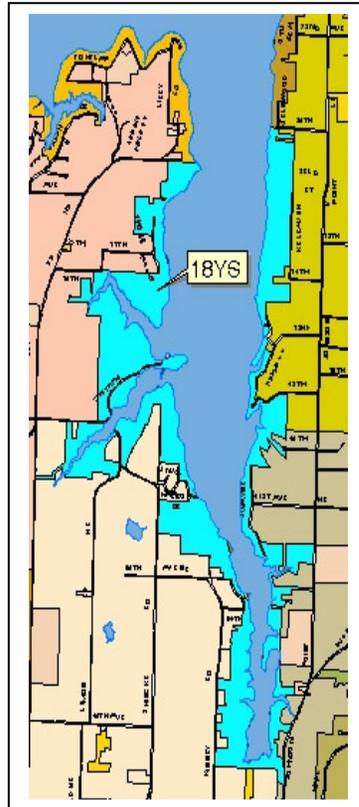
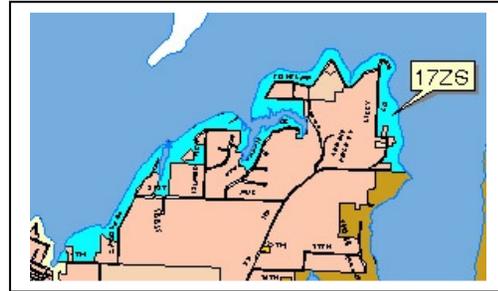
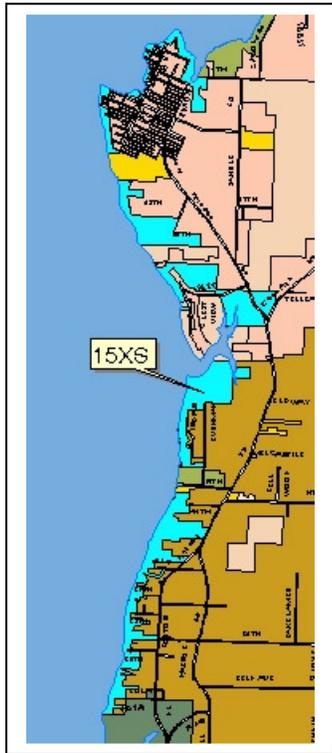
REGIONS 2 & 3 MAP



NEIGHBORHOOD MAPS-REGION 02W

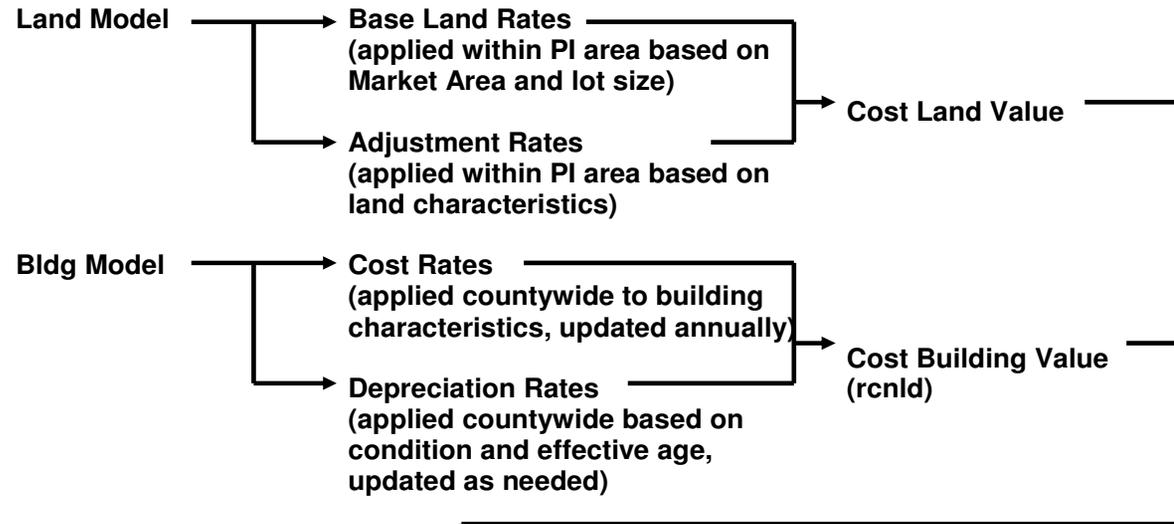


NEIGHBORHOOD MAPS-REGION 03

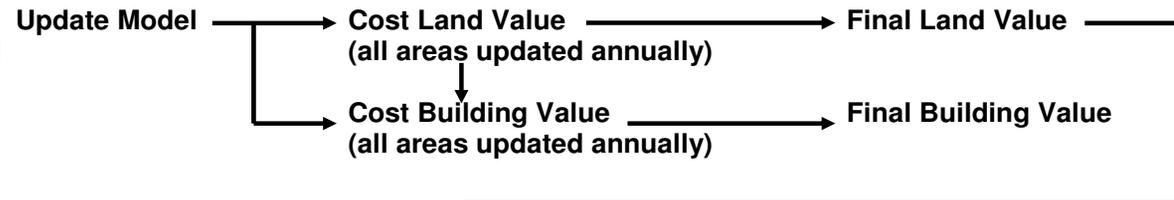


RESIDENTIAL VALUATION PROCESS

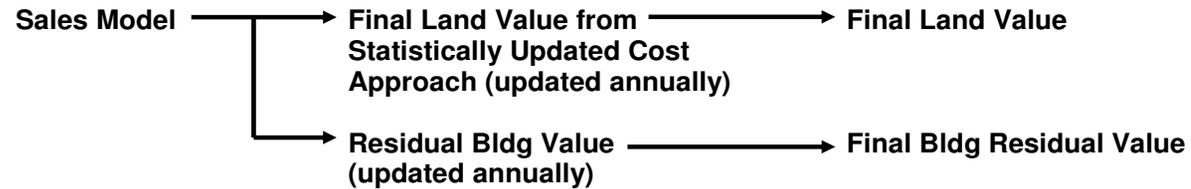
Cost Approach



Statistical Update of Cost Approach by Nbhd



Sales Approach



COST APPROACH

Land Model Specification

- A multiplicative model format is used in the development of base land rates and adjustment rates.
- Land Model Format:

$$LV = b_0 \times \text{SQFT}^{b_1} \times \text{LINVIEW}^{b_2} \times b_3^{LI3} \times b_4^{LI4} \times b_5^{LI5} \times \dots$$

Where: Continuous Variables = SQFT, LINVIEW

Binary Variables LI3, LI4, LI5 . . . = Land Influences (i.e. – region, view, wetlands, etc.)

$b_0, b_1, b_2, b_3, b_4, b_5 \dots$ = Regression Coefficients

Land Model Calibration

- Multiplicative model calibrated using log-linear MRA
- Logarithms are used to convert a multiplicative equation to a linear form.

Standard Multiplicative form: $SP/FF = a * FF^b * c^{\text{region}} * d^{\text{VIEW}} \dots$

Log Linear form: $LN(SP/FF * DEPTH) = LN(a) + (b * LN(FF)) + (LN(c) * REGION) + \dots$

- Log Linear form has the same form as a standard linear equation:

Linear equation: $Y = a + (b * X) + (c * Z)$

- We can then calibrate the Log-Linear form using standard multiple regression analysis.
- The calibrated model is then converted back to its Standard Multiplicative form by applying the anti-log function.

$EXP[LN(SP/(FF \times DEPTH))] = EXP[LN(a) + (b * LN(FF) + (c * LN(DEPTH)))]$

- Region 02 and 03 saltwater front neighborhoods Land Model – see saltwater neighborhood work files for model coefficients and other output.

Multiple Regression Analysis Assumptions

Multiple regression analysis is based on several assumptions regarding the data going into the model and the output from the calibration process. These assumptions are validated to determine the accuracy of the model and identify any limitations that may exist. A detailed discussion of the MRA assumptions is included in the Appendix.

Comments on Representation of Variables in the Model

Some less common land influences were not represented or were under represented in the saltwater land model. In that case, appraiser experience, previous models, extrapolation, and appraisal principles were employed to develop multipliers.

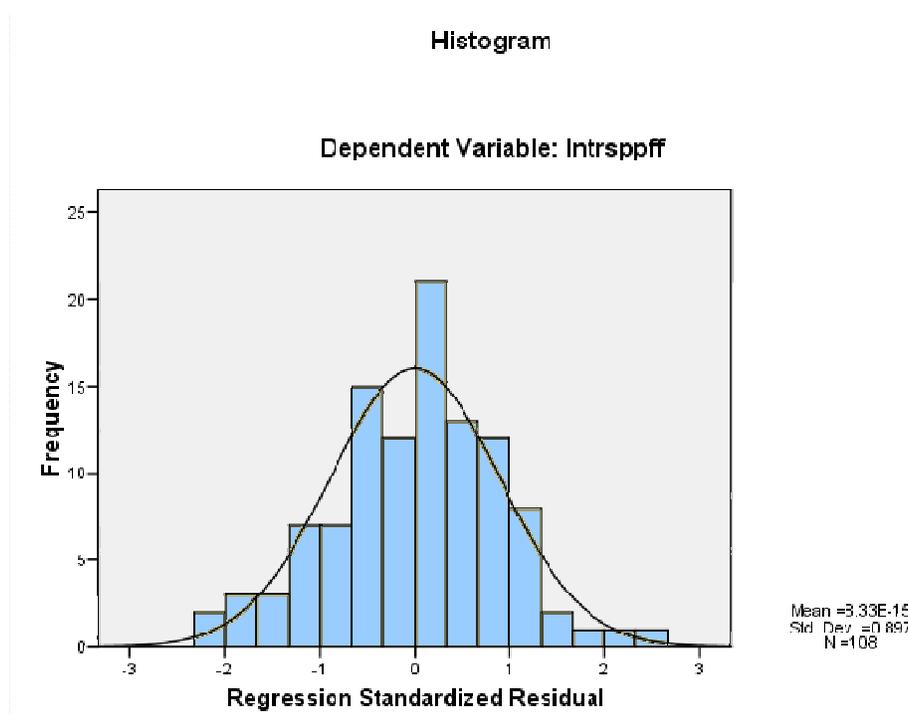
For example, only 36 of the 2600 parcels in the salt waterfront neighborhoods are coded with a FR quality influence. As a result, only one sale with the FR quality neighborhood influence was included in the model, which in turn did not produce a valid adjustment. In this case, the FR quality adjustment was extrapolated from the GD quality coefficient.

