Statistical Study Suggests Interior Property Inspections Don't Improve Assessment Accuracy

When considering property assessments in New Hampshire or any state, the objective of the assessing official is to make sure the property is assessed fairly in proportion to the other properties in a community. In New Hampshire, assessors attempt to approximate market value to the best of their ability.

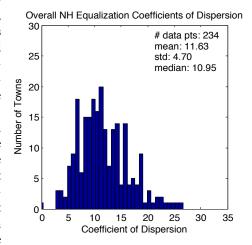
According to New Hampshire RSA Chapter 75:1, "Market value means the property's full and true value as the same would be appraised in payment of a just debt due from a solvent debtor." International Valuation Standards defines market value as "the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion."

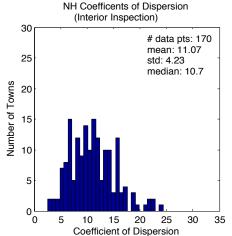
Officials in New Hampshire have contended that interior inspections improve the accuracy of their assessment valuations. However, a statistical analysis on available assessment accuracy data does not support their premise that interior inspections improve the accuracy of assessments.

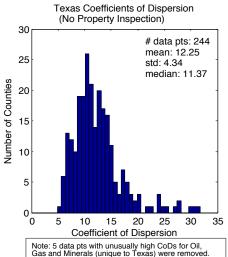
Everywhere properties are assessed, assessment officials use coefficients of dispersion to track the accuracy of their assessments. Coefficients of dispersion are the average percentage deviation from the median ratio. In other words, they represent the error between the assessed value of a property corrected for market forces and the true value of a property as determined by a sale.

The following graphics compare the coefficients of dispersion for the communities in New Hampshire that use interior property inspections, the communities in New Hampshire that do not use interior property inspections, and a control group, the counties of Texas, which do not use property inspections at all.

Texas was chosen for a control in this brief analysis because both the State of New Hampshire and the State of Texas require property taxes that are based on a true valu-







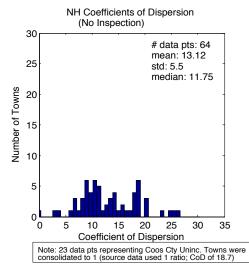


Figure 1: Graphical representation of the data sets used in the statistical analysis.

ation, or the current market value. In our case, property taxes must be "proportional and reasonable;" in the case of Texas, they must be "equal and uniform." Arguably, this is the same standard. In addition, both New Hampshire and Texas rely heavily on property taxes, since neither state uses an income tax for state or local revenue.

As you can see from the accompanying data from 2009, there is no statistically conclusive difference between the accuracy of assessments conducted with an interior property inspection in New Hampshire and the accuracy of assessments conducted without an interior property inspection in New Hampshire. The overall accuracy rates in New

Hampshire are also statistically comparable to the accuracy rates in Texas, where assessors do not do property inspections at all.

This graphic and the related analysis is provided to demonstrate that any claim that assessments would not be "fair" without property inspections is not supportable with the available evidence. In reality, the evidence indicates that property inspections make no statistically significant difference¹ to the accuracy of property assessments.

In conclusion, the wholesale elimination of interior property inspections in New Hampshire is not expected to significantly impact the accuracy of property assessments in the state.

1. An informal two-sample Kolmogorov-Smirnov test was conducted on the tabulated 2009 Coefficient of Dispersion town data representing the N.H. properties and the tabulated 2009 Coefficient of Dispersion county data representing the Texas properties (3-sigma outliers were removed from each data set). Given the available data, it cannot be concluded that interior inspections result in a statistically significant improvement in the accuracy of the assessments. Between New Hampshire and Texas, there is no statistically significant difference in the accuracy rates (the null hypothesis that the distributions are the same could not be rejected at the 1% and 5% significance levels). Within New Hampshire, the results are inconclusive due to the disparity between the sample sizes (there are 2.65 data points with inspections to every 1 data point without inspections). (Rep. Andrew J. Manuse & Jennifer E. Manuse, Ph.D., MIT)

