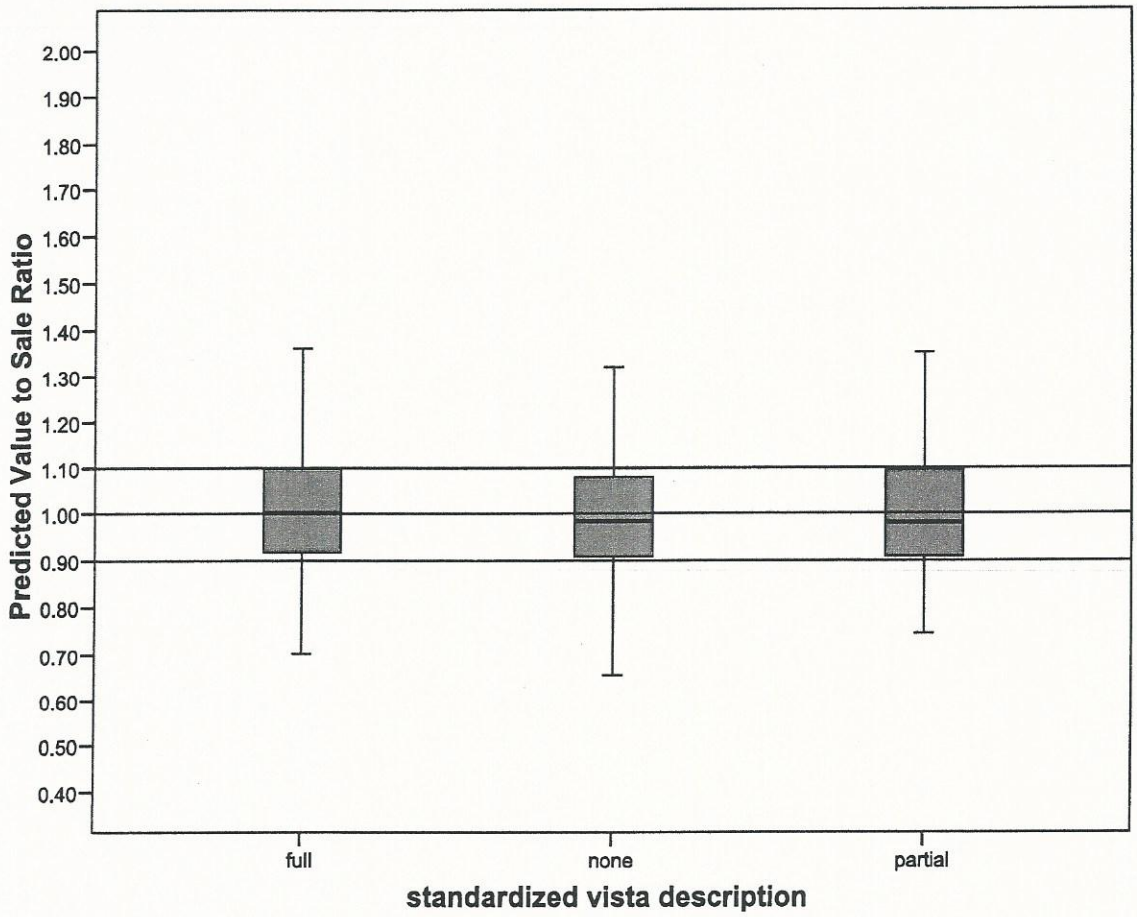
Case Processing Summary

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	239	100.0%	0	.0%	239	100.0%
	none	647	100.0%	0	.0%	647	100.0%
	partial	103	100.0%	0	.0%	103	100.0%

ASRX



Boxplots ASR Sales within 1km by View by Market Area

MODEL = 05RR030 Napanee,Loyalist Twp, Frontenac/Lennox & Addington Counties South Rural/WF

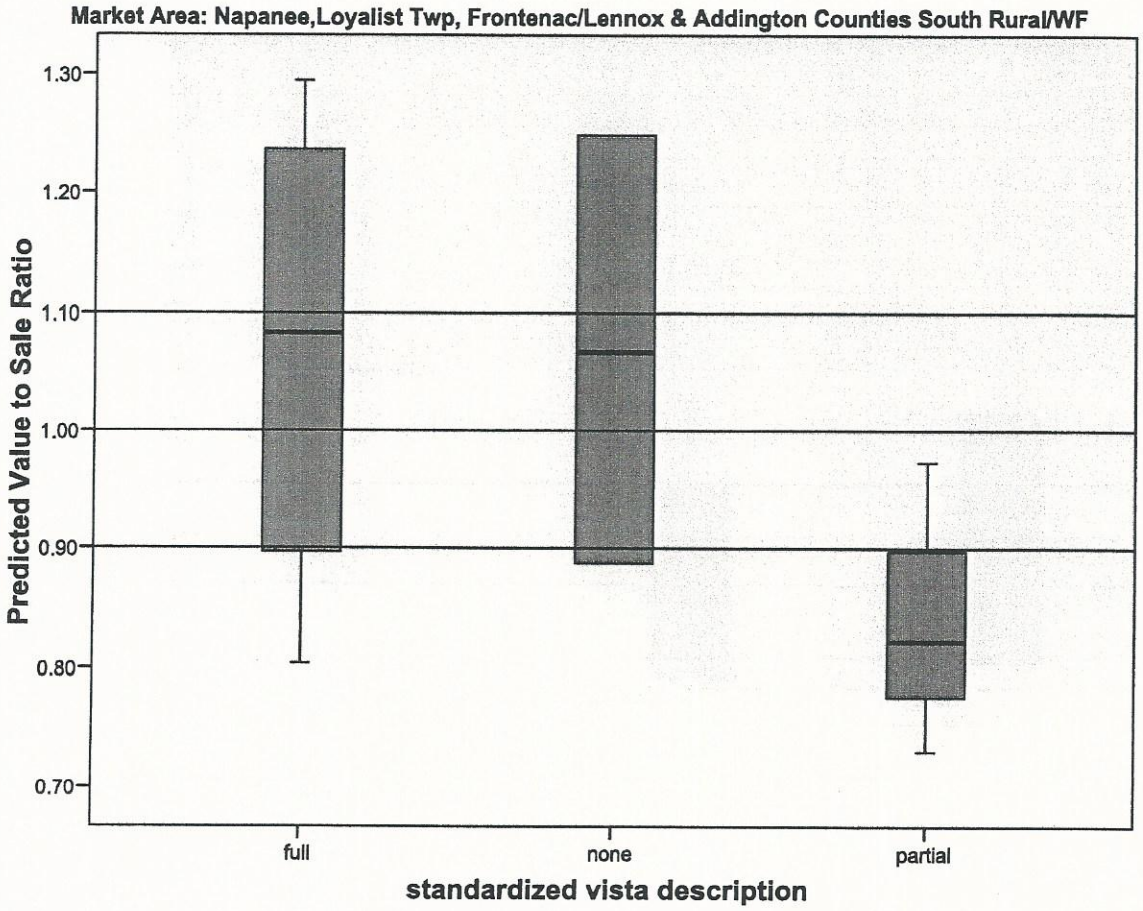
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	8	100.0%	0	.0%	8	100.0%
	none	2	100.0%	0	.0%	2	100.0%
	partial	3	100.0%	0	.0%	3	100.0%

a. MODEL = 05RR030 Napanee,Loyalist Twp, Frontenac/Lennox & Addington Counties South Rural/WF

ASRX



MODEL = 20RR010 Brant, Halidmand, Norfolk Counties - Rural/WF

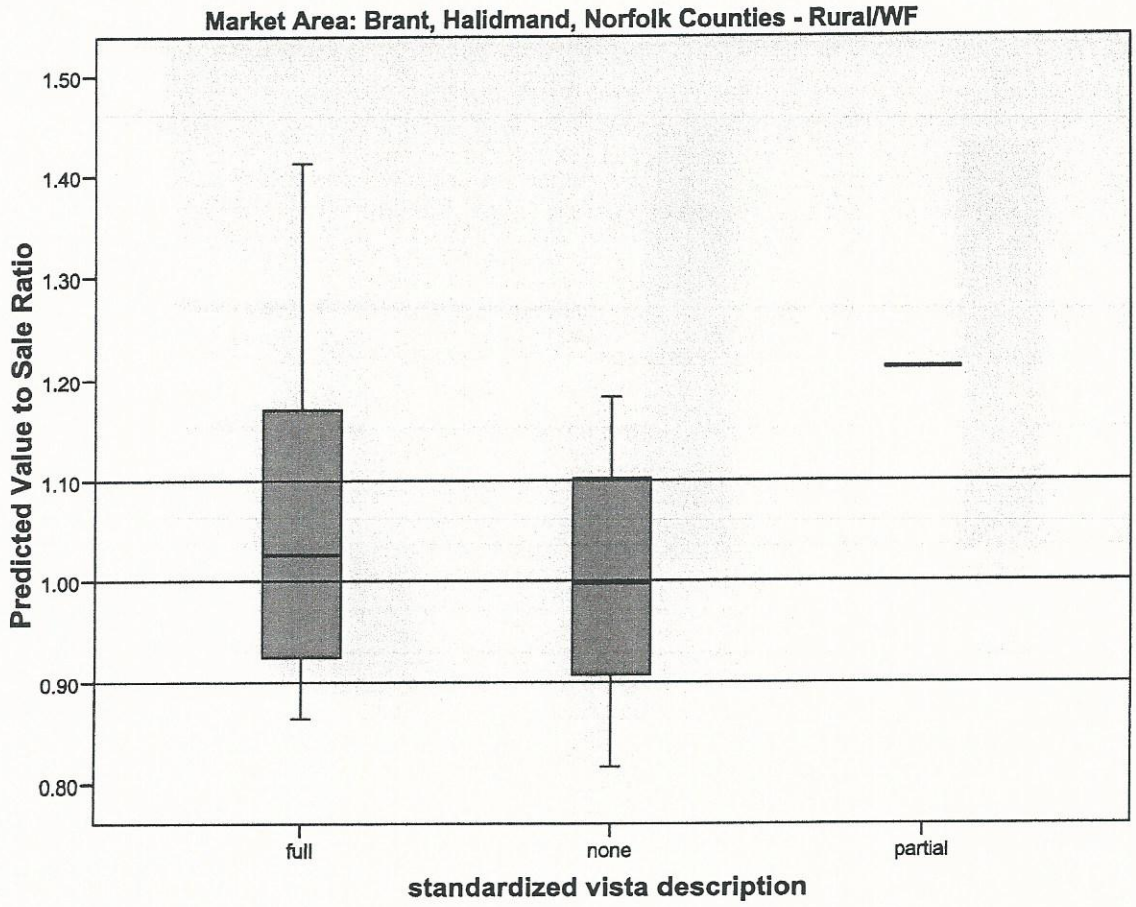
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	12	100.0%	0	.0%	12	100.0%
	none	12	100.0%	0	.0%	12	100.0%
	partial	1	100.0%	0	.0%	1	100.0%

a. MODEL = 20RR010 Brant, Halidmand, Norfolk Counties - Rural/WF

ASRX



MODEL = 22RR010 Dufferin & Wellington Counties - Rural

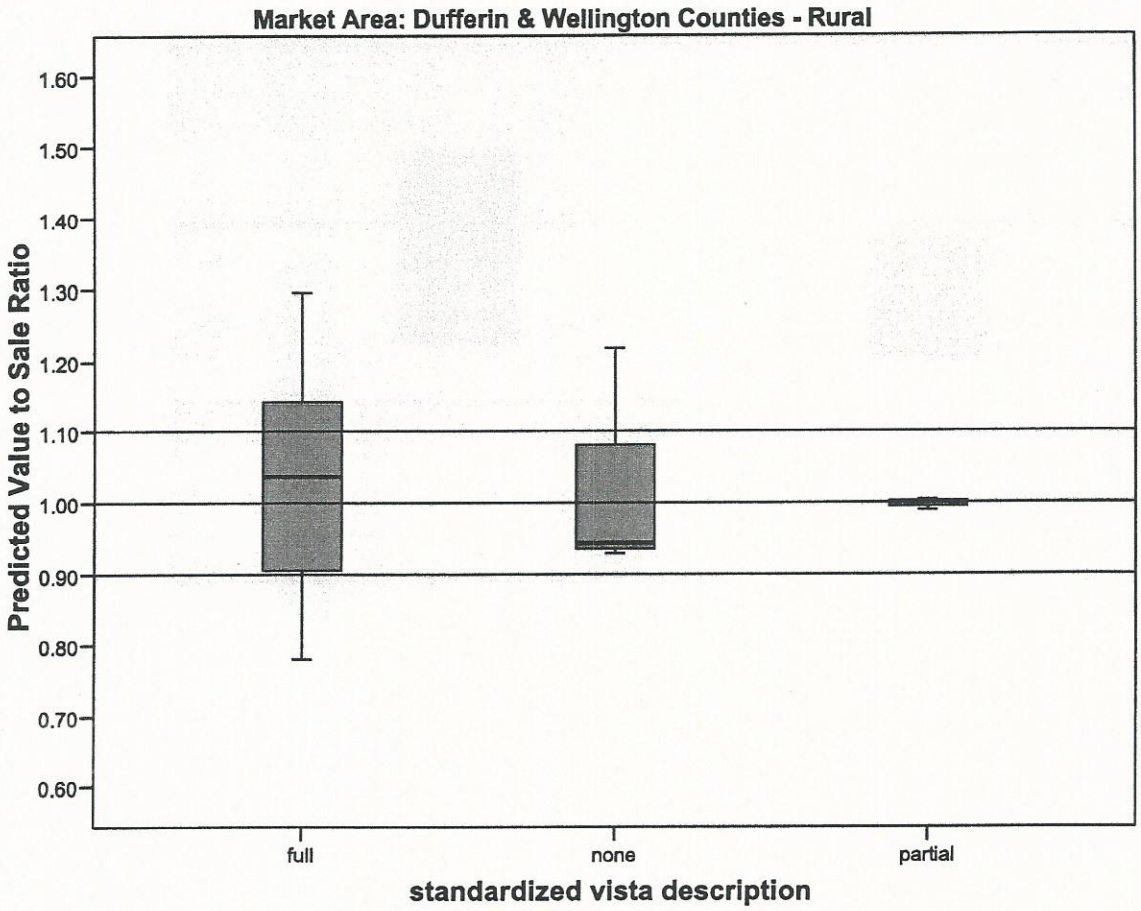
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	20	100.0%	0	.0%	20	100.0%
	none	3	100.0%	0	.0%	3	100.0%
	partial	3	100.0%	0	.0%	3	100.0%

a. MODEL = 22RR010 Dufferin & Wellington Counties - Rural

ASRX



MODEL = 23RR010 Elgin, Middlesex & Oxford Counties - Rural

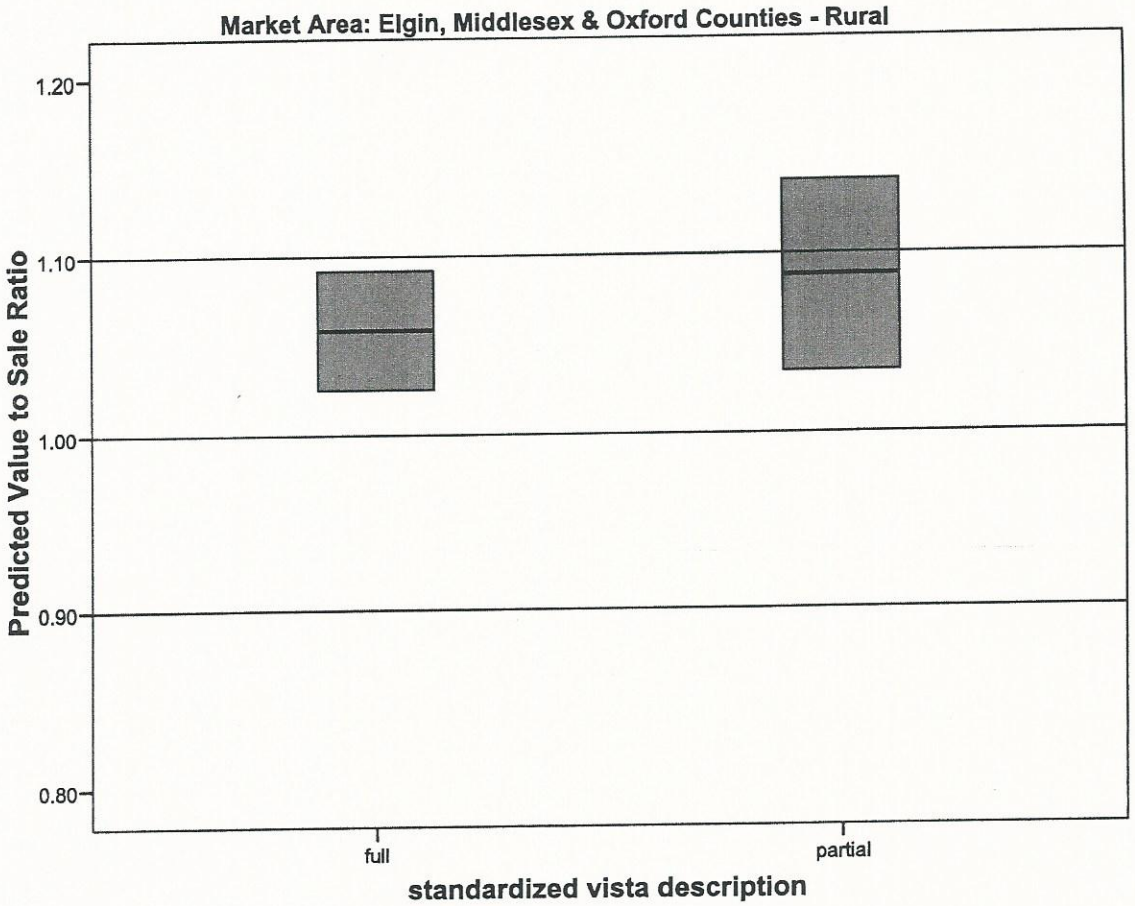
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	2	100.0%	0	.0%	2	100.0%
	partial	2	100.0%	0	.0%	2	100.0%