Because the negative shape influence was not represented in the model and the positive shape influence was only minimally represented, it was decided to retain the adjustments from the previous model.

Likewise, the model coefficients for wetlands were not used due to the shortage of saltwater sales that included this characteristic. In this case, the wetland adjustments from the upland models were applied to the saltwater land rates.

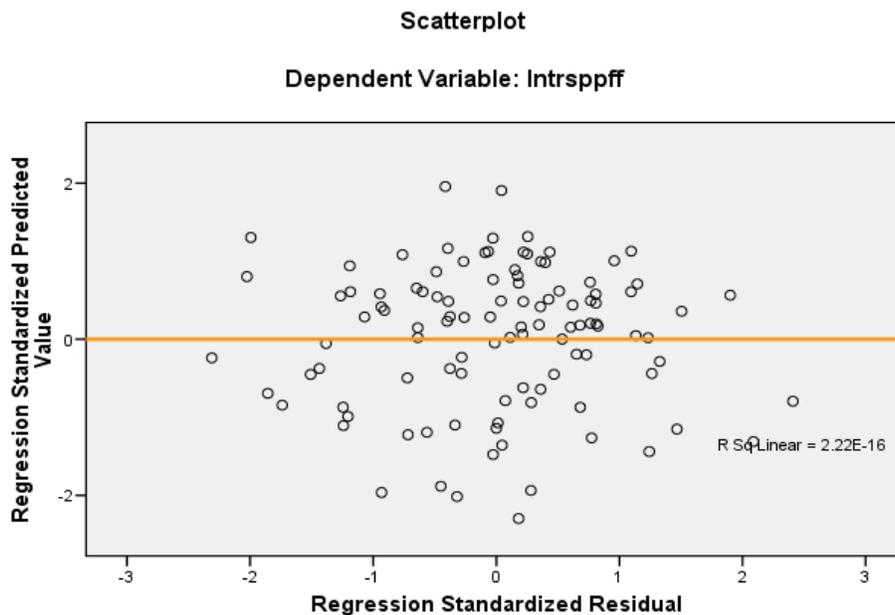
VALIDATION OF REGION 3 LAND MODEL

Normal Distribution of the Residual Errors



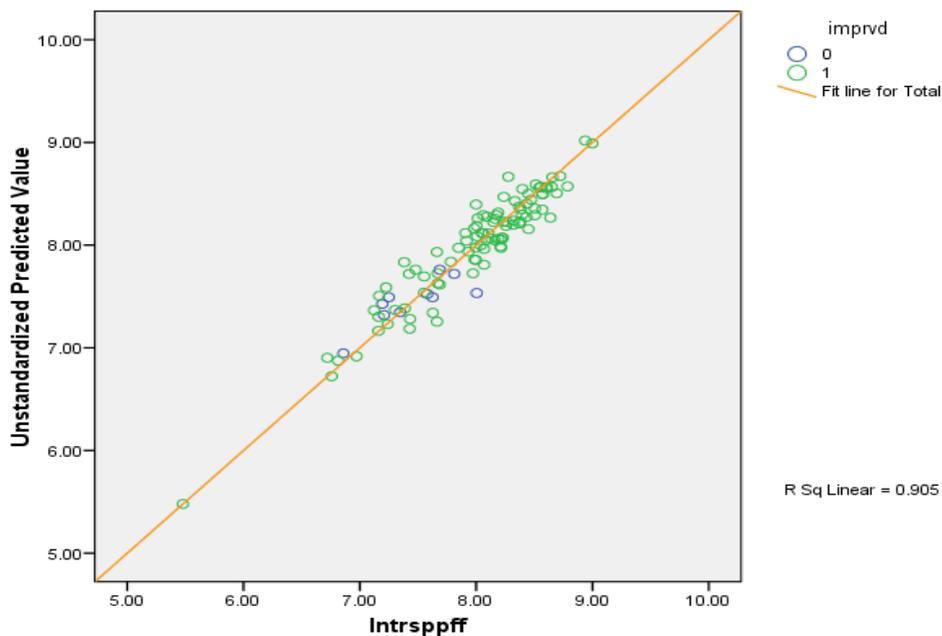
- Total number of sales = 108 (from 1/1/07– 12/31/09 trended to 1/1/10)
- Region 02 and 03 saltwater front neighborhoods sales = 108
- The residual errors are for the most part normally distributed.
- While the frequency distribution illustrates output from the square foot land model, similar results were obtained for the acreage model.

Constant Variance of the Residual Errors



- The residual errors are for the most part are distributed evenly along the range of values.
- Similar results were obtained for the acreage model.

Comparison of Predicted and Actual Sale Price per Front Foot



- The values predicted by the model accurately reflects actual trended sale prices.

Region 02w Salt Waterfront Neighborhoods Front Foot Rate Table

Region 2w Front Foot Model								
Front Foot Adjustment Factors:								
	<u>Land Flag</u>	<u>Front Feet</u>	<u>FF Value</u>	<u>Base Rate</u>	<u>FF Rate Group</u>	<u>FF Adj Group</u>	<u>Size Adj. Ratio</u>	<u>FF Adj Factor</u>
	1740	50	\$ 3,397	\$ 1,650	3525	2525	0.333	2.07
	1740	75	\$ 2,598	\$ 1,650	3525	2525	0.500	1.58
	1740	100	\$ 2,148	\$ 1,650	3525	2525	0.667	1.31
base size>	1740	150	\$ 1,643	\$ 1,650	3525	2525	1.000	1.00
	1740	200	\$ 1,359	\$ 1,650	3525	2525	1.333	0.83
	1740	250	\$ 1,172	\$ 1,650	3525	2525	1.667	0.71
	1740	300	\$ 1,039	\$ 1,650	3525	2525	2.000	0.63
	1740	350	\$ 938	\$ 1,650	3525	2525	2.333	0.57
	1740	400	\$ 859	\$ 1,650	3525	2525	2.667	0.52
Depth Adjustment Factors:								
	<u>Land Flag</u>	<u>Lot Depth</u>	<u>FF Value</u>	<u>Base Rate</u>		<u>Depth Adj Group</u>	<u>Size Adj. Ratio</u>	<u>Depth Adj Factor</u>
	1740	100	\$ 1,424	\$ 1,650		2530	0.286	0.87
	1740	200	\$ 1,542	\$ 1,650		2530	0.571	0.94
base size>	1740	350	\$ 1,643	\$ 1,650		2530	1.000	1.00
	1740	500	\$ 1,711	\$ 1,650		2530	1.429	1.04
	1740	650	\$ 1,763	\$ 1,650		2530	1.857	1.07
	1740	800	\$ 1,806	\$ 1,650		2530	2.286	1.10
	1740	950	\$ 1,841	\$ 1,650		2530	2.714	1.12
	1740	1100	\$ 1,872	\$ 1,650		2530	3.143	1.14
Land Influences and Multipliers:								
<u>Lmt View</u>	<u>Good View</u>	<u>VGd. View</u>	<u>Exc. View</u>	<u>Lagoon</u>	<u>Low Bank</u>	<u>Med. Bank</u>	<u>High Bank</u>	
0.85	1.00	1.15	1.25	0.70	1.00	0.90	0.80	
<u>Steep Topo</u>	<u>Fair Nbhd</u>	<u>Avg. Nbhd</u>	<u>Good Nbhd</u>	<u>Pos Shape</u>	<u>Neg. Shape</u>	<u>Tidelands</u>		
0.85	0.85	1.00	1.20	1.15	0.80	1.02		
<u>W2</u>	<u>W4</u>	<u>W6</u>	<u>W8</u>	<u>W0</u>	<u>RS</u>	<u>GR</u>		
0.90	0.80	0.65	0.55	0.30	0.50 - 0.85	0.95		

Region 02e Salt Waterfront Neighborhoods Front Foot Rate Table

Region 2e Front Foot Model								
Front Foot Adjustment Factors:								
	<u>Land Flag</u>	<u>Front Feet</u>	<u>FF Value</u>	<u>Base Rate</u>	<u>FF Rate Group</u>	<u>FF Adj Group</u>	<u>Size Adj. Ratio</u>	<u>FF Adj Factor</u>
	1740	50	\$ 3,956	\$ 1,900	3575	2575	0.333	2.07
	1740	75	\$ 3,026	\$ 1,900	3575	2575	0.500	1.58
	1740	100	\$ 2,502	\$ 1,900	3575	2575	0.667	1.31
base size>	1740	150	\$ 1,914	\$ 1,900	3575	2575	1.000	1.00
	1740	200	\$ 1,582	\$ 1,900	3575	2575	1.333	0.83
	1740	250	\$ 1,365	\$ 1,900	3575	2575	1.667	0.71
	1740	300	\$ 1,210	\$ 1,900	3575	2575	2.000	0.63
	1740	350	\$ 1,093	\$ 1,900	3575	2575	2.333	0.57
	1740	400	\$ 1,001	\$ 1,900	3575	2575	2.667	0.52
Depth Adjustment Factors:								
	<u>Land Flag</u>	<u>Lot Depth</u>	<u>FF Value</u>	<u>Base Rate</u>		<u>Depth Adj Group</u>	<u>Size Adj. Ratio</u>	<u>Depth Adj Factor</u>
	1740	100	\$ 1,659	\$ 1,900		2580	0.286	0.87
	1740	200	\$ 1,795	\$ 1,900		2580	0.571	0.94
base size>	1740	350	\$ 1,914	\$ 1,900		2580	1.000	1.00
	1740	500	\$ 1,993	\$ 1,900		2580	1.429	1.04
	1740	650	\$ 2,053	\$ 1,900		2580	1.857	1.07
	1740	800	\$ 2,103	\$ 1,900		2580	2.286	1.10
	1740	950	\$ 2,144	\$ 1,900		2580	2.714	1.12
	1740	1100	\$ 2,180	\$ 1,900		2580	3.143	1.14
Land Influences and Multipliers:								
<u>Lmt View</u>	<u>Good View</u>	<u>VGd. View</u>	<u>Exc. View</u>	<u>Lagoon</u>	<u>Low Bank</u>	<u>Med. Bank</u>	<u>High Bank</u>	
0.85	1.00	1.15	1.25	0.70	1.00	0.90	0.80	
<u>Steep Topo</u>	<u>Fair Nbhd</u>	<u>Avg. Nbhd</u>	<u>Good Nbhd</u>	<u>Pos Shape</u>	<u>Neg. Shape</u>	<u>Tidelands</u>		
0.85	0.85	1.00	1.20	1.15	0.80	1.02		
<u>W2</u>	<u>W4</u>	<u>W6</u>	<u>W8</u>	<u>W0</u>	<u>RS</u>	<u>GR</u>		
0.90	0.80	0.65	0.55	0.30	0.50 - 0.85	0.95		