I.	161	v IIaii	ipsilite 2009		quanz	ation Coemcie	HIL	ם וט	ispersion		
ACWORTH	*	28.5	DOVER		7.5	LANDAFF	*#	23.2	PLYMOUTH	П	14.3
ALBANY	*	15.0	DUBLIN	*	6.9	LANGDON	*	15.6	PORTSMOUTH	1	9.6
ALEXANDRIA		13.9	DUMMER	*	4.0	LEBANON		11.2	RANDOLPH	*	2.8
ALLENSTOWN		13.5	DUNBARTON		9.3	LEE		11.1	RAYMOND		10.9
ALSTEAD	*	18.2	DURHAM		12.5	LEMPSTER	*	13.2	RICHMOND	*	3.8
ALTON		3.0	EAST KINGSTON		5.0	LINCOLN		11.7	RINDGE		9.8
AMHERST		14.2	EASTON	*	14.0	LISBON		8.8	ROCHESTER		8.9
ANDOVER	*	6.6	EATON	*	11.0	LITCHFIELD		9.4	ROLLINSFORD	#	16.5
ANTRIM		4.7	EFFINGHAM	*	11.3	LITTLETON		25.1	ROXBURY	**	5.8
ASHLAND		12.2	ELLSWORTH	**#	13.5	LIVERMORE	*	0.0	RUMNEY		10.4
ATKINSON		12.3	ENFIELD		8.6	LONDONDERRY		7.5	RYE		9.4
ATKINSON & GILMANTON	U*	18.7	EPPING		13.8	LOUDON		13.4	SALEM		11.2
AUBURN		9.5	EPSOM		18.9	LOW & BURBANK GRANT	U*	18.7	SALISBURY	*	12.0
BARNSTEAD		14.0	ERROL	*#	11.1	LYMAN	*	16.8	SANBORNTON		15.8
BARRINGTON		7.0	ERVING'S GRANT	U*	18.7	LYME	*	11.4	SANDOWN	4	8.9
BARTLETT	<u> </u>	9.2	EXETER		16.1	LYNDEBOROUGH	*	12.1	SANDWICH	*	7.2
BATH	*	13.2	FARMINGTON		7.5	MADBURY	*#	11.3	SARGENT'S PURCHASE	U*	18.7
BEAN'S GRANT	U* U*	18.7	FITZWILLIAM	*	16.3	MADISON	#	16.0	SEABROOK		9.4
BEAN'S PURCHASE	U^	18.7	FRANCESTOWN	*	6.3	MANCHESTER MARLBOROUGH	*	12.6	SECOND COLLEGE GRANT	U* *	18.7 7.1
BEDFORD BELMONT		8.8 17.5	FRANCONIA FRANKLIN	- "	19.4 10.2	MARLOW	*#	9.1 33.6	SHARON SHELBURNE	**	22.4
BENNINGTON	*	8.3	FREEDOM		13.5	MARTIN'S LOCATION	# U*	18.7	SOMERSWORTH	-	6.5
BENTON	*#	12.6	FREMONT		10.1	MASON	*	10.7	SOUTH HAMPTON	*	11.2
BERLIN	"	24.2	GILFORD		10.9	MEREDITH		5.8	SPRINGFIELD	1	10.0
BETHLEHEM		22.8	GILMANTON		5.2	MERRIMACK		6.0	STARK	*	8.9
BOSCAWEN		8.6	GILSUM	*	6.3	MIDDLETON	*	9.6	STEWARTSTOWN	*#	14.6
BOW		8.1	GOFFSTOWN		9.4	MILAN	*	17.4	STODDARD		9.1
BRADFORD		16.1	GORHAM		15.5	MILFORD		9.6	STRAFFORD	*#	12.0
BRENTWOOD		5.3	GOSHEN	*	18.0	MILLSFIELD	U*	18.7	STRATFORD	*	18.9
BRIDGEWATER	*#	14.0	GRAFTON	*	19.9	MILTON		3.8	STRATHAM		6.2
BRISTOL		20.9	GRANTHAM	#	15.4	MONROE	*	12.9	SUCCESS	U*	18.7
BROOKFIELD	*#	8.4	GREENFIELD	*	4.4	MONT VERNON	*	4.9	SUGAR HILL	*	9.3
BROOKLINE		5.5	GREENLAND		5.8	MOULTONBOROUGH		14.0	SULLIVAN	*	7.6
CAMBRIDGE	U*	18.7	GREEN'S GRANT	U*	18.7	NASHUA		8.2	SUNAPEE		9.5