a. MODEL = 23RR010 Elgin, Middlesex & Oxford Counties - Rural

ASRX



MODEL = 24RR010 Huron & Perth Counties - Rural/Waterfront

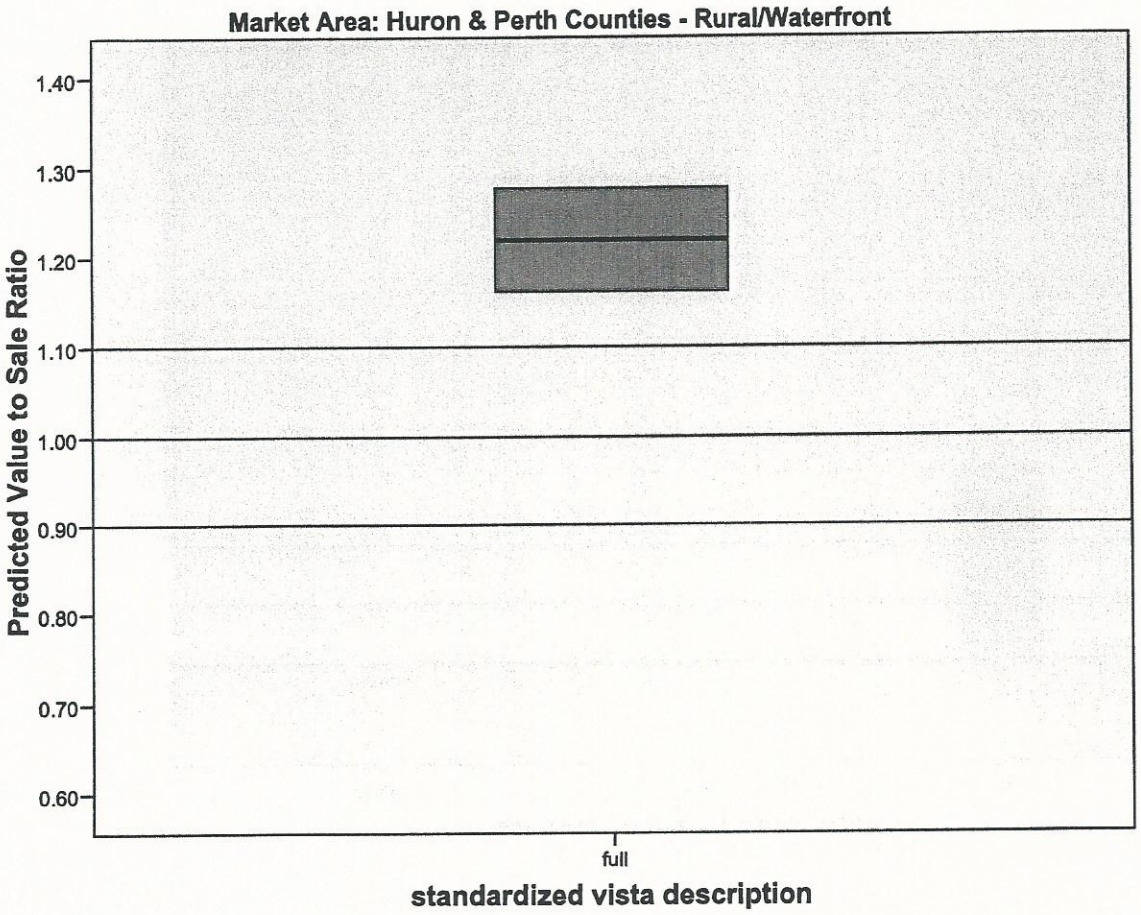
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	2	100.0%	0	.0%	2	100.0%

a. MODEL = 24RR010 Huron & Perth Counties - Rural/Waterfront

ASRX



MODEL = 25RR010 Grey & Bruce Counties - Rural/Waterfront

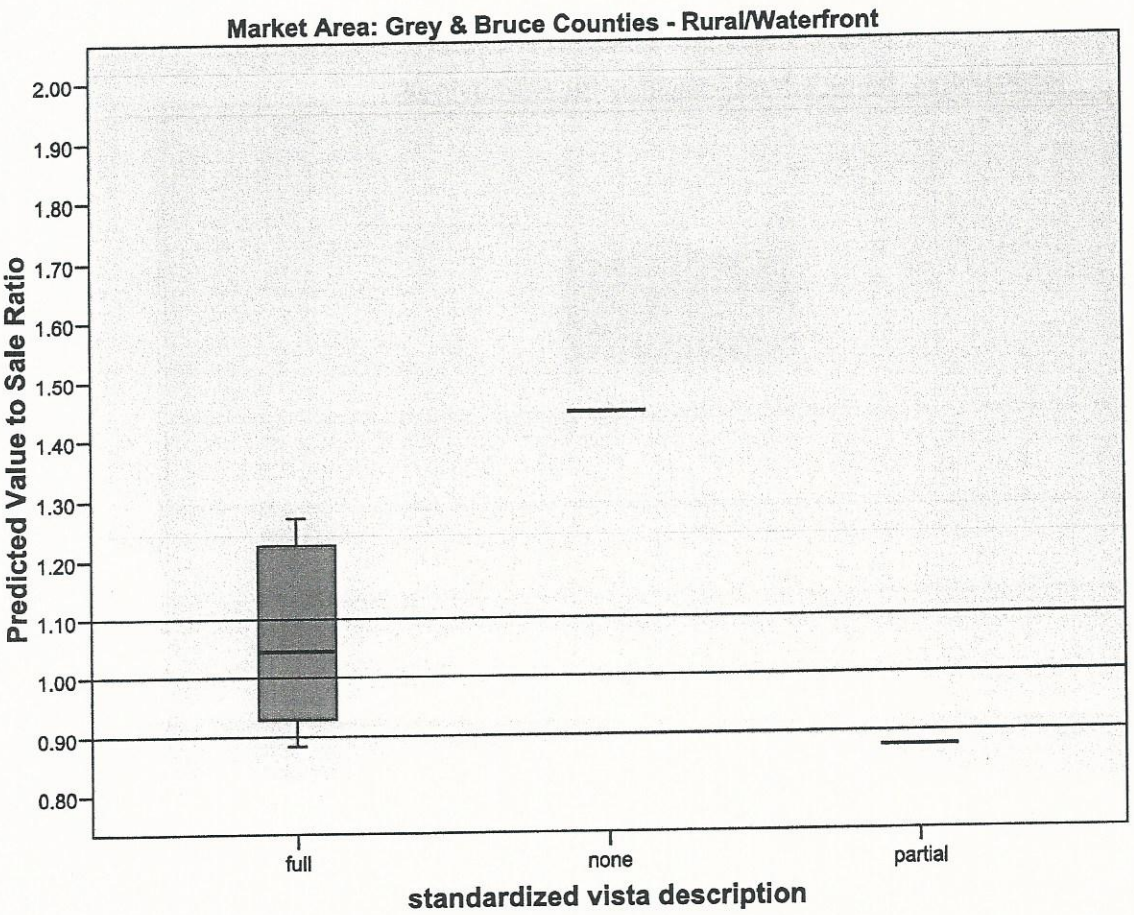
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	10	100.0%	0	.0%	10	100.0%
	none	1	100.0%	0	.0%	1	100.0%
	partial	1	100.0%	0	.0%	1	100.0%

a. MODEL = 25RR010 Grey & Bruce Counties - Rural/Waterfront

ASRX



MODEL = 26RR010 Chatham-Kent - Rural/Wallaceburg

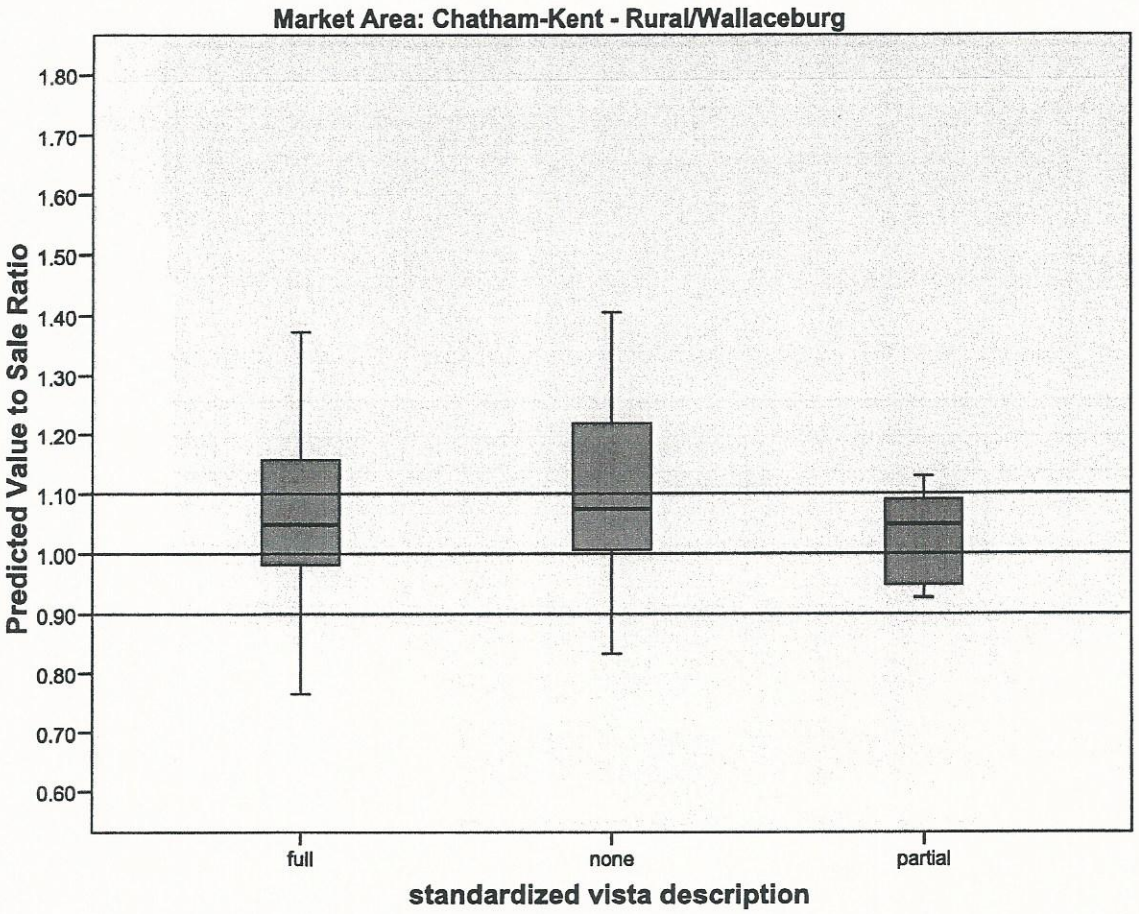
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	61	100.0%	0	.0%	61	100.0%
	none	16	100.0%	0	.0%	16	100.0%
	partial	6	100.0%	0	.0%	6	100.0%

a. MODEL = 26RR010 Chatham-Kent - Rural/Wallaceburg

ASRX



MODEL = 26RR030 Lambton County - Rural/WF

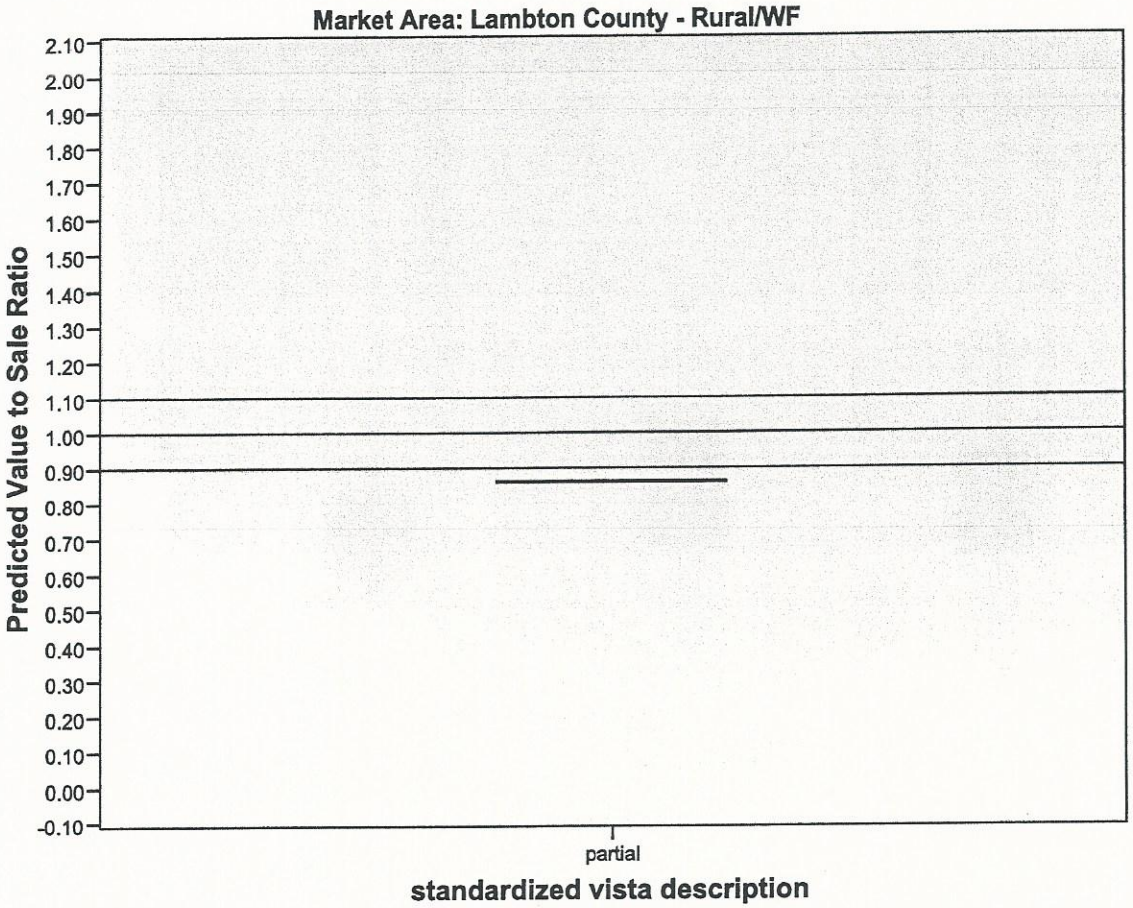
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	partial	1	100.0%	0	.0%	1	100.0%