Region 03 Salt Waterfront Neighborhoods Front Foot Rate Table

Region 3 Front Foot Model									
Front Foot Adjustment Factors:									
	<u>Land Flag</u>	<u>Front Feet</u>	<u>FF Value</u>	<u>Base Rate</u>	<u>FF Rate Group</u>	<u>FF Adj Group</u>	<u>Size Adj. Ratio</u>	<u>FF Adj Factor</u>	
	1740	50	\$ 3,665	\$ 1,775	3650	2650	0.333	2.07	
	1740	75	\$ 2,804	\$ 1,775	3650	2650	0.500	1.58	
	1740	100	\$ 2,318	\$ 1,775	3650	2650	0.667	1.31	
base size>	1740	150	\$ 1,773	\$ 1,775	3650	2650	1.000	1.00	
	1740	200	\$ 1,466	\$ 1,775	3650	2650	1.333	0.83	
	1740	250	\$ 1,265	\$ 1,775	3650	2650	1.667	0.71	
	1740	300	\$ 1,121	\$ 1,775	3650	2650	2.000	0.63	
	1740	350	\$ 1,013	\$ 1,775	3650	2650	2.333	0.57	
	1740	400	\$ 927	\$ 1,775	3650	2650	2.667	0.52	
Depth Adjustment Factors:									
	<u>Land Flag</u>	<u>Lot Depth</u>	<u>FF Value</u>	<u>Base Rate</u>		<u>Depth Adj Group</u>	<u>Size Adj. Ratio</u>	<u>Depth Adj Factor</u>	
	1740	100	\$ 1,537	\$ 1,775		2655	0.286	0.87	
	1740	200	\$ 1,663	\$ 1,775		2655	0.571	0.94	
base size>	1740	350	\$ 1,773	\$ 1,775		2655	1.000	1.00	
	1740	500	\$ 1,847	\$ 1,775		2655	1.429	1.04	
	1740	650	\$ 1,903	\$ 1,775		2655	1.857	1.07	
	1740	800	\$ 1,948	\$ 1,775		2655	2.286	1.10	
	1740	950	\$ 1,987	\$ 1,775		2655	2.714	1.12	
	1740	1100	\$ 2,020	\$ 1,775		2655	3.143	1.14	
Land Influences and Multipliers:									
<u>Lmt View</u>	<u>Good View</u>	<u>VGd. View</u>	<u>Exc. View</u>	<u>Lagoon</u>	<u>Low Bank</u>	<u>Med. Bank</u>	<u>High Bank</u>		
0.85	1.00	1.15	1.25	0.70	1.00	0.90	0.80		
<u>Steep Topo</u>	<u>Fair Nbhd</u>	<u>Avg. Nbhd</u>	<u>Good Nbhd</u>	<u>Pos Shape</u>	<u>Neg. Shape</u>	<u>Tidelands</u>			
0.85	0.85	1.00	1.20	1.10	0.90	1.02			
<u>W2</u>	<u>W4</u>	<u>W6</u>	<u>W8</u>	<u>W0</u>	<u>RS</u>	<u>GR</u>			
0.90	0.80	0.65	0.55	0.30	0.50 - 0.85	0.95			

Note: The land model shown above covers all parcels valued by the front foot method on the salt waterfront of Thurston County. Exceptions to the front foot method include some back lots valued by the square foot or acre value method. There are two types of back lots. The first include lots that are valued on one parcel number having the first record valued by the front foot, and a second land record used to value the back portion of the lot separately. This second record is primarily used due to unusual shape or excess land. The second type of back lot is vacant land with a separate parcel number usually owned by the same person as the waterfront parcel. Additionally, some improved parcels that are not on the water are included in the saltwater neighborhood for trending purpose due to the saltwater influence. These parcels and back lots are valued by the SF or Acre models referred to in the respective Region 2 or Region 3 Mass Appraisal Reports.

BUILDING COST SPECIFICATION

- **Model Format for RCNLD:**

$$BV = [(c_1 \times Q_1) + (c_2 \times Q_2) + (c_3 \times Q_3) + \dots] \times \text{Pct. Good}$$

Where: Building Components = $Q_1, Q_2, Q_3 \dots$

Costs per unit = $c_1, c_2, c_3 \dots$

2013 COST TABLE CALIBRATION

Thurston County uses construction cost data from Marshall & Swift as the basis for our cost approach. While these rates include local area and current cost multipliers to produce a cost estimate that is more tailored to our market area, they do not produce the level of accuracy that is needed in the appraisal process. One way to calibrate the cost tables to the local market, is to use actual construction costs obtained from local builders to compare to the replacement cost new calculated from the Marshall & Swift rates. Another alternative is to use sales of new construction to measure the actual cost new to compare to the RCN calculated from M&S. For residential property both methods were used to calculate a calibration factor. For commercial structures and detached structures there were no actual sales of new construction. For these structure types builder cost estimates were obtained and used to determine cost table calibration factor.

Residential Structures

- **Procedure**

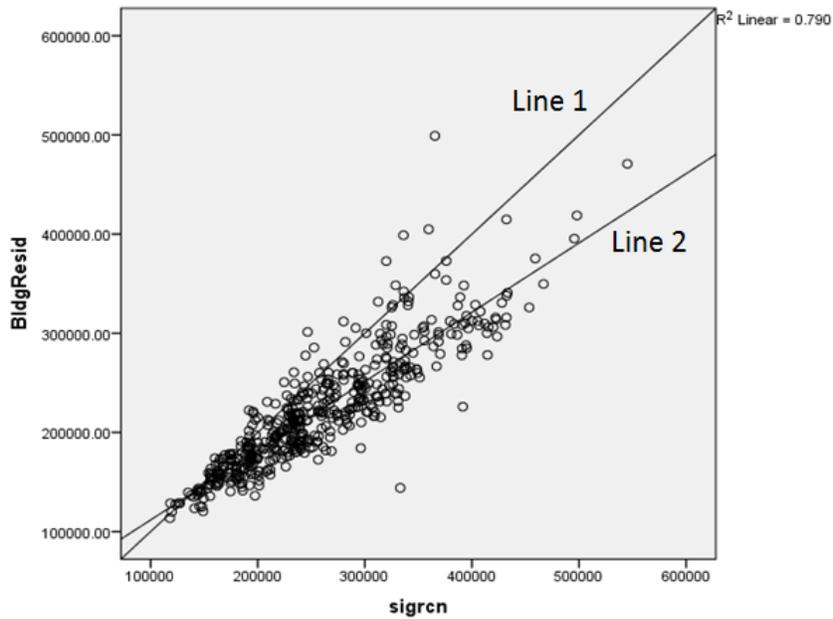
For the 2013 assessment local builders were contacted and asked to share confidential cost data on current or recent construction. Over 60 builders were called, but in the end only two builders followed through with providing their cost breakdown sheets for recent construction. The actual cost that they provided was compared to the RCN produced by the Marshall Swift costs that had been loaded into our CAMA cost tables.

One builder of tract homes supplied costs that produced a factor 0.87 when compared to the M&S cost tables. Another builder of custom homes provided actual costs that produced a calibration factor of 0.98. It is not surprising that custom construction is higher than tract home construction. The profit margin for the custom home builder was higher, and sales tax was paid on the construction material instead of an excise tax on the sale price. Additionally, the custom home was built in an area with the highest impact fees in the county.

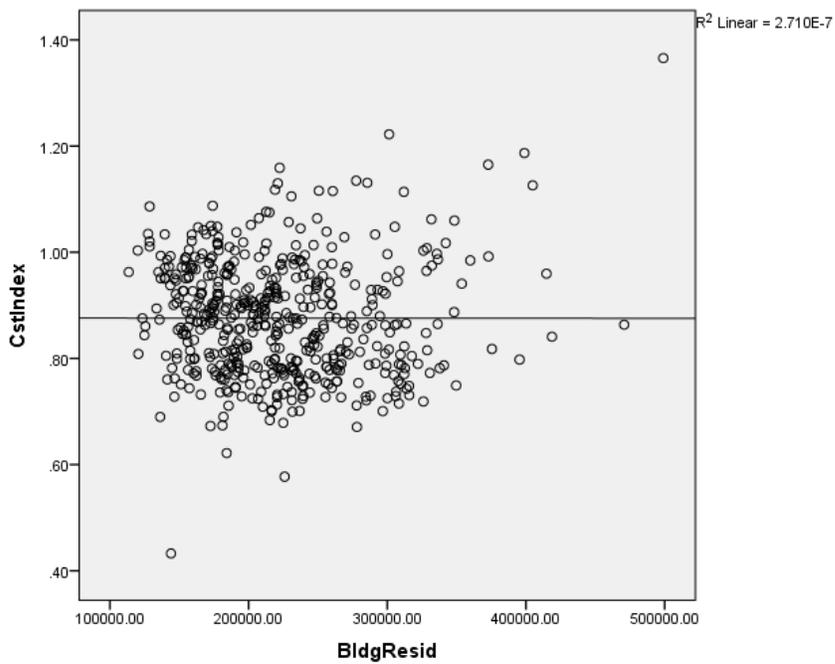
As an alternative, all new construction sales were queried. A total of 512 sales of new homes were used in the analysis. A residual building cost was calculated by subtracting an estimate of the land value from the sale price. The assessed value of the land at the time of the sale was used for this purpose. The resulting building cost estimate was then compared to the system generated RCN (replacement cost new) to produce a cost index.