CAMPTON		6.5	GREENVILLE	*	10.9	NELSON	*	26.2	SURRY	*	6.8
CANAAN		20.5	GROTON	*	18.5	NEW BOSTON		10.5	SUTTON		14.9
CANDIA	*	11.7	HADLEY'S PURCHASE	U*	18.7	NEW CASTLE	*	8.2	SWANZEY		9.1
CANTERBURY	*	18.7	HALE'S LOCATION	**	15.5	NEW DURHAM	*	9.5	TAMWORTH		6.2
CARROLL		20.4	HAMPSTEAD		11.6	NEW HAMPTON	*	7.1	TEMPLE	*	8.0
CENTER HARBOR	*# U*	21.9	HAMPTON	*	8.6	NEW IPSWICH		9.9	THOM & MES PURCHASE	U*	18.7
CHARLESTOWN	U"	18.7	HAMPTON FALLS	*	6.7	NEW LONDON		14.5	THORNTON		5.2
CHARLESTOWN CHATHAM	**	18.6 11.0	HANCOCK HANOVER		11.5 8.2	NEWBURY NEWFIELDS	*	8.2 9.9	TILTON	*	8.5 13.8
CHESTER		10.7	HARRISVILLE	*	10.7	NEWINGTON	*	8.0	TUFTONBORO		18.4
CHESTERFIELD		10.0	HART'S LOCATION	*#	13.0	NEWMARKET		6.8	UNITY	*	15.3
CHICHESTER	*	10.6	HAVERHILL	#	28.6	NEWPORT		12.3	WAKEFIELD		11.1
CLAREMONT		10.3	HEBRON	*#	14.0	NEWTON		7.6	WALPOLE	\Box	16.1
CLARKSVILLE	*	14.3	HENNIKER		6.5	NORTH HAMPTON		10.3	WARNER		11.1
COLEBROOK	*	10.2	HILL	*	5.7	NORTHFIELD		10.8	WARREN	*	18.1
COLUMBIA	*	25.6	HILLSBOROUGH		13.5	NORTHUMBERLAND	*	17.4	WASHINGTON	*	16.9
CONCORD		6.8	HINSDALE		14.3	NORTHWOOD		13.9	WATERVILLE VALLEY		6.9
CONWAY		8.4	HOLDERNESS	*	13.8	NOTTINGHAM		12.2	WEARE		12.4
CORNISH	*	8.9	HOLLIS		12.3	ODELL	U*	18.7	WEBSTER	*	9.0
CRAWFORD'S PURCHASE	U*	18.7	HOOKSETT		10.1	ORANGE	**#	10.5	WENTWORTH	*	19.0
CROYDON	*	2.7	HOPKINTON		6.4	ORFORD	*	15.9	WENTWORTH LOCATION	U*	18.7
CUTT'S GRANT	U*	18.7	HUDSON		6.8	OSSIPEE		16.3	WESTMORELAND	*#	16.0
DALTON	*	9.1	JACKSON		10.4	PELHAM		5.3	WHITEFIELD	*	8.6
DANBURY	*	14.4	JAFFREY		17.4	PEMBROKE		6.5	WILMOT	*#	16.1
DANVILLE		13.7	JEFFERSON	*	15.5	PETERBOROUGH		12.4	WILTON	\vdash	7.1
DEERFIELD	+11	11.3	KEENE	+"	6.5	PIERMONT	*	15.0	WINCHESTER	\vdash	22.0
DEERING	*#	18.0	KENSINGTON	*#	12.3	PINKHAM'S GRANT	U*	18.7	WINDSOR	**	10.4
DERRY	U*	9.0	KILKENNY	U*	18.7	PITTSBURG		10.2	WINDSOR	^*	9.9
DIX GRANT DIXVILLE	U*	18.7	KINGSTON		12.1 13.2	PITTSFIELD	*	13.4 10.9	WOODSTOCK	#	15.9 11.6
DORCHESTER	*	18.7 12.1	LACONIA LANCASTER		13.2	PLAINFIELD PLAISTOW		10.9	WOODSTOCK State Avg.:	#	11.63
				LUOT			1 - 21			() () (
* = SUPPLEMENTAL \$	JALE	SAUDED	# = ALTERNATE RATIO	USE	= ^^ =	LESS THAN 10 SALES U	, = C(JUS CIY U	NINC. TOWNS - 1 RATIO USED	yelic	JW)

