

APPENDIX A: REGIONAL TAX ASSESSMENT ANALYSIS

Mahoning County

Property Tax Assessment Analysis – Methodology and Summary of Findings

INTRODUCTION

This analysis examines the accuracy and uniformity of Mahoning County’s 2023 revaluation of residential tax assessments. Mahoning County’s Auditor completed a full countywide reassessment of property tax values for 2023, as required every six years by Ohio law. The new residential property tax values have resulted in an average increase of about 38%,¹ which raised issues of how residents’ property taxes would change,² who would be most affected by these changes, and whether the new market values accurately reflect the price a homeowner could expect their home to sell for.³

Reinvestment Fund’s Policy Solutions group (Policy) is supporting Greater Ohio Policy Center’s (GOPC) creation of a Regional Housing Plan for the Eastgate Council of Governments (Eastgate). As part of that study, Eastgate and GOPC asked Policy to examine the changed values and recommend any policy approaches to address how those changes would affect Mahoning County residents. The approach to the evaluation is a “Ratio Study”, an industry-standard approach for evaluating residential property tax assessments by comparing those assessments to recent property sale prices.⁴ The core of the ratio study is comparing the new assessed market values to actual real estate transactions in the year preceding the reassessment (that is, determining the ratio of the assessed market value to actual home sale price for each property that sold). The Mahoning County Auditor provided data on all property sale transactions and their 2023 assessed market values.

¹ See “Mahoning County commissioners seek tax relief from state.” *The Vindicator*. October 28, 2024. Available at: <https://www.vindy.com/news/local-news/2024/04/mahoning-county-commissioners-seek-tax-relief-from-state/>.

² It is important to note that increases in the assessed market values of properties do not result in a dollar for dollar increase in property taxes. Property taxes are based on an assessed value that is a fraction of the market value times a millage rate that varies by municipality and school district. The millage rate is generally adjusted to account for rising assessments. Proposed millage rates and an example calculation can be found at the Mahoning County Auditor’s website here: <https://www.mahoningcountyooh.gov/1047/Proposed-Levies>.

³ The accuracy and uniformity of property tax assessments has been a topic of extensive research in recent years. See e.g., McMillen, Daniel and Ruchi Singh. *Assessment Regressivity and Property Taxation*. *The Journal of Real Estate Finance and Economics*. Volume 60, pp. 155-169 (available at: <https://doi.org/10.1007/s11146-019-09715-x>) (stating, “A stylized fact from the assessment literature is that assessment rates tend to be lower for higher-priced home [sic]”) and University of Chicago Harris School of Public Policy, *Property Tax Fairness*, available at: <https://propertytaxproject.uchicago.edu/data-3-2-3/> (August 15, 2023) (providing evaluations of property tax quality for counties and cities across the country, including Mahoning County, from 2013-2022).

⁴ See “Standard on Ratio Studies”, International Association of Assessing Officers (IAAO). April 2013. Available at: https://www.iaao.org/media/standards/Standard_on_Ratio_Studies.pdf.

METHODOLOGY

Policy created a dataset for this analysis with the data provided by the Mahoning County Auditor's Office. Policy filtered the dataset provided by the Mahoning County Auditor to only include valid sales⁵, single family properties with an improvement, and removed bulk sales (where more than one parcel is transacted in the same sale). Outlier ratio values were trimmed⁶ because these can distort the measures of assessment quality. The remaining dataset had 2,329 records of home sales throughout 2022. Policy also geocoded all records so assessed value changes and assessment quality measures could be calculated for each Census tract.

Statistical Measures of Assessment Quality: Accuracy, Uniformity & Price-Related Regressivity

The ratio of valuation to sale price, or the assessment ratio, is the basic measure of assessment accuracy.⁷ The ratio is also used to calculate measures of assessment uniformity and regressivity. The three factors of assessment quality and their associated measures examined in this analysis include:

Accuracy: Do the assessed values typically match sale prices? Accuracy is evaluated with the **median ratio** of assessed value to sale price. The median is the middle value when all ratios are arranged from lowest to highest.

Uniformity: How much variation is there in the ratios? Put another way, how much does the ratio for any randomly selected property differ, on average, from the median ratio? Uniformity is measured with the **coefficient of dispersion (COD)**.⁸

Price-Related Regressivity: Are lower valued properties over assessed relative to higher valued properties? One commonly used measure to answer this question is the **price-related differential (PRD)**.⁹ The International Association of Assessing Officers (IAAO) refers to PRD as a measure of vertical equity, or of "regressivity or progressivity" with respect to price. A PRD above 1.00 suggests that the owners of lower value properties are paying a proportionately higher amount of property taxes than the owners of high valued properties.