a. MODEL = 26RR030 Lambton County - Rural/WF

ASRX



MODEL = 27RR120 Essex County

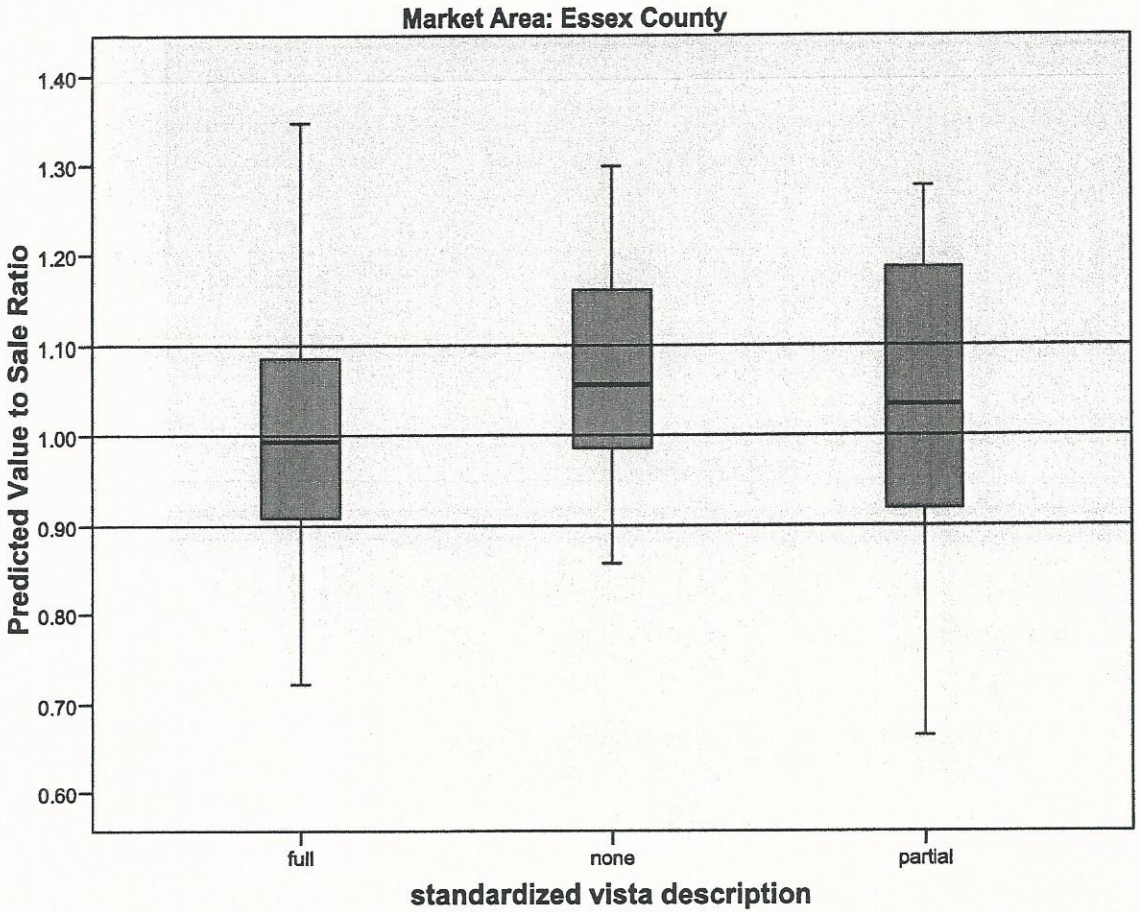
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	74	100.0%	0	.0%	74	100.0%
	none	22	100.0%	0	.0%	22	100.0%
	partial	16	100.0%	0	.0%	16	100.0%

a. MODEL = 27RR120 Essex County

ASRX



MODEL = 27UR070 Lasalle, Tecumseh, Lakeshore Urban & Essex Urban

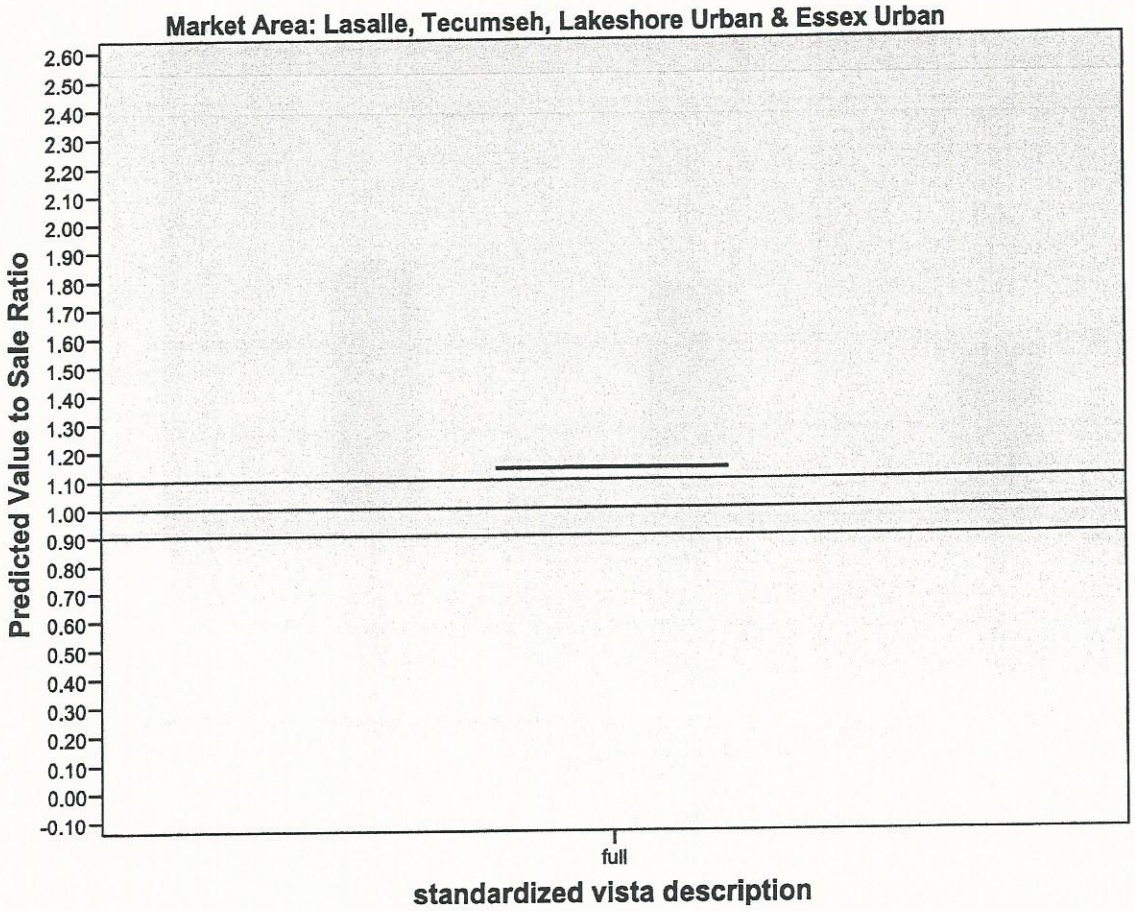
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	1	100.0%	0	.0%	1	100.0%

a. MODEL = 27UR070 Lasalle, Tecumseh, Lakeshore Urban & Essex Urban

ASRX



Boxplots ASR Sales 1km to 2km by View by Market Area

MODEL = 05RR030 Napanee,Loyalist Twp, Frontenac/Lennox & Addington Counties South Rural/WF

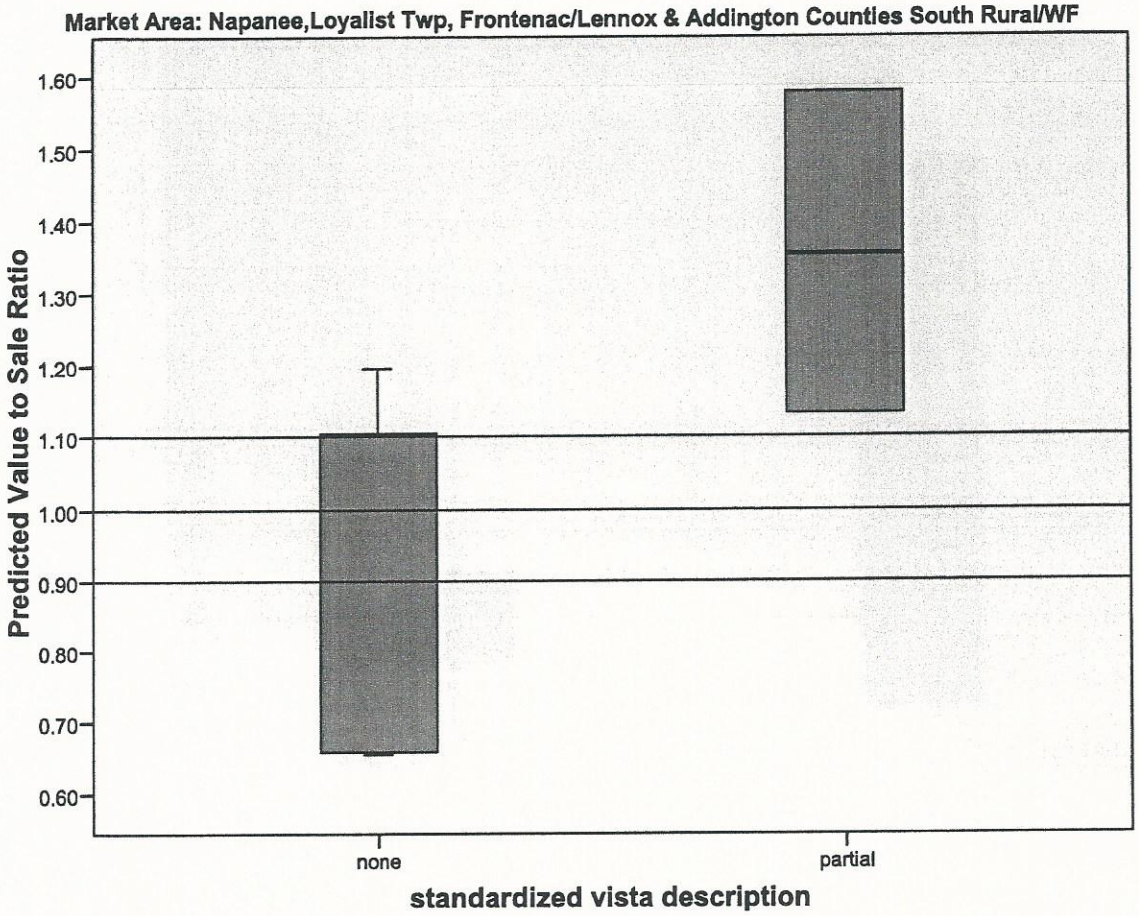
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	none	5	100.0%	0	.0%	5	100.0%
	partial	2	100.0%	0	.0%	2	100.0%

a. MODEL = 05RR030 Napanee,Loyalist Twp, Frontenac/Lennox & Addington Counties South Rural/WF

ASRX



MODEL = 20RR010 Brant, Halidmand, Norfolk Counties - Rural/WF

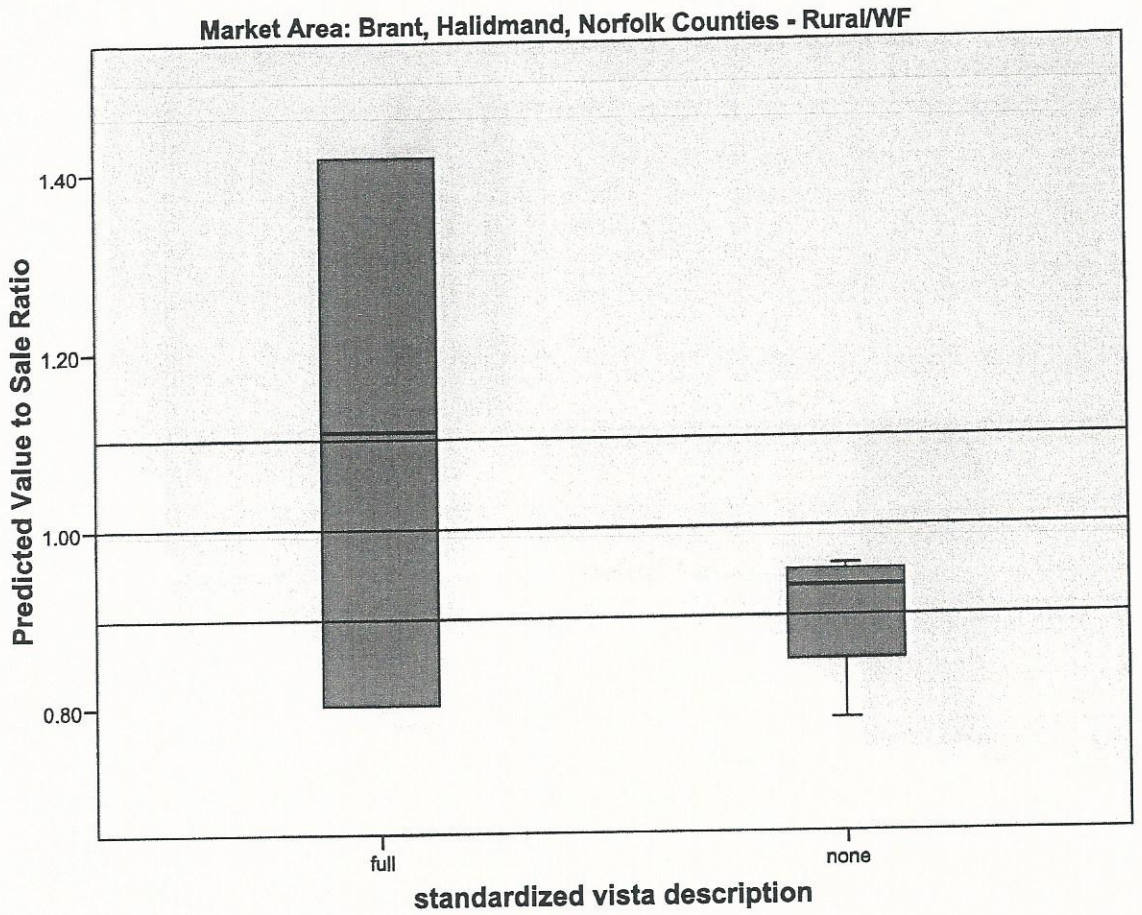
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	2	100.0%	0	.0%	2	100.0%
	none	7	100.0%	0	.0%	7	100.0%

a. MODEL = 20RR010 Brant, Halidmand, Norfolk Counties - Rural/WF

ASRX



MODEL = 22RR010 Dufferin & Wellington Counties - Rural

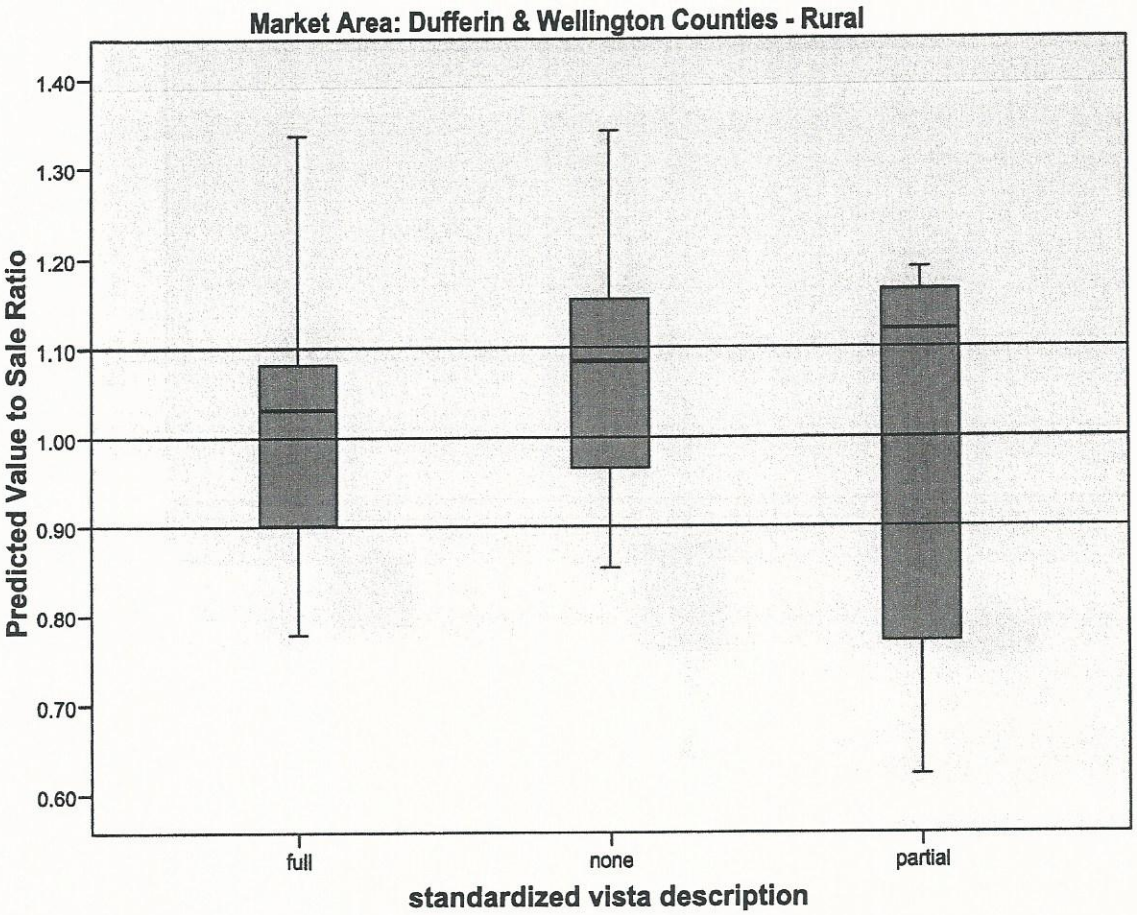
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	10	100.0%	0	.0%	10	100.0%
	none	7	100.0%	0	.0%	7	100.0%
	partial	8	100.0%	0	.0%	8	100.0%