- **Sales Analysis**

The scatter diagram on the next page compares the system generated cost new (Sigrnc) to the residual cost (BldgResid). Line 1 is the diagonal where Sigrnc would equal BldgResid. Line 2 is the line of best fit through the data. The fit line indicates that the RCN from the M&S cost tables is greater than the building residual calculated from the sale price. The graph demonstrates the need to reduce the cost table rates to produce a better match with the actual construction costs.



The calibration factor (CstIndex) displayed in the next scatter diagram calculated by dividing the BldgResid by the Sigrnc (the building residual divided by our system generated replacement cost new). The line of best fit is drawn through these points to show how much the cost tables would need to be increased to calibrate them to the local market. The fact that the line is nearly horizontal indicates the difference between the residual costs and M&S costs is consistent across a wide range of values.



Cost Index

# Sales	Median	Mean
512	0.8730	0.8758

The median and mean cost indexes are 0.8730 and 0.8758 respectively, indicating the need to reduce our cost tables by approximately 13%. This correlates closely with the information provided by the builder of tract homes, which are the most common type of residential new construction.

- Conclusion**

The cost index is rounded to 0.90 and applied county-wide to the residential cost tables. The market calibrated cost tables then provide a starting point for the determination of value at the neighborhood level. Sales are further analyzed to determine final land and building adjustments that take into consideration locational differences between neighborhoods.

Detached Structures

- Procedure**

There were no sales of property that included only new detached structures or outbuildings. Therefore, the cost index was developed by surveying local contractors to determine actual construction cost. The total cost or per square foot cost rates were obtained for different building types, sizes, and qualities of construction. These costs were then compared to the CAMA system generated costs based on M&S rates to determine a cost index.

- Data Analysis**

<u>Item</u>	<u>Size</u>	<u>Builder Cost</u>	<u>Our Cost</u>	<u>Cost Index</u>	<u>Sources</u>
BAR Gable Breezeway Barn	36x36 or 1296 SF Avg Quality	\$33,000	\$33,683	0.98	Stable Systems
BAR Gable Breezeway Barn	36x36 or 1296 SF Avg Quality	\$32,796	\$33,683	0.97	Stable Systems
Loft Barn WITH SIDE SHEDS	36 x36 Avg Quality	\$51,890	\$52,638	0.99	Stable Systems
Hobby Stable	48 x 24 Fair+ Quality	\$19,584	\$21,957	0.89	
Pole Barn	any size, Avg Quality	\$18.00	\$18.64	0.97	Twin City Metal Buildings
Pole Barn	any size, Avg Quality	\$18.00	\$18.64	0.97	Stable Systems
Pole Barn	840 SF Avg Quality	\$20.11	\$21.76	0.92	F&L Pacific
Pole Barn	576 SF Avg Quality	\$17.98	\$21.76	0.83	F&L Pacific
PBN with upper Living area	any size, Fair Quality	\$50.00	\$87.03	0.57	Stable Systems
ARENA (excl permits & site prep)	60x 100 Avg Quality	\$12.00	\$20.03	0.60	Town and Country
SHOP	24 x 36 AVG Quality	\$25.19	\$32.42	0.78	Johnson Custom Homes
Lean To	any size, Avg Quality	\$10.00	\$9.43	1.06	Stable Systems
Framed Garage	400 SF Excellent Quality	\$75.00	\$78.15	0.96	Olympia Construction
Storage Shed	8 x 8 Avg Quality	\$23.73	\$17.06	1.39	Tuff Sheds Gable Roof
Storage Shed	10 x 12 Avg Quality	\$28.45	\$17.07	1.67	Tuff Sheds Gable Roof
Storage Shed	12 x 20 Avg Quality	\$23.62	\$16.86	1.40	Tuff Sheds Gable Roof
Storage Shed	10 x 12 Avg Quality	\$25.86	\$20.48	1.26	Tuff Sheds Gambrel Roof
			Median	0.97	
			Mean	0.88	
			Median (excluding tuff sheds)	0.96	

The Tuff Shed cost index was consistently higher than it was for other building types. This is understandable considering the fact that the wall and roof components are mass produced at a factory and then delivered and assembled on site. We want the cost tables to reflect the more traditional method where materials are delivered to the site and the construction occurs from the ground up. The median cost index is not affected by these outliers as much as the mean, and in this case is the better measure to use in determining an appropriate factor to apply to the detached structure cost tables.

- **Conclusion**

The median cost index is rounded to 0.95 and applied county-wide to the detached cost rates.

Construction Cost Tables

Marshall Swift cost rates, adjusted to the current year and local area, are used to determine the replacement cost of each residential improvement. Adjustments can also be made for various structure types and for other building components based on locally advertised building costs.

The complete set of rate tables is too lengthy to include here. However, an example of the rates for the main floor level of a residence by quality grade is shown below. The complete set of rate tables is stored within the Sigma CAMA System.

	SFLA	LOW	FAIR	AVG	GD	VGD	EXC	EXP
Base-1sty-SS	600	66.15	69.84	77.92	90.83	102.39	141.34	197.89
Base-1sty-SS	800	62.60	67.78	76.92	90.83	102.39	141.34	197.89
Base-1sty-SS	1000	59.77	65.88	75.55	91.44	102.39	141.34	197.89
Base-1sty-SS	1200	57.45	64.19	74.15	91.21	102.39	141.34	197.89
Base-1sty-SS	1400	55.50	62.71	72.81	90.60	102.66	141.34	197.89
Base-1sty-SS	1600	53.82	61.38	71.57	89.82	102.48	141.34	197.89
Base-1sty-SS	1800	52.35	60.18	70.42	88.99	102.02	141.43	198.00
Base-1sty-SS	2000	51.04	59.10	69.35	88.11	101.42	141.17	197.64
Base-1sty-SS	2200	49.88	58.12	68.36	87.25	100.74	140.70	196.98
Base-1sty-SS	2400	48.83	57.22	67.43	86.41	100.02	140.10	196.14
Base-1sty-SS	2600	47.87	56.39	66.58	85.60	99.29	139.42	195.20
Base-1sty-SS	2800	46.98	55.62	65.78	84.82	98.55	138.69	194.17
Base-1sty-SS	3000	46.18	54.90	65.03	84.06	97.82	137.92	193.09
Base-1sty-SS	3200	45.44	54.27	64.32	83.34	97.09	137.15	192.01
Base-1sty-SS	3400	44.74	53.66	63.61	82.63	96.39	136.35	190.90
Base-1sty-SS	3600	44.09	53.12	62.97	81.97	95.70	135.58	189.81
Base-1sty-SS	4000	42.87	52.07	61.75	80.71	94.38	134.04	187.66
Base-1sty-SS	4400	42.87	52.07	60.65	79.62	93.15	132.57	185.59
Base-1sty-SS	4800	42.87	52.07	59.65	78.65	91.89	131.15	183.61
Base-1sty-SS	5200	42.87	52.07	58.77	77.69	90.63	129.79	181.71
Base-1sty-SS	5400	42.87	52.07	58.32	77.29	90.14	129.16	180.82
Base-1sty-SS	5600	42.87	52.07	57.94	76.77	89.51	128.50	179.91
Base-1sty-SS	5800	42.87	52.07	57.94	76.39	88.99	127.89	179.05
Base-1sty-SS	6000	42.87	52.07	57.94	75.99	88.44	127.26	178.16

DEPRECIATION ANALYSIS

Effective Age

The effective age of a building is largely based on its overall condition. It is a measure of how old a building looks and not how old it actually is. As a result, any type of maintenance, repair, remodel, or renovation will tend to reduce the effective age. The more extensive the maintenance or repair work the more the effective age is reduced. This concept suggests that a very old building can be brought back to almost new condition, thereby reducing the effective age to a level that is typical of much newer construction.

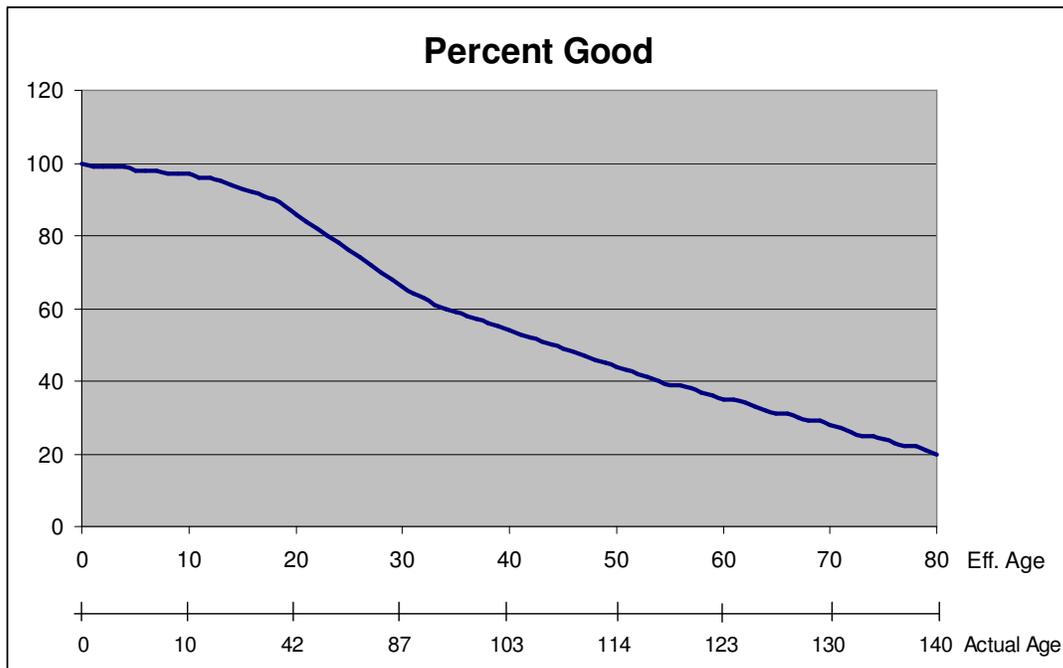
Depreciation Rate Tables

Periodically, the depreciation tables are calibrated using residential sales representing all years of construction. The most recent estimates of the land values are subtracted from the sale prices to determine the residual building values. These values are compared to the replacement cost new to arrive at an estimate of the percent good, which is then correlated with the effective age of the building to produce a set of depreciation tables. An example table for a stick built house is show below. The depreciation rates are expressed as a percent good.