⁵ The Auditor's Office determines whether a given sale is an arm's length, market transaction (that is, a "valid sale") by removing sales between family members, for de minimis sale prices, forced sales like sheriff sales, sales where the property's condition has changed between the sale and the assessed value change, and a variety of other patterns that indicate a non-market transaction. See "Standard on Verification and Adjustment of Sales", IAAO. April 2020. Available at: https://www.iaao.org/media/standards/Verification_Adjustment_of_Sales.pdf.

⁶ Outlier trimming is a customary practice in ratio studies so that measures of assessment quality are not overly influenced by a few sales that are quite different than prevailing market prices. Removing outlier home sales provides a more reliable measure of central tendency. See IAAO note 4, Appendix B: Outlier Trimming Guidelines beginning page 53.

⁷ See IAAO note 4.

⁸ The coefficient of dispersion (COD) is calculated as the mean absolute difference between each ratio and the median ratio; divided by the median ratio. A COD of 5 indicates that assessments are, on average, 5% above or below the actual value.

⁹ PRD is the average, or mean, ratio divided by the mean of the ratios weighted by sale price. The denominator in this fraction tends toward the ratios for higher valued properties so, for example, if higher valued properties are more likely than others to have lower assessment ratios, PRD will exceed 1.00.

SUMMARY OF FINDINGS

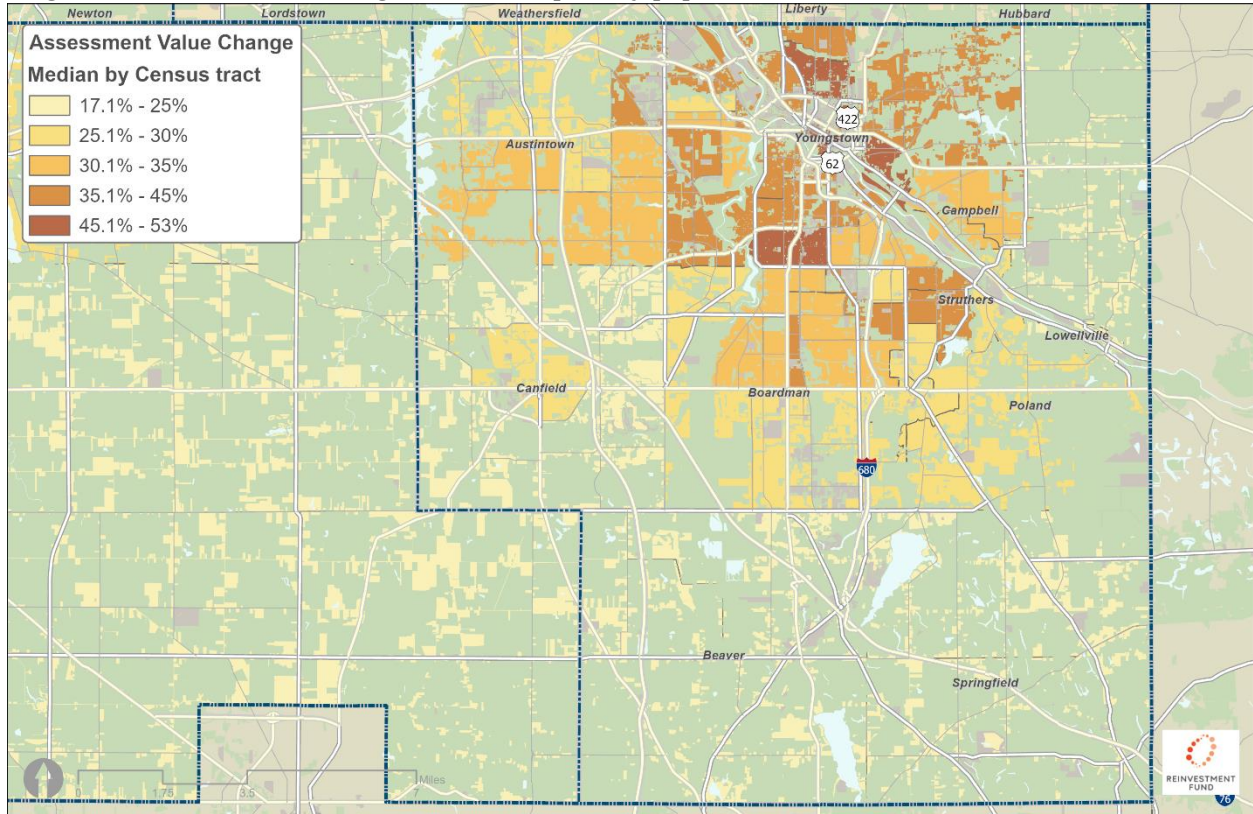
Table One below shows the typical increase in assessed market value for residential properties, and the measures of assessment quality discussed above, for each municipality in Mahoning County. The typical (that is, median¹⁰) increase in assessed market value ranges from 16.7% in Beaver Township to 37.5% in Youngstown. Other municipalities that experienced large increases were Austintown (30.9%), Campbell (31.9%), Sebring (33.5%), and Struthers (35.5%).