a. MODEL = 22RR010 Dufferin & Wellington Counties - Rural

ASRX



MODEL = 22UR030 Wellington County Villages

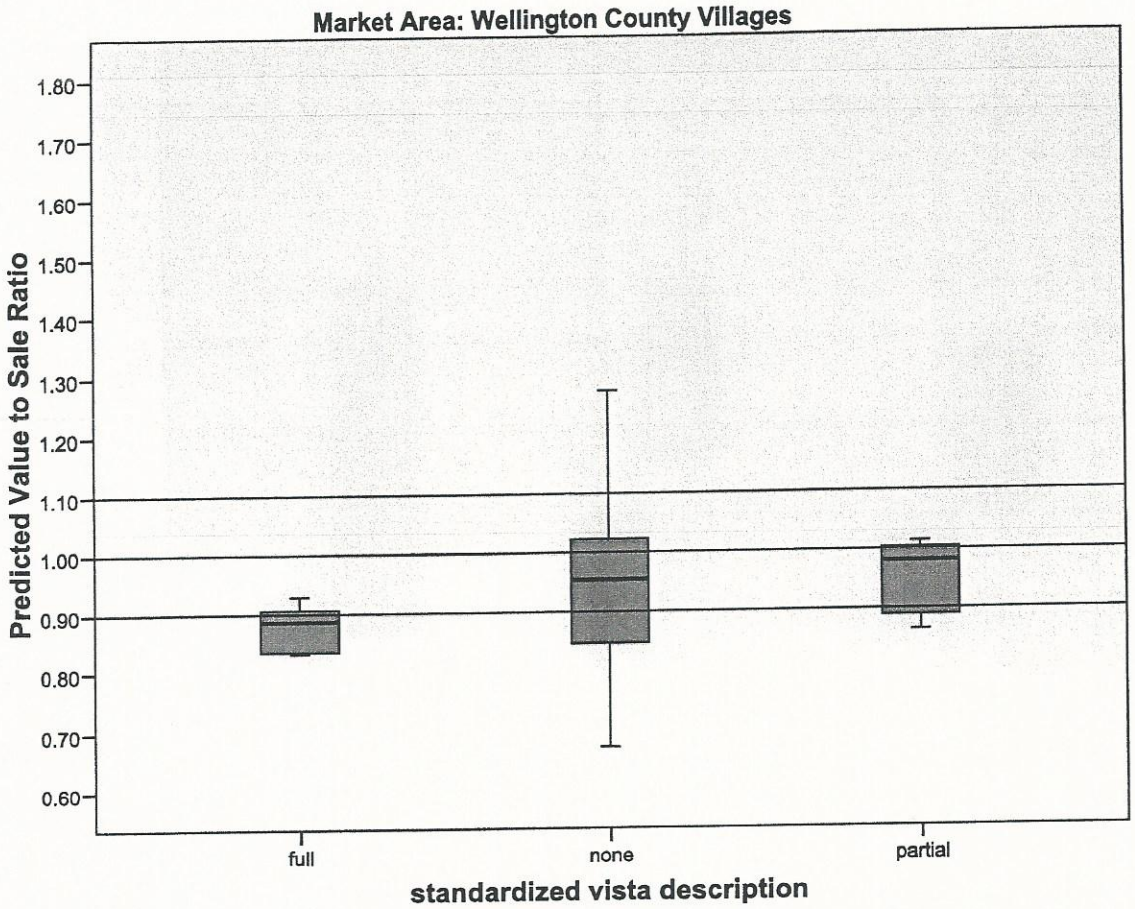
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	6	100.0%	0	.0%	6	100.0%
	none	81	100.0%	0	.0%	81	100.0%
	partial	5	100.0%	0	.0%	5	100.0%

a. MODEL = 22UR030 Wellington County Villages

ASRX



MODEL = 23RR010 Elgin, Middlesex & Oxford Counties - Rural

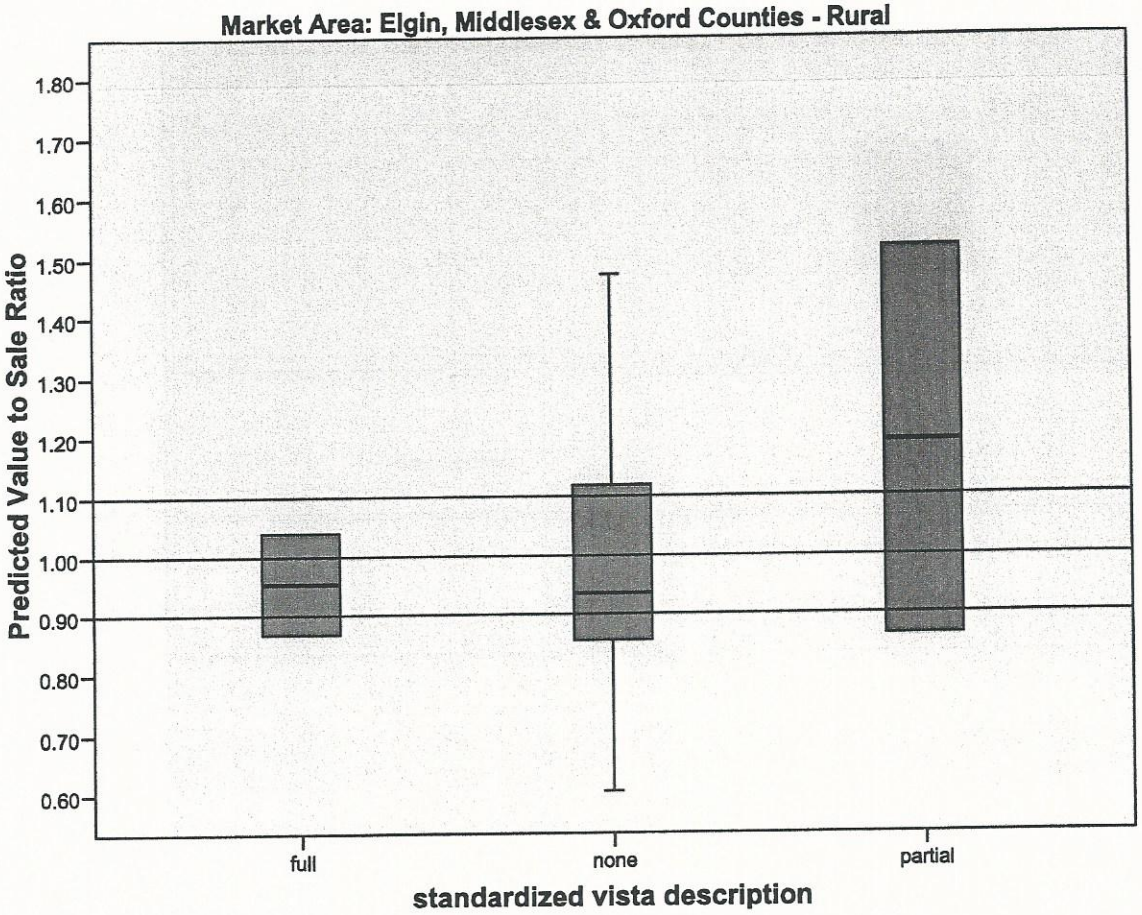
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	2	100.0%	0	.0%	2	100.0%
	none	48	100.0%	0	.0%	48	100.0%
	partial	2	100.0%	0	.0%	2	100.0%

a. MODEL = 23RR010 Elgin, Middlesex & Oxford Counties - Rural

ASRX



MODEL = 24RR010 Huron & Perth Counties - Rural/Waterfront

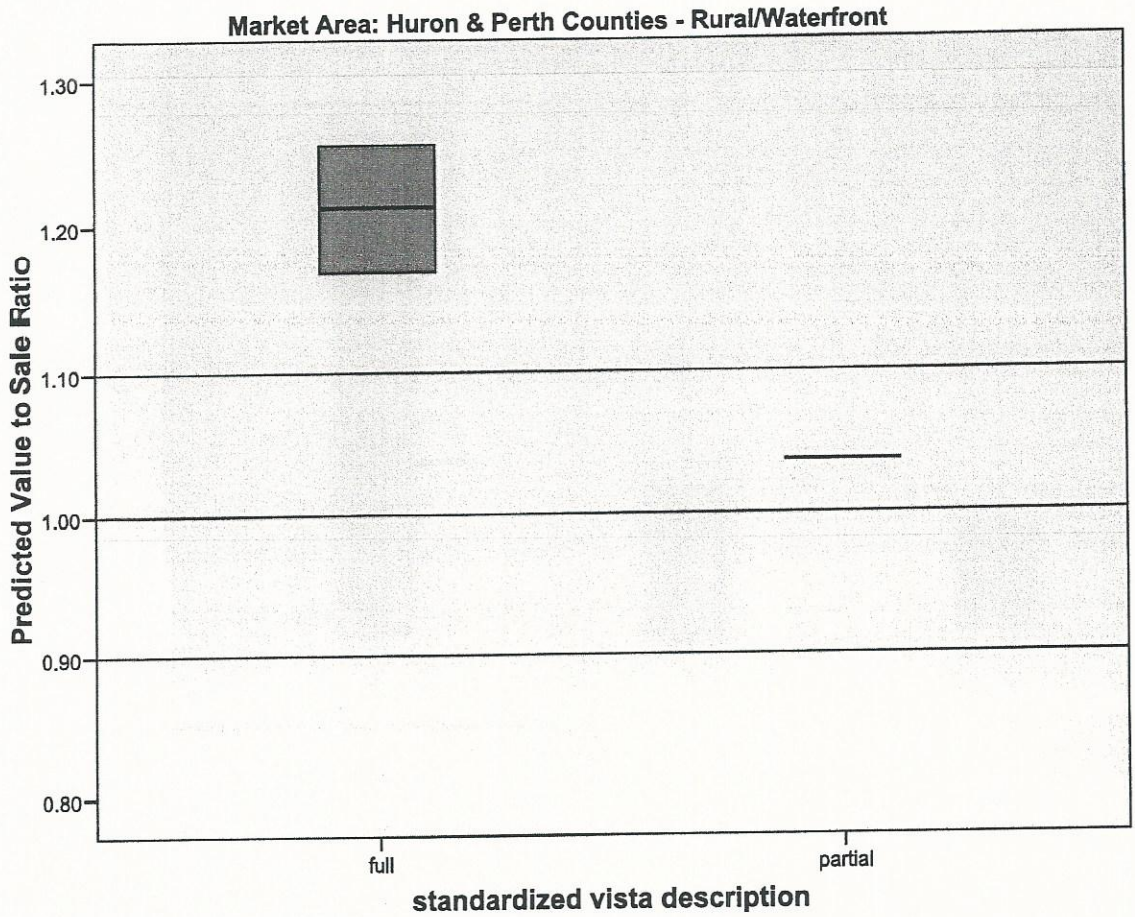
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	2	100.0%	0	.0%	2	100.0%
	partial	1	100.0%	0	.0%	1	100.0%

a. MODEL = 24RR010 Huron & Perth Counties - Rural/Waterfront

ASRX



MODEL = 25RR010 Grey & Bruce Counties - Rural/Waterfront

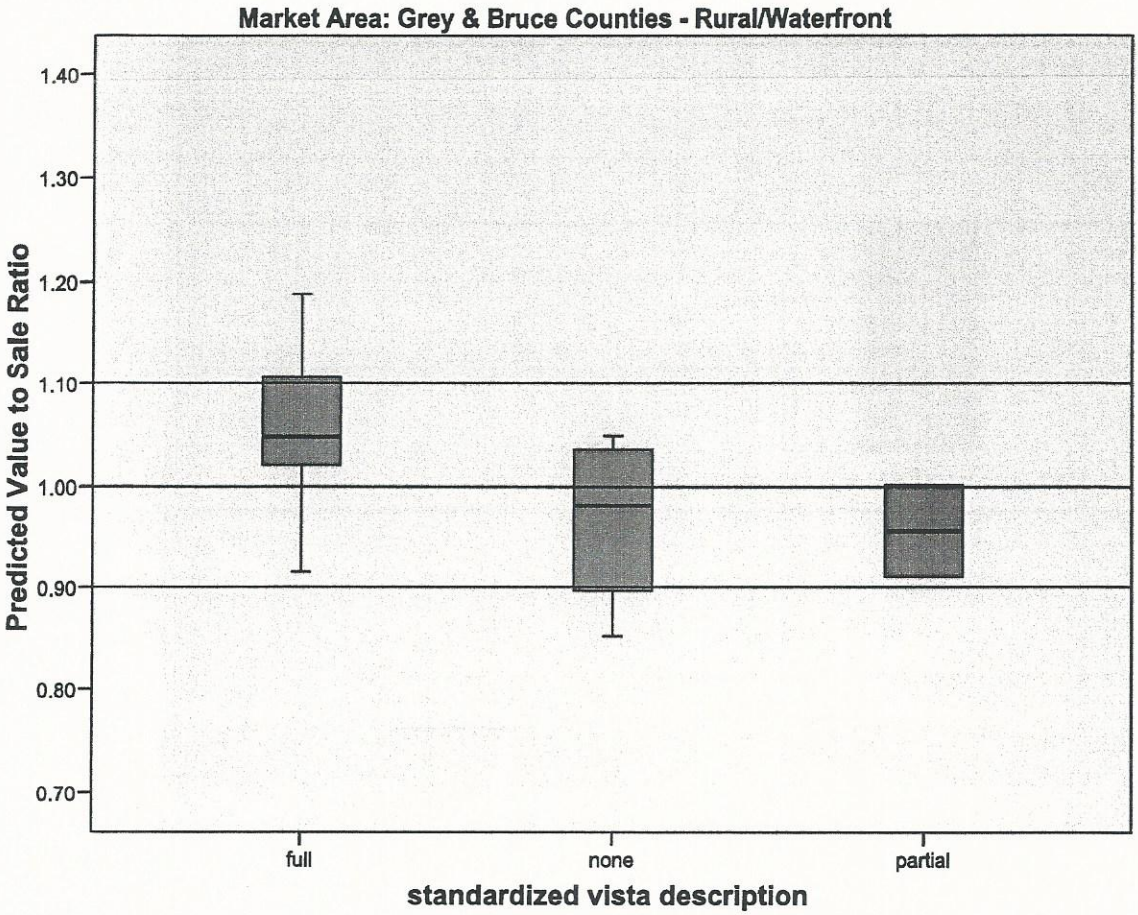
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	13	100.0%	0	.0%	13	100.0%
	none	4	100.0%	0	.0%	4	100.0%
	partial	2	100.0%	0	.0%	2	100.0%

a. MODEL = 25RR010 Grey & Bruce Counties - Rural/Waterfront

ASRX



MODEL = 25UR010 Grey & Bruce Counties - Urban

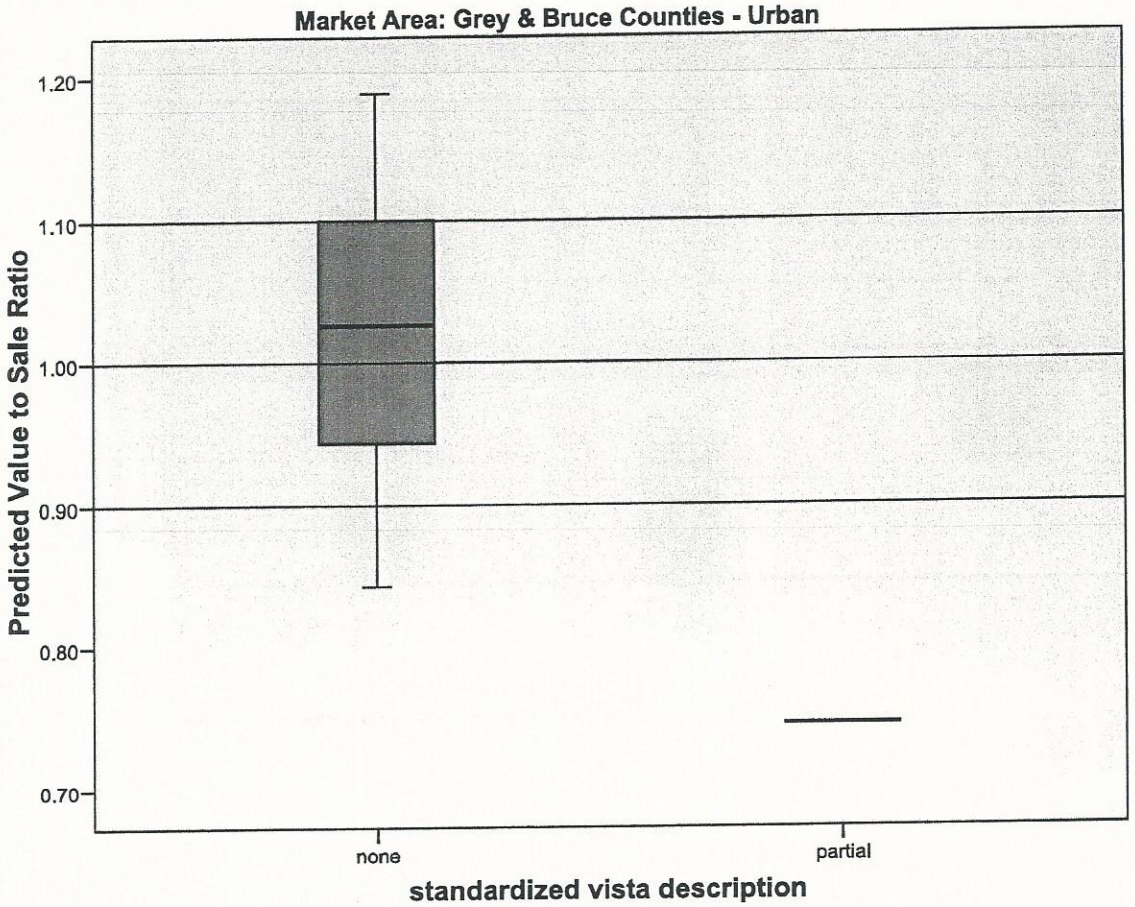
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	none	15	100.0%	0	.0%	15	100.0%
	partial	1	100.0%	0	.0%	1	100.0%

