Residential Revaluation Summary Report

2020 Mass Appraisal of All Regions for 2021 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 performed no (or the specified) services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.
- 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 2014-2015 edition with 2016-17 Update letter.*
- I have not personally inspected all of the properties that are the subject of this report. Other appraisers involved in the review of property are listed on the following page.

  No one provided significant analytical assistance to the person(s) signing this certification in the final opinion and conclusions of this report. However, mass appraisal requires a division and specialization of some tasks. I may or may not have been involved in some specific tasks. Although, I did review the conclusions included in this report.

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:	
	006 - Senior Appraiser 028 – Senior Appraiser 029 - Senior Appraiser 042 - Senior Appraiser 057 - Senior Appraiser 066 - Senior Appraiser 067 - Senior Appraiser 068 – Senior Appraiser 069 - Senior Appraiser 070 - Senior Appraiser 071 - Senior Appraiser 072 - Senior Appraiser 073 - Senior Appraiser 074 - Appraiser Assistant 075 - Appraiser Assistant
Sales Validation:	
	007 - Appraiser Analyst 035 - Appraiser Analyst 056 - Appraiser Analyst 065 - Appraiser Analyst
Land Model Building:	007 - Appraiser Analyst 035 - Appraiser Analyst 056 - Appraiser Analyst 065 - Appraiser Analyst
Final Review:	062 - Chief Deputy

MASS APPRAISAL CONCLUSIONS

Appraisal Date: January 1, 2020

Area Name / Number: County Wide all Regional Summary

Physical Inspection: Active Inspections of 18,746 parcels in Regions 10,14,16
Non-inspected Updates: Non-Inspected Updates 92,214 parcels. Regions 1,2,3,4,5,6,7,8,9,11,13,15,17

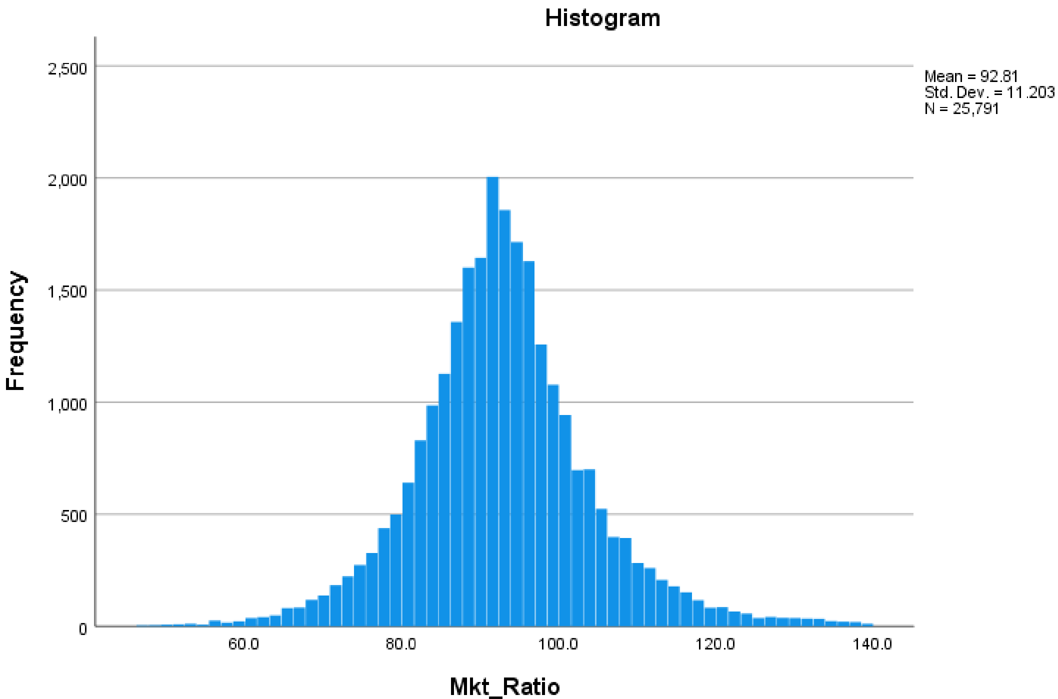
Summary of Regional Sales Ratios

Ratio Statistics for 2020-21Value / Mkt_Adj_SP

Group	Mean	Median	Weighted Mean	Std. Deviation	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
01	.896	.896	.887	.079	.056	1.010	.062	8.8%
03	.983	.954	.954	.170	.137	1.031	.144	18.1%
04	.906	.901	.871	.188	.137	1.041	.152	20.9%
05	.995	1.037	.981	.156	.123	1.015	.119	15.6%
06	.940	.900	.922	.171	.138	1.020	.153	19.5%
07	.940	.928	.917	.160	.122	1.025	.132	17.3%
08	.950	.955	.946	.161	.129	1.004	.135	16.8%
09	.947	.943	.936	.177	.145	1.012	.153	18.8%
10	.944	.943	.924	.185	.150	1.021	.159	19.7%
11	.962	.969	.950	.189	.154	1.013	.159	19.5%
14	.911	.913	.906	.127	.101	1.005	.110	13.9%
16	.956	.941	.929	.153	.125	1.029	.133	16.3%
17	.966	.953	.958	.220	.172	1.007	.181	23.1%
Overall	.951	.944	.934	.182	.147	1.018	.156	19.3%

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 analyzed separately for the purpose of appraising these property types. **Listings of the individual sales used in the analysis for any parcel can be found by utilizing the *Parcel Search (A+)* link on the Assessor's website at** http://www.co.thurston.wa.us/Assessor/**.**

Number of Parcels in the Sales Sample: The population of residential vacant land and standard single-family residences in the county over a 5-year period was approximately 21,944 parcels. Adding sales of manufactured homes and condos brings the final sample to 25,791 total sales. Ratios are represented by properties which have not had a change in use.



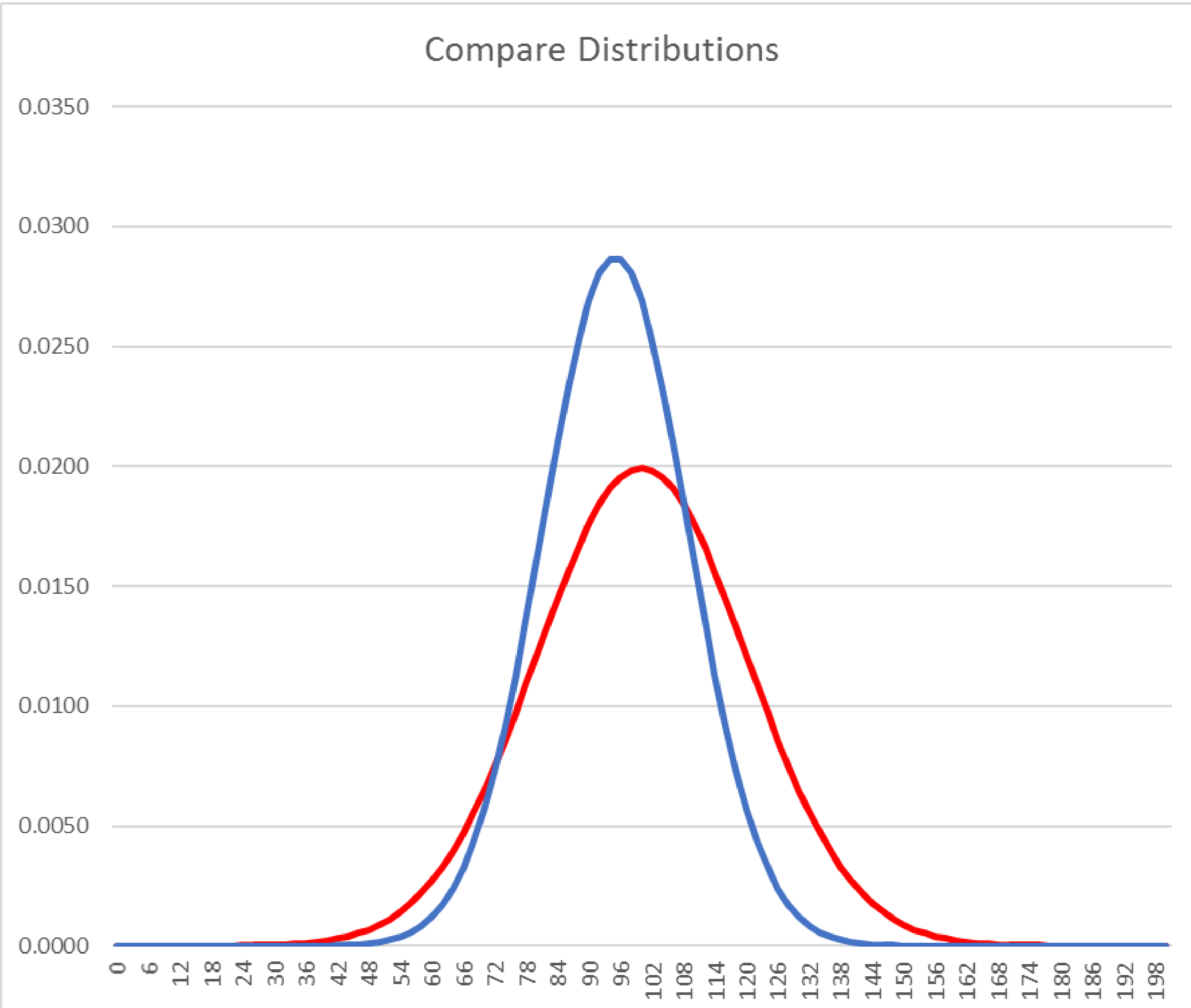
Group	Mean	Median	Weighted Mean	Std. Deviation	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion
CNU	.966	.947	.944	.131	.095	1.023	.101
LND	.930	.921	.877	.202	.162	1.059	.176
MNL	.660	.660	.652	.061	.043	1.012	.066
MOB	.929	.929	.929	.208	.168	1.000	.181
RES	.928	.924	.928	.106	.079	1.000	.085
Overall	.929	.925	.927	.119	.087	1.002	.094

Conclusion and Recommendation: The assessment department has achieved its constitutional and statutory requirements to appraise, on a mass basis, all residential properties at market value. Additionally, we have met and surpassed the required ratios which represent good quality results per the standards published in the STANDARDS ON RATIO STUDIES 2020 by the International Association of Assessing Officers.

Since the values recommended in this report improve uniformity, assessment level, and equity, we recommend posting them for the 2021 Tax Roll.

Thurston County's Performance Relative to Standards

The table on the previous page indicates the level which are considered professionally a representation of the tolerances for best practices. Thurston County has features of both an urban and suburban county, which would indicate that our Coefficient of Dispersion should be between 15 to 20%, extrapolating that a Gaussian distribution would indicate a standard deviation of 20% at the minimum. The chart below indicates that Thurston County has well achieved this standard and better.



Best practices require a standard deviation between 20 to 26.7%. Thurston County exceeded that with a standard deviation of 12.9%. Additionally, best practices require an overall sales ratio between 90 to 110%, Thurston County had a median value of 94.4%. 40.3% of the time we produce a better estimate than best practices.

CHECK FOR SALES CHASING

So, how do we know if these ratios are honest and correct? If a jurisdiction engages in such a practice it is called sales chasing. If that occurs, then the validity of their ratios will be false and no conclusion about bias and results can be drawn. There are several methodologies which appraisal practices permit and are outlined in IAAO Standard of Ratio Studies published in 2013. One of the most common methods is to check the average change in value between sold and unsold properties. If adjustments are properly applied between these two groups with near the same mean the distribution should be similar.

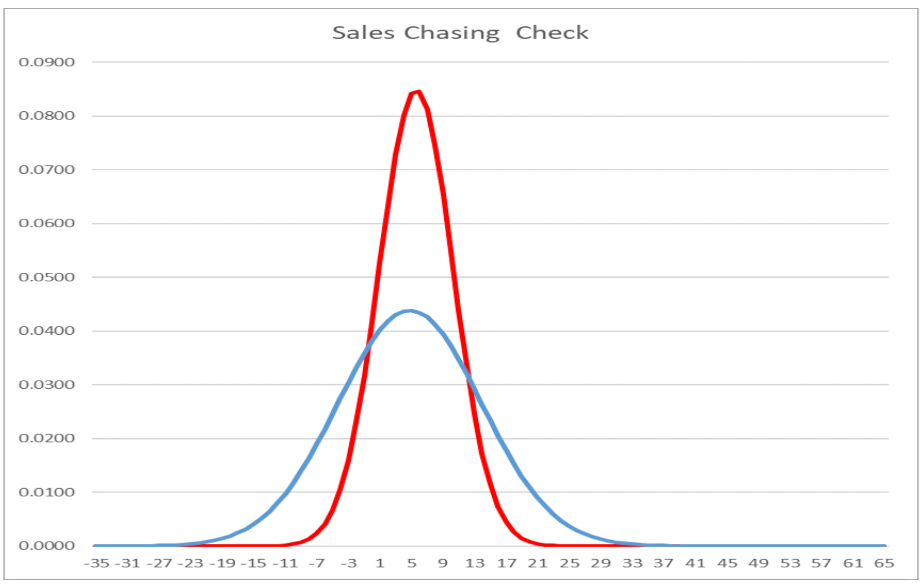
This is accomplished by drawing a RANDOM sample of properties which have sold in the last five years and another RANDOM sample of properties which have not sold (without replacement of the observation). The sample size was about 200 for both groups.

To strongly quote IAAO Standards on Ratio Studies, page 59:

"Statistical significance in the absence of practical significance may be moot. In large samples, small differences in the magnitude of assessed value changes on sold and unsold parcels can be proven to be statistically significant, yet the actual difference may be slight. Therefore, it is prudent to establish some reasonable tolerance, such as 3 percentage [difference]...before concluding that a meaningful problem exists."

The summary statistics are indicated on the table below and the distributions of these samples are exhibited the following chart.

	Percentage Change in Value				
	Lower 25%	Median	Mean	Upper 25%	Std. Dev
Inventory	**1.1**	**4.7**	**5.7**	**7.7**	**9.1**
Sales	**2.7**	**5.6**	**5.7**	**8.3**	**4.8**



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)
- Guidelines published by the International Association of Assessing Officers (IAAO)

The Appraisal Standards Board of the Appraisal Foundation biennially publishes *the Uniform Standards of Professional Appraisal Practice* (USPAP). This cycle is subject to the 2020-2021 edition and the recent updates for the 2016-2017. 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.

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

CLIENT AND INTENDED USERS

This report was prepared for **Steven J. Drew, Thurston County Assessor**.

The primary intended users are the governing board and levy authority for:

Thurston County
Thurston County Roads
Timberland Regional Library
Medic One
Port of Olympia
PUD 1
State Schools
State Schools 2
Conservation Futures
Tanglewilde Park District
Tumwater Metropolitan Park District
Olympia Metropolitan Park District
North Thurston SD 3
Olympia SD 111
Rainier SD 307
Rochester SD 401
Tenino SD 402
Tumwater SD 33
Yelm SD 2
Centralia SD 401-L
Griffin SD 324
Town of Bucoda
City of Lacey
City of Olympia
City of Rainier
City of Tumwater
City of Tenino
City of Yelm
Fire District 1 Rochester Grand Mound
Fire District 2 Yelm
Fire District 3 Lacey
Fire District 4 Rainier
Fire District 5 Black Lake
Fire District 6 East Olympia
Fire District 8 South Bay
Fire District 9 McLane
Fire District 11 Littlerock
Fire District 12 South Thurston
Fire District 13 Griffin
Fire District 17 Bald Hills
SE Thurston Regional Fire Authority
West Thurston Regional Fire Authority
Cemetery District 1
Cemetery District 2

Other intended users include the County Board of Equalization and the State Board of Tax Appeals.

ASSUMPTIONS AND LIMITING CONDITIONS

The Appraisal Summary 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 are 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, or for any expertise or engineering knowledge required to discover them.

All properties are considered to be conveyed in fee simple with the full bundle, with the exception of separate leasehold accounts. Exceptions will be noted on their individual records.