Municipality	Count of Sales	Med. % Assmnt. Increase	Med. Ratio (Accuracy) 0.9 – 1.1	Coef. Of Dispersion (Uniformity) < 15.0	Price Related Differential (Regressivity) 0.98 – 1.03
Austintown Twp	461	30.9%	0.90	14.9	1.036
Beaver Twp	34	16.7%	0.92	7.0	1.011
Berlin Twp	13	22.8%	0.93	5.2	1.009
Boardman Twp	496	30.1%	0.91	13.9	1.032
Campbell	60	31.9%	0.95	19.9	1.069
Canfield	82	28.9%	0.94	11.5	1.019
Canfield Twp	99	22.6%	0.92	11.6	1.028
Ellsworth Twp	15	17.6%	0.91	8.8	1.039
Goshen Twp	16	23.8%	0.93	12.5	1.060
Green Twp	24	21.1%	0.97	3.7	0.999
Jackson Twp	23	20.1%	0.97	15.2	1.077
Lowellville	15	20.2%	0.94	14.5	1.027
Milton Twp	12	28.4%	0.87	12.5	1.068
New Middletown	16	26.2%	0.92	16.9	1.050
Poland	36	24.7%	0.97	12.1	1.051
Poland Twp	196	27.9%	0.94	14.3	1.047
Sebring	25	33.5%	0.97	3.4	0.999
Smith Twp	14	25.8%	0.93	21.4	1.100
Springfield Twp	28	20.6%	0.92	16.5	1.056
Struthers	121	35.5%	0.92	21.4	1.072
Youngstown	543	37.5%	0.93	17.5	1.046

Table One: Assessment Increases and Measures of Assessment Quality by Municipality. The numbers in the column headings are the IAAO guidelines and cells shaded in blue are outside those guidelines.

¹⁰ The median value is the middle value when the value for all properties is sorted from lowest to highest. Note that this is different than the average (mean) value, and in Mahoning County the median increases are lower than the average (mean) increase. This is likely because some properties have large increases that pull up the mean increase but do not affect the median.