DEPRECIATION TABLE 1 (2011DEP)

Age	Low	Fair	Avg	Good	Vgood	Exc	Exp
0	100	100	100	100	100	100	100
1	99	99	99	99	99	99	99
2	99	99	99	99	99	99	99
3	99	99	99	99	99	99	99
4	99	99	99	99	99	99	99
5	98	98	98	98	98	98	98
6	98	98	98	98	98	98	98
7	98	98	98	98	98	98	98
8	97	97	97	97	97	97	97
9	97	97	97	97	97	97	97
10	97	97	97	97	97	97	97
11	96	96	96	96	96	96	96
12	96	96	96	96	96	96	96
13	95	95	95	95	95	95	95
14	94	94	94	94	94	94	94
15	93	93	93	93	93	93	93
16	92	92	92	92	92	92	92
17	91	91	91	91	91	91	91
18	90	90	90	90	90	90	90
19	88	88	88	88	88	88	88
20	86	86	86	86	86	86	86
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60	35	35	35	35	35	35	35
61	35	35	35	35	35	35	35
62	34	34	34	34	34	34	34
63	33	33	33	33	33	33	33
64	32	32	32	32	32	32	32
65	31	31	31	31	31	31	31
66	31	31	31	31	31	31	31
67	30	30	30	30	30	30	30
68	29	29	29	29	29	29	29
69	29	29	29	29	29	29	29
70	28	28	28	28	28	28	28
71	27	27	27	27	27	27	27
72	26	26	26	26	26	26	26
73	25	25	25	25	25	25	25
74	25	25	25	25	25	25	25
75	24	24	24	24	24	24	24
76	23	23	23	23	23	23	23
77	22	22	22	22	22	22	22
78	22	22	22	22	22	22	22
79	21	21	21	21	21	21	21
80	20	20	20	20	20	20	20

The graph below shows the relationship between the percent good, actual age, and effective age.



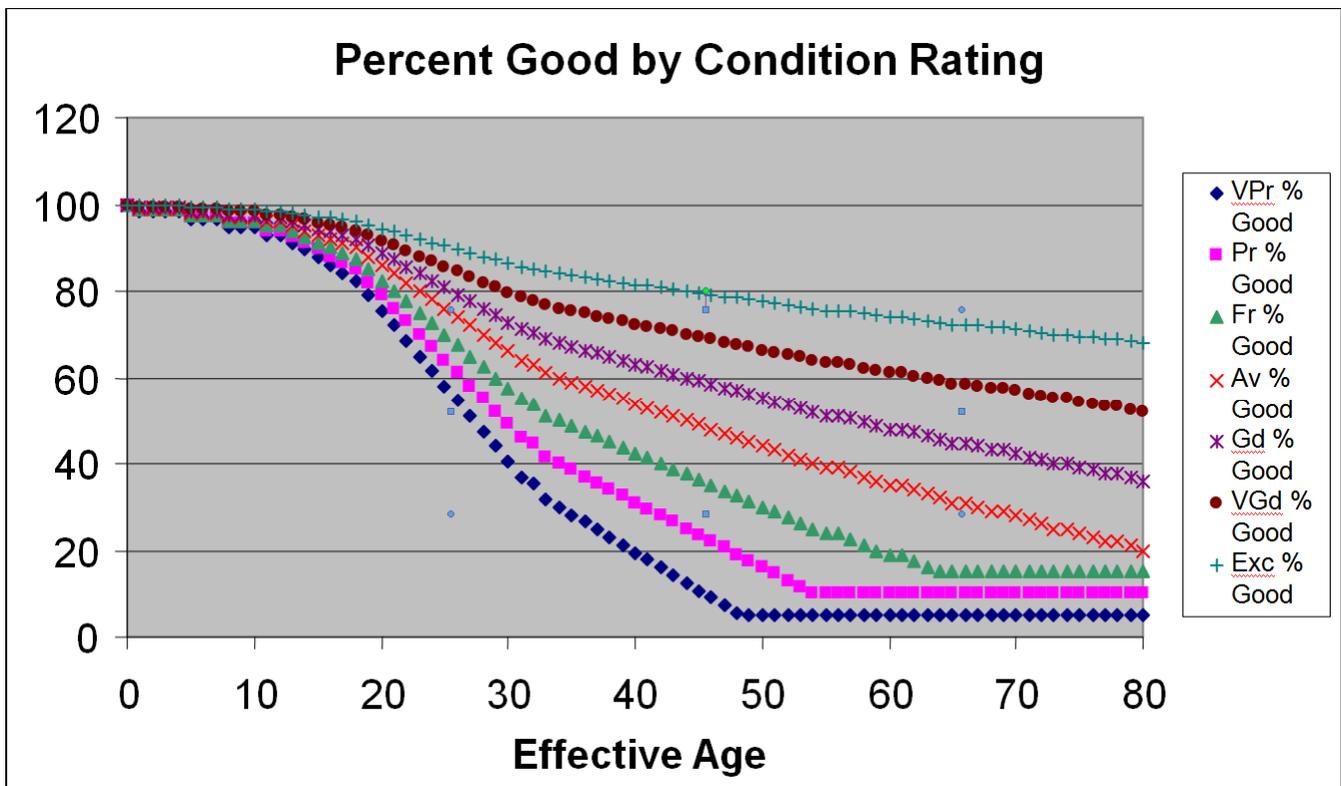
Condition

Because many properties are in better or worse condition than what is typical for their age, we need a method to adjust the depreciation rate accordingly. There are two ways to accomplish this. One is to adjust the effective age and the other is to adjust the condition rating to raise or lower the amount of depreciation that is applied.

Adjusting the effective age would involve a fairly complex set of instructions and calculations for different situations that may be encountered. Minor remodels, major renovations, and building additions would require different adjustment techniques. Even with these procedures in place, there would be substantial appraiser judgment involved that would open the door for inconsistencies in the way effective age is determined and depreciation is applied.

A better method is to establish guidelines for determining the condition rating to apply to each property. In general, if an improvement to a parcel of land is typical for its age and has received average maintenance, it would be considered to be in average condition. If the improvement has had less than average maintenance, it will be in less than average condition. If the improvement has received better than average maintenance, it will be in better than average condition.

The following graph shows the effect that the condition rating has on the percent good curve. It summarizes the relationship between effective age, building condition, and the rate of depreciation.



NEIGHBORHOOD ADJUSTMENT MODEL SPECIFICATION

The equation for the neighborhood adjustment has an additive model format but without the constant term.

$$V = b_1(LV) + b_2(BV)$$

Where: b_1 and b_2 are based on a combination of regression analysis and appraiser judgment.

NEIGHBORHOOD ADJUSTMENT CALIBRATION

Initially regression coefficients are developed to apply to both land (b_1) and building (b_2) values within each neighborhood. A preliminary adjustment to the neighborhood land values is determined first by considering only available vacant land sales within the region.

After making the initial adjustment to the land value, the coefficient for the building value ($rcnld$) can be determined. This again produces a preliminary adjustment or starting point for determining the final neighborhood building trend.

Next, each neighborhood within the region is analyzed to consider its unique characteristics, amenities, and market conditions. This final adjustment to the neighborhood land and building values is largely based on the appraiser's analysis of individual sales ratios guided by the region wide sales analysis. An iterative process of adjusting the initial coefficients is applied to each neighborhood to reach the desired level of assessment, PRD, and COD.

As an example, final adjustments for neighborhood "20ZS" are shown below.

- **Final Neighborhood adjustments for 20ZS:**

- $b_1 = .90$ land value adjustment

- $b_2 = .90$ building value adjustment

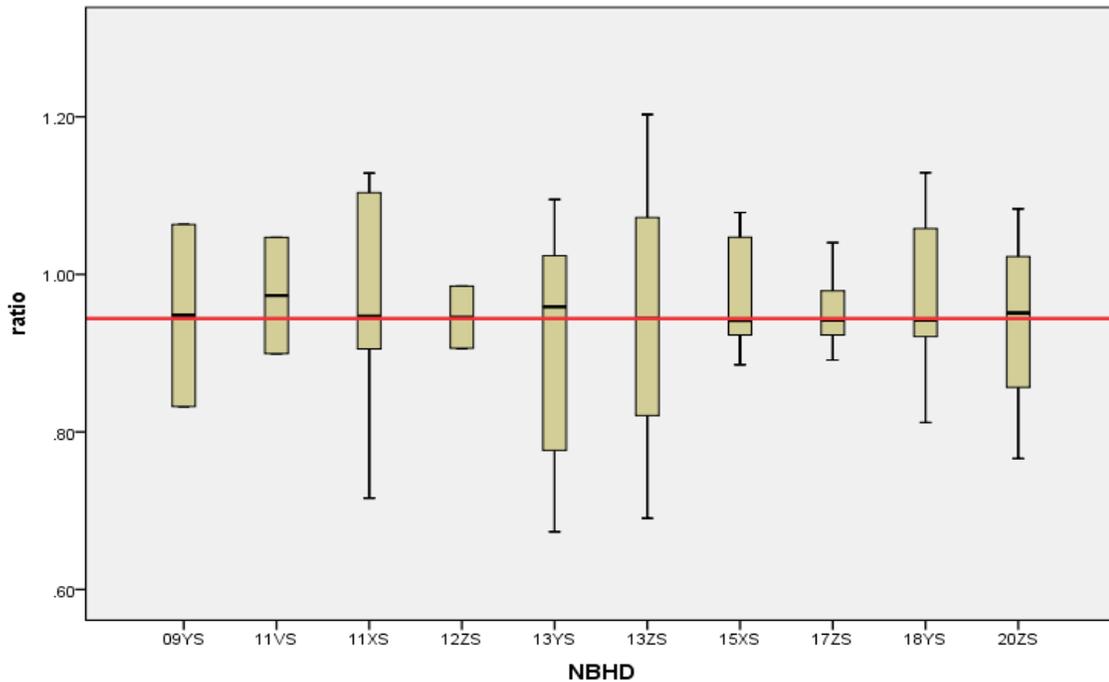
Final Ratios for 20ZS	
Mean	.933
Median	.951
Weighted Mean	.910
Price Related Differential	1.026
Coefficient of Dispersion	.096

The sales ratio analysis of each neighborhood in Saltwater neighborhoods in Regions 02 and 03 is included in the appendix along with the list of the sales that were used in the analysis.