a. MODEL = 25UR010 Grey & Bruce Counties - Urban

ASRX



MODEL = 26RR010 Chatham-Kent - Rural/Wallaceburg

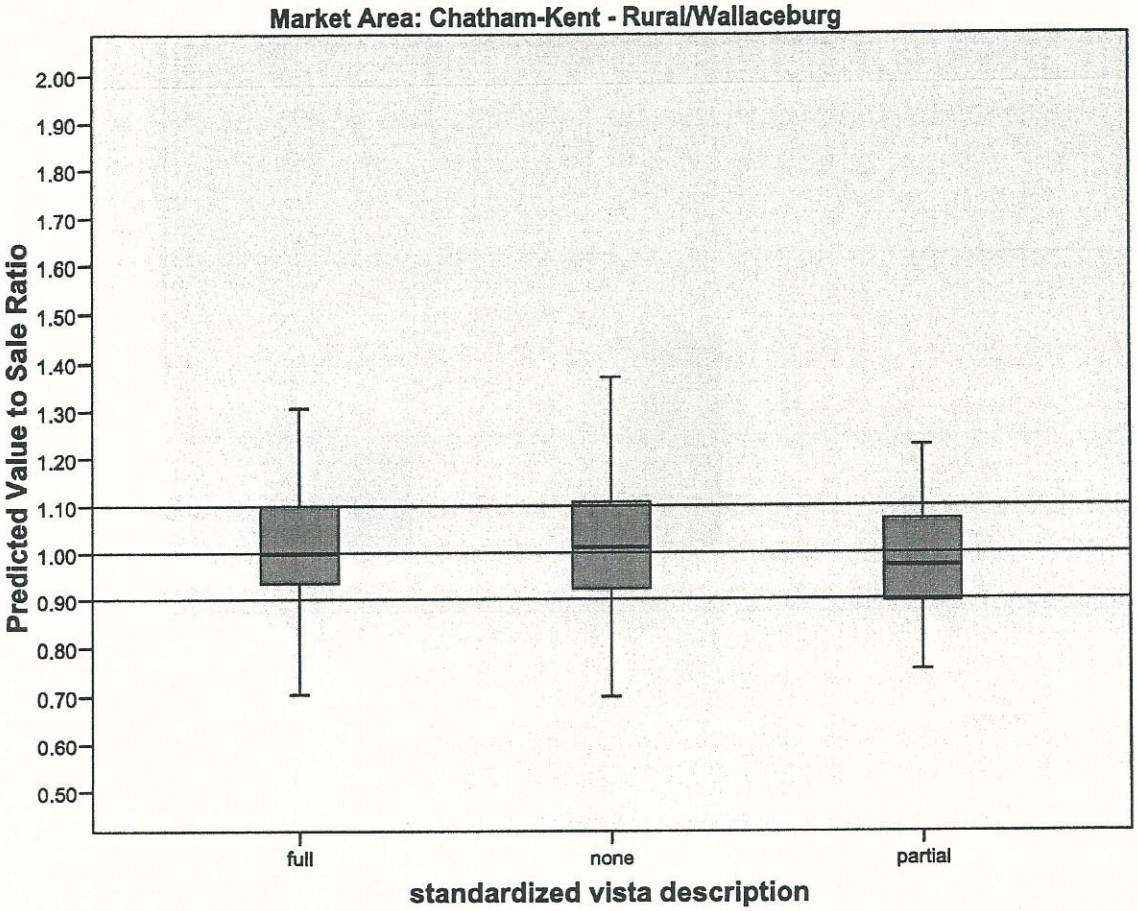
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	78	100.0%	0	.0%	78	100.0%
	none	196	100.0%	0	.0%	196	100.0%
	partial	26	100.0%	0	.0%	26	100.0%

a. MODEL = 26RR010 Chatham-Kent - Rural/Wallaceburg

ASRX



MODEL = 26RR030 Lambton County - Rural/WF

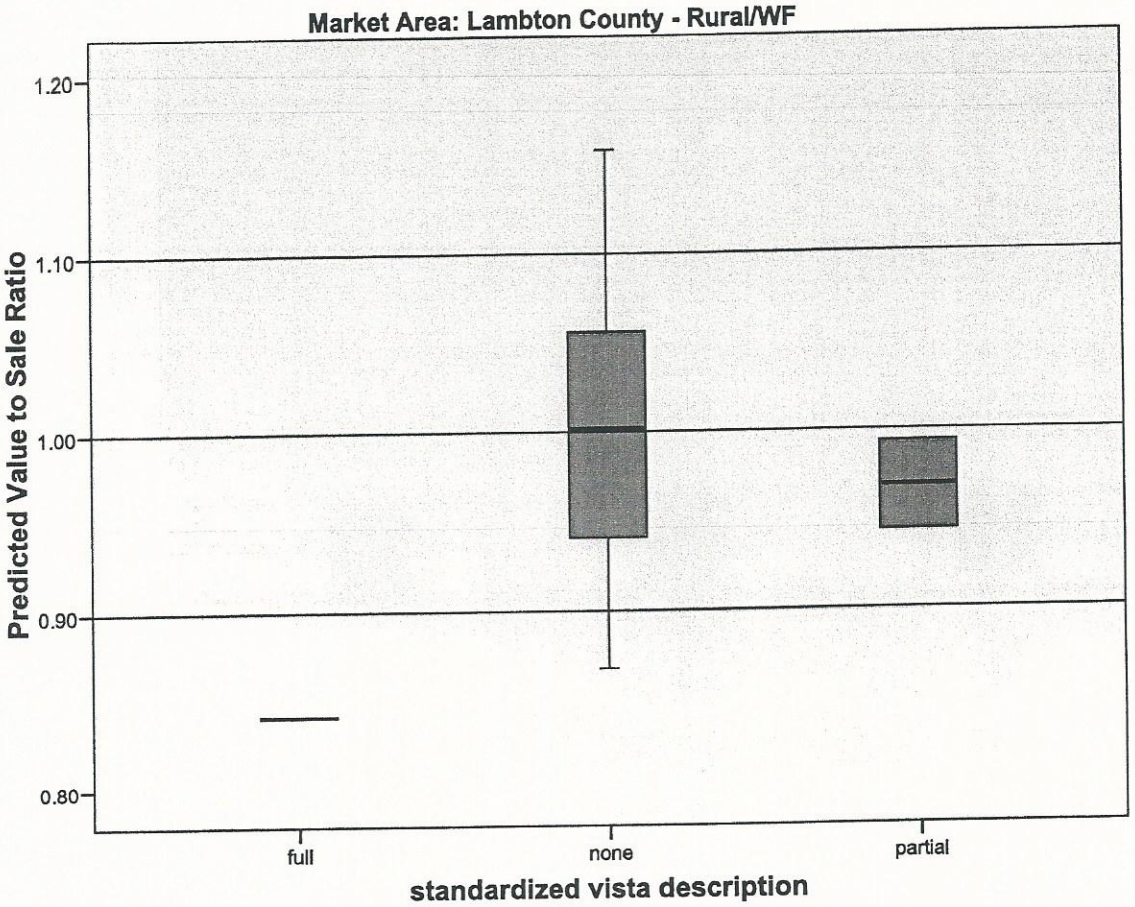
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	1	100.0%	0	.0%	1	100.0%
	none	20	100.0%	0	.0%	20	100.0%
	partial	2	100.0%	0	.0%	2	100.0%

a. MODEL = 26RR030 Lambton County - Rural/WF

ASRX



MODEL = 27RR120 Essex County

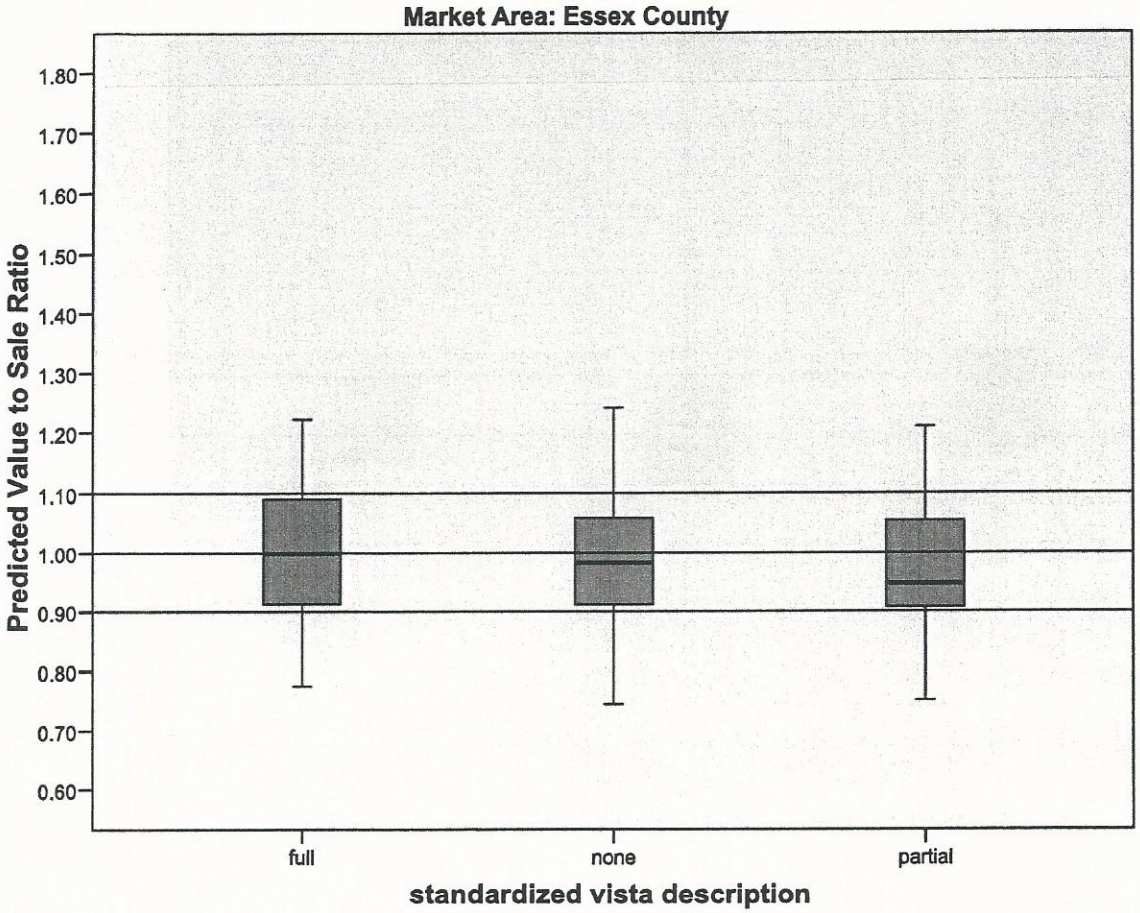
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	99	100.0%	0	.0%	99	100.0%
	none	132	100.0%	0	.0%	132	100.0%
	partial	41	100.0%	0	.0%	41	100.0%

a. MODEL = 27RR120 Essex County

ASRX



MODEL = 27UR070 Lasalle, Tecumseh, Lakeshore Urban & Essex Urban

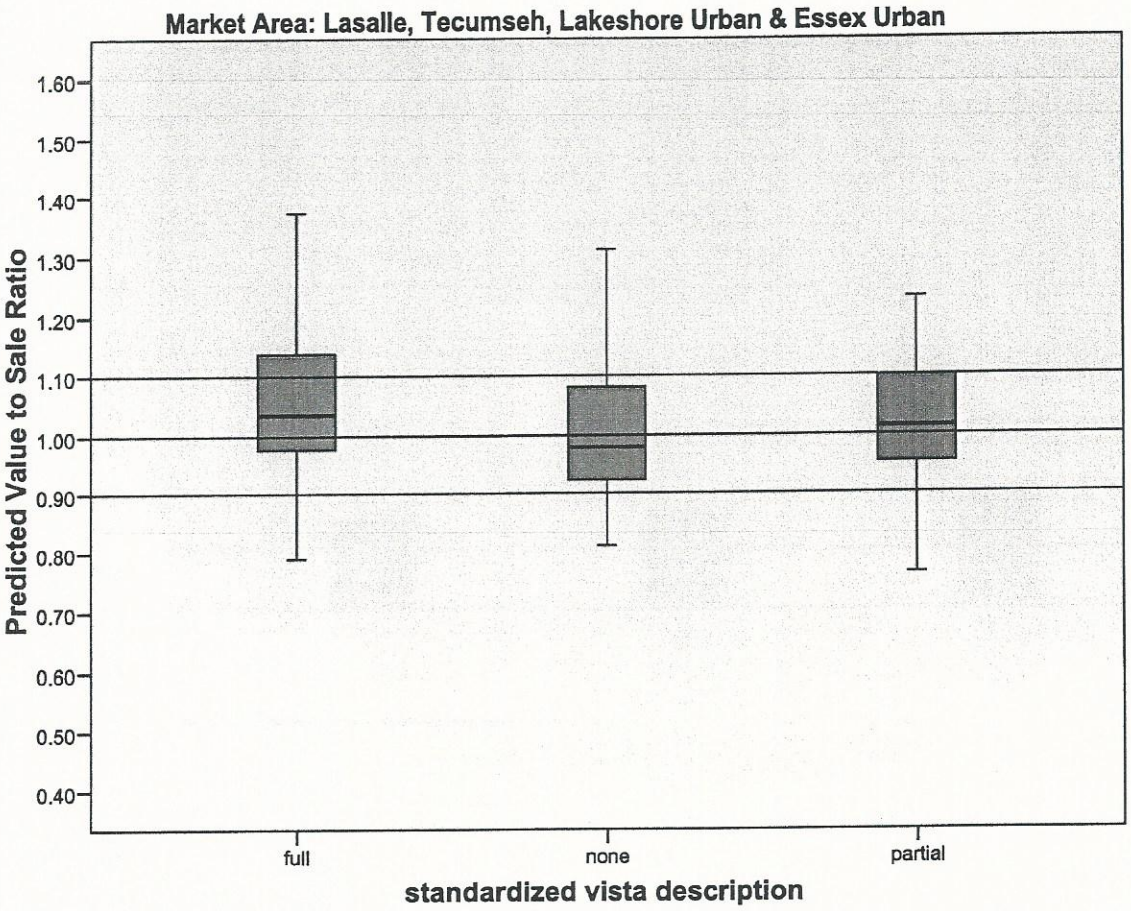
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	25	100.0%	0	.0%	25	100.0%
	none	116	100.0%	0	.0%	116	100.0%
	partial	13	100.0%	0	.0%	13	100.0%

a. MODEL = 27UR070 Lasalle, Tecumseh, Lakeshore Urban & Essex Urban

ASRX



MODEL = 31RR010 District of Algoma

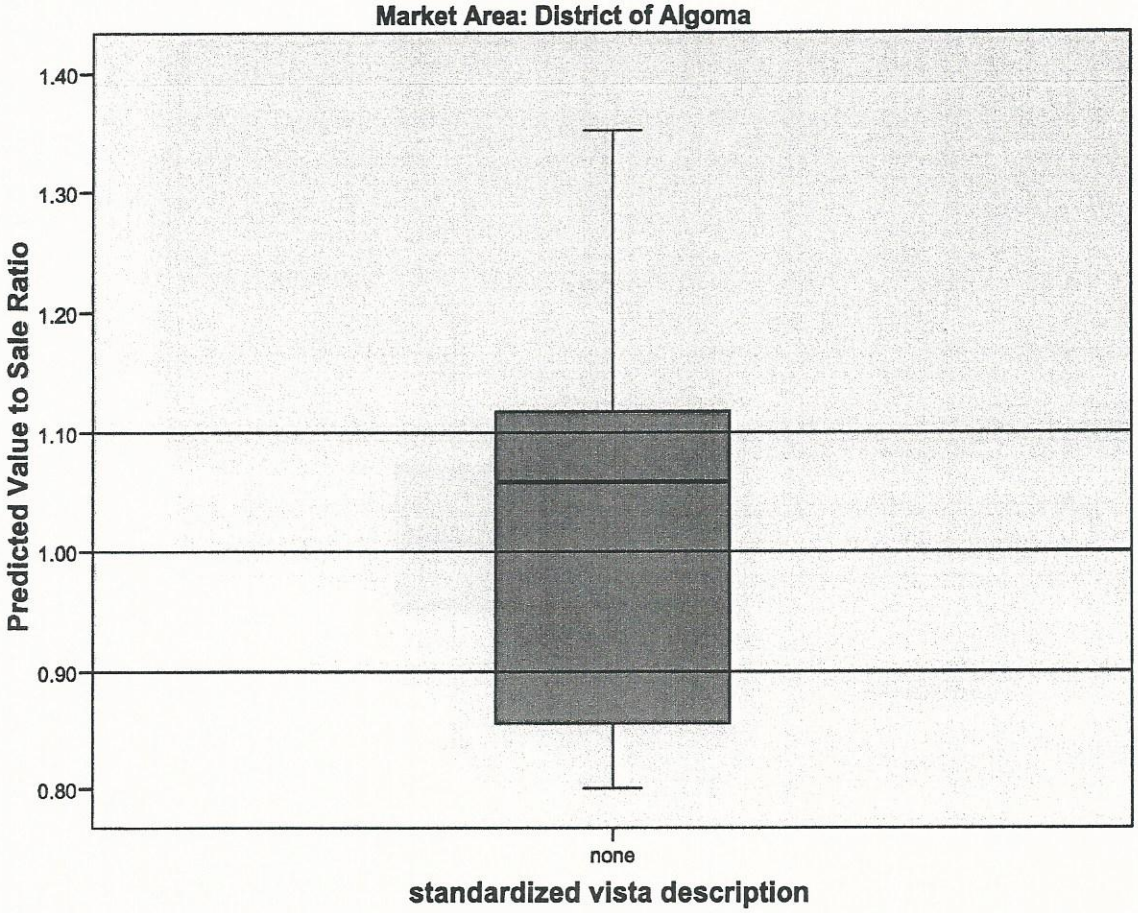
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	none	5	100.0%	0	.0%	5	100.0%