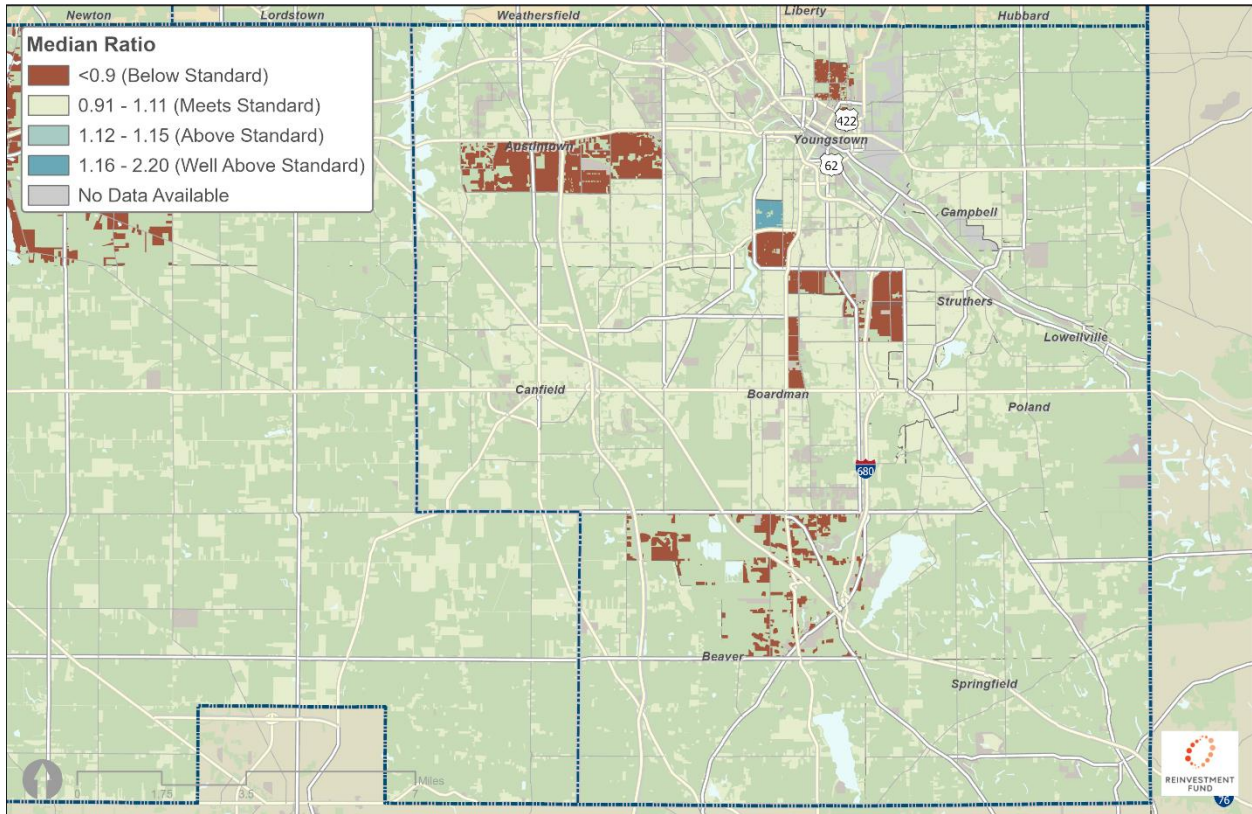
The changes in assessed market values vary within municipalities as well. Map One below shows the change in assessed market values by Census tract. Tracts in south, west, and north Youngstown experienced typical increases of 45% or more (up to 53%). These areas are also generally stressed markets in the Market Value Analysis. In all likelihood large property tax increases could put pressure on long-term residents in these neighborhoods, especially populations with fixed-incomes, like seniors.



Map One: Change in Assessed Market Values for Residential Properties by Census tract

Despite the large increases in assessed market values, the median ratio of market value to sale price shows residential properties are slightly *under-assessed*. That is, they are slightly below a one-to-one ratio, generally in the range of 0.90 to 0.98 (although Milton Township is below IAAO guidelines with a median ratio of 0.87, albeit with only twelve sales). The IAAO standard for the median ratio is between 0.9 and 1.1, and therefore most municipalities are accurately assessed (if slightly underassessed).