Generally, the appraiser does not have the benefit of an interior inspection. As a result, it is assumed that the interior condition mimics the exterior. On those occasions in which an interior inspection is granted, the condition is reflective of the overall property. Those parcels which have had an interior inspection are noted on their individual records.

SPECIAL ASSUMPTIONS, LIMITING AND HYPOTHETICAL CONDITIONS

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

Unless otherwise noted on the individual property record, we assume that the property is not adversely affected by neighboring properties or other external environmental factors.

We assume that the interior of residences and structures are the same as the exterior visual review.

We assume that the current condition and features of the property are the same as of the date of its last inspection.

It is assumed that the property is at its highest and best use as improved.

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

We believe that our screening process is adequate to capture arm's-length property sales. Some arm's-length transactions do not actually reflect their market value and were not used for either modeling or ratio studies per trimming guidelines of IAAO.

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 2021. 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, 2020.

This report was completed as of May 31, 2020

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.

MARKET AREA AND PROPERTIES APPRAISED

The subject of this mass appraisal report are residential properties throughout Thurston County. Properties in regions 10, 14 and 16 were physically inspected and their physical features recorded as of the effective date of January 1, 2020. All other properties are assumed to have the same physical features as were noted during their last inspection.

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

INSPECTED REGIONS BOUNDRY DESCRIPTION

The physical inspections occurred in Regions 10,14 and 16
The three regions physically inspected this year were regions 10,14 and 16.

Region 16 is within the North Thurston School District. It is bounded by Mullen Road to the north, Yelm highway to the south, Ruddell Road on the west, and Meridian Road on the east. Pattison Lake is a major feature in the center of this region. A portion of this region on the western side is within the City of Lacey and the rest of the region is within the Urban Growth Area (UGA) of Lacey, except a small unplatted section of Donation Land Claim parcels along Yelm Highway.

Regions 10 and 14 encompass the larger southeast portion of Thurston County, starting in the north just above the city of Yelm and JBLM property, following along the eastern and southern border of Thurston County, then cutting up along the timber properties in the south, off of Vail Cutoff and Vail Loop Road between Tenino and near the City of Rainer, northwest along the Chehalis Western Trail, closing the loop with the JBLM property north of the City of Yelm.

Region 14 is composed of all residential parcels falling within the boundary of the city limits of Yelm. The Yelm Urban is not included in this region but falls in the inspection area Region 10.

Region 10 is composed of all parcels outside the City of Yelm, but in the Yelm or Rainier School Districts, plus about a dozen large parcels of vacant land in the northwest corner of this region that are part of the Tumwater or Tenino

[2] *The Dictionary of Real Estate Appraisal. 3rd Ed.* Appraisal Institute, p.140

School Districts for tax purposes. These appear to group better with the Rainier School District parcel and have been included in that region.

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 a 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.

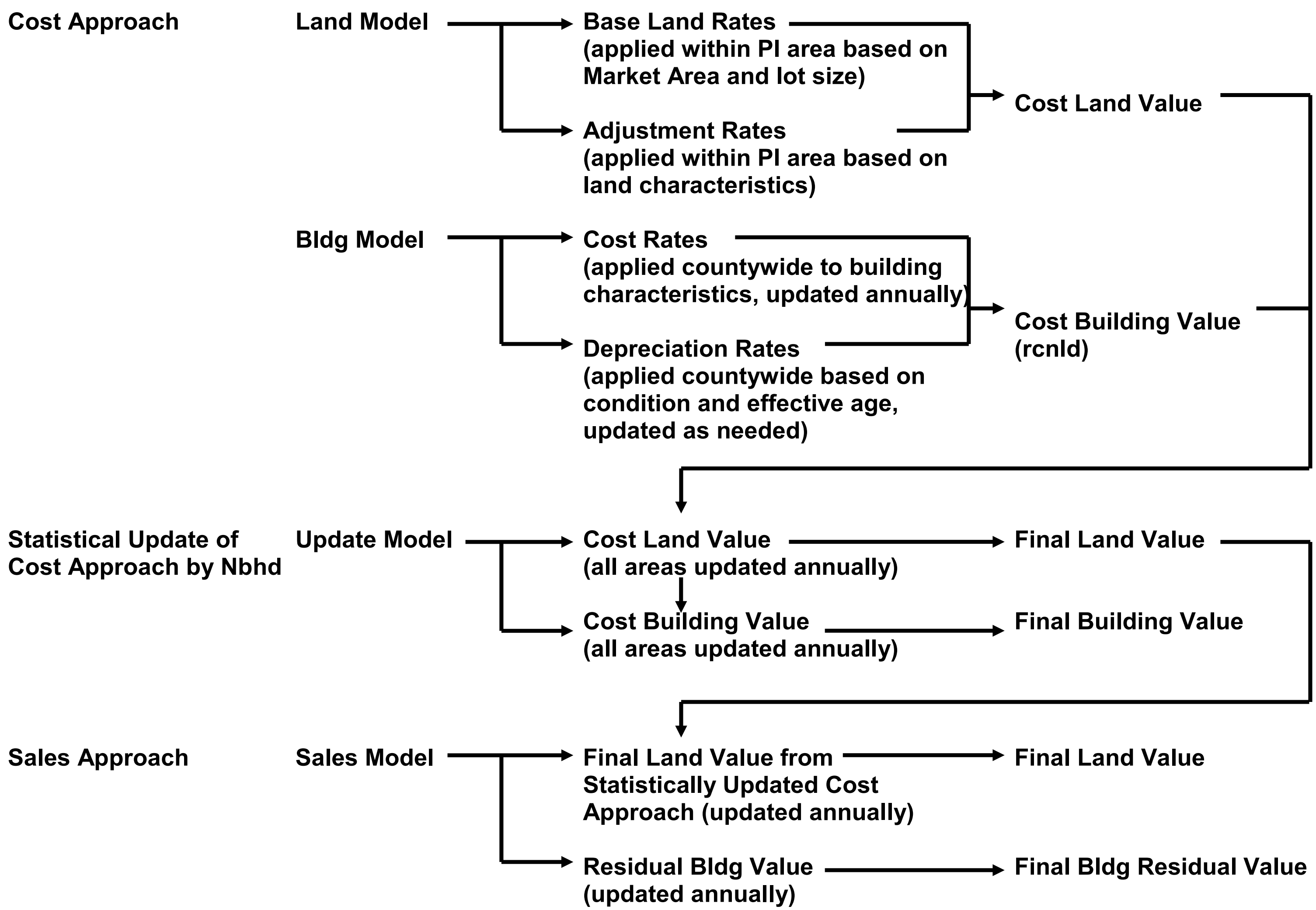
Thurston County is on a six-year revaluation cycle. Every property is revalued annually. At least once each six years, each property is inspected, and its data refreshed. The assessor collects property characteristic data as discussed in our Residential Data Standards Manual. Other than new construction, physical inspections were done in regions 10,14 and 15 and occurred starting in August of 2019 and the first quarter of 2020. All neighborhood and regional maps are included and begin on page 54 of this report.

The appraisal considers the cost approach 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 2020 assessment year 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 14 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 15.

Residential Valuation Process



COST APPROACH

Land Model Specification

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

$LV = b_0 \; X \; SQFT^{b1} \; X \; LINVIEW^{b2} \; X \; b_3^{LI3} \; X \; b_4^{LI4} \; X \; b_5^{LI5} \; X \ldots$

All variables are scaled and continuous. Variables with actual scalar values were converted to logarithms.

Land Model Calibration

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

Standard Multiplicative form: $SP = a * SQFT^b * c^{NBHD} * \ldots$
Log Linear form: $LN(SP) = LN(a) + (b * LN(SQFT)) + (LN(c) * NBHD) + \ldots$

- **Logarithmic equations have the same form as a standard linear equation:**

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

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

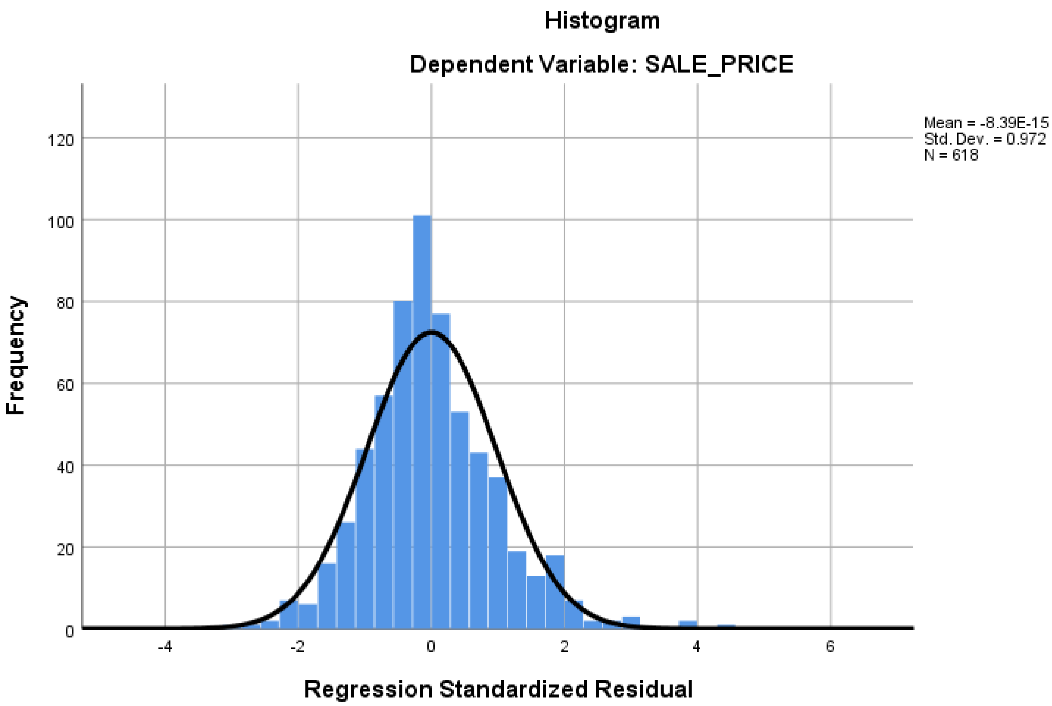
$EXP[LN(SP)] = EXP[LN(a) + (b * LN(SQFT))]$
Due to the limited number of sales available, 5 years of data was utilized. Two models were developed. Most of the properties in the county are based on square footage and acreages. With the exception of salt waterfront properties, a model was developed utilizing the sale price of vacant land as the dependent variable. The major independent variables (as measured by the beta coefficient) were the square foot of land, region, time and other site-specific variables. Sixty candidate variables were presented to the model and a backward regression was utilized, with 41 variables being statistically significant. There were 1,334 observations available, dated from January 1, 2015 to March 31, 2020.
For salt waterfront properties a forced regression model was utilized using 45 variables. The dependent variable was the natural log of the sale price, with the major independent variable being the natural log of the front footage as well as other control variables for region, market conditions (time) and site influences. The sales observations were a combination of vacant land sales, as well as model extracted land values of sold improved properties utilizing regression. There was a total of 409 observations, dated from January 1, 2015 to March 31, 2020.

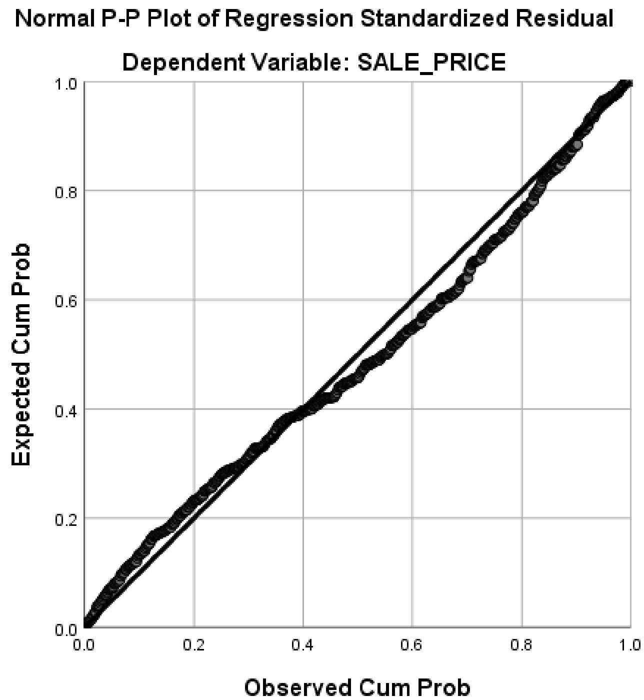
Each region was controlled for by using a variable for that region, time, and other control variables. The model at this point has been maximized at the regional level. However, stochastic errors have not yet been controlled for at the neighborhood level. An analysis of the residuals at the neighborhood will maximize the predictability of values as well as minimize any stochastic errors.

Multiple Regression Analysis Assumptions

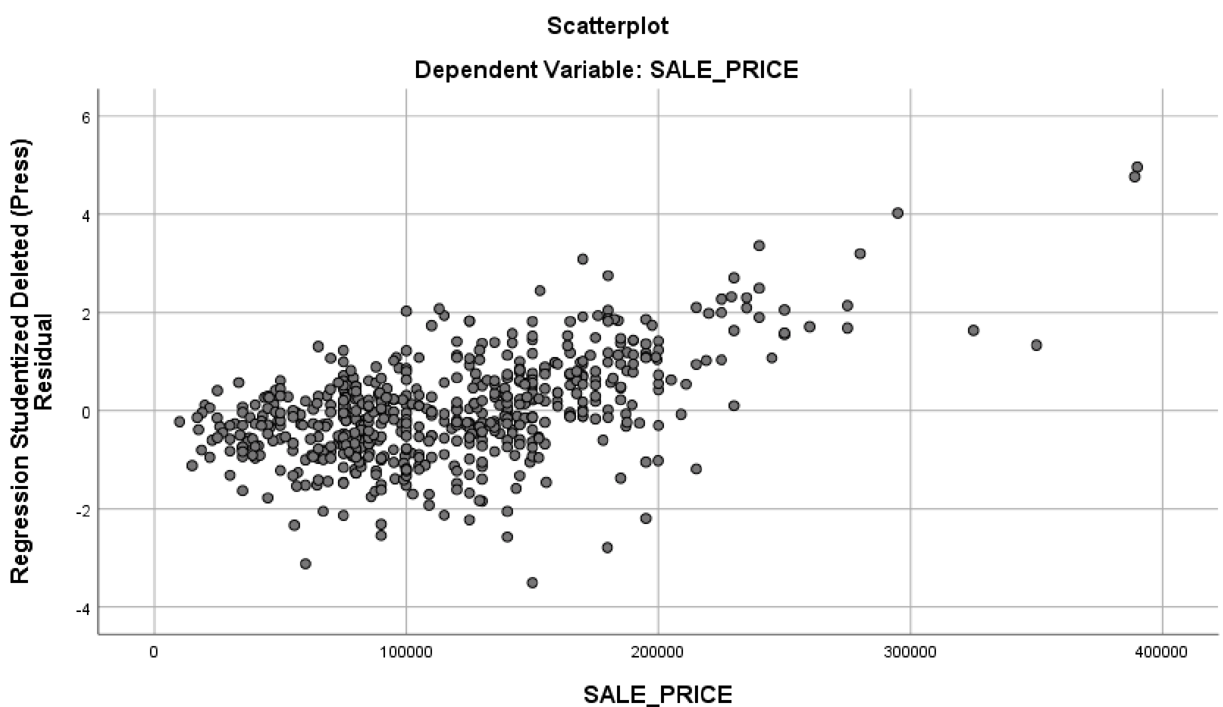
Multiple regression analysis is based on several assumptions regarding the data going into the model and the output from the calibration process. These assumptions are validated to determine the accuracy of the model and identify any limitations that may exist. Checks were conducted for specification errors, multicollinearity, autocorrelation (time), and heteroscedasticity. A detailed discussion of the MRA assumptions is included in the Appendix.