a. MODEL = 31RR010 District of Algoma

ASRX



MODEL = 31UR010 Sault Ste. Marie/Prince Twp

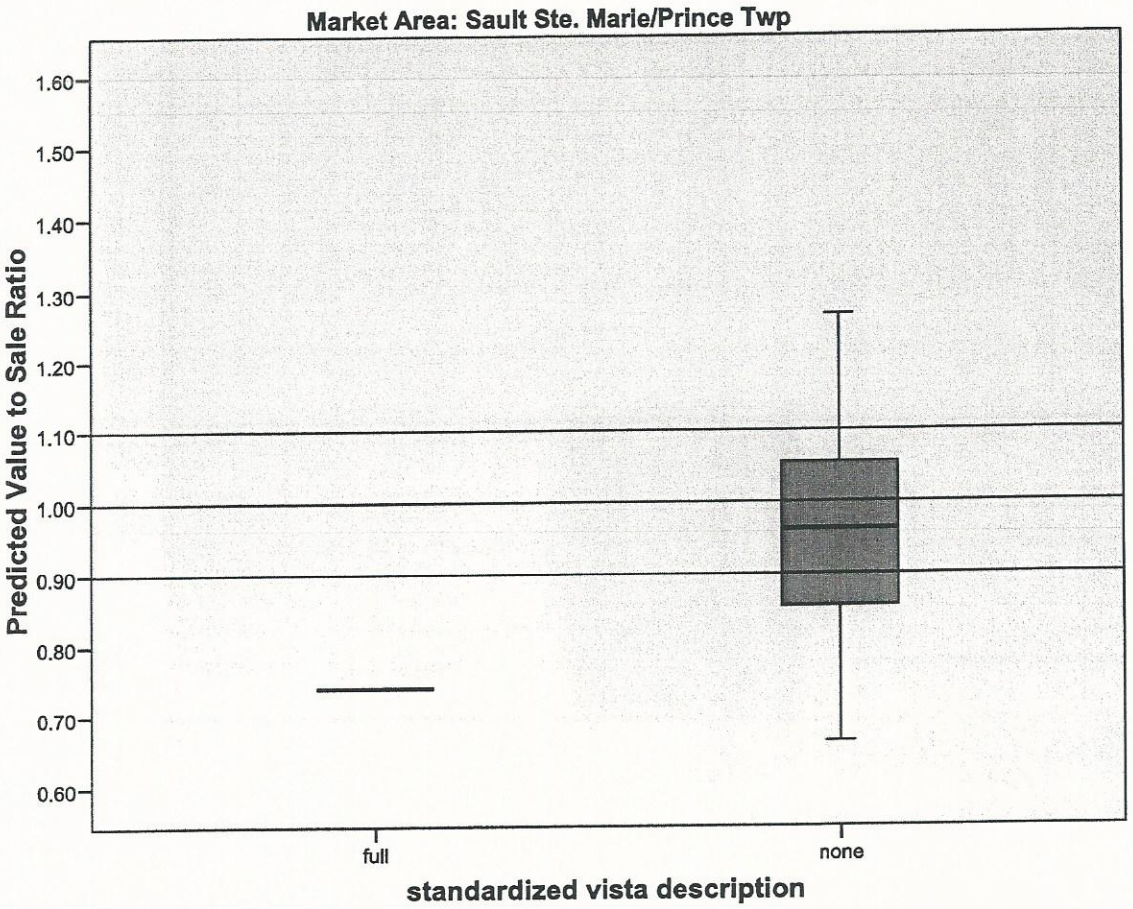
view

Case Processing Summary[a]

		Cases					
		Valid		Missing		Total	
	view	N	Percent	N	Percent	N	Percent
ASRX	full	1	100.0%	0	.0%	1	100.0%
	none	11	100.0%	0	.0%	11	100.0%

a. MODEL = 31UR010 Sault Ste. Marie/Prince Twp

ASRX


Market Area: Sault Ste. Marie/Prince Twp
Predicted Value to Sale Ratio
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
full
none
standardized vista description

Impact of Wind Turbine Proximity on Sale Price

Background

Concern has been expressed that being in proximity to wind turbines negatively affects the sale prices of homes. To determine if this is the case, MPAC sought to determine if any difference in the market value of these residential homes was evident from its analysis for the 2008 base year reassessment.

Methodology

MPAC does not have a data element that identifies if a property abuts or is in proximity to a wind turbine. Therefore it was necessary to create an inventory of these properties. To do this, MPAC's database was reviewed and every property in the Province with a wind turbine or turbines was flagged. Wind turbines have a unique structure code. Therefore, an extract of every roll number with one or more occurrence of this structure code was completed. Also, the department responsible for valuing wind farms was contacted and a list of all wind farms valued by this group was provided. Using these two sources the inventory was created. It should be noted that if a wind turbine has been recently built and not yet inspected and added to MPAC's database, it would not be included in this inventory.

Next, using MPAC's internal definitions of abuts and proximity (included at the end of this report), we identified any residential property (excluding farms) that met each definition and sold between 2005/01 and 2008/04. The number of wind turbines on the site that abutted or was in proximity was also recorded along with their total wattage. Farm sales were not included in this study because the Assessment Act dictates that they be valued based on their productive value using only farmer-to-farmer sales (Section 19.5). This is different from residential properties that are assessed based on their most probable selling price on the open market (Section 19.1). As a result, assessed values of farms can differ from their sale prices and would skew the results of this study.

Sale prices were time adjusted to reflect the January 1, 2008 valuation date used for MPAC's latest reassessment. These time adjustments were developed by market model area using all valid residential sales that occurred over the time period mentioned above. There are 131 market model areas in the Province. Once identified MPAC can compare its assessed values to the time adjusted sale prices to see if the results indicate any pattern of overassessment or underassessment.

Results

Because MPAC did not make an adjustment for proximity to wind turbines when developing its assessed values, if wind turbines did not affect value, one would expect to see assessment to sales ratios (the assessed value divided by the time adjusted sale price) near 1. If wind turbines had a negative affect, one would expect to see an average assessment to sale ratio (ASR) above 1.

Province-wide there were 17 sales that met the specified criteria. Six sales abutted wind turbines. Eleven sales were in proximity to wind turbines (Using MPAC's internal definitions). The median assessment to sales ratio was 88% for the abutting properties and 92% for properties in proximity to wind turbines (see attached spreadsheet for full results). Also, there was no apparent relationship with the amount of power generated at the nearby site and the ASR. Given the limited number of sales, it is not possible to draw definitive conclusions. However, at this time it appears that there is not adequate evidence to warrant a negative adjustment to residential properties that abut or are in proximity to wind turbines.

Assessment Act Sections

19.1 The assessment of land shall be based on its Current Value. "Current Value" as defined in the Act means, in relation to land, the amount of money the fee simple, if unencumbered, would realize if sold at arm's length by a willing seller to a willing buyer

19.5 For the purposes of determining the current value of farm lands used only for farm purposes by the owner or used only for farm purposes by a tenant of the owner and buildings thereon used solely for farm purposes, including the residence of the owner or tenant and of the owner's or tenant's employees and their families on the farm lands,

(a) consideration shall be given to the current value of the lands and buildings for farm purposes only;

(b) consideration shall not be given to sales of lands and buildings to persons whose principal occupation is other than farming; and

(c) the Minister may, by regulation, define "farm lands" and "farm purposes".

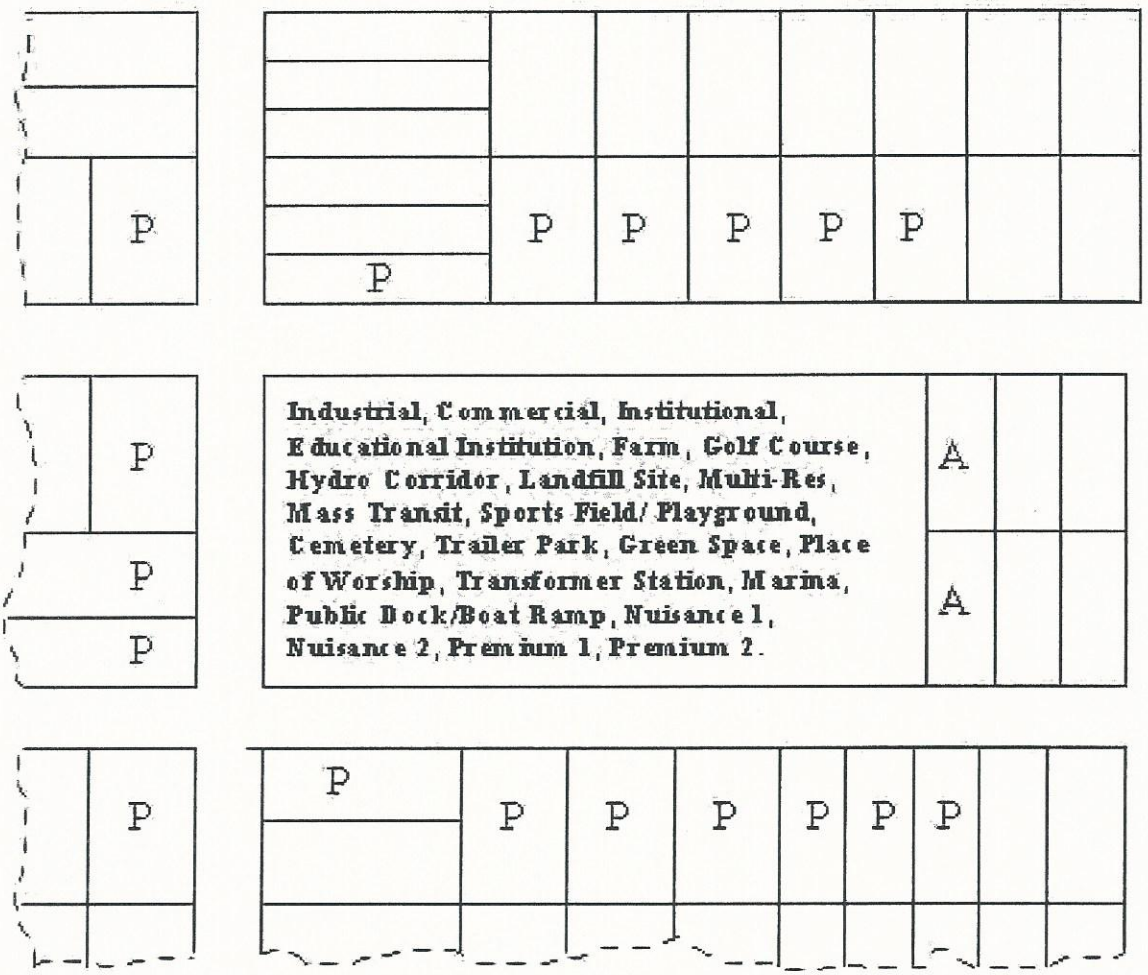
MPAC's Internal Definitions of Abuts and Proximity

ABUTS: Property is directly and immediately contiguous, physically touching, or sharing a common boundary line with another property or a site characteristic.

PROXIMITY: Property is directly across or diagonally across from the feature or attribute being described. It also includes properties within an economic neighbourhood that are positively or negatively affected by an economic influence, which affects the value within that neighbourhood. This may affect a few houses on a street, the entire street or a larger area. The positive or negative effect of economic influences may be different in some extreme situations and therefore may change the boundaries of what is normally considered 'proximity". Exceptions to the standard definition of proximity require appraisal judgement, common sense and consistency. *See Illustration for standard examples of abuts and proximity properties.*

ILLUSTRATIONS FOR ABUTS and PROXIMITY

1.



Appendix F – Study # 2 Regression Recalibrations
Excluded Variables by Market Model

05RR030 Excluded Variables

Model: 19

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
SC304SF	-.004(s)	-.565	.572	-.012	.970	1.031	.184
TRAFFIC	-.006(s)	-.873	.383	-.018	.921	1.086	.184
rd_gravl	-.002(s)	-.255	.799	-.005	.825	1.212	.184
IWT_2KM	-.010(s)	-1.091	.275	-.023	.603	1.657	.183

20RR010 Excluded Variables

Model: 58

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
LAND_A92	-.003(fff)	-.606	.545	-.008	.706
LAND_A94	.002(fff)	.345	.730	.005	.678
LAND_A95	.000(fff)	-.057	.955	-.001	.938
LAND_A96	-.004(fff)	-.927	.354	-.013	.911
LAND_A97	-.001(fff)	-.268	.789	-.004	.902
LAND_A98	.001(fff)	.312	.755	.004	.951
LAND_AA8	.004(fff)	.647	.518	.009	.545
LAND_A18	.003(fff)	.475	.635	.007	.626
LAND_A46	-.001(fff)	-.249	.803	-.003	.973
LAND_A77	.004(fff)	.822	.411	.012	.778
LAND_AA6	.004(fff)	.911	.362	.013	.756
LAND_B62	.005(fff)	1.194	.233	.017	.943
LAND_B64	-.003(fff)	-.752	.452	-.011	.928
LAND_B65	.003(fff)	.524	.600	.007	.652
LAND_B67	-.003(fff)	-.512	.609	-.007	.638
LAND_B71	-.002(fff)	-.444	.657	-.006	.925
LAND_A14	-.002(fff)	-.386	.699	-.005	.981
LAND_A20AA2AB2	-.001(fff)	-.236	.814	-.003	.987
LAND_A21	-.005(fff)	-1.207	.227	-.017	.917
LAND_A22	.000(fff)	-.074	.941	-.001	.909
LAND_A23	-.001(fff)	-.265	.791	-.004	.990
LAND_A24	.002(fff)	.391	.696	.005	.983
LAND_A25	.000(fff)	-.009	.993	.000	.989
LAND_A26	-.004(fff)	-1.016	.310	-.014	.984
LAND_A27	.003(fff)	.659	.510	.009	.980
LAND_A31	.002(fff)	.537	.591	.008	.993
LAND_A34	-.007(fff)	-1.524	.128	-.021	.965
LAND_A35	-.002(fff)	-.480	.631	-.007	.988
LAND_A37	-.003(fff)	-.484	.628	-.007	.486

LAND_A38	-.006(fff)	-1.506	.132	-.021	.989
LAND_A53B60	.003(fff)	.622	.534	.009	.987
LAND_A54	.006(fff)	1.365	.172	.019	.983
LAND_A57	-.001(fff)	-.281	.779	-.004	.979
LAND_A62A65	-.001(fff)	-.243	.808	-.003	.990
LAND_A63	-.007(fff)	-1.572	.116	-.022	.967
LAND_A64	-.001(fff)	-.351	.725	-.005	.986
LAND_A80	-.006(fff)	-1.454	.146	-.020	.982
LAND_A76	.004(fff)	.956	.339	.013	.842
LAND_A88	-.006(fff)	-1.337	.181	-.019	.895
LAND_AA3	.002(fff)	.583	.560	.008	.990
LAND_AA4	.005(fff)	1.115	.265	.016	.990
LAND_A05	.006(fff)	1.095	.273	.015	.643
LAND_A07	.007(fff)	1.297	.195	.018	.573
LAND_A09	.001(fff)	.108	.914	.002	.544
LAND_A59	-.005(fff)	-1.264	.206	-.018	.969
SIMCOE_BUILTON	-.015(fff)	-.875	.382	-.012	.062
PORTDOVER_BUILTON	.016(fff)	1.038	.299	.015	.072
HNVILLAGES_BUILTON	.012(fff)	.740	.459	.010	.071
CALEDONIA_VACANT	-.006(fff)	-1.226	.220	-.017	.680
IWT_1KM	-.006(fff)	-1.385	.166	-.019	.913
IWT_2KM	-.002(fff)	-.459	.646	-.006	.978
IWT_5KM	-.002(fff)	-.392	.695	-.005	.716