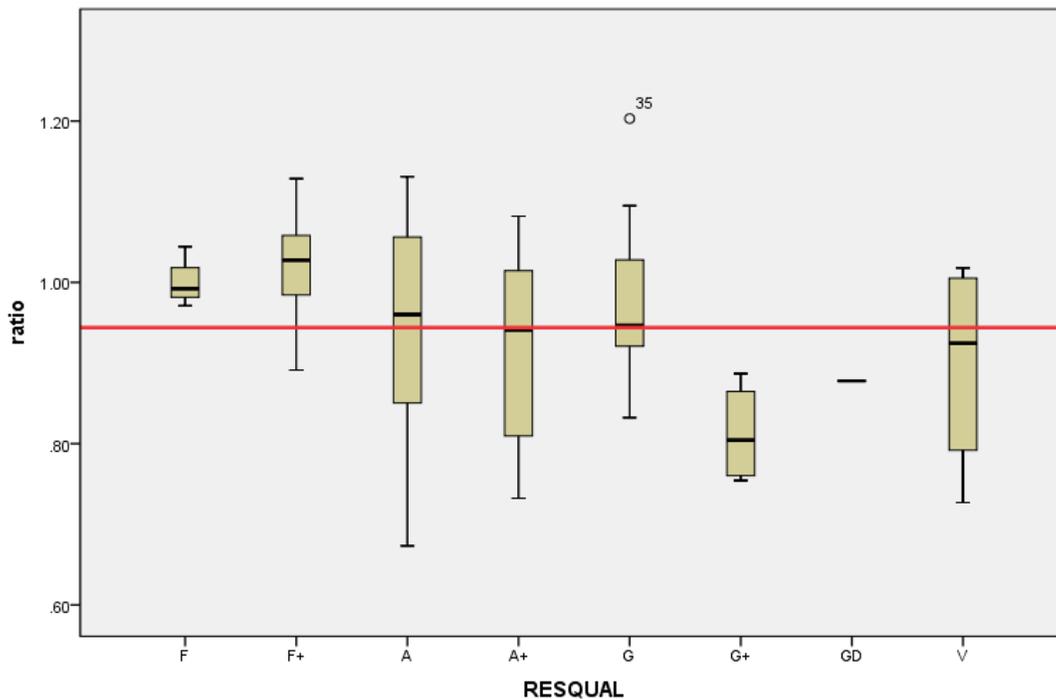
Neighborhood Adjustment Validation

Neighborhood trends were calibrated using 84 sales that took place between 01/01/2011 to 03/31/2013 trended to 01/01/2013.

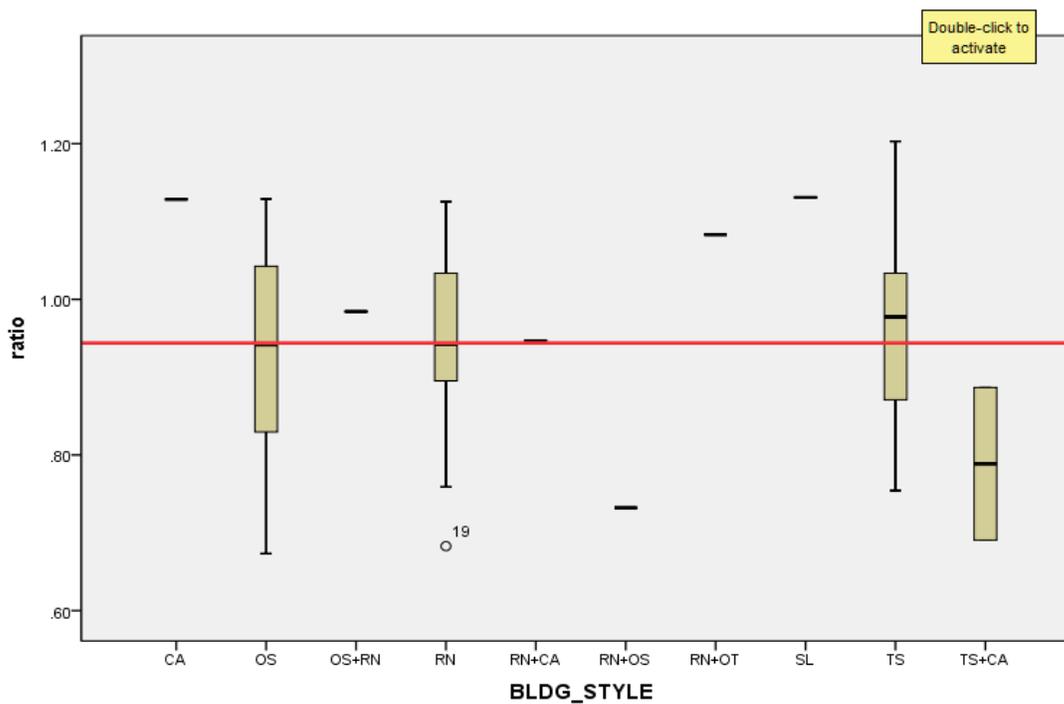
Assessment Uniformity by Neighborhood



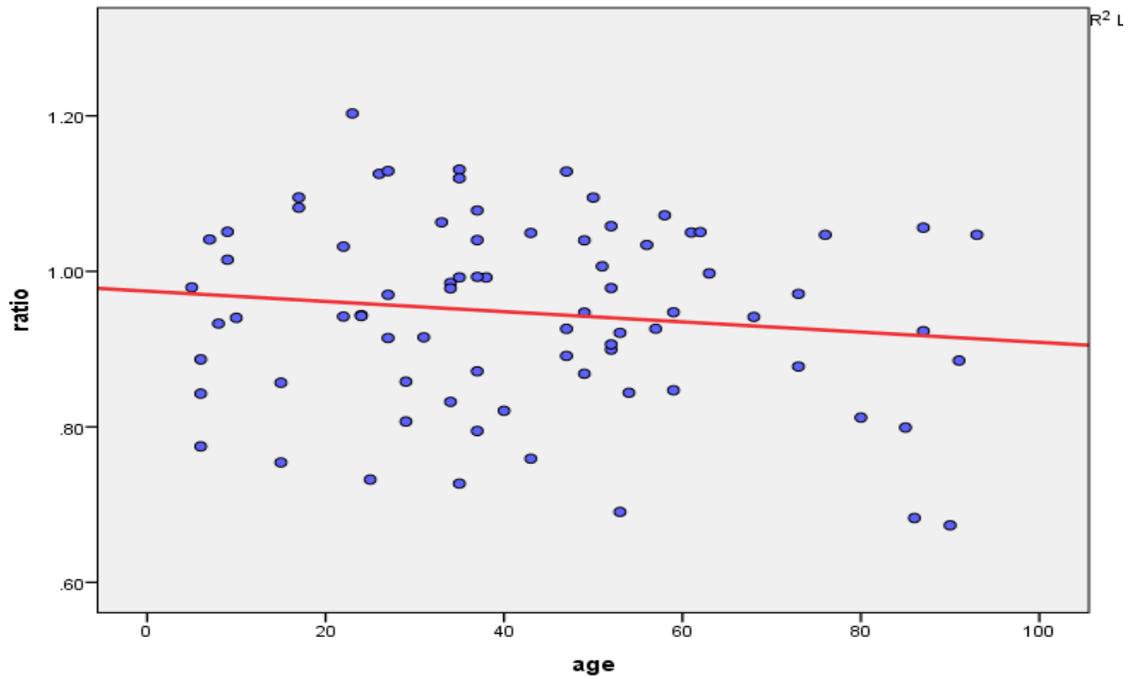
Assessment Uniformity by Quality Grade



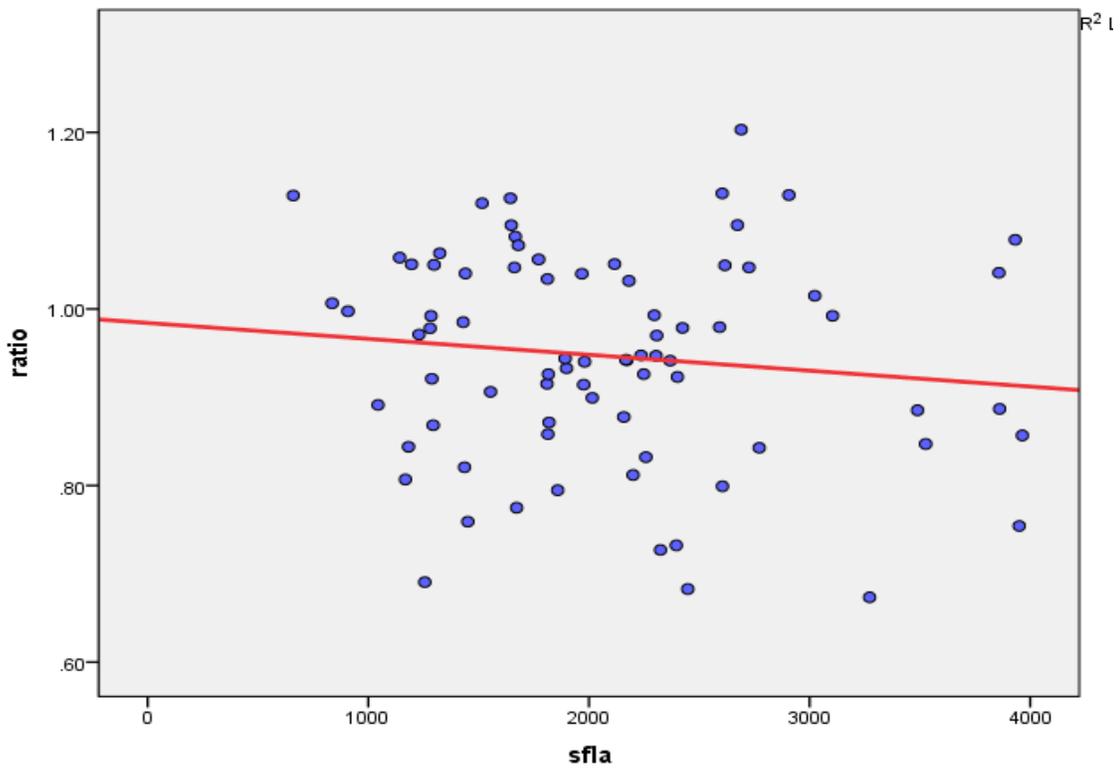
Assessment Uniformity by Building Style



Assessment Uniformity by Year Built



Assessment Uniformity by Square Feet of Living Area



RECONCILIATION AND CONCLUSION

Considering the quantity and quality of data and the reliability of the various models as shown in the performance tests above, we have concluded that the Sales Adjusted Cost Approach produces an accurate estimate of market value.