Square Footage Model Normal Distribution of the Residual Errors



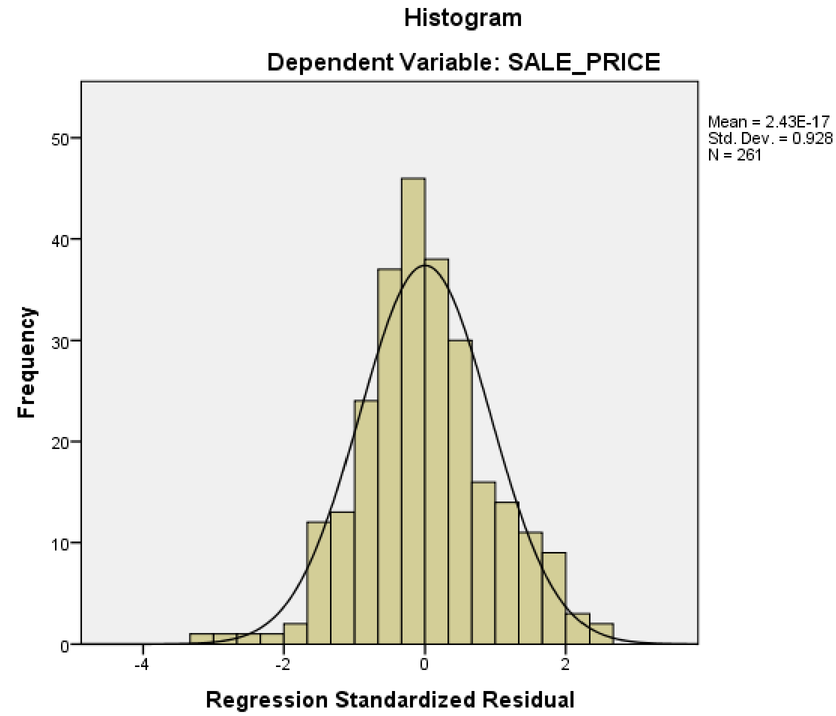


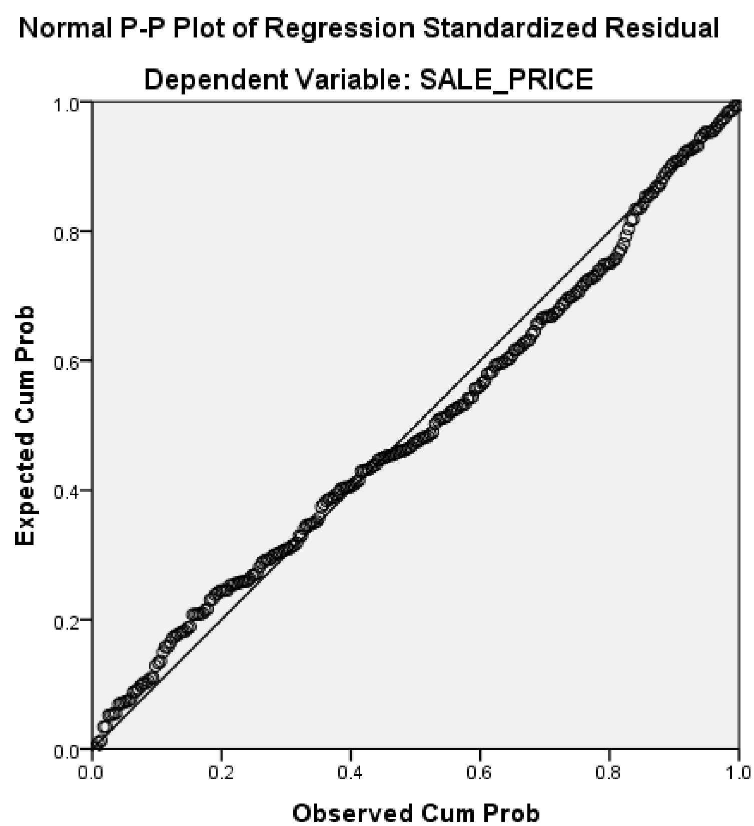
Scatterplot of Residual to Price as check for systemic bias



- The plot indicates that there is no systemic bias with respect to predicted value.

Front Footage Model Normal Distribution of the Residual Errors





Example of Land Square Feet Table Base Area Region 5

	Site Square Feet	Value	Base / Sq Ft	Act Price / Sq Ft	Size Factor	Value Factor
	2,500	47,344	8.49	18.94	0.200	2.765
	5,000	61,106	8.49	12.22	0.400	1.784
	7,500	70,942	8.49	9.46	0.600	1.381
	10,000	78,867	8.49	7.89	0.800	1.151
BASE	**12,500**	**85,619**	**8.49**	**8.49**	**1.000**	**1.000**
	15,000	91,563	8.49	6.10	1.200	0.891
	17,500	96,909	8.49	5.54	1.400	0.808
	20,000	101,792	8.49	5.09	1.600	0.743
	22,500	106,302	8.49	4.72	1.800	0.690
	25,000	110,506	8.49	4.42	2.000	0.645
	27,500	114,452	8.49	4.16	2.200	0.608
	30,000	118,178	8.49	3.94	2.400	0.575
	32,500	121,711	8.49	3.74	2.600	0.547
	35,000	125,077	8.49	3.57	2.800	0.522
	37,500	128,295	8.49	3.42	3.000	0.499
	40,000	131,379	8.49	3.28	3.200	0.480
	42,500	134,344	8.49	3.16	3.400	0.461
	45,000	137,201	8.49	3.05	3.600	0.445
	47,500	139,959	8.49	2.95	3.800	0.430
	50,000	142,627	8.49	2.85	4.000	0.416
	52,500	145,212	8.49	2.77	4.200	0.404
	55,000	147,720	8.49	2.69	4.400	0.392
	57,500	150,157	8.49	2.61	4.600	0.381
	60,000	152,528	8.49	2.54	4.800	0.371
	62,500	154,837	8.49	2.48	5.000	0.362
	65,000	157,089	8.49	2.42	5.200	0.353
	67,500	159,287	8.49	2.36	5.400	0.345

Example of Acreage Table Base Region 5

	Acres	Site Square Feet	Value	Base / Acre	Act Price / Acre	Size Factor	Value Factor
	1	43,560	135,568	40,116	135,568	0.200	2.765
	2	87,120	174,973	40,116	87,487	0.400	1.784
	3	130,680	203,140	40,116	67,713	0.600	1.381
	4	174,240	225,833	40,116	56,458	0.800	1.151
BASE	**5**	**217,800**	**245,166**	**40,116**	**40,116**	**1.000**	1.000
	6	261,360	262,186	40,116	43,698	1.200	0.891
	7	304,920	277,494	40,116	39,642	1.400	0.808
	8	348,480	291,475	40,116	36,434	1.600	0.743
	9	392,040	304,391	40,116	33,821	1.800	0.690
	10	435,600	316,429	40,116	31,643	2.000	0.645
	11	479,160	327,728	40,116	29,793	2.200	0.608
	12	522,720	338,395	40,116	28,200	2.400	0.575
	13	566,280	348,514	40,116	26,809	2.600	0.547
	14	609,840	358,153	40,116	25,582	2.800	0.522
	15	653,400	367,365	40,116	24,491	3.000	0.499
	16	696,960	376,198	40,116	23,512	3.200	0.480
	17	740,520	384,687	40,116	22,629	3.400	0.461
	18	784,080	392,867	40,116	21,826	3.600	0.445
	19	827,640	400,765	40,116	21,093	3.800	0.430
	20	871,200	408,404	40,116	20,420	4.000	0.416
	40	1,742,400	527,114	40,116	13,178	8.000	0.269
	60	2,613,600	611,966	40,116	10,199	12.000	0.208
	80	3,484,800	680,330	40,116	8,504	16.000	0.173
	100	4,356,000	738,573	40,116	7,386	20.000	0.151
	200	8,712,000	953,253	40,116	4,766	40.000	0.097
	400	17,424,000	1,230,333	40,116	3,076	80.000	0.063

Example of Land Influences

MEAN LAND ADJUSTMENT FACTORS

Flood Area	20% Wetland	40% Wetland	60% Wetland	80% Wetland	100% Wetland
.50	.93	.86	.79	.60	.30
Limited View	**Good View**	**V Good View**	**Excellent View**	**Fair Nbhd Appeal**	**Good Nbhd Appeal**
1.10	1.15	1.35	1.50	.95	1.15
Restrictions	**Shape**	**Steep**	**Unbuildable**	**Unusable**	**No Electric Service**
.50	.85*	.85*	.30	.05*	.489**
Located on Golf Course	**Lake Front Avg**	**Lake Below Avg**	**No Road**	**No Site Improvements**	**Prelim Plat**
1.30	2.00	1.30	.80	.50	2.70

The above are the conversion of the unbiased parameters. Although generally applied, specific features of an individual may result in deviations for these parameters. Items with single asterisks are more commonly adjusted to the parcel with appraiser judgement. Double asterisks may alternatively use lump a sum adjustment for the cost to cure. Some parcels may have a cascading effect of multiple influences, and potentially could be over adjusted if the two influence intersect in their impact on the parcel. Although checks for multicollinearity were conducted in building a model, some parcels may require individualized adjustments.

Example of Saltwater Front Foot & Depth Tables

BASE Salt Group 3					
	Front Feet	Standard Depth	Land Flag	Rate Salt Area 3	FF Rate Group
	50	350	1740	6556	3650
	75	350	1740	4798	3650
	100	350	1740	3827	3650
BASE>>>>>	**150**	**350**	**1740**	**2765**	**3650**
	200	350	1740	2188	3650
	250	350	1740	2263	3650
	300	350	1740	1984	3650
	350	350	1740	1775	3650
	400	350	1740	1612	3650

	Standard Front Foot	Lot Depth	Land Flag	Depth Value	Depth Adj Group
	150	100	1740	2726	2,655
	150	200	1740	2730	2,655
BASE>>>>>>	**150**	**350**	**1740**	**2765**	**2,655**
	150	500	1740	2800	2,655
	150	650	1740	2805	2,655
	150	800	1740	2808	2,655
	150	950	1740	2810	2,655
	150	1100	1740	2811	2,655

SALT WATER SPECIFIC INFLUENCES

Mean Influence	Description
.80	No Access
.90	Moderate Access
1.00	Superior Access
.93	Salt High
.96	Salt Medium
$6000	Rec1st class
$2000	Rec2nd class
.67	No View
.83	Limited View
.90	Good View
Base	Very Good View
1.02	Excellent View
1.15	Good Quality NBHD
Variable	Restrictions
Variable	Lagoon

Building Cost Specification

Model Format for RCNLD:

BV = $[(c_1 \times Q_1) + (c_2 \times Q_2) + (c_3 \times Q_3) + \ldots] \times$ Pct. Good
Where: Building Components = $Q_1, Q_2, Q_3 \ldots$
Costs per unit = $c_1, c_2, c_3 \ldots$

2020 COST TABLE CALIBRATION

Introduction

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 our Marshal & Swift cost tables. For residential property new construction was 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

All new construction sales were queried for 2015 through 2020 and were adjusted for market conditions as of 1/1/2020. A total of 1,035 sales of new homes were used in the analysis and dated from July 12, 2017 to February 12, 2020. A residual building cost was calculated by subtracting an estimate of the land value from the sale price. The current appraised value of the land is found after conducting a ratio study of land sales within the last five years with the appraised value. The median ratio for that period of 94.3 is well within IAAO standards.

Sales Analysis

The descriptive table on the next page demonstrates that the supplied cost table rates match our actual construction costs within our local market. This indicates that the Marshall & Swift building cost are good proxies for actual local building cost. The overall computed COD about the median is 15.1%.

Conclusion

The cost index as supplied by Marshall & Swift is representative of our current cost in their present state on an aggregate scale. This market calibrated cost table then provides 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.

COST BASE RATE STATISTICS

	25	50	75
2020	0.869	0.943	0.975

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 a 2-Story residence by quality grade is shown below. The complete set of rate tables is stored within the Sigma CAMA System.

	SFLA	LOW	FAIR	AVG	GOOD	VGD	EXC	EXP
BASE-2STY-SS	900	81.4	87.96	99.11	119.08	137.53	185.94	256.6
BASE-2STY-SS	1000	80.16	87.05	97.61	118.67	137.53	185.94	256.6
BASE-2STY-SS	1200	77.37	84.76	95.68	118.67	137.53	185.94	256.6
BASE-2STY-SS	1400	74.92	82.66	93.67	117.93	137.53	185.94	256.6
BASE-2STY-SS	1600	72.93	80.94	91.85	117.08	137.53	185.94	256.6
BASE-2STY-SS	1800	70.82	79.67	90.36	115.57	137.45	185.94	256.6
BASE-2STY-SS	2000	69.26	78.27	88.67	114.87	135.38	185.54	256.05
BASE-2STY-SS	2200	67.64	77.42	87.45	113.84	135.29	184.31	254.34
BASE-2STY-SS	2400	66.61	75.86	86.13	112.56	133.54	183.69	253.49
BASE-2STY-SS	2600	64.91	74.89	84.72	111.1	132.73	182.59	251.98
BASE-2STY-SS	2800	63.81	73.88	83.87	110.74	131.69	182.37	251.67
BASE-2STY-SS	3000	63.32	72.83	82.96	109.63	131.68	180.58	249.2
BASE-2STY-SS	3200	62.36	72.02	82.01	109.05	130.28	179.8	248.13
BASE-2STY-SS	3600	60.62	70.61	80.4	107.04	128.36	177.67	245.18
BASE-2STY-SS	4000	59.05	69.28	78.97	105.43	126.07	176.21	243.18
BASE-2STY-SS	4400	59.05	69.28	77.64	104.17	124.77	174.34	240.59
BASE-2STY-SS	4800	59.05	69.28	76.44	103.01	123.26	172.15	237.56

Depreciation Analysis

Effective Age

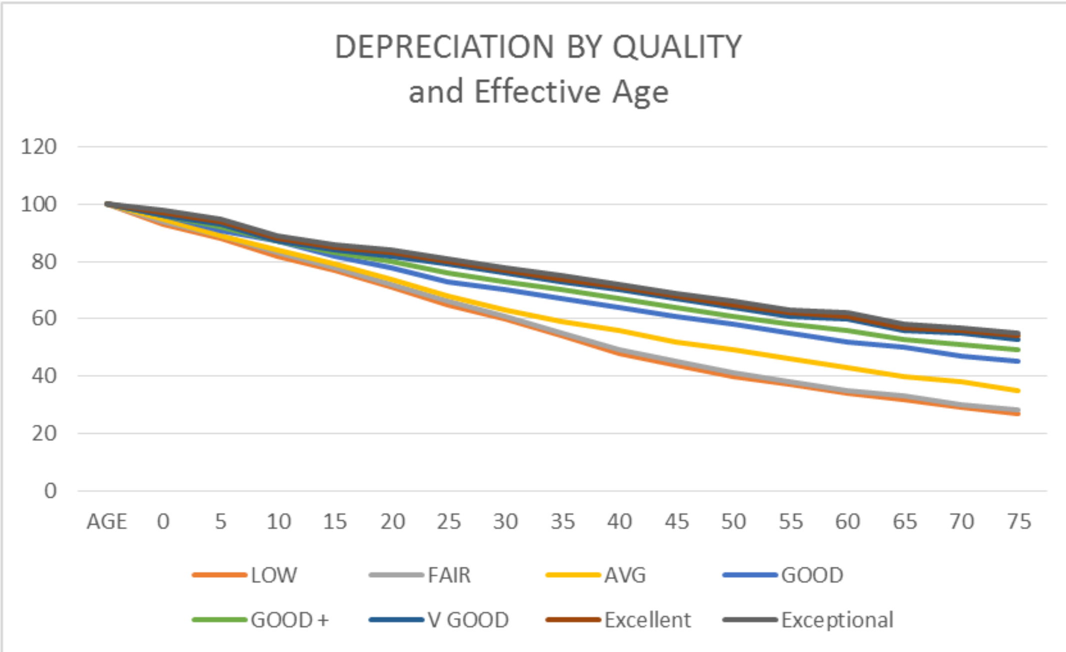
The effective age of a building is largely based on its overall condition. It is a measure of how old a building looks and not how old it actually is. As a result, any type of maintenance, repair, remodel, or renovation will tend to reduce the effective age. The more extensive the maintenance or repair 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.