New Hampshire 2009 Equalization Coefficients of Dispersion

THE C.O.D.'S ARE NOT CONSIDERED FINAL UNTIL THE EXPIRATION OF THE APPEAL PERIOD IN ACCORDANCE WITH RSA 71-B:5 II. THE C.O.D.'S LISTED WERE CALCULATED USING ALL THE SALES USED IN THE MUNICIPALITY'S 2009 RATIO STUDY. A C.O.D. WAS CALCULATED FOR EACH STRATA IN THE

Texas 2009 Equalization Coefficients of Dispersion											
County	COD	County	COD	County	COD	County	COD	County	COD		
Anderson	13.45	Crane	20.41	Hartley	7.44	Madison	7.29	San Saba	10.13		
Andrews	11.14	Crockett	7.47	Haskell	14.16	Marion	17.42	Schleicher	140.31		
Angelina	11.93	Crosby	17.61	Hays	6.94	Martin	10.91	Scurry	11.29		
Aransas	8.55	Culberson	13.53	Hemphill	6.74	Mason	12.44	Shackelford	8.67		
Archer	14.29	Dallam	10.05	Henderson	13.32	Matagorda	15.48	Shelby	10.13		
Armstrong	19.57	Dallas	7.78	Hidalgo	10.93	Maverick	8.8	Sherman	142.83		
Atascosa	17.89	Dawson	10.84	Hill	11.59	McCulloch	11.3	Smith	10.31		
Austin	10.45	Deaf Smith	9.32	Hockley	10.9	McLennan	8.21	Somervell	10.66		
Bailey	6.65	Delta	13.52	Hood	7.56	McMullen	11.59	Starr	17.79		
Bandera	16.52	Denton	6.63	Hopkins	12.1	Medina	16.88	Stephens	27.7		
Bastrop	14.93	Dewitt	10.46	Houston	11.91	Menard	12.08	Sterling	15.39		
Baylor	8.89	Dickens	14.37	Howard	11.84	Midland	27.2	Stonewall	20.04		
Bee	9.45	Dimmit	9.95	Hudspeth	31.76	Milam	13.87	Sutton	13.33		
Bell	8.86	Donley	14.54	Hunt	13.57	Mills	8.37	Swisher	9.38		
Bexar	12.87	Duval	15.22	Hutchinson	11.77	Mitchell	14.52	Tarrant	7.36		
Blanco	7.71	Eastland	15.41	Irion	11.2	Montague	10.37	Taylor	5.98		
Borden	5.98	Ector	9.65	Jack	10.24	Montgomery	8.54	Terrell	6.43		
Bosque	9.25	Edwards	18.64	Jackson	10.24	Moore	9.22	Terry	14.77		
Bowie	12.33	Ellis	7.68	Jasper	14.33	Morris	15	Throckmorton	11.31		
Brazoria	14.47	El Paso	10.11	Jeff Davis	6.82	Motley	14.84	Titus	10.48		
Brazos	9.26	Erath	12.21	Jefferson	8.18	Nacogdoches	11.37	Tom Green*	64.82		
Brewster	10.73	Falls	24.29	Jim Hogg	11.74	Navarro	16.43	Travis	6.72		
Briscoe	10.87	Fannin	9.8	Jim Wells	11.36	Newton	14.39	Trinity	24.08		
Brooks	13.46	Fayette	12.57	Johnson	9.85	Nolan	13.89	Tyler	14.14		
Brown	14.35	Fisher	18.49	Jones	17.7	Nueces	9.39	Upshur	13.11		
Burleson	13.67	Floyd	6.56	Karnes	12.62	Ochiltree	17.36	Upton	7.88		
Burnet	14.42	Foard	13.87	Kaufman	12.17	Oldham	9.43	Uvalde	16.09		
Caldwell	11.02	Fort Bend	22.14	Kendall	6.67	Orange	14.81	Val Verde	9.71		
Calhoun	17.86	Franklin	12.9	Kenedy	11.38	Palo Pinto	10.2	Van Zandt	10.43		
Callahan	11.89	Freestone	7.06	Kent	11.67	Panola	12.8	Victoria	10.97		
Cameron	10.7	Frio*	34.29	Kerr	10.87	Parker	8.36	Walker	9.12		
Camp	15.52	Gaines	9.03	Kimble	12.85	Parmer	5.73	Waller	13.79		
Carson	12.64	Galveston	11.56	King	6.05	Pecos	8.96	Ward*	47.42		
Cass	15.3	Garza	12.47	Kinney	14.78	Polk*	183.64	Washington	14.03		
Castro	6.24	Gillespie	9.43	Kleberg	8.84	Potter-Randall	10.75	Webb	9.44		
Chambers*	31.06	Glasscock	12.89	Knox	13.77	Presidio	27.9	Wharton*	53.93		
Cherokee	12.55	Goliad	10.13	Lamar	10.59	Rains	18.14	Wheeler	10.84		
Childress	13.46	Gonzales	9.81	Lamb	6.88	Reagan	9.74	Wichita	8.41		
Clay	7.85			Lampasas		Real	25.25	Wilbarger	11.69		
Cochran	8.21			La Salle		Red River		Willacy	12.73		
Coke	14.37			Lavaca		Reeves	16.54		7.43		
Coleman	12.59	Grimes		Lee		Refugio	10.85	Wilson	112.81		
Collin	5.63	•		Leon		Roberts	12.56	Winkler	15.33		
Collingsworth		Hale		Liberty		Robertson	17.55	Wise	10.12		
Colorado	12.45			Limestone		Rockwall	8.47		17.03		
Comal	9.3			Lipscomb		Runnels		Yoakum	23.97		
Comanche	10.88	Hansford		Live Oak		Rusk	13.83		12.98		
Concho	12.75	Hardeman		Llano		Sabine		Zapata	12.77		
Cooke	12.93			Loving		San Augustine		Zavala	13.14		
Coryell		Harris		Lubbock		San Jacinto	18.73	C4-4- 4	10.05		
Cottle	17.11	Harrison	14.18			San Patricio		State Avg:	12.25		
Source: http://www.window.state.tx.us/taxinfo/proptax/pvs09f/ Highlighted numbers removed (3-sigma outlier or unique to TX) * Counties with unusually high values for Oil, Gas and Minerals CoD											
nigniighte	u numbers re	anoveu (3-sign	na outher of u	inque to TA)	COL	andes with unusua	any mgn values to	or On, Gas and M	inerals COD		