22RR010 Excluded Variables

Model: 32

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
NB304	-.005(ff)	-.503	.615	-.012	.940
NB306	.008(ff)	.767	.443	.018	.864
NB307	-.005(ff)	-.495	.621	-.012	.915
NB312	.011(ff)	1.027	.305	.024	.771
NB313	.006(ff)	.622	.534	.015	.863
NB331	.006(ff)	.590	.555	.014	.759
NB332	-.009(ff)	-.837	.403	-.020	.697
NB335	.005(ff)	.544	.587	.013	.914
NB341	.003(ff)	.290	.772	.007	.704
NB342	-.004(ff)	-.430	.667	-.010	.905
NB345	.000(ff)	-.042	.967	-.001	.747
SPL_BF	-.001(ff)	-.117	.907	-.003	.963
SPL_SIDE	-.003(ff)	-.358	.720	-.009	.978
corner	-.007(ff)	-.764	.445	-.018	.977
rd_gravl	-.009(ff)	-.877	.381	-.021	.850
IWT_1KM	-.001(ff)	-.089	.929	-.002	.888
IWT_2KM	-.003(ff)	-.268	.789	-.006	.945
IWT_5KM	-.009(ff)	-.961	.337	-.023	.920

23RR010 excluded variables

Model: 73

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
NB0327	-.012(uuu)	-1.229	.219	-.020	.320
NB0367	-.001(uuu)	-.202	.840	-.003	.868
NB0369	.004(uuu)	.600	.549	.010	.664
NB0337	-.010(uuu)	-1.028	.304	-.016	.353
NB0338	.005(uuu)	.837	.403	.013	.851
NB0339	.003(uuu)	.367	.714	.006	.530
PCVLCONDO_BUILT	.000(uuu)	-.042	.967	-.001	.994
dw_shar	-.008(uuu)	-1.407	.159	-.022	.972
ab_playg	-.006(uuu)	-1.006	.314	-.016	.968
ab_walkw	-.002(uuu)	-.393	.695	-.006	.953
ab_cemet	.005(uuu)	.852	.394	.014	.982
ab_chrch	.006(uuu)	1.048	.295	.017	.965
pr_playg	-.006(uuu)	-1.037	.300	-.017	.914
pr_green	-.005(uuu)	-.854	.393	-.014	.971
pr_chrch	-.004(uuu)	-.730	.465	-.012	.940
culdesac	.003(uuu)	.494	.622	.008	.879
tp_steep	.001(uuu)	.220	.826	.004	.821
tp_low	-.005(uuu)	-.858	.391	-.014	.927
H3227X35	.007(uuu)	.940	.347	.015	.596
H3227X61	-.007(uuu)	-1.176	.240	-.019	.791
H3238X61	.(uuu)	.	.	.	.000
H3245B25	.004(uuu)	.606	.545	.010	.696
H3245X30	-.012(uuu)	-.804	.421	-.013	.136
H3202X15	-.002(uuu)	-.317	.751	-.005	.516
H3202X46	.007(uuu)	1.235	.217	.020	.917
H3211X15	-.008(uuu)	-1.428	.154	-.023	.893
H3418E26	-.006(uuu)	-1.028	.304	-.016	.886
H3418E21	.002(uuu)	.406	.685	.006	.931
H3424E04	-.008(uuu)	-1.274	.203	-.020	.829
H3424E05	.006(uuu)	1.047	.295	.017	.913
H3424E10	-.003(uuu)	-.554	.580	-.009	.939
H3424E11	-.001(uuu)	-.179	.858	-.003	.921
H3939A06	-.002(uuu)	-.329	.742	-.005	.890
H3939A07	.008(uuu)	1.359	.174	.022	.942
H3926A12	.005(uuu)	.921	.357	.015	.921
H3906M03	-.009(uuu)	-1.465	.143	-.023	.839
H3906M05	.002(uuu)	.211	.833	.003	.236
H3916A04	.009(uuu)	1.596	.111	.025	.912
H3926A22	.002(uuu)	.312	.755	.005	.940
IWT_1KM	-.008(uuu)	-1.438	.150	-.023	.987
IWT_2KM	-.003(uuu)	-.308	.758	-.005	.286

24RR010 Excluded Variables

Model: 33

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
NB1306	.015(gg)	1.370	.171	.049	.972
NB1307	-.009(gg)	-.823	.411	-.030	.993
NB1308	.000(gg)	.014	.989	.001	.963
NB1309	-.003(gg)	-.240	.810	-.009	.984
NB1310	.002(gg)	.145	.885	.005	.895
NB1311	.003(gg)	.263	.792	.010	.954
NB1312	-.014(gg)	-1.217	.224	-.044	.958
NB1314	-.016(gg)	-1.363	.173	-.049	.941
NB1316	.006(gg)	.557	.578	.020	.973
NB1317	-.006(gg)	-.509	.611	-.018	.956
NB1319	-.004(gg)	-.319	.750	-.012	.911
NB1320	-.013(gg)	-1.122	.262	-.041	.926
NB1322	-.005(gg)	-.407	.684	-.015	.928
NB1324	-.009(gg)	-.834	.404	-.030	.971
NB1330	-.008(gg)	-.744	.457	-.027	.944
NB1331	.000(gg)	.027	.978	.001	.934
NB1402	.007(gg)	.562	.574	.020	.833
NB1403	.005(gg)	.405	.685	.015	.825
NB1404	.007(gg)	.633	.527	.023	.916
NB1405	.012(gg)	.983	.326	.036	.858
NB1407	-.009(gg)	-.732	.464	-.026	.895
NB1408	.008(gg)	.617	.538	.022	.800
NB1410	.012(gg)	1.044	.297	.038	.922
NB1411	.013(gg)	1.157	.248	.042	.972
vl_1321	.015(gg)	1.113	.266	.040	.719
vl_1323	-.013(gg)	-.957	.339	-.035	.719
vl_1332	.008(gg)	.671	.503	.024	.885
RAV_LIN	.004(gg)	.379	.705	.014	.883
sc310sf	.001(gg)	.098	.922	.004	.910
IWT_1KM	-.009(gg)	-.829	.407	-.030	.955
IWT_2KM	-.010(gg)	-.836	.403	-.030	.953
IWT_5KM	.000(gg)	-.006	.995	.000	.572

25RR010 Excluded Variables

Model: 47

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
NB1200	.005(uu)	.716	.474	.013	.817
NB1202	.011(uu)	1.351	.177	.024	.580
NB1206	.008(uu)	1.097	.273	.020	.747
NB1209	-.002(uu)	-.300	.764	-.005	.864
NB1210	-.009(uu)	-1.132	.258	-.020	.638
NB1213	.006(uu)	.746	.456	.013	.558
NB1216	-.006(uu)	-.898	.369	-.016	.920
NB1217	-.002(uu)	-.318	.750	-.006	.958
NB1218	.002(uu)	.255	.799	.005	.836
NB1219	.010(uu)	1.588	.112	.029	.872
NB1221	.001(uu)	.186	.852	.003	.667
NB1222	-.005(uu)	-.848	.396	-.015	.894
NB1225	.006(uu)	.484	.629	.009	.219
NB1226	.004(uu)	.634	.526	.011	.950
NB1227	-.006(uu)	-.950	.342	-.017	.931
NB1228	.001(uu)	.135	.893	.002	.984
NB1229	-.002(uu)	-.267	.790	-.005	.958
NB1230	.002(uu)	.278	.781	.005	.965
NB1231	-.004(uu)	-.697	.486	-.013	.983
NB1232	.001(uu)	.225	.822	.004	.984
NB1233	.003(uu)	.424	.671	.008	.996
NB1235	-.001(uu)	-.129	.897	-.002	.970
NB1236	.010(uu)	1.602	.109	.029	.863
NB1237	.006(uu)	.813	.416	.015	.718
NB1238	-.004(uu)	-.564	.573	-.010	.794
NB1239	.006(uu)	.903	.366	.016	.983
NB1240	-.010(uu)	-1.402	.161	-.025	.750
NB1242	.005(uu)	.741	.459	.013	.831
NB1243	.001(uu)	.171	.864	.003	.811
NB1244	.001(uu)	.090	.928	.002	.459
NB1246	-.008(uu)	-1.308	.191	-.024	.968
NB1247	-.009(uu)	-1.491	.136	-.027	.953
NB1249	-.004(uu)	-.577	.564	-.010	.626
NB1250	.004(uu)	.639	.523	.011	.832
NB1251	.004(uu)	.630	.529	.011	.892
NB1300	.013(uu)	1.323	.186	.024	.374
NB1302	.007(uu)	.879	.380	.016	.664
NB1303	-.007(uu)	-1.156	.248	-.021	.902
NB1305	.004(uu)	.580	.562	.010	.819
NB1307	.010(uu)	1.400	.162	.025	.760
NB1309	.000(uu)	.071	.944	.001	.922
NB1310	-.004(uu)	-.496	.620	-.009	.576
NB1311	.009(uu)	1.437	.151	.026	.941
NB1312	.000(uu)	-.006	.995	.000	.913

NB1313	.002(uu)	.289	.773	.005	.967
NB1314	-.004(uu)	-.641	.521	-.012	.978
NB1315	.006(uu)	.983	.326	.018	.847
NB1316	-.006(uu)	-.971	.332	-.017	.839
NB1317	-.003(uu)	-.521	.603	-.009	.937
NB1318	.003(uu)	.369	.712	.007	.758
NB1319	-.008(uu)	-1.262	.207	-.023	.958
NB1320	-.003(uu)	-.469	.639	-.008	.805
NB1321	.001(uu)	.092	.927	.002	.801
NB1322	.000(uu)	-.050	.960	-.001	.826
NB1323	.008(uu)	1.261	.207	.023	.959
NB1325	-.007(uu)	-1.156	.248	-.021	.990
NB1326	.005(uu)	.724	.469	.013	.930
NB1328	.002(uu)	.352	.725	.006	.994
NB1329	-.005(uu)	-.683	.495	-.012	.598
NB1330	.001(uu)	.179	.858	.003	.925
NB1332	.001(uu)	.207	.836	.004	.842
NB1333	-.010(uu)	-1.433	.152	-.026	.742
NB1334	-.009(uu)	-1.328	.184	-.024	.830
NB1335	.002(uu)	.316	.752	.006	.878
NB1336	.007(uu)	1.015	.310	.018	.813
NB1338	-.002(uu)	-.390	.696	-.007	.932
NB1339	-.009(uu)	-1.454	.146	-.026	.910
NB1340	-.007(uu)	-1.115	.265	-.020	.942
NB1341	-.009(uu)	-1.278	.201	-.023	.725
NB1343	-.012(uu)	-1.454	.146	-.026	.532
NB1344	-.003(uu)	-.484	.628	-.009	.831
NB1345	-.007(uu)	-1.000	.317	-.018	.712
NB1346	-.003(uu)	-.513	.608	-.009	.924
NB1347	-.006(uu)	-.920	.358	-.017	.916
NB1348	.006(uu)	.755	.450	.014	.535
corner	-.003(uu)	-.477	.633	-.009	.946
culdesac	.003(uu)	.490	.624	.009	.831
RAV_LIN	-.007(uu)	-1.047	.295	-.019	.865
IWT_1KM	-.002(uu)	-.273	.785	-.005	.891
IWT_2KM	.001(uu)	.137	.891	.002	.926
IWT_5KM	.001(uu)	.158	.875	.003	.651

26RR010 Excluded Variables

Model: 21

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
NB0184	.005(u)	.652	.514	.017	.688
NB0185	-.003(u)	-.343	.732	-.009	.700
NB0187	.001(u)	.080	.936	.002	.793
NB0200	.004(u)	.498	.618	.013	.874
NB0203	.005(u)	.635	.526	.016	.926
NB0204	.006(u)	.790	.430	.020	.960
NB0212	.003(u)	.400	.689	.010	.961
NB0214	-.004(u)	-.530	.596	-.014	.933
NB0216	-.004(u)	-.581	.561	-.015	.860
NB0220	-.007(u)	-.939	.348	-.024	.886
NB0224	.005(u)	.095	.924	.002	.016
NB0226	-.003(u)	-.464	.643	-.012	.975
NB0232	-.008(u)	-1.051	.293	-.027	.933
NB0241	.003(u)	.457	.648	.012	.917
NB0248	.001(u)	.199	.842	.005	.954
NB0250	-.011(u)	-1.376	.169	-.036	.767
NB0251	.000(u)	-.007	.995	.000	.792
NB0254	-.008(u)	-1.098	.272	-.028	.937
NB0259	.007(u)	.614	.539	.016	.328
NB0270	-.004(u)	-.354	.723	-.009	.464
NB0272	-.018(u)	-.769	.442	-.020	.090
NB0273	.003(u)	.337	.736	.009	.766
NB0276	-.001(u)	-.119	.905	-.003	.425
NB192_B16	.001(u)	.126	.900	.003	.806
NB230_E19	.001(u)	.124	.901	.003	.366
NB251_HIQUAL	.004(u)	.586	.558	.015	.951
PC333SF	.007(u)	.906	.365	.023	.833
PC332	-.036(u)	-1.114	.265	-.029	.047
PC391	.006(u)	.688	.492	.018	.668
PC392	-.003(u)	-.408	.683	-.011	.767
PC392395	.009(u)	1.148	.251	.030	.784
NB183_LOWQUAL	.004(u)	.370	.712	.010	.424
acc_no	-.004(u)	-.531	.595	-.014	.818
FL1_D	-.004(u)	-.494	.621	-.013	.713
floodp_r	.003(u)	.327	.744	.008	.779
no_str_l	.008(u)	.858	.391	.022	.535
zone_com	.003(u)	.452	.651	.012	.895
IWT_1KM	-.004(u)	-.584	.559	-.015	.946
IWT_2KM	.002(u)	.183	.855	.005	.720
IWT_5KM	-.009(u)	-1.153	.249	-.030	.764

26RR030 Excluded Variables

Model: 6

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
FL1_D	-.002(f)	-.308	.758	-.007	.681
PC333TO336_SF	.002(f)	.395	.693	.009	.812
MARKET2	-.003(f)	-.082	.935	-.002	.024
NB407B14_PC100	.001(f)	.211	.833	.005	.784
NB0304	-.004(f)	-.537	.592	-.012	.559
NB0305	.002(f)	.256	.798	.006	.724
NB0306	.004(f)	.646	.518	.015	.827
NB0311	.001(f)	.149	.881	.003	.767
NB0351	-.004(f)	-.714	.475	-.016	.716
NB352_D65	.003(f)	.577	.564	.013	.989
NB0353	.000(f)	-.022	.983	.000	.861
NB0354	-.003(f)	-.532	.595	-.012	.904
NB0355	.000(f)	-.010	.992	.000	.926
NB0357	.000(f)	-.001	.999	.000	.948
NB0362	-.001(f)	-.233	.816	-.005	.713
NB0364	-.003(f)	-.625	.532	-.014	.966
NB0365	.000(f)	.077	.939	.002	.985
NB0368	.008(f)	1.356	.175	.031	.827
NB0370	-.001(f)	-.216	.829	-.005	.917
NB0371	-.002(f)	-.280	.779	-.006	.568
NB0376	.001(f)	.136	.892	.003	.977
NB0378	-.003(f)	-.349	.727	-.008	.487
NB410_B61	-.007(f)	-1.300	.194	-.030	.831
NB415_B56	.000(f)	-.020	.984	.000	.372
NB417_B48	.012(f)	1.338	.181	.031	.330
ab_educ	-.003(f)	-.605	.545	-.014	.962
ab_hydro	-.007(f)	-1.327	.185	-.031	.893
SPLITLIN	.004(f)	.720	.471	.017	.773
SPL_UNCV	-.004(f)	-.767	.443	-.018	.989
zone_com	-.001(f)	-.211	.833	-.005	.931
zone_ind	-.007(f)	-1.185	.236	-.027	.820
ZONE_LIN	-.005(f)	-.831	.406	-.019	.895
IWT_2KM	-.016(f)	-1.417	.157	-.033	.218