SELECTED DEPRECIATION PERCENT GOOD BY EFFECTIVE AGE								
AGE	LOW	FAIR	AVG	GOOD	GOOD +	V GOOD	Excellent	Exceptional
0	100	100	100	100	100	100	100	100
5	93	94	95	96	96	96	97	98
10	88	89	89	91	92	93	94	95
15	82	83	84	87	87	87	88	89
20	77	78	79	82	83	84	85	86
25	71	72	74	78	80	82	83	84
30	65	66	68	73	76	79	80	81
35	60	61	63	70	73	76	77	78
40	54	55	59	67	70	73	74	75
45	48	49	56	64	67	70	71	72
50	44	45	52	61	64	67	68	69
55	40	41	49	58	61	64	65	66
60	37	38	46	55	58	61	62	63
65	34	35	43	52	56	60	61	62
70	32	33	40	50	53	56	57	58
75	29	30	38	47	51	55	56	57
80	27	28	35	45	49	53	54	55

The graph below shows the relationship between the percent good by quality 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.

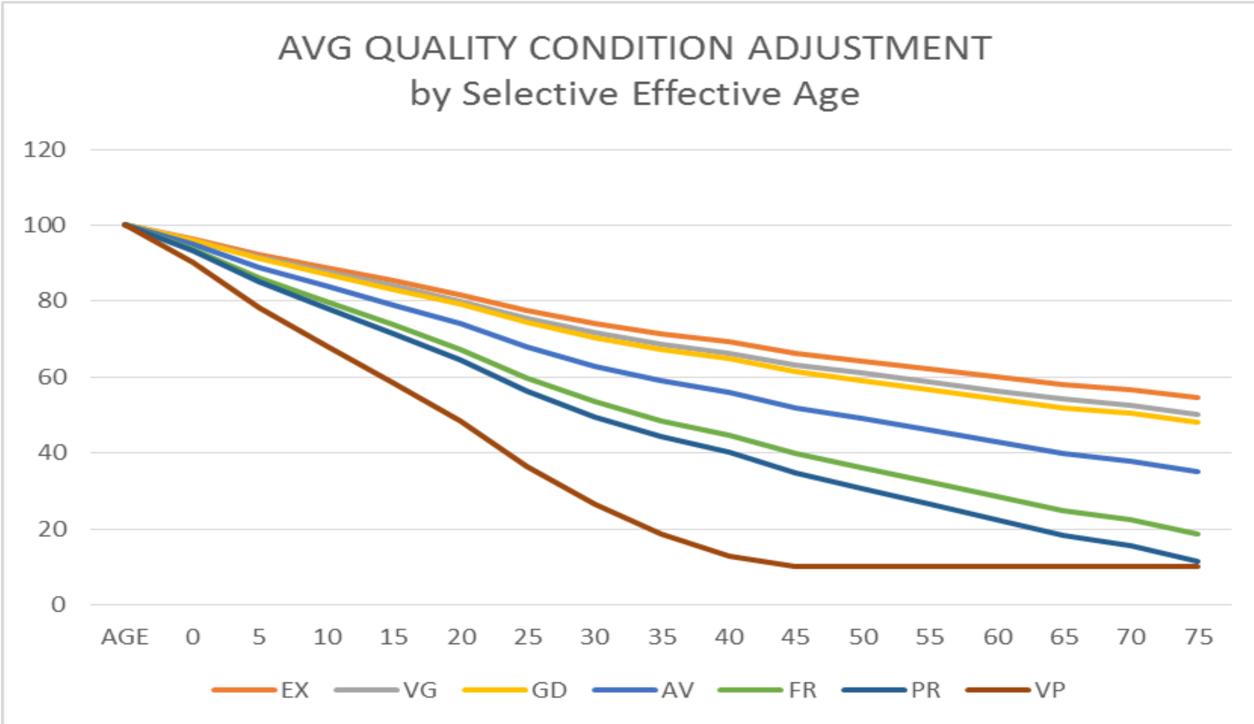
Adjusting the effective age would involve a fairly complex set of instructions and calculations for different situations that may be encountered. Minor remodels, major renovations, and building additions would require different adjustment techniques. Even with these procedures in place, there would be 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 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.

Generally, the appraiser does not have the benefit of an interior inspection. As a result, it is assumed that the interior inspection is the same as the exterior. On those occasions in which an interior inspection is granted, the condition is reflective of the overall property. Those parcels which have had an interior inspection are noted on their individual records.

The graph on the following page is an example of average quality with the different condition ratings on the percent good curve. It summarizes the relationship between effective age, building condition, and the rate of depreciation. The CAMA system calculates depreciation by the following formula:

Phy-Pct_Good = 100 – (Cond-Factor x (100 - Pct_Gd_Table))


AVG QUALITY CONDITION ADJUSTMENT
by Selective Effective Age
120
100
80
60
40
20
0
AGE 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75
EX VG GD AV FR PR VP

Neighborhood Adjustment Model Specification

The equation for the neighborhood adjustment is an additive model.

$V = b_1(LV) + b_2(BV)$ + systemic and random error

- Where:

1. Systemic errors would be bias introduced by neighborhood influence and their impact can be extracted by residual analysis.
2. Other random sampling errors are a result of market imperfections and difference occur because of consumer taste.

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. The residuals produced by the regionalized model will indicate a systemic difference between neighborhoods. These residuals become the basis for developing a neighborhood factor. These factors are scalar values, as opposed to qualitative estimates often employed by fee appraisers, and can be reintroduced in an MRA model. These factors are analogous to a positivist economist market model, it provides a statistically valid measurable solution based upon observable data. These positivist models are not normative, they do not attempt to answer why. These positivist assumptions and methodology are employed in the cost approach. In this mass appraisal methodology, a group of sales is normalized on a neighborhood level to determine the best factor to meet the statutory requirement and minimize variance.

Specifically, 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 are 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. The Assessor's target level of assessment for 2020 is 92.5%. This level was chosen to reflect that the majority of residences are not 'market ready' compared to the properties that sold at 100% of their market value. There were 26,865 sales used to do develop these neighborhood ratios.

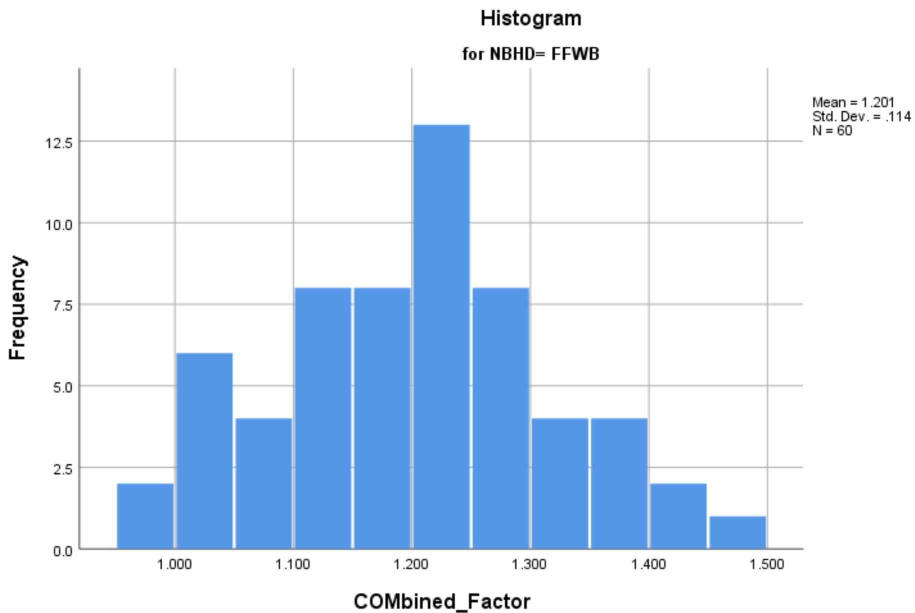
On the following page is an example: neighborhood "FFWB" with the original system cost to adjusted market value and the development of a market location adjustment.

IMPORTANT CONSIDERATION: Why do different types of properties (Single Family, Manufactured Homes, and Condominiums) have different neighborhood factors? The answer is quite simple. They have a different original cost basis. The important goal is to achieve equity and equality as to market value. In other words, the final assessment ratios need to be in compliance with medians between 90 to 110%.

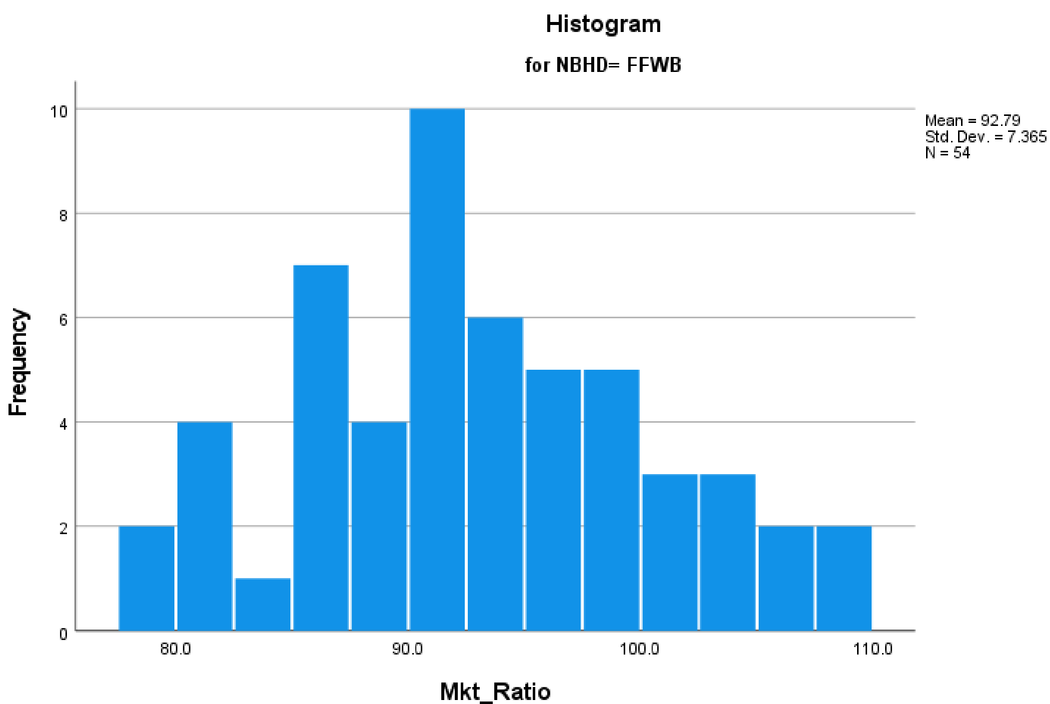
Below is the example neighborhood "FFWB" indicating the raw ratio data distribution, also the post treatment ratio.

EXAMPLE

Distribution of Raw Ratio for FFWB



Distribution of Ratio for FFWB after neighborhood adjustments.



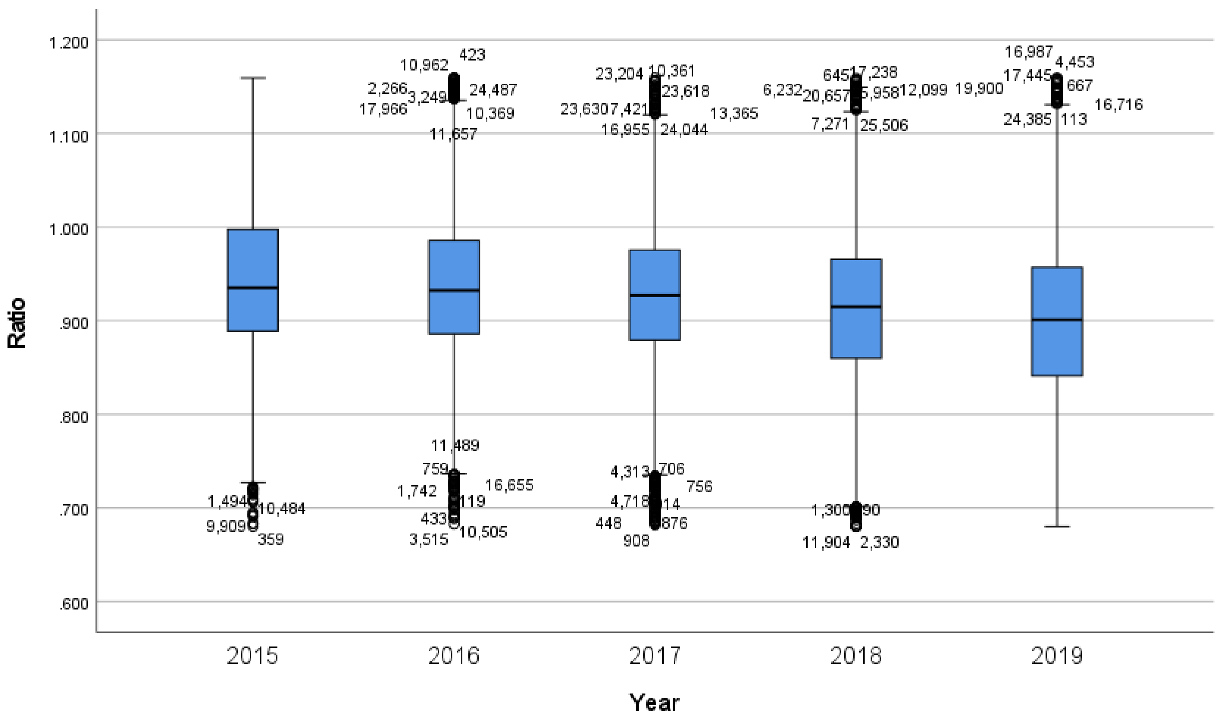
Post Treatment of Residential FFWB

Median	0.927
Coefficient of Dispersion	0.076
Price Related Differential	1.005

Residential Adjustment Model Validation

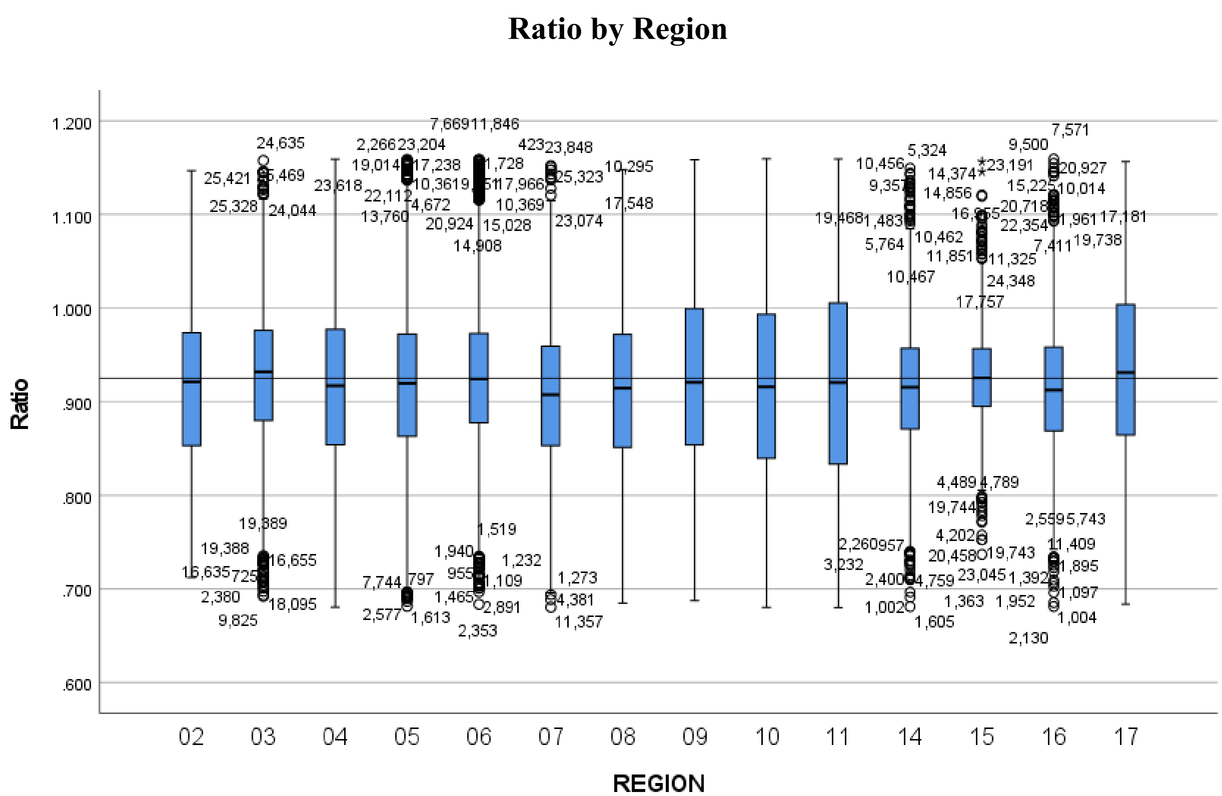
Neighborhood trends were calibrated using 26,865 sales that took place between 1/2/2015 to 02/28/2020. Because multiyear sales are utilized, a check for consistency of that estimate is required. In other words, the mean and median ratios for each year should be in the range of 90 to 110% and be consistent across all years. To achieve this, the comparable sales can be time adjusted to the current year and unbiased estimates achieved. The boxplot below provides graphical verification this has been achieved. For information on time trending of sales, refer to the *Market/Time Adjustment* document in the Appendix.