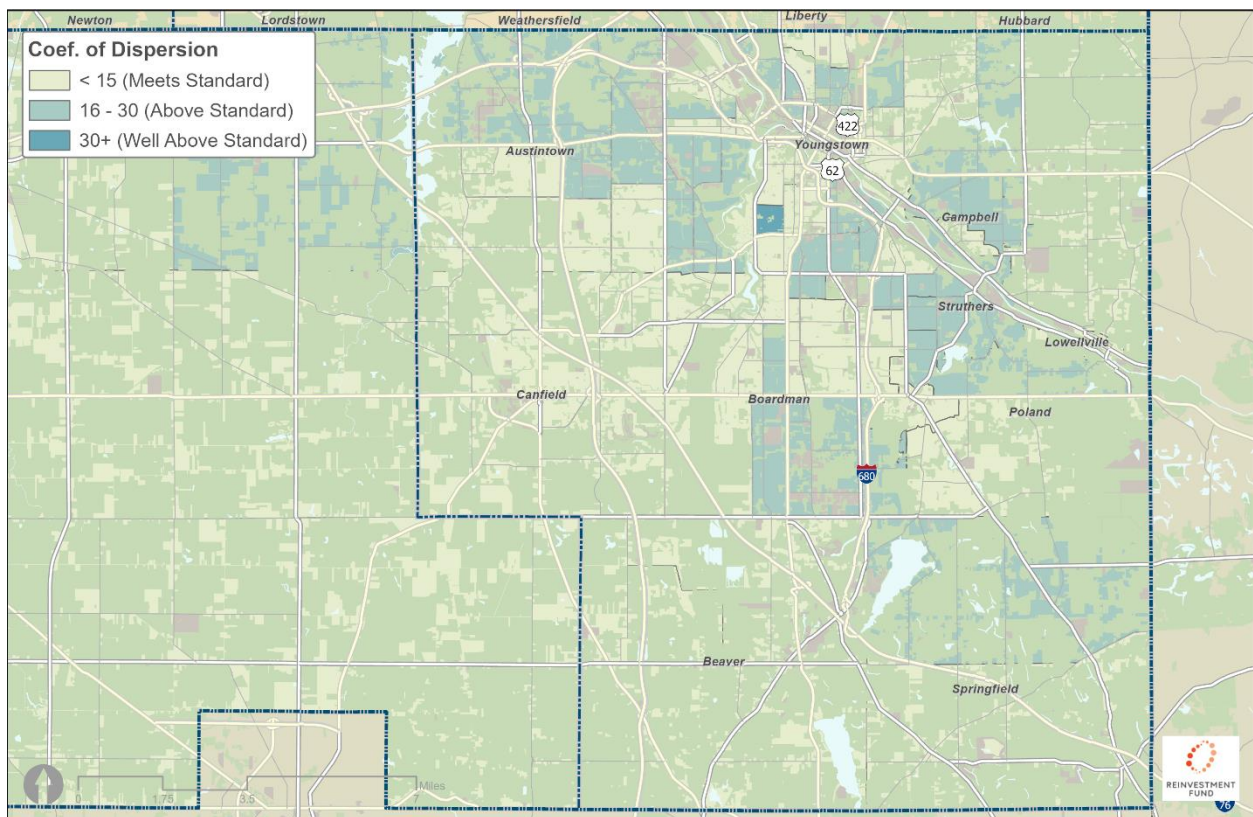
Map Two below shows that most Census tracts across Mahoning County are also within the correct range for the median ratio. A few scattered areas are underassessed, particularly in Beaver Township. One tract in south Youngstown shows assessment ratios well above industry standards, however.



Map Two: Median Ratio by Census tract

The COD is a measure of the uniformity or variability in the assessment ratios. It measures how far over or under-assessed properties are from the typical assessment ratio. The IAAO recommended range for COD is below 15. Several municipalities are slightly above 15, including Youngstown, and Smith Township and Struthers are well above the recommended range. This shows that, although the typical assessment in those municipalities is accurate, there remain some properties that vary from that typical assessment ratio and are likely over-assessed.