Towns not using Inventory of Taxable Property (PA28) The following municipalities have reported to the Department of Revenue Administration that they will NOT be using the Inventory of Taxable Property for the tax year 2009 (RSA 74:4-a): KINGSTON EAST KINGSTON PETERBOROUGH ACWORTH ALBANY EASTON LACONIA PITTSBURG ALLENSTOWN **EATON** LANCASTER PITTSFIELD EFFINGHAM (LIMITED) ALTON LANGDON PLAISTOW AMHERST **ENFIELD** LEBANON PORTSMOUTH LEE ANTRIM EPPING RANDOLPH LEMPSTER RAYMOND ASHLAND **EXETER** ATKINSON FARMINGTON LINCOLN RINDGE AUBURN FITZWILLIAM LISBON ROCHESTER FRANCESTOWN LITCHFIELD BARNSTEAD RYE (LIMITED) FRANCONIA LONDONDERRY SALEM (UTILITIES ONLY) BARRINGTON LOUDON BARTLETT FRANKLIN SALISBURY BEDFORD FREEDOM LYMAN SANBORNTON BELMONT FREMONT LYNDEBOROUGH SANDOWN GILFORD MADBURY SANDWICH **BERLIN** BETHLEHEM GILMANTON MADISON SEABROOK BOSCAWEN GILSUM MANCHESTER SHELBURNE BOW GOFFSTOWN MEREDITH SOMERSWORTH SOUTH HAMPTON BRADFORD **GORHAM** MERRIMACK **BRENTWOOD** GRANTHAM MIDDLETON STRAFFORD MILAN STRATHAM **BRIDGEWATER** GREENFIELD MILFORD BRISTOL GREENLAND SUGAR HILL SUNAPEE BROOKFIELD **GREENVILLE** MILTON BROOKLINE MONT VERNON SURRY HAMPSTEAD SUTTON CAMPTON HAMPTON MOULTONBOROUGH NASHUA **CANDIA** HANCOCK TAMWORTH CANTERBURY HANOVER NEW BOSTON TEMPLE HART'S LOCATION NEW DURHAM THORNTON CENTER HARBOR CHESTERFIELD HAVERHILL NEW HAMPTON TILTON HEBRON NEW LONDON TUFTONBORO CHICHESTER NE<u>WBURY</u> UNITY_ CLAREMONT HENNIKER NEWFIELDS WAKEFIELD CONCORD HILL CONWAY HILLSBOROUGH NEWINGTON WALPOLE HINSDALE WASHINGTON CORNISH NEWMARKET DANBURY HOLDERNESS NEWPORT WATERVILLE VALLEY HOLLIS NEWTON DANVILLE WEARE DEERFIELD HOPKINTON WESTMORELAND NORTH HAMPTON DERRY HUDSON NORTHFIELD WILMOT **DOVER** JACKSON NORTHWOOD WILTON WINCHESTER **DUBLIN** JAFFREY NOTTINGHAM JEFFERSON OSSIPEE WINDHAM **DUMMER** PELHAM DUNBARTON KEENE WOLFEBORO **DURHAM** KENSINGTON PEMBROKE WOODSTOCK **Total: 172**