Ratio by Sale Year



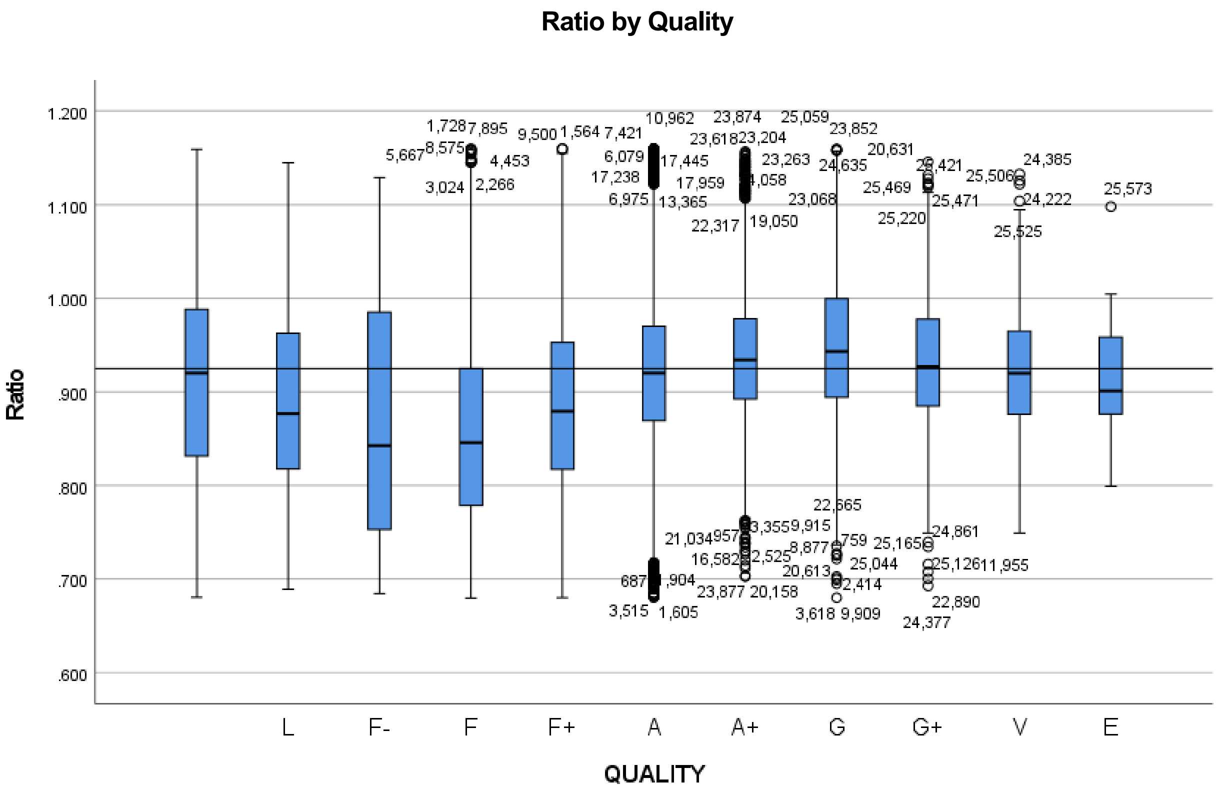
Assessment Uniformity by Region

There is a strong constancy among all residential regions around 92.5% level.



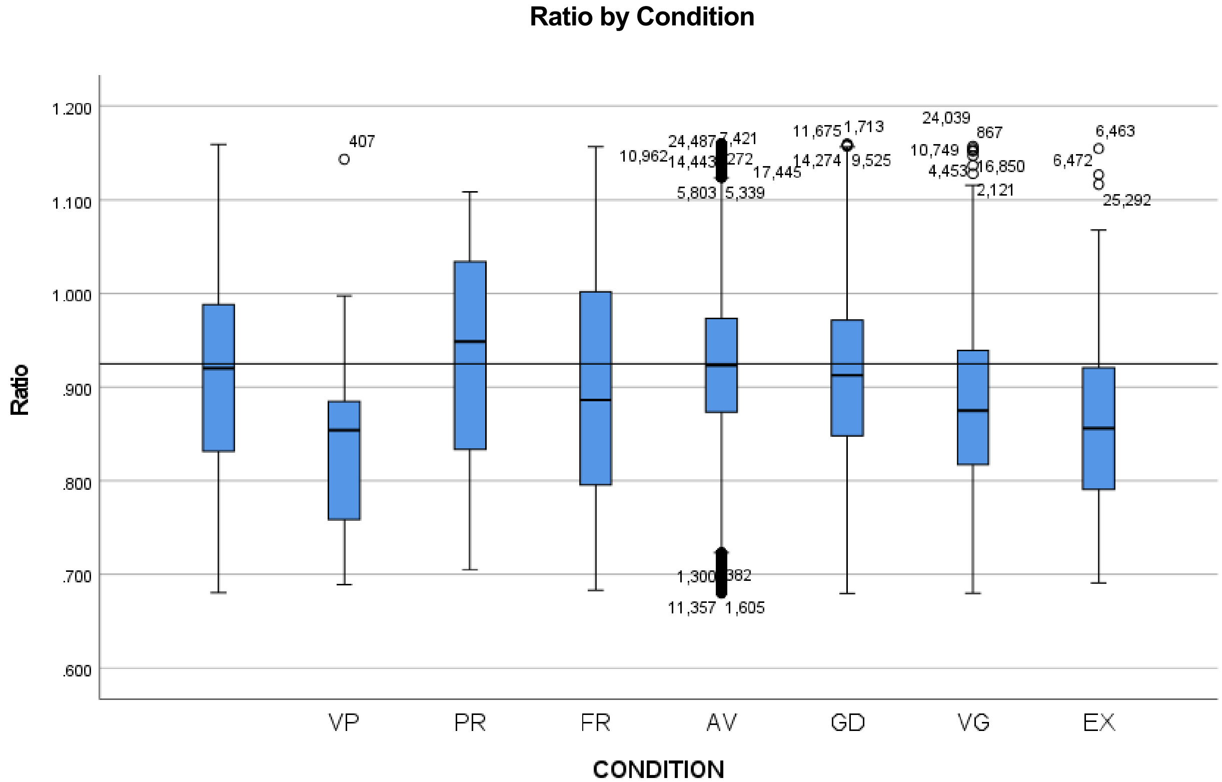
Assessment Uniformity by Quality Grade

Total square feet of gross living area, quality and size are major value drivers. The median level between quality grades is fairly consist at about the 92.5% level and the interquartile ranges are fairly consistent. The county is in the process of consolidating and creating better consistency between quality levels. While compliant, continuous improvement is expected. However, the data does indicate a propensity to slightly under value fair quality homes.



Assessment Uniformity by Condition

With respect to condition, there is no indication of systemic bias. The values for VP conditions are slightly lower than the general trend for all other conditions. It may be due to the low value of these properties, so a slight miss will overstate the difference. All other medians are within a tight pattern and hover around 92.5%



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. There is no evidence of a systemic bias between or within the sample. Also, the median ratio between the commercial subclass and residential subclass is within recommended guidelines by the International Association of Assessing Officers. This would indicate there is no tax shift due to inequality or inequity among property owners.

APPENDIX

Multiple Regression Analysis Assumptions

Complete and Accurate Data:

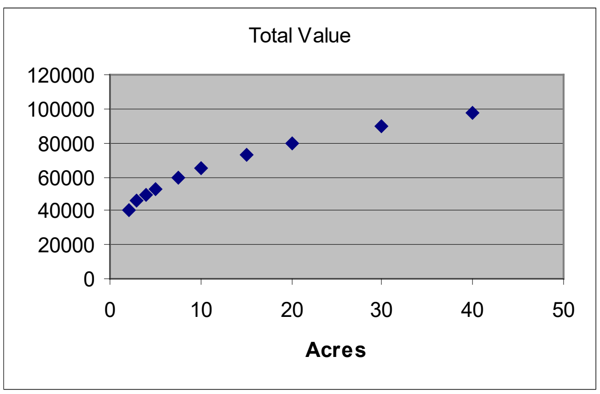
- Data definitions and standards have been developed to ensure our data is as complete and accurate as possible.
- A procedure has been established to ensure sales are properly verified.
- Annual training is conducted to remind appraisers of the standards that have been developed.

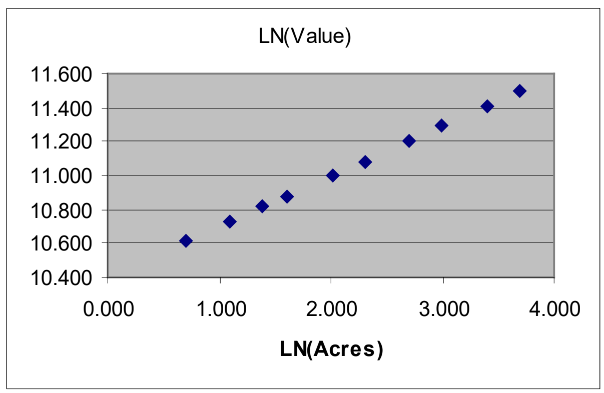
Representativeness:

- 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 impendent 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 by converting the format to log-linear terms.

No Correlation between Independent Variables:

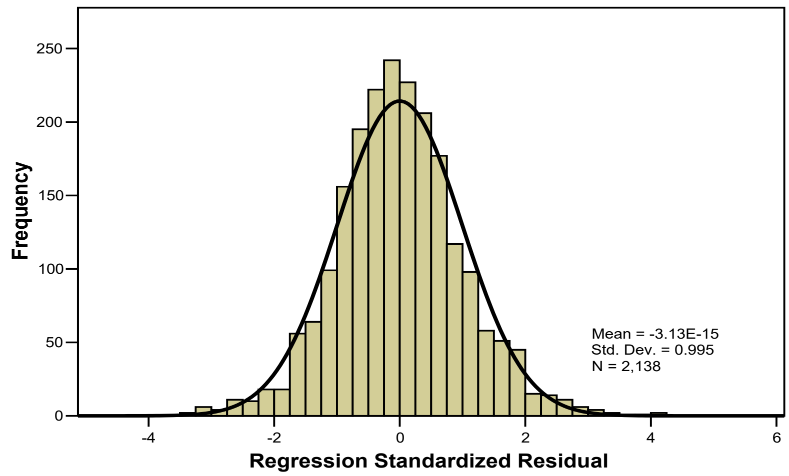
- It is assumed that there is no correlation between independent variables.
- This assumption is addressed by reviewing the correlation matrix and by either eliminating one of the correlated variables or combining the highly correlated variables.

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.

Histogram

Dependent Variable: trndadjsp

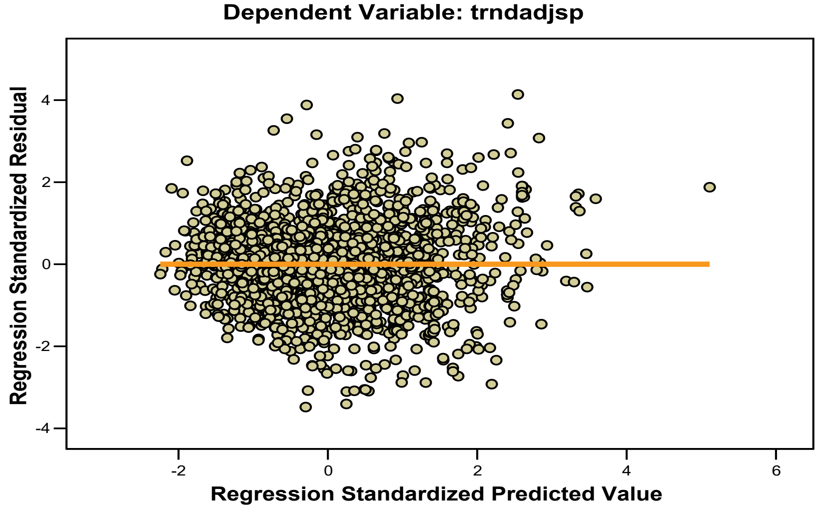


Constant Variance of the Error Term (homoscedasticity):

- 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.

Scatterplot

Dependent Variable: trndadjsp



MARKET / TIME ADJUSTMENT AND MODEL SUMMARIES

For any statistical estimate to be valid, it must be representative of the population. In theory, under ideal circumstances, the sample should be an adequate size and randomized. However, in the real world, convenience samples are utilized. A convenience sample is one where the units that are selected for inclusion in the sample are, in this instance, the best available sales. Although these samples lack randomness, there is no other methodology available but to use actual sales. If the sample is large enough to represent the population value, then estimates can be developed which should reflect true market action.

So how does one increase the sample size? One method would be to expand the area, however, since real estate is highly dependent upon location that methodology would result in failure. The only other option is to extend the time frame (sale date range) in which to select observations. This methodology is quite accurate when properly controlled. The following explains the rational for this decision and the results.

Values in all economic markets change over the course of time. The changes in values can occur as rapidly as second by second as in securities trading, or have slower movement which occurs over months, quarters, or even years as is more typical in real estate. The reader is cautioned to remember that it is not time itself which accounts for the change, but changes in supply and demand factors. These changes can be due to abstract things such as public sentiment and taste, to physical features such as weather conditions and natural aging of a depreciating asset, and to changes in economic conditions, to name just a few.

Real estate prices are subject to many factors and when analyzed in sequence can exhibit predictable patterns. These patterns are generally seasonal and cyclical. For residential properties these values tend to peak in late spring/early summer and bottom out around mid-November to early-February. However, these patterns do not perfectly repeat so there can be differences in the magnitudes in common seasons. Besides the seasonal influences, cyclical influences also occur. These can be due to a sudden exogenous shock, such as the World Trade Center Attack and the beginning of the War on Terror, or more likely due to economic upheavals such as the Great Recession. ***At this point, any impact of the 2020 Covid-19 lockdown is not reflected in our analysis: the sales used are as of appraisal date if January 1, 2020.***

For residential real estate, when other variables are controlled for such as size, quality, condition, age, and site value time patterns can be seen, and their influence determined. This is standardized research methodology that is used in academic, medical, social, and economic studies.