Summary of Inventory Statistics

NBHD		Final Value	Total Chg \$	Total Chg %	Land Chg %	Imp Chg %
09YS	Mean	\$303,793	-\$755	2.93	11.76	-11.56
	Median	\$320,600	\$150	.05	11.76	-14.48
11VS	Mean	\$395,925	-\$28,121	-5.75	-4.87	-8.15
	Median	\$429,200	-\$28,400	-6.20	-4.76	-9.39
11XS	Mean	\$309,815	-\$880	2.69	2.07	.94
	Median	\$313,100	-\$750	-.20	2.08	-3.86
12ZS	Mean	\$381,835	-\$4,834	1.05	0.00	.28
	Median	\$346,450	-\$5,800	-1.48	0.00	-3.64
13YS	Mean	\$431,391	-\$7,122	-.87	.07	-3.21
	Median	\$442,650	-\$6,700	-1.38	0.00	-3.85
13ZS	Mean	\$290,093	-\$23,008	-4.70	-3.04	-8.41
	Median	\$278,350	-\$21,600	-7.33	-3.06	-13.65
15XS	Mean	\$390,548	\$21,241	5.17	4.70	5.85
	Median	\$397,600	\$17,950	4.82	4.68	5.62
17ZS	Mean	\$385,797	\$18,858	5.04	5.26	5.57
	Median	\$377,750	\$18,350	5.24	5.26	4.67
18YS	Mean	\$334,631	\$10,943	3.21	3.20	3.31
	Median	\$336,700	\$9,950	3.10	3.09	3.33
20ZS	Mean	\$389,495	-\$28,572	-5.74	-1.05	-13.13
	Median	\$380,850	-\$27,425	-6.75	-1.10	-13.80
Total	Mean	\$360,816	-\$6,037	-.25	1.03	-3.23
	Median	\$349,900	-\$2,500	-1.12	0.00	-4.14

APPENDIX

Neighborhood 09YS

NBHD	Parcel ID	Acres	Style	SFLA	Sale Date	Sale Price	Trended SP
09YS	37860001200	0.94	RN	1324	4/16/2012	\$340,000	\$322,252
09YS	45900000100	1.20	TS	2258	7/12/2012	\$483,000	\$466,192

Sales Ratios for 09YS New Value/Trended Sale Price	
Mean	.948
Median	.948
Weighted Mean	.927
Price Related Differential	1.023
Coefficient of Dispersion	.122

Neighborhood 11VS

NBHD	Parcel ID	Acres	Style	SFLA	Sale Date	Sale Price	Trended SP
11VS	12806230902	1.91	RN	2015	8/13/2012	\$508,000	\$493,268
11VS	78000001300	0.77	OS	1662	10/2/2011	\$435,000	\$397,155

Sales Ratios for 11VS New Value/Trended Sale Price	
Mean	.973
Median	.973
Weighted Mean	.965
Price Related Differential	1.008
Coefficient of Dispersion	.076

Neighborhood 11XS

NBHD	Parcel ID	Acres	Style	SFLA	Sale Date	Sale Price	Trended SP
11XS	60300500000	0.00	RN+CA	2304	4/17/2012	\$540,000	\$511,812
11XS	12929320400	1.03	CA	660	9/30/2011	\$275,000	\$249,480
11XS	12930330203	7.71	RN	1644	10/25/2011	\$364,328	\$332,631
11XS	12930421600	0.79		0	7/25/2011	\$195,000	\$195,000
11XS	12930421601	0.92	RN	1898	1/19/2011	\$685,000	\$589,648
11XS	13811410106	0.86	RN	1666	3/28/2011	\$489,700	\$427,214
11XS	13812330200	0.37	OS	2158	9/5/2012	\$390,000	\$380,952

Sales Ratios for 11XS	
New Value/Trended Sale Price	
Mean	.973
Median	.947
Weighted Mean	.978
Price Related Differential	.995
Coefficient of Dispersion	.122

Neighborhood 12ZS

NBHD	Parcel ID	Acres	Style	SFLA	Sale Date	Sale Price	Trended SP
12ZS	12909330600	1.29	TS	1430	10/2/2012	\$340,000	\$334,084
12ZS	36020008800	1.06	RN	1554	1/30/2013	\$375,000	\$375,000

Sales Ratios for 12ZS	
New Value/Trended Sale Price	
Mean	.946
Median	.946
Weighted Mean	.943
Price Related Differential	1.002
Coefficient of Dispersion	.042

Neighborhood 13YS

NBHD	Parcel ID	Acres	Style	SFLA	Sale Date	Sale Price	Trended SP
13YS	09020023000	0.42	RN	2236	7/29/2011	\$475,000	\$425,410
13YS	09140003000	2.14	RN	2673	1/3/2012	\$750,000	\$697,800
13YS	09150017000	1.34	OS	2605	12/11/2012	\$630,000	\$626,346
13YS	09150027000	0.60	RN	2448	2/17/2012	\$799,900	\$748,866
13YS	09370001001	0.66	RN	1298	12/3/2012	\$336,013	\$334,064
13YS	12933420100	0.71	OS	3272	4/18/2012	\$825,000	\$781,935
13YS	12933430300	1.18	RN	836	9/12/2012	\$917,500	\$896,214
13YS	33800001300	0.98	RN	2772	12/15/2011	\$950,000	\$878,370
13YS	33800002500	0.93	TS	3950	6/22/2012	\$1,030,000	\$988,182
13YS	35100000105	1.12	RN	1772	12/14/2011	\$387,500	\$358,283
13YS	35100000804	2.45	OS	2324	7/14/2011	\$1,200,000	\$1,074,720
13YS	42900000500	1.91	TS	3964	1/19/2012	\$1,150,000	\$1,069,960
13YS	60710000102	1.00	OS	3858	8/13/2012	\$551,000	\$535,021
13YS	60720000500	0.00	TS	2307	4/25/2011	\$710,000	\$623,522
13YS	74020001300	0.75	OS	3104	7/25/2011	\$820,150	\$734,526
13YS	83002000600	0.54	RN	1230	5/31/2012	\$268,000	\$255,565

Sales Ratios for 13YS New Value/Trended Sale Price	
Mean	.904
Median	.959
Weighted Mean	.876
Price Related Differential	1.032
Coefficient of Dispersion	.124

Neighborhood 13ZS

NBHD	Parcel ID	Acres	Style	SFLA	Sale Date	Sale Price	Trended SP
13ZS	76200000300	0.04	TS+CA	1256	5/1/2012	\$285,000	\$271,776
13ZS	76200007400	0.17	RN+OS	2396	1/3/2011	\$558,000	\$480,326
13ZS	12034341200	0.24	RN	1451	7/13/2012	\$519,000	\$500,939
13ZS	12904210301	1.85	TS	2690	12/13/2011	\$457,500	\$423,005
13ZS	12904210308	1.88	TS	3023	6/27/2012	\$529,000	\$507,523
13ZS	12905430200	56.56		0	5/23/2011	\$790,000	\$790,000
13ZS	12907320300	1.79	OS	2116	11/13/2012	\$410,000	\$405,244
13ZS	12908210203	0.42	SL	2604	4/30/2012	\$357,000	\$338,365
13ZS	36020021500	2.03	RN	1168	11/18/2011	\$515,000	\$473,182
13ZS	39000001900	3.00	OS	3526	5/6/2011	\$715,000	\$632,060
13ZS	39000005500	0.44	RN	1680	1/10/2013	\$379,000	\$379,000
13ZS	39300000600	0.64	RN	1280	7/25/2011	\$331,000	\$296,444
13ZS	39310001200	1.77	TS	1892	9/27/2012	\$530,000	\$517,704
13ZS	45800100500	0.00	RN	1436	10/21/2011	\$395,000	\$360,635
13ZS	45800101100	0.34		0	12/26/2012	\$130,000	\$130,000
13ZS	45800101700	0.00	RN	1182	10/22/2012	\$395,000	\$388,127
13ZS	51700900000	0.46		0	5/29/2012	\$160,000	\$160,000
13ZS	51702000000	1.47	OS	1810	12/5/2012	\$581,850	\$578,475

Sales Ratios for 13ZS	
New Value/Trended Sale Price	
Mean	.945
Median	.944
Weighted Mean	.945
Price Related Differential	1.000
Coefficient of Dispersion	.135