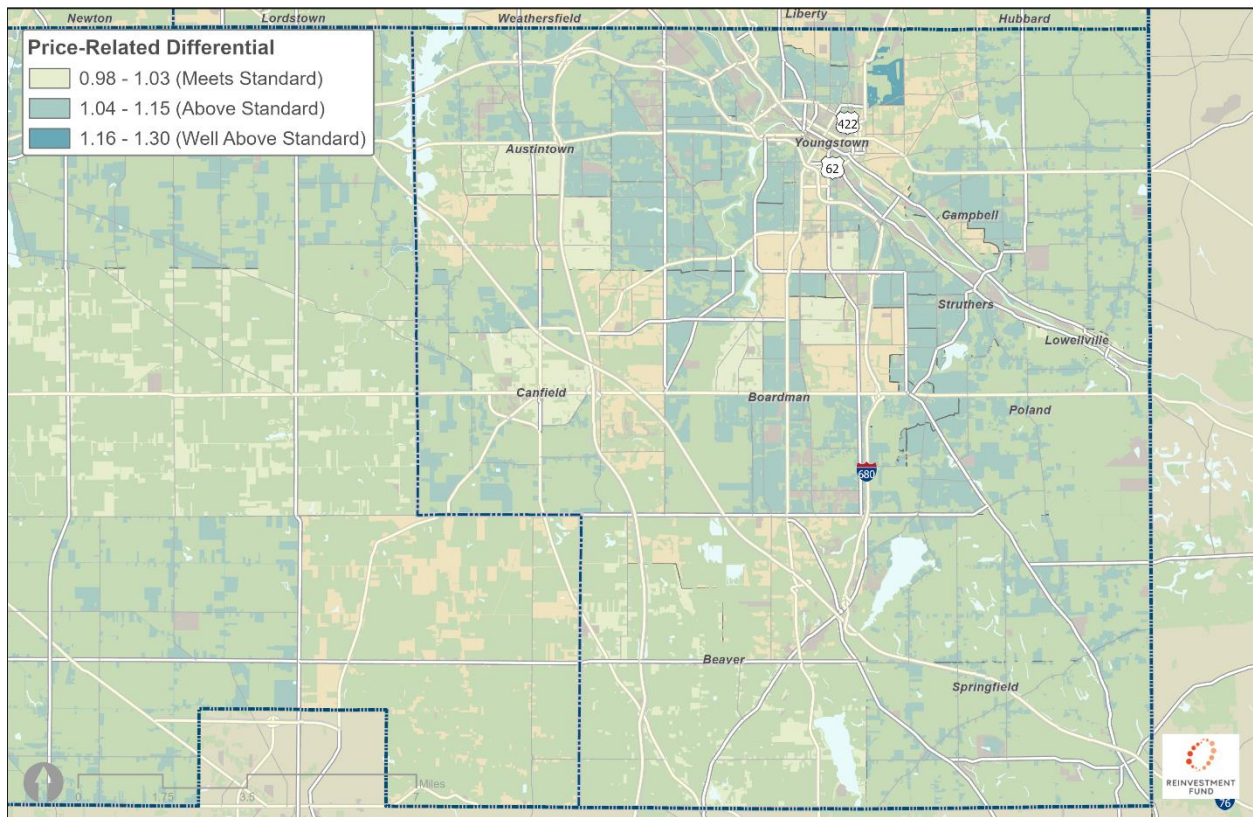
Map Three shows that some Census tracts are slightly above the industry standard. These are primarily in Austintown, Campbell, Youngstown, and Struthers. One tract in Youngstown – the same area that shows a high median ratio - is well above industry standards. This area may need further refinement of the assessed values when the State of Ohio reviews the assessed market values and outreach to help property owners appeal their assessments to align assessed values more closely with the home sale prices in the area.



Map Three: Coefficient of Dispersion (a measure of Uniformity) by Census tract

The PRD is a measure of how well low-priced properties are assessed compared to high-priced properties (that is, of regressivity). Put another way, it measures if lower priced properties are proportionally assessed similarly to how higher priced properties are assessed. The IAAO standard for PRD ranges from 0.98 to 1.03, with values over 1.03 showing regressive assessments in which lower priced properties are assessed at proportionally higher than their share of market sale prices. Most municipalities in Mahoning County show slight regressivity.

Many Census tracts also show slight regressivity (those in blue in Map Four below). One tract in Youngstown is well above industry standards. Research has found that it is often the case that owners of lower-priced properties pay proportionately more than owners of higher-priced properties,¹¹ despite the inherent unfairness that results from placing a disproportionate tax burden on homeowners who are less able to pay.



Map Four: Price-Related Differential (a measure of regressivity) by Census tract

¹¹ See McMillen and Singh note 3 above.

Conclusions and Policy Considerations

The changes in assessed market values for residential property in Mahoning County accurately reflect the dramatic changes in home sale prices in the post-pandemic period. These changes will impact different municipalities in different ways. Assessment value increases have been largest in low-income parts of Youngstown and Struthers. Although these changes track the market, policy considerations for residents of these areas who may not have had comparable income increases are important for equity and preserving homeownership. When low-income homeowners pay higher taxes, those dollars can be taken from necessities or from property maintenance that can lead to disinvestment in the neighborhood. Higher home prices combined with higher property taxes can also make purchasing and maintaining a home more difficult for new homebuyers.

Residential property tax assessments in Mahoning County are generally within industry standards in municipalities across the County, and properties are slightly underassessed compared to recent home sale prices. These findings suggest that the typical home in across Mahoning County's municipalities is correctly assessed. The assessments generally vary within industry standards. One area of concern however is that there is slight regressivity in many areas, and therefore owners of lower-priced homes are likely paying a proportionately higher share of property taxes than they would in a balanced system. Policymakers should conduct outreach to these areas to make sure residents are able to appeal their assessment if they would like to and that residents are accessing all the property tax relief measure they are eligible for. When assessments are revisited in three years, reduction of regressivity should be a primary consideration.