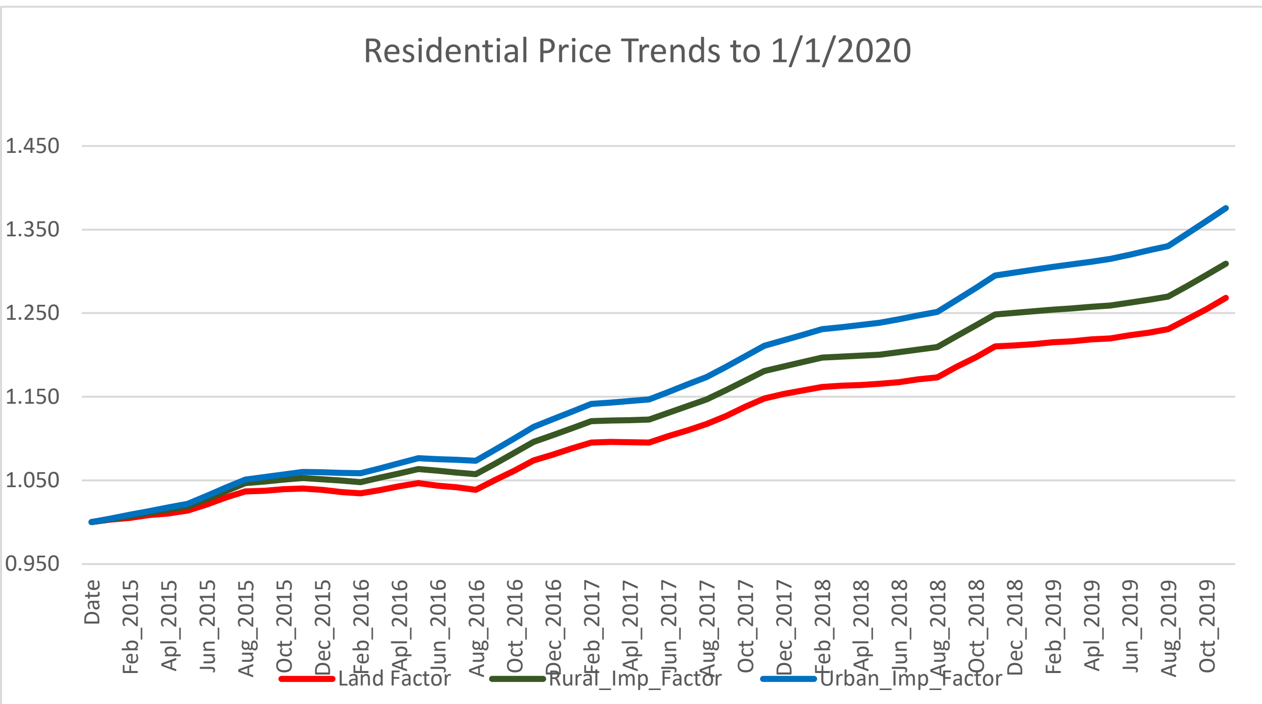
These time variables were determined by using 21,029 observations which occurred from January 2, 2015 to March 7, 2020. A total of 94 variables were presented for backward regression modeling of which 70 were found to be statistically valid. To minimize the impact of a random outlier as well as to create an efficient model, time adjustments were categorized on a quarterly basis.

Thurston County's residential values exhibit a strong pattern. Historic analysis revealed that the residential market exhibits an upward trend over the five-year period. This can be seen graphically below.

Date	Land Factor	Rural_Imp_Factor	Urban_Imp_Factor
Jan_2015	1.268	1.309	1.376
Feb_2015	1.255	1.296	1.360
Mar_2015	1.243	1.283	1.345
Apl_2015	1.231	1.270	1.330
May_2015	1.227	1.266	1.325
Jun_2015	1.224	1.263	1.320
Jul_2015	1.220	1.259	1.315
Aug_2015	1.219	1.258	1.312

Date	Land Factor	Rural_Imp_Factor	Urban_Imp_Factor
Sep_2015	1.216	1.256	1.308
Oct_2015	1.215	1.254	1.305
Nov_2015	1.213	1.252	1.302
Dec_2015	1.212	1.250	1.298
Jan_2016	1.210	1.249	1.295
Feb_2016	1.197	1.235	1.280
Mar_2016	1.186	1.222	1.266
Apl_2016	1.173	1.210	1.252
May_2016	1.171	1.207	1.247
Jun_2016	1.168	1.203	1.243
Jul_2016	1.165	1.200	1.238
Aug_2016	1.164	1.199	1.236
Sep_2016	1.163	1.198	1.233
Oct_2016	1.162	1.197	1.231
Nov_2016	1.158	1.192	1.224
Dec_2016	1.153	1.186	1.218
Jan_2017	1.148	1.181	1.211
Feb_2017	1.138	1.169	1.198
Mar_2017	1.127	1.158	1.186
Apl_2017	1.117	1.147	1.174
May_2017	1.110	1.139	1.165
Jun_2017	1.103	1.131	1.156
Jul_2017	1.095	1.123	1.147
Aug_2017	1.096	1.122	1.145
Sep_2017	1.096	1.121	1.143
Oct_2017	1.095	1.121	1.141
Nov_2017	1.088	1.112	1.132
Dec_2017	1.081	1.104	1.123
Jan_2018	1.074	1.096	1.114
Feb_2018	1.062	1.083	1.100
Mar_2018	1.051	1.070	1.087
Apl_2018	1.039	1.057	1.074
May_2018	1.042	1.059	1.075
Jun_2018	1.044	1.062	1.076
Jul_2018	1.047	1.064	1.076
Aug_2018	1.043	1.058	1.070
Sep_2018	1.038	1.053	1.064
Oct_2018	1.034	1.048	1.059
Nov_2018	1.036	1.050	1.059
Dec_2018	1.039	1.051	1.060
Jan_2019	1.040	1.053	1.060

Date	Land Factor	Rural_Imp_Factor	Urban_Imp_Factor
Feb_2019	1.040	1.051	1.057
Mar_2019	1.038	1.049	1.054
Apl_2019	1.037	1.047	1.051
May_2019	1.029	1.037	1.041
Jun_2019	1.021	1.028	1.032
Jul_2019	1.014	1.019	1.022
Aug_2019	1.011	1.015	1.018
Sep_2019	1.008	1.011	1.013
Oct_2019	1.005	1.007	1.009
Nov_2019	1.003	1.004	1.004
Dec_2019	1.000	1.000	1.000



At this point the reader is wondering, how we know if those numbers are accurate? The proof can be determined by four features. Does the model have predictive ability, do the variables used “explain” the variance in values, is the model structurally correct, and when analyzed in isolation is there an indication of systematic bias?

The predictive ability of a model is determined by utilizing an Analysis of Variance (ANOVA) technique with an F-test. The regression utilized 70 variables with 21,029 observations used. The F-test value was 1,607.9 which is highly significant ($p<.000$). This would indicate that the model has high predictive ability as a whole.

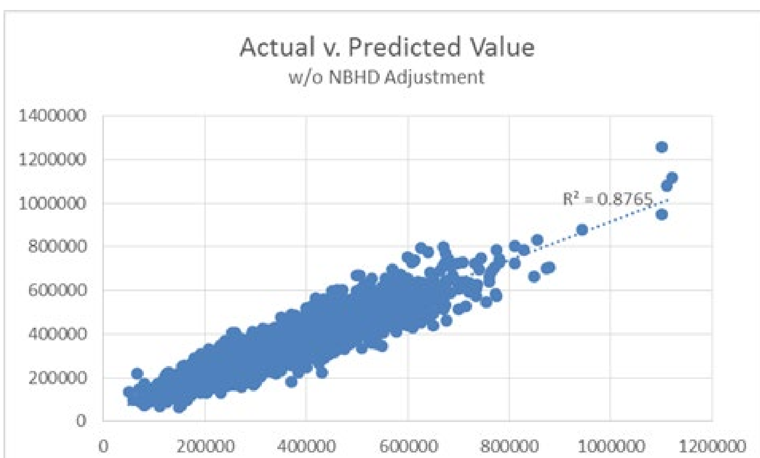
The next step is to determine if the chosen variables (including market/time) explain the dependent variable, in this case its value. This is accomplished by determining the Coefficient of Determination (R^2) and the Adjusted Coefficient of Determination (adj. R^2). The Raw R square results in a value of .843. One way to imagine this is that 84% of the variance is accounted for by the variables, even without specific neighborhood influences considered.

A common concern is the "usefulness" of the number of variables used. In other words, does the increase in the number of variables result in a general improvement of the model? The method to estimate this is by the adjusted R square. In this case the model still renders good results with a value of .84, or effectively, that these chosen variables explain 84% of the variance.

Of utmost importance, is the model correctly structured or is there a systemic bias. The most critical and rudimentary check is whether the model is misspecified. A misspecification results when the coefficients' value is beyond what would be a reasonable estimate or the directionality of the variable is opposite of what is expected by theory and established practice: for example, if the square footage adjustment is a minus \$90.00 per square foot, or the value was \$34,000 per square foot. Of the 70 variables utilized in the model, none are misspecified.

When two independent variables which affect the dependent variables similarly and to a high degree, it produces another possibility of systematic bias called multicollinearity. For example, total rooms and square feet both refer to size, both are highly correlated to each other and both affect home prices in nearly the same way. If both are introduced into the same model, their parameter values would be incorrect and quite likely would bias all other estimates as well. The most common check to avoid such a result would be to run a correlation matrix between all independent variables and assure that no correlation exceeded +/- 0.60. This was achieved in the model, so there is no indication of multicollinearity.

While we do not need the assumption of homoscedasticity for a model to create unbiased estimators, it is critical to the predictability of the model and the resulting standard error of the estimate. The ideal is to have the errors of the estimate to be consistent along the value range. When this occurs the model exhibits homoscedasticity, when it does not it is said to be heteroscedasticity. When heteroscedasticity is present, as the values move away from the mean, the error rate increases. While there are several tests for this, the easiest review is to plot the estimates for the actual value. We have achieved a homoscedastic distribution if the error is consistent along the value range. This can be seen in the graph below.



Another critical feature of systemic bias is whether there is autocorrelation present in the model. Autocorrelation is a check for time related bias. A common check is the Durbin-Watson Statistic. This value ranges from 0 to 4, with 2 meaning there is no autocorrelation or, if you will, time bias. A value of 0 indicates positive autocorrelation. This is the most common time error when present. It means the directionality of the residual is followed by the same directionally of the previous observation. If either seasonal or cyclical influences were not accounted for in the model the pattern would look serpentine. A value of 4 would indicate negative autocorrelation. This would result in each observation's residual moving in the exact opposite of the previous observed direction. The residuals would exhibit a staccato pattern of rapid up and down movements. The model produced a value of 1.777 meaning there is no time bias that has not been accounted for by the variables.

The results indicate that the model is systematically unbiased, and the time adjustments accurately reflect the market conditions.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
24	.918[x]	.843	.842	39939.928	.000	1.811	1	21029	.178	1.777

Model		Sum of Squares	df	Mean Square	F	Sig.
24	Regression	179,544,509,784,033.00	70.00	2,564,921,568,343.33	1,607.90	.000y
	Residual	33,547,010,193,280.40	21,030.00	1,595,197,821.84		
	Total	213,091,519,977,313.00	21,100.00			

SQUARE FOOT LAND MODEL SUMMARY

This model is a hybrid model with the dependent variable being the natural log of the sales price. A backward regression methodology was utilized. The independent variables are a combination of size, region, site influences and time splines. 42 variables were statistically significant to predict value.

Model Summary[l]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
11	.866[k]	.751	.741	.34797	.000	.854	1	1120	.356	1.869

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
11	Regression	408.48	42.00	9.73	80.32	.000l
	Residual	135.74	1,121.00	0.12		
	Total	544.22	1,163.00			

SALT WATERFRONT LAND MODEL SUMMARY

This model uses a forced regression technique with the independent variable being the residual land value. The independent variables are a combination of size, region, site influences and time splines. 21 variables were statistically significant to predict value. The reference group for this single region is for very good view, medium bank, properties.

Model Summary[o]

					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
14	.840[n]	.705	.684	.277073188270439	-.002	2.428	1	292	.120	1.921

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
14	Regression	53.710	21	2.558	33.315	.000[o]
	Residual	22.493	293	.077		
	Total	76.203	314			

NEIGHBORHOOD RATIO STATISTICS

SINGLE FAMILY RESIDENCES & LAND

Group	Mean	Median	Weighted Mean	Std. Deviation	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion
03U1	0.948	0.936	0.940	0.124	0.088	1.009	0.094
06E2	0.926	0.916	0.920	0.170	0.136	1.006	0.148
06U1	0.926	0.926	0.933	0.135	0.099	0.992	0.107
06U2	0.891	0.881	0.888	0.135	0.106	1.004	0.120
07E2	0.920	0.927	0.928	0.135	0.106	0.991	0.114
08B2	0.884	0.858	0.885	0.176	0.138	0.999	0.161
08H1	0.936	0.922	0.905	0.131	0.091	1.034	0.098
08L1	0.937	0.926	0.934	0.131	0.098	1.003	0.105
08N1	0.911	0.934	0.920	0.138	0.102	0.991	0.110
09S1	0.923	0.925	0.923	0.136	0.105	1.000	0.114
09W1	0.955	0.948	0.964	0.139	0.102	0.991	0.108
09YS	0.931	0.918	0.926	0.126	0.089	1.006	0.097
10G2	0.935	0.928	0.935	0.132	0.105	0.999	0.113
10I1	0.927	0.929	0.933	0.096	0.076	0.994	0.081
10O1	0.861	0.845	0.855	0.134	0.098	1.007	0.116
10P1	0.952	0.990	0.879	0.162	0.135	1.083	0.136
10P2	1.042	1.003	1.001	0.186	0.152	1.041	0.151
11E1	0.923	0.930	0.931	0.130	0.100	0.991	0.107
11F1	0.911	0.923	0.923	0.136	0.111	0.987	0.120
11K1	0.907	0.922	0.924	0.104	0.077	0.982	0.083
11L1	0.949	0.935	0.946	0.161	0.125	1.003	0.133
11O1	0.907	0.886	0.910	0.113	0.082	0.997	0.092
11U1	0.933	0.927	0.919	0.121	0.094	1.015	0.102
11VS	0.923	0.945	0.907	0.143	0.115	1.018	0.122
11XS	0.948	0.962	0.924	0.177	0.130	1.026	0.135
12O1	0.955	0.920	0.949	0.106	0.071	1.006	0.077
12P1	0.933	0.930	0.934	0.090	0.066	0.999	0.071
12Q1	0.934	0.936	0.943	0.150	0.116	0.991	0.124
12S2	0.940	0.924	0.932	0.133	0.097	1.009	0.105
12U1	0.887	0.880	0.903	0.136	0.112	0.982	0.127
12V3	0.932	0.922	0.936	0.086	0.065	0.996	0.070
12W2	0.959	0.940	0.922	0.147	0.108	1.040	0.115
12Z1	0.995	0.980	0.986	0.136	0.108	1.009	0.111
12ZS	0.853	0.862	0.856	0.107	0.089	0.997	0.103
13K1	0.942	0.936	0.940	0.126	0.102	1.002	0.109
13R1	0.920	0.922	0.925	0.086	0.066	0.995	0.071
13R2	0.934	0.923	0.940	0.105	0.089	0.994	0.096