Neighborhood 15XS

NBHD	Parcel ID	Acres	Style	SFLA	Sale Date	Sale Price	Trended SP
15XS	09120025000	4.67	TS+CA	3861	1/17/2012	\$1,380,000	\$1,283,952
15XS	09120027000	1.75	RN	1968	8/24/2012	\$584,000	\$567,064
15XS	09130004000	1.93	RN	2248	6/30/2011	\$775,000	\$689,595
15XS	12935120501	1.33	TS	2616	11/19/2012	\$565,000	\$558,446
15XS	35900402401	0.38	TS	3489	4/2/2012	\$775,000	\$734,545
15XS	35901001300	0.97	TS	3932	2/15/2012	\$625,000	\$585,125
15XS	35902203800	1.02	OS	2368	9/22/2011	\$660,000	\$598,752
15XS	35902701600	1.03	RN	2401	10/23/2012	\$515,000	\$506,039
15XS	77900100200	0.69	OS	2725	8/10/2012	\$650,000	\$631,150

Sales Ratios for 15XS New Value/Trended Sale Price	
Mean	.975
Median	.941
Weighted Mean	.963
Price Related Differential	1.013
Coefficient of Dispersion	.070

Neighborhood 17ZS

NBHD	Parcel ID	Acres	Style	SFLA	Sale Date	Sale Price	Trended SP
17ZS	11906413500	2.48		0	7/1/2012	\$250,000	\$250,000
17ZS	11906414100	0.64	RN	2171	4/18/2012	\$483,000	\$457,787
17ZS	11906415500	1.68	OS	1440	10/3/2012	\$370,000	\$363,562
17ZS	12911440100	4.03	RN	2424	6/27/2011	\$627,000	\$557,905
17ZS	43620003200	0.80	OS	2592	7/16/2012	\$435,000	\$419,862
17ZS	59801000000	0.47	RN	1976	6/28/2012	\$525,000	\$503,685
17ZS	74000003100	0.00	RN	1044	11/2/2012	\$308,000	\$304,427

Sales Ratios for 17ZS New Value/Trended Sale Price	
Mean	.954
Median	.942
Weighted Mean	.956
Price Related Differential	.998
Coefficient of Dispersion	.040

Neighborhood 18YS

NBHD	Parcel ID	Acres	Style	SFLA	Sale Date	Sale Price	Trended SP
18YS	11919210304	10.03	OS	2906	3/6/2013	\$345,950	\$349,963
18YS	11920110102	1.90	RN	2168	6/6/2012	\$525,000	\$503,685
18YS	11920340201	5.25	RN	1288	1/30/2013	\$375,000	\$375,000
18YS	11929410000	13.77	RN	1516	10/11/2012	\$350,000	\$343,910
18YS	11929440101	1.47	OS	2200	5/8/2012	\$430,000	\$410,048
18YS	57200000100	0.81	RN	1284	10/21/2011	\$468,000	\$427,284
18YS	57200004400	0.65	RN	1294	11/7/2012	\$335,000	\$331,114
18YS	57200004800	1.28	RN	1142	1/22/2013	\$272,500	\$272,500
18YS	75400000600	0.70	RN	1980	11/22/2011	\$440,000	\$404,272

Sales Ratios for 18YS New Value/Trended Sale Price	
Mean	.976
Median	.943
Weighted Mean	.969
Price Related Differential	1.007
Coefficient of Dispersion	.089

Neighborhood 20ZS

NBHD	Parcel ID	Acres	Style	SFLA	Sale Date	Sale Price	Trended SP
20ZS	11905410800	1.28	RN+OT	1648	8/22/2012	\$301,500	\$292,757
20ZS	11910220300	1.42	OS+RN	2296	4/26/2011	\$415,000	\$364,453
20ZS	11910220201	1.50	RN	1819	6/28/2012	\$479,000	\$459,553
20ZS	11923131700	0.88	RN	1816	1/5/2011	\$515,000	\$443,312
20ZS	56550106101	0.98	OS	1196	6/21/2012	\$210,000	\$201,474
20ZS	56550201500	0.77	OS	1858	11/15/2012	\$442,000	\$436,873
20ZS	56550202900	1.44		0	2/21/2012	\$155,000	\$155,000
20ZS	56551000200	1.05	RN	1812	6/8/2012	\$395,000	\$378,963
20ZS	69600000400	2.34	RN	908	10/4/2012	\$305,000	\$299,693
20ZS	69600000602	2.14	RN	1672	4/1/2011	\$1,075,000	\$944,065
20ZS	72100001300	0.68	OS	1814	9/25/2012	\$395,000	\$385,836
20ZS	72100001600	0.00	TS	2181	10/30/2012	\$605,000	\$594,473

Sales Ratios for 20ZS New Value/Trended Sale Price	
Mean	.933
Median	.951
Weighted Mean	.910
Price Related Differential	1.026
Coefficient of Dispersion	.096

SALES RATIO STATISTICS FOR SALT WATERFRONT NEIGHBORHOODS

New Value/Trended Sale Price	
Mean	.946
Median	.944
Weighted Mean	.930
Price Related Differential	1.017
Coefficient of Dispersion	.103

MULTIPLE REGRESSION ANALYSIS ASSUMPTIONS

Complete and Accurate Data:

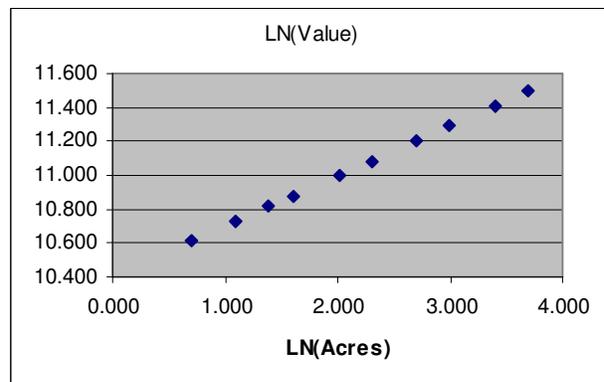
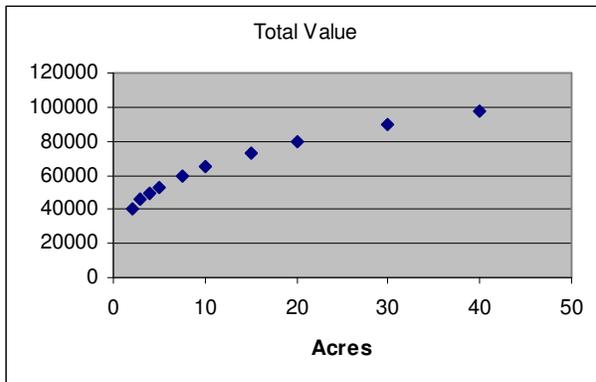
- Data definitions and standards have been developed to ensure our data is as complete and accurate as possible.
- A procedure has been established to ensure sales are properly verified.
- Annual training is conducted to remind appraisers of the standard that have been developed.

Representativeness:

- It is assumed that the sale sample adequately represents variables in the model.
- Violation of this assumption may affect the accuracy of the model in predicting the value of properties that are under-represented. For example, if there are no sales of “Excellent” view, the model would make no distinction from the typical “Average” view and an “Excellent” view. Using scalar or linearized variables in the model has mitigated this potential problem.

Linearity:

- It is assumed that the marginal contribution of a variable is constant over the range of values for the variable. Each additional unit of size or quantity adds equally to the value.
- The assumption is violated when economies of scale or other non-linear relationships are present.
- Developing a multiplicative land model has helped to create linear relationships between the dependent variable and independent variables.
- For example, using the natural logarithm of the lot size (acres) addresses the decreasing marginal utility of adding additional units of land. See example below.



Additivity:

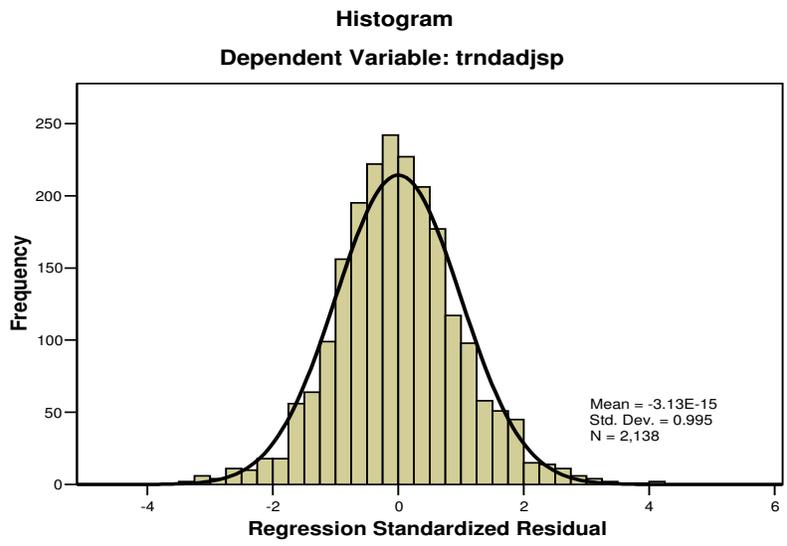
- It is assumed that the marginal contribution of one independent variable is not affected by the changes in other variables.
- The assumption is violated when one independent variable interacts with another.
- This assumption generally does not hold for land models
 - Land characteristics are often interactive. For example, the adjustment for view may be influenced by the size or topography of the land parcel.
- A multiplicative model helps to address this issue but converting the format to log-linear terms.

No Correlation between Independent Variables:

- It is assumed that there is no correlation between independent variables.
- This assumption is addressed by reviewing the correlation matrix and by either eliminating one of the correlated variables or combining the highly correlated variables.

Normal Distribution of Residual Errors:

- Violation of this assumption affects the interpretation of the SEE, COV, and t-statistics.
- With large samples and proper screening of the sales, this assumption is typically not a problem.
- The assumption is verified by examining a histogram of residual errors. See example below.



Constant Variance of the Error Term (homoscedasticity):

- The residual errors should be consistent as prices increase.
- Violation of this assumption implies the residual errors are not evenly distributed (heteroscedasticity).
- As a result the model will chase high priced sales that may not be representative of the market.
- Sales have been properly screened to ensure accuracy of the data, and outliers have been removed to reduce the likelihood of this problem.
- Expressing the sale price (dependent variable) in per square foot or per acre terms has also helped to minimize this potential problem.
- Verified by examining a scatter diagram comparing residual errors to corresponding predicted values. See scatter diagram below as an example. The horizontal line-of-best-fit indicates that the residual errors are evenly distributed among the predicted values.