Equalization Definitions — http://www.nh.gov/revenue/munc_prop/eqdefs.htm

Equalization is the process by which the DRA makes adjustments to each municipality's locally assessed values to calculate the estimated 100% value of the municipality.

ASSESSMENT REPORT (2000, 2001, 2002) – A cumulative report of each municipality's exemptions and credits, parcel counts, revaluation and sales information, land use change tax and tax map information.

ASSESSMENT REPORT (2004) - A cumulative report of exemptions and credits listed by municipality.

ASSESSMENT REPORT (2005) - A cumulative report of exemptions and credits and parcel counts listed in municipal and county order.

ASSESSMENT REPORT (2006) - A cumulative report of exemptions and credits listed in municipal and county order.

BLIND EXEMPTION REPORT – Reports the amount a municipality grants per blind exemption, the number of taxpayers receiving the exemption and the total amount of taxes lost.

COEFFICIENT OF DISPERSION (C.O.D.) – Lists the C.O.D. for each municipality in the state in alphabetical and ranking order. The coefficient of dispersion is the average percentage deviation from the median ratio.

COMPARISON OF FULL VALUE TAX RATES – This reports the actual and equalized tax rates (also known as full value tax rates.) The full value tax rate is an estimate of what a tax rate would be if a municipality's assessed valuations were at 100%.

CURRENT USE REPORT – Reports in detail the number of acres and total values for Current Use, Conservation Restriction, Preservation Easements and Discretionary Preservation Easements as well as Land Use Change Tax received as reported on the MS-1 by each municipality.

DISABLED EXEMPTION REPORT – Reports the amount a municipality grants per disabled exemption, income and asset limits, the number of taxpayers receiving the exemption and the total amount of taxes lost.

ELDERLY EXEMPTION REPORT – Reports the amount a municipality grants per elderly exemption, income and asset limits, the number of taxpayers receiving the exemption and the total amount of taxes lost.

EQUALIZATION MANUAL – Provides municipalities with definitions, rules and standard operation procedures for the equalization process, ratio setting process and determining market value. The manual also includes codes sheets and forms with instructions to complete them.

EQUALIZATION RATIO – Lists the ratio used for equalization purposes for each municipality in the state. Typically, this is the weighted mean ratio.

EQUALIZATION SURVEY – Reports the total equalized value of a municipality (including and not including utility and railroad values) and the percent of state and county taxes.

MEDIAN RATIO – Lists the median ratio for each municipality in the state in alphabetical and ranking order. The median ratio is the middle ratio when a set of ratios is ranked in order of magnitude. The median is the generally preferred measure of central tendency for assessment equity, monitoring appraisal performance, and determining reappraisal priorities or evaluating the need for a reappraisal.

PRICE RELATED DIFFERENTIAL (P.R.D.) – Lists the P.R.D. for each municipality in the state in alphabetical and ranking order. The price related differential measures vertical inequities (differences in the appraisal for low-value and high-value properties.) P.R.D.'s > 1.03 tends to indicate assessment regressivity (lower-value properties assessed at higher ratios than higher-value properties.) P.R.D.'s < .98 tends to indicate assessment progressivity (lower-value properties assessed at lower ratios than higher-value properties.)

STRATIFIED ANALYSIS REPORT – Statistical calculations reported for the strata (class or subset of the population being studied) in each municipality.

TABLES BY COUNTY – A summary of locally assessed values reported on the MS-1, gross and net taxes, actual tax rates, local optional exemptions and educational and special exemptions listed in municipal and county order.

VETERAN'S TAX CREDIT REPORT – Reports the tax credit amount each municipality offers veterans and the total credit amount granted.