Group	Mean	Median	Weighted Mean	Std. Deviation	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion
13T1	0.930	0.922	0.928	0.105	0.079	1.002	0.086
13U1	0.957	0.929	0.946	0.129	0.097	1.011	0.105
13V1	0.954	0.934	0.950	0.073	0.057	1.004	0.061
13W1	0.920	0.920	0.919	0.085	0.065	1.001	0.071
13W3	0.924	0.915	0.912	0.122	0.096	1.014	0.105
13W4	0.920	0.917	0.932	0.115	0.083	0.988	0.091
13X1	0.915	0.923	0.912	0.109	0.076	1.003	0.082
13Y1	0.922	0.923	0.928	0.151	0.118	0.993	0.128
13YS	0.950	0.920	0.947	0.161	0.124	1.003	0.134
13Z1	0.931	0.934	0.930	0.161	0.128	1.001	0.137
13ZS	0.976	0.958	0.963	0.173	0.136	1.014	0.142
14H1	0.880	0.860	0.885	0.158	0.125	0.994	0.146
14N1	0.928	0.926	0.916	0.134	0.100	1.014	0.108
14P1	0.928	0.921	0.926	0.121	0.094	1.002	0.102
14Q1	0.940	0.937	0.945	0.152	0.121	0.995	0.129
14S2	0.870	0.863	0.870	0.135	0.107	1.000	0.124
14T1	0.917	0.885	0.910	0.157	0.121	1.008	0.137
14U2	0.954	0.923	0.940	0.157	0.118	1.015	0.128
15K1	0.925	0.923	0.932	0.134	0.106	0.993	0.115
15R2	0.925	0.921	0.918	0.144	0.115	1.008	0.125
15S1	0.927	0.898	0.925	0.119	0.094	1.002	0.104
15T1	0.915	0.893	0.915	0.155	0.124	1.000	0.139
15T2	0.899	0.869	0.898	0.143	0.110	1.001	0.127
15U1	0.876	0.886	0.875	0.137	0.111	1.001	0.125
15U2	0.930	0.924	0.914	0.152	0.124	1.018	0.134
15X1	0.888	0.897	0.870	0.149	0.113	1.021	0.126
15XS	0.951	0.929	0.926	0.141	0.106	1.027	0.115
16B1	0.917	0.891	0.902	0.196	0.161	1.017	0.180
16F1	0.909	0.923	0.910	0.145	0.111	0.999	0.121
16P1	0.936	0.926	0.940	0.104	0.079	0.996	0.086
16Q1	0.916	0.902	0.916	0.119	0.089	1.000	0.098
16Q2	0.922	0.922	0.920	0.074	0.056	1.002	0.061
16R1	0.933	0.924	0.932	0.094	0.074	1.001	0.080
16S1	0.910	0.897	0.904	0.157	0.126	1.007	0.140
16S2	0.934	0.923	0.957	0.173	0.138	0.976	0.150
16T1	0.883	0.922	0.881	0.168	0.131	1.002	0.142
16W1	0.921	0.920	0.929	0.145	0.109	0.991	0.119
17C1	0.942	0.921	0.934	0.152	0.119	1.009	0.130
17G1	0.919	0.925	0.930	0.177	0.148	0.988	0.161
17L1	0.915	0.932	0.917	0.103	0.081	0.998	0.087

Group	Mean	Median	Weighted Mean	Std. Deviation	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion
17N1	0.931	0.930	0.931	0.063	0.048	1.000	0.051
17Q1	0.931	0.923	0.930	0.082	0.060	1.001	0.065
17R1	0.938	0.934	0.941	0.144	0.111	0.997	0.119
17S1	0.922	0.925	0.924	0.083	0.064	0.999	0.070
17S2	0.923	0.929	0.924	0.106	0.079	1.000	0.085
17T1	0.949	0.929	0.945	0.160	0.124	1.004	0.134
17U1	0.929	0.919	0.922	0.117	0.088	1.007	0.095
17U2	0.938	0.918	0.940	0.117	0.084	0.998	0.092
17U3	0.924	0.926	0.921	0.062	0.051	1.003	0.055
17Y1	0.913	0.907	0.903	0.127	0.096	1.011	0.106
17Z1	0.944	0.929	0.948	0.128	0.100	0.995	0.108
17ZS	0.927	0.931	0.924	0.123	0.095	1.003	0.102
18L1	0.908	0.912	0.901	0.135	0.104	1.007	0.114
18N1	0.934	0.925	0.932	0.110	0.086	1.002	0.093
18P1	0.926	0.921	0.920	0.091	0.070	1.007	0.076
18Q1	0.923	0.929	0.923	0.049	0.038	1.000	0.041
18R1	0.937	0.926	0.935	0.115	0.089	1.002	0.097
18S1	0.935	0.928	0.929	0.115	0.090	1.007	0.097
18U2	0.923	0.924	0.923	0.033	0.024	1.000	0.026
18U3	0.924	0.929	0.925	0.058	0.049	0.999	0.052
18U4	0.929	0.925	0.927	0.033	0.025	1.001	0.027
18W1	0.939	0.925	0.912	0.160	0.120	1.030	0.130
18YS	0.913	0.911	0.869	0.176	0.146	1.050	0.161
19H1	0.922	0.927	0.939	0.185	0.147	0.982	0.158
19P1	0.968	0.964	0.967	0.097	0.080	1.001	0.083
19P2	0.943	0.928	0.939	0.087	0.068	1.004	0.073
19Q1	0.930	0.922	0.931	0.083	0.064	0.999	0.070
19Q2	0.932	0.927	0.927	0.094	0.072	1.005	0.078
19Q3	0.928	0.929	0.924	0.078	0.060	1.004	0.065
19R2	0.934	0.923	0.944	0.092	0.070	0.990	0.076
19R3	0.933	0.922	0.930	0.080	0.064	1.003	0.069
19R4	0.936	0.926	0.931	0.130	0.100	1.005	0.108
19W1	0.925	0.929	0.925	0.091	0.074	1.000	0.079
19Z1	0.949	0.932	0.957	0.139	0.111	0.992	0.119
20P2	0.926	0.926	0.925	0.078	0.063	1.002	0.068
20P3	0.899	0.917	0.903	0.090	0.069	0.996	0.076
20Q1	0.947	0.944	0.928	0.140	0.118	1.020	0.125
20R1	0.940	0.926	0.937	0.093	0.073	1.003	0.079
20S1	0.934	0.926	0.932	0.094	0.072	1.002	0.078
20U1	0.947	0.924	0.939	0.130	0.102	1.009	0.110

Group	Mean	Median	Weighted Mean	Std. Deviation	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion
20V1	0.955	0.959	0.945	0.102	0.078	1.011	0.081
20V2	0.926	0.935	0.932	0.070	0.049	0.994	0.053
20W1	0.916	0.919	0.923	0.096	0.078	0.993	0.084
20W2	0.952	0.926	0.939	0.123	0.086	1.014	0.093
20ZS	0.953	0.919	0.967	0.161	0.126	0.986	0.137
21H2	0.938	0.878	0.938	0.198	0.144	1.000	0.164
21O1	0.936	0.931	0.933	0.099	0.077	1.003	0.083
21Q3	0.912	0.926	0.911	0.060	0.047	1.001	0.051
21R1	0.947	0.933	0.915	0.137	0.105	1.034	0.113
21R2	0.935	0.931	0.933	0.079	0.060	1.002	0.064
21S1	0.925	0.924	0.928	0.079	0.061	0.997	0.066
21T1	0.920	0.923	0.918	0.079	0.062	1.003	0.068
21T2	0.931	0.924	0.925	0.095	0.072	1.006	0.078
21T4	0.918	0.925	0.917	0.112	0.090	1.001	0.097
22N1	0.923	0.928	0.928	0.105	0.079	0.995	0.085
22Q1	0.945	0.925	0.941	0.108	0.082	1.004	0.089
22Q2	0.924	0.925	0.921	0.079	0.058	1.003	0.063
22T1	0.931	0.923	0.927	0.104	0.079	1.005	0.085
22T2	0.926	0.922	0.917	0.135	0.105	1.010	0.114
22T3	0.927	0.920	0.925	0.069	0.049	1.002	0.053
23T1	0.825	0.792	0.790	0.136	0.106	1.045	0.134
23T2	0.928	0.921	0.903	0.140	0.093	1.028	0.101
23U1	0.930	0.924	0.933	0.064	0.050	0.997	0.054
23W1	0.926	0.927	0.929	0.114	0.075	0.998	0.081
24I1	0.946	0.915	0.944	0.159	0.127	1.002	0.139
24P1	0.963	0.933	0.926	0.113	0.088	1.041	0.095
24Q1	0.879	0.877	0.885	0.097	0.077	0.993	0.088
24Q2	0.967	0.942	0.961	0.183	0.139	1.005	0.147
25I1	0.875	0.845	0.885	0.155	0.128	0.989	0.152
25I2	0.919	0.923	0.920	0.076	0.060	0.999	0.065
25J1	0.919	0.927	0.915	0.145	0.112	1.005	0.121
25S1	0.937	0.923	0.927	0.146	0.110	1.010	0.120
27H1	0.919	0.927	0.941	0.143	0.109	0.977	0.118
27J1	0.952	0.932	0.932	0.143	0.113	1.020	0.121
28F1	0.895	0.894	0.890	0.132	0.101	1.006	0.113
28M1	0.913	0.912	0.915	0.134	0.101	0.998	0.111
28N1	0.939	0.929	0.918	0.149	0.120	1.023	0.129
29I1	0.943	0.929	0.955	0.152	0.118	0.988	0.127
29K1	0.888	0.876	0.889	0.125	0.105	0.999	0.120
29M1	0.930	0.927	0.935	0.140	0.118	0.995	0.127

Group	Mean	Median	Weighted Mean	Std. Deviation	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion
29M2	0.926	0.925	0.929	0.108	0.084	0.997	0.090
29N1	0.934	0.924	0.930	0.106	0.082	1.004	0.089
29N2	0.916	0.923	0.916	0.025	0.020	1.001	0.021
30G1	0.919	0.910	0.918	0.185	0.146	1.001	0.161
30G2	0.936	0.923	0.945	0.158	0.125	0.991	0.135
30N1	0.928	0.918	0.919	0.159	0.123	1.010	0.134
31K1	0.929	0.913	0.922	0.134	0.099	1.007	0.108
32E1	0.904	0.914	0.912	0.221	0.184	0.991	0.201
32I1	0.929	0.925	0.919	0.155	0.120	1.011	0.130
34F1	0.918	0.951	0.916	0.201	0.163	1.002	0.171
35E1	0.927	0.927	0.930	0.156	0.122	0.997	0.132
DGBA	0.931	0.918	0.935	0.108	0.088	0.996	0.095
DHBA	0.933	0.921	0.928	0.078	0.058	1.005	0.063
DHBB	0.921	0.926	0.918	0.118	0.082	1.004	0.089
DHBC	0.938	0.929	0.936	0.096	0.063	1.002	0.068
DHBD	0.924	0.930	0.924	0.071	0.053	1.000	0.057
DHBE	0.926	0.922	0.930	0.084	0.070	0.996	0.075
DHBF	0.934	0.924	0.933	0.069	0.044	1.001	0.048
DUNA	0.947	0.937	0.950	0.064	0.048	0.997	0.051
FD1A	0.921	0.921	0.922	0.071	0.053	0.999	0.058
FD1B	0.927	0.923	0.922	0.058	0.045	1.005	0.049
FD4A	0.945	0.930	0.943	0.076	0.055	1.003	0.059
FD4B	0.933	0.928	0.930	0.095	0.066	1.003	0.071
FDRA	0.926	0.928	0.924	0.062	0.049	1.002	0.053
FDWA	0.922	0.920	0.918	0.078	0.058	1.005	0.063
FDWB	0.939	0.928	0.935	0.092	0.073	1.005	0.079
FFHA	0.926	0.927	0.926	0.044	0.035	1.000	0.037
FFHB	0.922	0.922	0.926	0.067	0.054	0.996	0.058
FFKA	0.935	0.929	0.930	0.049	0.040	1.006	0.043
FFKB	0.925	0.921	0.925	0.053	0.043	1.001	0.047
FFMA	0.937	0.925	0.931	0.089	0.063	1.007	0.068
FFWA	0.923	0.921	0.923	0.078	0.063	0.999	0.068
FFWB	0.941	0.927	0.937	0.091	0.071	1.005	0.076
FFWC	0.930	0.939	0.928	0.051	0.040	1.002	0.043
FFXA	0.925	0.925	0.925	0.040	0.031	1.000	0.034
FFXB	0.925	0.926	0.924	0.049	0.040	1.001	0.043
HTW1	0.926	0.928	0.926	0.092	0.070	1.000	0.075
HTW2	0.921	0.919	0.919	0.133	0.101	1.002	0.110
HTW3	0.909	0.898	0.916	0.110	0.088	0.993	0.098
LXQA	0.941	0.923	0.942	0.111	0.087	0.999	0.094

Group	Mean	Median	Weighted Mean	Std. Deviation	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion
LXQB	0.918	0.924	0.922	0.074	0.054	0.995	0.058
LXWA	0.938	0.929	0.938	0.095	0.063	1.000	0.068
LXWB	0.939	0.927	0.938	0.096	0.074	1.001	0.079
LXWC	0.943	0.930	0.947	0.105	0.065	0.995	0.069
LXWD	0.923	0.926	0.928	0.102	0.088	0.995	0.096
LXWE	0.921	0.921	0.923	0.067	0.051	0.998	0.055
NDAA	0.921	0.926	0.921	0.062	0.047	1.000	0.051
NDAB	0.924	0.929	0.923	0.060	0.044	1.001	0.048
NDFA	0.916	0.922	0.913	0.065	0.053	1.003	0.057
NDFB	0.934	0.928	0.931	0.067	0.048	1.004	0.052
NDFC	0.922	0.921	0.922	0.039	0.030	1.000	0.032
NDUA	0.930	0.927	0.914	0.047	0.032	1.018	0.035
NDWA	0.932	0.925	0.931	0.056	0.041	1.001	0.045
NDWB	0.918	0.925	0.918	0.065	0.051	1.001	0.055
NDWC	0.891	0.883	0.887	0.064	0.046	1.005	0.052
NDXA	0.929	0.923	0.928	0.069	0.053	1.001	0.057
OCUA	0.939	0.925	0.922	0.126	0.096	1.019	0.104
OD1A	0.922	0.929	0.918	0.118	0.086	1.005	0.093
ODEA	0.927	0.921	0.926	0.066	0.052	1.000	0.056
ODWA	0.942	0.923	0.946	0.093	0.075	0.996	0.082
ODXA	0.936	0.925	0.933	0.086	0.068	1.003	0.074
OFFA	0.936	0.923	0.937	0.083	0.063	1.000	0.069
OFNA	0.933	0.926	0.931	0.076	0.057	1.002	0.062
OFUA	0.927	0.922	0.918	0.055	0.043	1.010	0.047
T14A	0.921	0.930	0.913	0.165	0.126	1.009	0.136
TDFA	0.925	0.929	0.925	0.051	0.039	1.000	0.042
TDFB	0.937	0.929	0.937	0.038	0.032	1.000	0.035
TDKA	0.950	0.928	0.949	0.112	0.091	1.001	0.098
TDTA	0.923	0.923	0.920	0.082	0.064	1.002	0.069
TEAA	0.923	0.924	0.922	0.063	0.044	1.001	0.048
TFFA	0.941	0.928	0.950	0.127	0.101	0.991	0.109
TFWA	0.934	0.922	0.932	0.062	0.050	1.003	0.054
TFZA	0.936	0.925	0.933	0.065	0.051	1.003	0.056
THUA	0.917	0.924	0.915	0.056	0.043	1.001	0.047
THUB	0.922	0.921	0.920	0.069	0.048	1.003	0.052
THUC	0.930	0.922	0.925	0.072	0.050	1.006	0.054
TJ2A	0.931	0.922	0.930	0.040	0.024	1.001	0.026
Overall	0.928	0.924	0.927	0.112	0.082	1.001	0.089