27RR120 Excluded Variables

Model: 42

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
NB0165	-.002(pp)	-.256	.798	-.005	.521
NB0166	-.001(pp)	-.200	.842	-.004	.618
NB0169	.004(pp)	.560	.575	.011	.537
NB0170	.007(pp)	1.332	.183	.025	.853
NB0172	.000(pp)	.002	.998	.000	.701
NB0176	-.004(pp)	-.770	.442	-.015	.934
NB0177	.000(pp)	.075	.941	.001	.625
NB0179	-.003(pp)	-.533	.594	-.010	.718
NB0180	-.007(pp)	-.793	.428	-.015	.287
NB0183	-.003(pp)	-.561	.575	-.011	.720
NB0184	.007(pp)	1.374	.170	.026	.719
NB0187	-.003(pp)	-.480	.631	-.009	.433
NB0192	-.004(pp)	-.587	.557	-.011	.455
NB0198	.000(pp)	.032	.975	.001	.297
NB0199	-.003(pp)	-.722	.470	-.014	.980
NB0272	.001(pp)	.131	.895	.002	.498
NB0279	.000(pp)	-.048	.962	-.001	.390
NB0281	-.004(pp)	-.839	.402	-.016	.902
NB0284	.011(pp)	1.496	.135	.028	.394
NB0286	.002(pp)	.344	.731	.007	.607
NB0288	-.007(pp)	-1.220	.222	-.023	.648
NB0293	.001(pp)	.234	.815	.004	.923
VILL_VL	.011(pp)	.939	.348	.018	.154
ab_playg	-.004(pp)	-.844	.399	-.016	.939
ab_u_box	-.003(pp)	-.598	.550	-.011	.919
FL1_D	.000(pp)	.003	.998	.000	.851
DES_LOG_SF	.001(pp)	.303	.762	.006	.974
STOR_114	-.006(pp)	-1.205	.228	-.023	.924
SPLIT_ADJ	.002(pp)	.426	.670	.008	.791
NORTH381	.002(pp)	.344	.731	.007	.582
NB359_A49	.001(pp)	.107	.915	.002	.451
NB383_D47	.006(pp)	1.085	.278	.021	.607
FLOOD_IM	.006(pp)	1.299	.194	.025	.854
NB169_PC100	.002(pp)	.314	.754	.006	.930
NB170_PC311	.001(pp)	.180	.857	.003	.936
NB370_PC100	-.008(pp)	-1.055	.292	-.020	.373
NB372_B74	-.002(pp)	-.404	.686	-.008	.827
NB182_NOT_C80	.005(pp)	.882	.378	.017	.770
IWT_1KM	-.004(pp)	-.703	.482	-.013	.727
IWT_2KM	.006(pp)	1.142	.254	.022	.767
IWT_5KM	-.007(pp)	-1.323	.186	-.025	.712

31RR010 Excluded Variables

Model: 9

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
iwtlt2km	*.003(i)*	*.307*	*.759*	*.006*	*.843*
IWT_5KM	*.016(i)*	*1.487*	*.137*	*.028*	*.705*

Re-sales Analyses - Lansink and MPAC

Introduction

Lansink Appraisal and Consulting released case studies on the impact of proximity to industrial wind turbines (IWTs) on sale prices for properties located near the Melancthon and Clear Creek wind turbine facilities in southwestern Ontario.

The conclusions presented in the Lansink study are based on the analysis of 12 properties that sold and resold between June 2005 and November 2012. In two instances in the Clear Creek study, initial sales date back to March 2004 and September 1995. On other properties in the Clear Creek area, the Lansink study uses MPAC's January 1, 2008 Current Value Assessment (CVA) as a proxy sale price in which to conduct the analysis. All five properties used in the Melancthon study area involved Canadian Hydro Developers (CHD) as the purchaser on the initial sale and the vendor on the re-sale.

The conclusions of the case studies indicate a 30-35% loss in price due to the proximity of the properties to an IWT, based on the sale and re-sale of the 12 properties.

In MPAC's review of the Lansink study, the appropriateness of the price change index is considered and another re-sale analysis is conducted using an alternative price index methodology in over 2,000 re-sales across Ontario.

Basic Methodology in Lansink Study

Each sale and re-sale (or in the absence of an initial sale the 2008 CVA) is presented as a case study. The initial sale price and date are shown along with the Multiple Listing Service (MLS) average sale price for the month of sale. The re-sale price and date are shown along with the MLS average sale price for the month of the re-sale for the property. The MLS average sale prices are based on Canadian Real Estate Association (CREA) data as presented by the local real estate board.

The case study uses the percentage difference between MLS average sale prices to estimate price change over time in the marketplace. The initial sale is trended to the sale date of the re-sale. The difference between the trended sale price and the actual re-sale price is calculated as a dollar amount and a percentage. Any difference in price between the trended sale price and the actual sale price is attributed to the presence of the IWT and presented as a diminution of price.

Table 1 below provides a sample calculation that determines the loss in price in the Lansink case studies.

Table 1: Lansink Case Study Methodology Sample Calculation

	Sale Price	Sale Date	Average MLS Price @ Time of Sale	Percentage Change – MLS Average	Trended Sale Price	Diminution of Price
Initial Sale	$100,000	October 2010	$100,000	25.00%	$125,000	($10,000)
Re-Sale	$115,000	October 2011	$125,000			-8.0%

In this example, using only 2 data points, the property initially sold for $100,000 in October 2010. It sold again in October 2011 for $115,000. The average MLS sale prices were $100,000 and $125,000 respectively at time of sale. This results in a 25% increase over a 12 month period. The initial sale price is trended by 25% (multiplier of 1.25) to produce a trended sale price of $125,000. The Lansink study argues that without the nearby IWT, the property should have sold for its trended sale price and then calculates the loss in price as the difference between the trended sale price and its actual sale price. In the above example, the loss in price is ($10,000) or -8.0%.

Methodology Issues

The first issue with the basic methodology is the use of the average MLS sale price as a proxy for market change. CREA statistics are board-wide and may not accurately represent the average sale price in the local area (i.e., neighbourhood). Some areas of the board will be above average, some will be below average and others will be average. The use of average sale prices that are more local may produce different results. Also, there is no comparison of the housing stock that sold during each time period. If the type of houses that sold each month differs, that could affect the average sale price and produce a misleading time adjustment.

The second issue is the use of only two data points to develop a trend. Two points always produce a straight line and don't give any information on what happened in between. Alternative time adjustment methods are available and used by appraisers using all available sales data and would produce a more reliable market trend[1].

Two sales used in the Clear Creek study area uses re-sales 8 and 17 years apart. One assumption with re-sale analysis is that there are no physical changes between sales. Given the length of time between, it is difficult to imagine this assumption holds true. The remaining sales in the Clear Creek study area only have one sale and use the 2008 CVA as a proxy sale price as of January 2008. MPAC is not aware of any professional literature which states that assessments or appraised values maybe used in a re-sale analysis.

To demonstrate that Canadian Hydro Developers paid market value when they initially purchased the five properties near the Melancthon wind farm, the Lansink study calculated the median sale price per square foot for two groups of properties. Group A was 20 properties northwest of Shelburne and to the northeast and southeast of the IWT's. Group B was four of the five sales purchased by CHD. Because the two groups had similar sale prices per square foot, the Lansink study concluded that the CHD purchase prices represent fair open market prices. One of MPAC's major concerns with this approach is that Group B is made up of only 4 sales. This is a very small sample.

[1] Mike Wolff, Adjusting Market Value over Time, The Appraisal Journal, Fall 2010

Another issue with one of the sales in Group B is that it has an indicated living area in MPAC's database of 900 square feet as opposed to the 1,800 square feet recorded by the Lansink study The property in question appears to be a raised bungalow with a basement walkout. According to the Appraisal Institute of Canada, finished basements are generally not included in total gross living area. Total gross living area being defined as finished above grade residential space[2].

Other articles state that above grade and below grade finished areas should be distinguished between one another. Below grade is generally defined as space on a level with earth adjacent to any exterior wall[3]. MPAC has recorded 563 square feet of finished area on this basement walkout level.

Inclusion of unfinished basement area as total living area by the Lansink study is incorrect. The question is should finished area below grade be included as total living area used to determine the sale price per square foot. This difference is important and significant because of the small size and its impact on the median sale price per square foot for these four properties. If 900 square feet is used, the median and average sale prices per square foot increase to $248.11 and $257.94 respectively. If the finished area below grade is included and 1,463 square feet of living area is used, the median and average are $219.87 and $225.34.

Also, the sample used in Group A is a subset of the available sales in the area. These sales come from four of MPAC's homogeneous neighbourhoods. Homogenous Neighbourhoods are defined to capture the influence of a particular location within a given market area.

When all 113 sales in these four neighbourhoods are looked at, the following values per square foot are indicated:

	Number of Sales	Median Sale Price/ SF ($)	Mean Sale Price / SF ($)
Unused Sales	91	176.64	187.90
Group A Sales	18	212.37	206.16
Group B Sales	4	248.11	257.94
Overall	**113**	**194.88**	**194.28**

Two of the sales included in the Lansink study were coded as builder sales by MPAC and were not included in MPAC's sales database. For this reason, there are 18 sales from Group A included in the above table.

Upon further review, MPAC noted that three of the four CHD purchases (Group B) occurred in one homogeneous neighbourhood (A67). Ten of the 20 Group A sales occurred in this neighbourhood. For this reason MPAC looked at all the sales in this homogeneous neighbourhood separately using 900 square feet for the sale in question.

[2] The Appraisal of Real Estate, 3rd Canadian Edition, (Appraisal Institute of Canada), 2010, p.11.7

[3] Dianna LeBreton, How to measure and calculate residential square footage, Canadian Property Valuation Volume 53, Book 1, (Appraisal Institute of Canada), 2009

	Number of Sales	Median Sale Price/ SF ($)	Mean Sale Price / SF ($)
Unused Sales	11	200.00	200.38
Group A Sales	10	210.25	213.24
Group B Sales	3	231.25	255.60
Overall	**24**	**210.25**	**212.64**

These figures indicate there may be a difference between the sale prices paid by CHD and the typical sale prices in this area, albeit on a very small sample. If 1,463 square feet are used for the sale in question, the median and average sale price per square foot drops to $208.48 and $212.13, respectively. This highlights the volatility of using small sales samples.

One final issue with the sales used in the Lansink study was that the second sale price was consistently lower than the first sale price despite the fact the time frame being analyzed was one of inflation. The absence of variability in the study make them suspect.

MPAC's Re-Sale Analysis

MPAC identified over 2,000 re-sales of properties within the database used to conduct its Assessment to Sale Ratio (ASR) analysis, as part of its own study on the impact of IWT's for the 2012 CVAs.

A re-sale analysis using similar logic to the Lansink study was conducted using the Time Adjustment Factors (TAFs) developed as part of MPAC's analysis for each residential market area to prepare and quality check the 2012 CVAs prior to being placed on the assessment roll. Residential time trends can be determined using one of five accepted methods. Paired sales methods and re-sale analysis methods are generally limited to fee appraisal and often too tedious for mass appraisal work. Mass appraisal time trend methods include tracking the sale price per unit over time, sales to assessment ratios over time or including time variables as a variable in the valuation model (i.e., Multiple Regression Analysis (MRA) model). Including time variables in the valuation model is MPAC's preferred approach to developing time trends and TAFs.

The advantages of including time variables in the MRA model is that the effect of time is isolated because the model controls the other value influences as part of the equation and all available sales within each market area can be used. Time trends may be straight-line (constant rate of change and direction over time) or non-linear (different rates of change and direction over time). Non-linear trends require additional terms to be added to the analysis to adequately capture market change.

For valuation purposes, MPAC bases the midpoint of the TAF's on the legislated valuation date of January 1, 2012.

The following is a sample calculation of a time trend:

Coefficient for (Months x Total Living Area) = $0.833

Average Living Area = 1,500 square feet

Average Sale Price = $200,000

Average Increase per month = 0.833*1500 = 1249.5

Time Trend (r) = 1249.5/200,000 = 0.62475% per month

Once the monthly rate is established, a table of Time Adjustment Factors can be calculated for each month using the formula (r*Months) +1.

Table 2 below, provides a sample table for the sales period, from July 2010 to December 2011, a period of 18 months.

To centre the time adjustment factor on a desired month, simply divide the time trend for the desired month by each monthly time trend. To centre the time adjustment on December 2011, divide 1.1186 by each monthly trend.

The ratio of the monthly TAFs will provide the percentage change in the market between the sale dates.

Table 2: Sample Time Adjustment Factor Table

Sale Date	Month Number	Time Trend	Time Adjustment Factor
July 2010	1	1.0062	1.1117
August 2010	2	1.0125	1.1048
September 2010	3	1.0189	1.0979
October 2010	4	1.0252	1.0911
November 2010	5	1.0316	1.0843
December 2010	6	1.0381	1.0776
January 2011	7	1.0446	1.0709
February 2011	8	1.0511	1.0643
March 2011	9	1.0577	1.0577
April 2011	10	1.0643	1.0511
May 2011	11	1.0709	1.0446
June 2011	12	1.0776	1.0381
July 2011	13	1.0843	1.0316
August 2011	14	1.0911	1.0252
September 2011	15	1.0979	1.0189
October 2011	16	1.1048	1.0125
November 2011	17	1.1117	1.0062
December 2011	18	1.1186	1.0000

To conduct its re-sale analysis for this study, MPAC time adjusted the initial sale of each property to that of the second sale using the ratio of monthly TAFs. This produces a trended sale price as of the re-sale date. Table 3 provides an example using the same data as Table 1 above.

Table 3: MPAC's Re-Sale Analysis Sample Calculation

	Sale Price	Sale Date	TAF to Jan 1, 2012	TAF Ratio	Trended Sale Price	Percentage Difference
Initial Sale	$100,000	October 2010	1.0911	1.078	$107,800	
Re-Sale	$115,000	October 2011	1.0125			6.68%

In the example, the property initially sold for $100,000 in October 2010. It sold again in October 2011 for $115,000. The TAF from October 2010 to January 1, 2012 is 1.0911, indicating an overall increase of 9.11% over the time frame. The TAF from October 2011 to January 1, 2012 is 1.0125, indicating an overall increase of 1.25% over the time frame. The ratio of the TAFs is 1.078 (1.0911/1.0125), which indicates a 7.8% increase the 12 months between sales. The initial sale price is trended by 7.8% (multiplier of 1.078) to produce a trended sale price of $107,800.

An examination of the differences between the trended sale price and the actual sale amounts reveals the actual market change indicated by the re-sales as compared to the market change indicated by the entire market area. In other words;

- A difference of 0% would indicate that the market change as shown by the re-sales is exactly the same as that indicated for their respective market areas.
- A difference above 0% means that the re-sales are indicating greater inflation in value than their respective market area.
- A difference below 0% means that the re-sales are indicating greater deflation in value than that of their respective market areas.

In the sample calculation above, the re-sale of the subject property at $115,000 is 6.68% greater than the trended sale price in the market area of $107,800.

Table 4 provides the median percentage change for the 2,051 re-sales in MPAC's sales database using the previously defined distance groupings.

Table 4: Summary of MPAC's Re-sale Analysis

Distance Grouping	Number of Sales	Median Percentage Difference	Minimum Percentage Difference	Maximum Percentage Difference	Number of Sales Less than 0%	Number of Sales Greater than 0%
Within 1km	12	2.84	-15.36	30.61	4	8
1km to 2km	52	6.35	-14.29	63.00	16	36
2km to 5km	150	-0.57	-18.90	88.10	77	73
Outside 5km	1,837	2.05	-28.16	127.02	680	1,157
OVERALL	**2,051**	**1.96**	**-28.16**	**127.02**	**777**	**1,274**

The results in Table 4 indicate that re-sales of properties closest to wind turbines are experiencing greater market increases than their respective market area. In terms of individual re-sale market increases, re-sale's with market shifts greater than 0% out number re-sales with market shifts less than 0% by approximately 2 to 1 for properties within 2 km of an industrial wind turbine. This result would indicate no loss in price due to proximity to the IWT.

Summary of Findings

MPAC's own re-sale analysis using a generally accepted methodology for time adjustment factors indicates no loss in price based on proximity to the nearest IWT. This analysis using similar logic to that used in the Lansink study confirms the previous results from MPAC's report on the impact of wind turbines on 2012 CVAs and is contrary to the conclusions of the Lansink study.

Of the 2,051 sales used in MPAC's re-sale analysis, 2,002 had higher second sales, nine sold for the same price twice and 40 sold for less the second time. Of the 40 that sold for less the second time, 39 are outside 5km of an IWT, 1 is within 2 to 5km of an IWT and none are within 2km. That means 97.5% of these properties sold for more the second time. It is possible that some selection bias may exist in the Lansink studies. MPAC has attempted to prevent this by using all available re-sales in its analysis.

MPAC previously applied the same re-analysis logic to another study conducted by Lansink Appraisal and Consulting on the potential impact of existing or proposed gravel pits on neighbouring residential properties[4]. The gravel pit study followed the same methodology as the Lansink Wind Turbine Study.

Similar to this study, 13 of the 19 properties used had resale prices that were lower than the initial sale used in the study. Of the remaining six sales, one sold for the same price twice, one sold for $1,000 more than five years after the initial sale and one had 20 years between sales. The Lansink Gravel Pit study concluded a potential diminution in price (if any) of approximately 22%. MPAC's internal analysis indicated no loss in price in the study area using the same re-sale analysis process.

[4] Ben Lansink, "Case Studies: Diminution / Change in Price (if any) on Residential Real Estate Located in the Vicinity of an Existing or Proposed Ontario Pit or Quarry," Lansink Appraisals and Consulting, July 2013