CONDOMINIUMS

Ratio Statistics for 2020-21Value / Mkt_Adj_SP							
Group	Mean	Median	Weighted Mean	Std. Deviation	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion
CN01	0.951	0.946	0.944	0.122	0.090	1.007	0.095
CN02	0.912	0.961	0.896	0.121	0.080	1.018	0.083
CN03	0.850	0.837	0.843	0.077	0.060	1.008	0.072
CN04	1.000	0.976	0.972	0.176	0.141	1.029	0.145
CN05	0.977	0.938	0.933	0.183	0.141	1.047	0.150
CN06	0.936	0.924	0.929	0.101	0.072	1.007	0.078
CN07	0.965	0.956	0.958	0.107	0.080	1.007	0.084
CN08	0.920	0.931	0.922	0.064	0.041	0.998	0.044
CN09	0.964	0.920	0.954	0.111	0.070	1.010	0.076
CN10	0.945	0.951	0.940	0.076	0.060	1.004	0.063
CN11	1.054	1.032	1.033	0.172	0.145	1.020	0.141
CN12	0.977	0.976	0.970	0.094	0.070	1.008	0.071
CN13	0.995	0.953	0.979	0.136	0.088	1.016	0.092
CN14	1.003	1.003	0.969	0.196	0.159	1.036	0.158
CN15	0.956	0.945	0.952	0.069	0.048	1.004	0.051
CN16	1.006	0.965	0.997	0.099	0.061	1.009	0.064
CN17	0.979	0.971	0.974	0.069	0.049	1.006	0.050
CN18	0.938	0.924	0.918	0.084	0.055	1.022	0.059
CN19	0.921	0.918	0.916	0.081	0.055	1.005	0.059
CN20	0.922	0.920	0.916	0.075	0.050	1.007	0.055
CN21	1.047	1.106	1.028	0.135	0.092	1.018	0.084
CN22	0.958	0.950	0.953	0.084	0.061	1.005	0.064
CN23	0.928	0.926	0.927	0.030	0.024	1.001	0.026
CN24	0.913	0.925	0.903	0.091	0.071	1.011	0.076
CN25	0.971	0.927	0.956	0.126	0.108	1.016	0.116
CN27	0.989	0.925	0.976	0.144	0.106	1.013	0.115
CN28	0.958	0.941	0.953	0.075	0.054	1.005	0.057
CN29	1.019	0.928	0.989	0.202	0.151	1.031	0.163
CN30	0.924	0.900	0.920	0.073	0.054	1.004	0.060
CN31	0.993	0.980	0.982	0.125	0.080	1.012	0.082
CN32	1.013	1.049	1.007	0.101	0.082	1.006	0.078
CN33	0.919	0.933	0.918	0.096	0.070	1.000	0.075
CN34	0.934	0.880	0.928	0.085	0.068	1.006	0.077
CN35	0.911	0.915	0.909	0.044	0.031	1.002	0.034
Overall	0.966	0.947	0.944	0.131	0.095	1.023	0.101

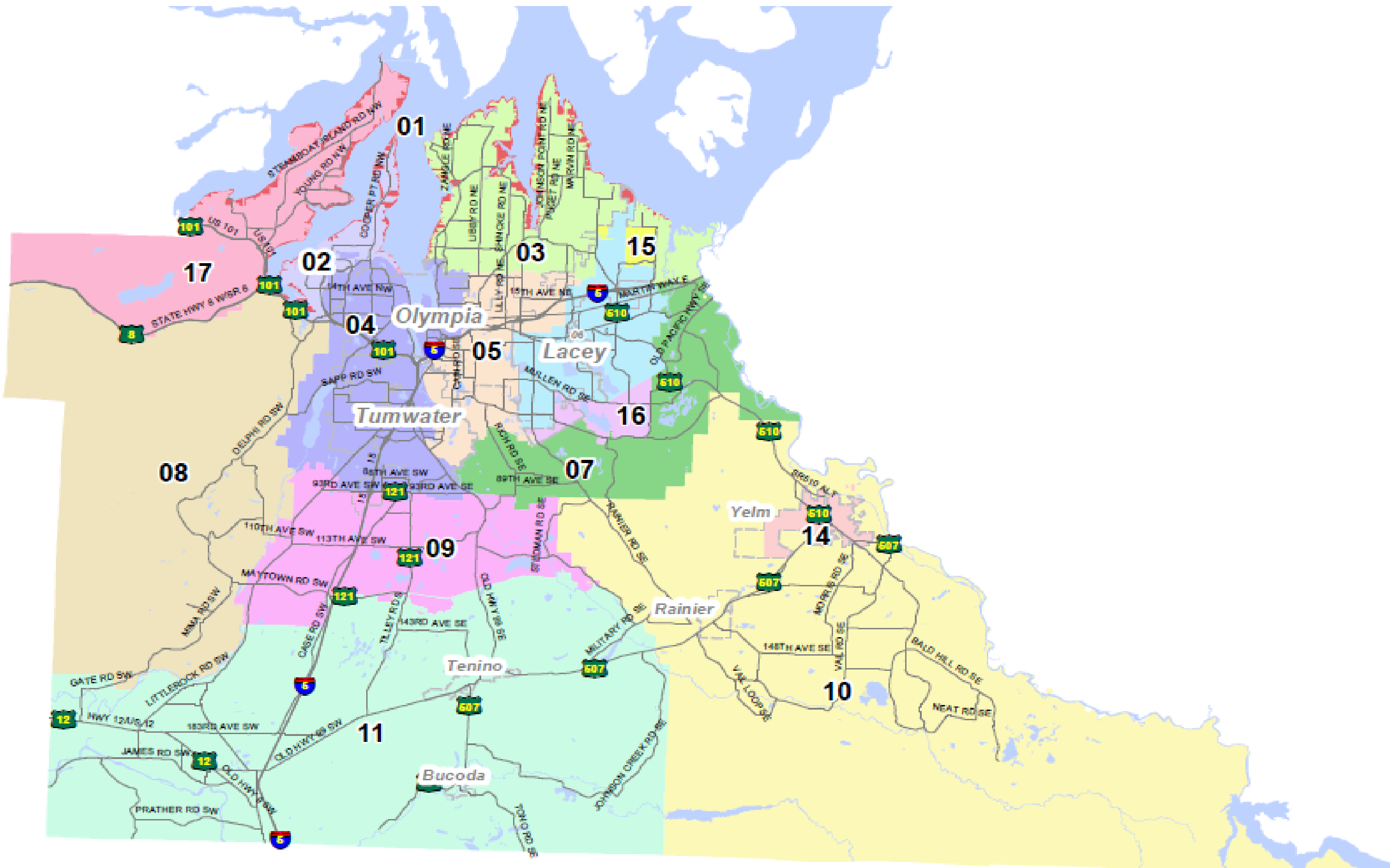
MANUFACTURED HOMES

Group	COUNT	Mean	Median	Weighted Mean	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion
03U1	1	.978	.978	.978	0.000	1.000	0.000
06E2	35	.986	.950	.982	.111	1.003	.117
06U1	1	.729	.729	.729	0.000	1.000	0.000
06U2	1	.735	.735	.735	0.000	1.000	0.000
07E2	79	1.006	.985	.993	.156	1.013	.158
08B2	4	1.159	1.185	1.125	.148	1.029	.125
08H1	12	1.281	1.092	1.228	.328	1.043	.301
08L1	4	.981	1.030	.958	.100	1.023	.097
08N1	8	.936	.973	.957	.110	.978	.113
09S1	5	1.006	1.025	1.005	.054	1.000	.053
09W1	5	.978	1.016	.986	.096	.991	.095
10G2	59	1.049	1.007	1.025	.167	1.024	.165
10I1	8	1.006	1.015	1.071	.183	.940	.180
10O1	8	1.065	1.001	1.050	.161	1.014	.161
10P1	2	.913	.913	.923	.024	.989	.026
11E1	10	1.067	1.071	1.060	.142	1.006	.133
11F1	18	.990	1.016	.972	.131	1.018	.129
11L1	11	1.071	.992	1.042	.154	1.028	.156
12Q1	14	1.033	1.020	.986	.212	1.047	.208
12U1	1	1.044	1.044	1.044	0.000	1.000	0.000
12Z1	21	.988	.993	.974	.085	1.015	.086
12ZS	1	.863	.863	.863	0.000	1.000	0.000
13K1	44	.993	.958	.958	.159	1.036	.166
13Z1	23	1.020	1.014	.991	.228	1.029	.225
14H1	15	1.094	1.054	1.104	.152	.991	.145
14N1	15	.893	.962	.905	.251	.986	.260
14Q1	2	.937	.937	.922	.107	1.016	.114
14T1	1	.954	.954	.954	0.000	1.000	0.000
14U2	1	.896	.896	.896	0.000	1.000	0.000
15K1	11	1.051	1.103	1.020	.117	1.030	.106
16B1	5	1.018	.988	.983	.132	1.036	.134
16F1	10	1.003	1.000	1.004	.212	.999	.212
16Q1	3	.977	.986	.970	.056	1.008	.057
16S2	2	.989	.989	.996	.090	.992	.091
16W1	10	1.054	1.065	1.072	.122	.984	.115
17C1	18	.966	.960	.974	.146	.992	.152
17G1	5	1.029	1.004	1.058	.171	.973	.171
17L1	8	1.127	1.074	1.105	.175	1.021	.163
17R1	4	.921	.884	.980	.138	.940	.156
17T1	5	1.002	.992	.997	.114	1.005	.115
17Y1	5	1.019	.995	1.040	.109	.980	.110
17Z1	5	.974	1.019	.934	.081	1.043	.080
18L1	13	.982	1.030	.976	.120	1.007	.116
18N1	7	1.030	.987	.988	.164	1.043	.166

Group	COUNT	Mean	Median	Weighted Mean	Average Absolute Deviation	Price Related Differential	Coefficient of Dispersion
18S1	3	.967	.975	.941	.128	1.028	.131
18W1	8	1.046	1.063	1.052	.070	.994	.066
19H1	15	.989	.970	.983	.172	1.006	.178
19R4	2	.932	.932	.932	.029	1.000	.032
19Z1	3	.987	1.040	.981	.084	1.007	.081
20P2	1	1.363	1.363	1.363	0.000	1.000	0.000
20Q1	1	1.666	1.666	1.666	0.000	1.000	0.000
20T2	50	.985	.958	.960	.119	1.025	.124
20W1	19	.948	.963	.948	.105	1.000	.109
21H2	5	1.076	1.014	1.099	.158	.979	.156
22N1	5	1.023	.940	.980	.126	1.044	.134
22Q1	5	.943	1.005	.940	.093	1.003	.092
23T1	19	.981	.964	.938	.117	1.046	.121
23W1	1	1.044	1.044	1.044	0.000	1.000	0.000
24I1	18	1.034	.965	.976	.200	1.059	.207
24P1	3	1.062	.983	1.042	.106	1.019	.108
24Q1	13	1.030	.951	1.020	.162	1.010	.170
24Q2	2	.949	.949	.962	.093	.987	.098
25I1	2	.899	.899	.929	.103	.968	.115
25J1	11	1.028	1.074	1.003	.114	1.025	.106
27H1	14	1.156	1.056	1.102	.245	1.049	.232
27J1	15	.953	.946	.947	.075	1.006	.079
28F1	11	.945	.956	.974	.142	.971	.149
28M1	21	1.123	1.031	1.098	.191	1.022	.185
28N1	4	.862	.841	.887	.065	.972	.078
29I1	16	1.100	1.078	1.076	.146	1.022	.136
29K1	22	1.233	1.318	1.197	.268	1.030	.203
29M1	11	.959	.991	.956	.117	1.003	.118
30G1	1	.938	.938	.938	0.000	1.000	0.000
30G2	22	1.037	.950	1.032	.168	1.005	.177
30N1	119	1.016	.987	.983	.208	1.033	.211
31K1	11	.939	.919	.929	.133	1.011	.145
32E1	14	.987	.798	.868	.280	1.137	.350
32I1	18	1.051	1.071	1.072	.143	.981	.134
34F1	19	1.121	1.075	1.058	.242	1.059	.225
35E1	7	.953	.909	.935	.167	1.020	.184
MHPR	57	.725	.718	.745	.302	.974	.420
MRAV	54	.997	.935	.927	.241	1.075	.258
MRFR	79	.930	.903	.888	.275	1.047	.305
MRGD	24	.934	.933	.870	.238	1.074	.255
MUAV	349	.970	.926	.883	.253	1.098	.273
MUEX	157	.975	.963	.917	.176	1.063	.183
MUFR	155	.921	.915	.846	.259	1.089	.283
MUGD	92	.931	.927	.892	.141	1.044	.152
OCUA	3	.927	.968	.910	.058	1.018	.060

THURSTON COUNTY

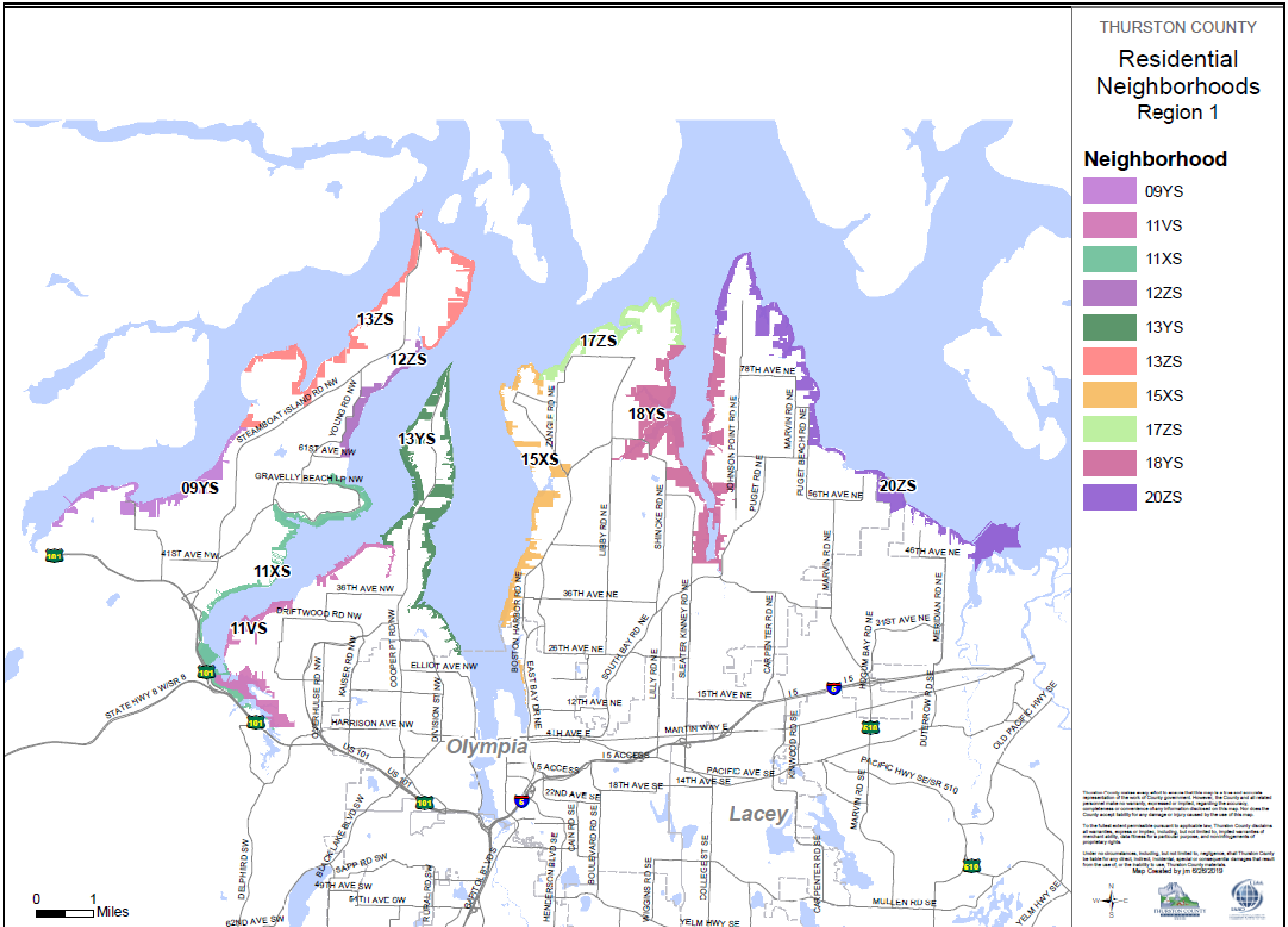
Residential Regions

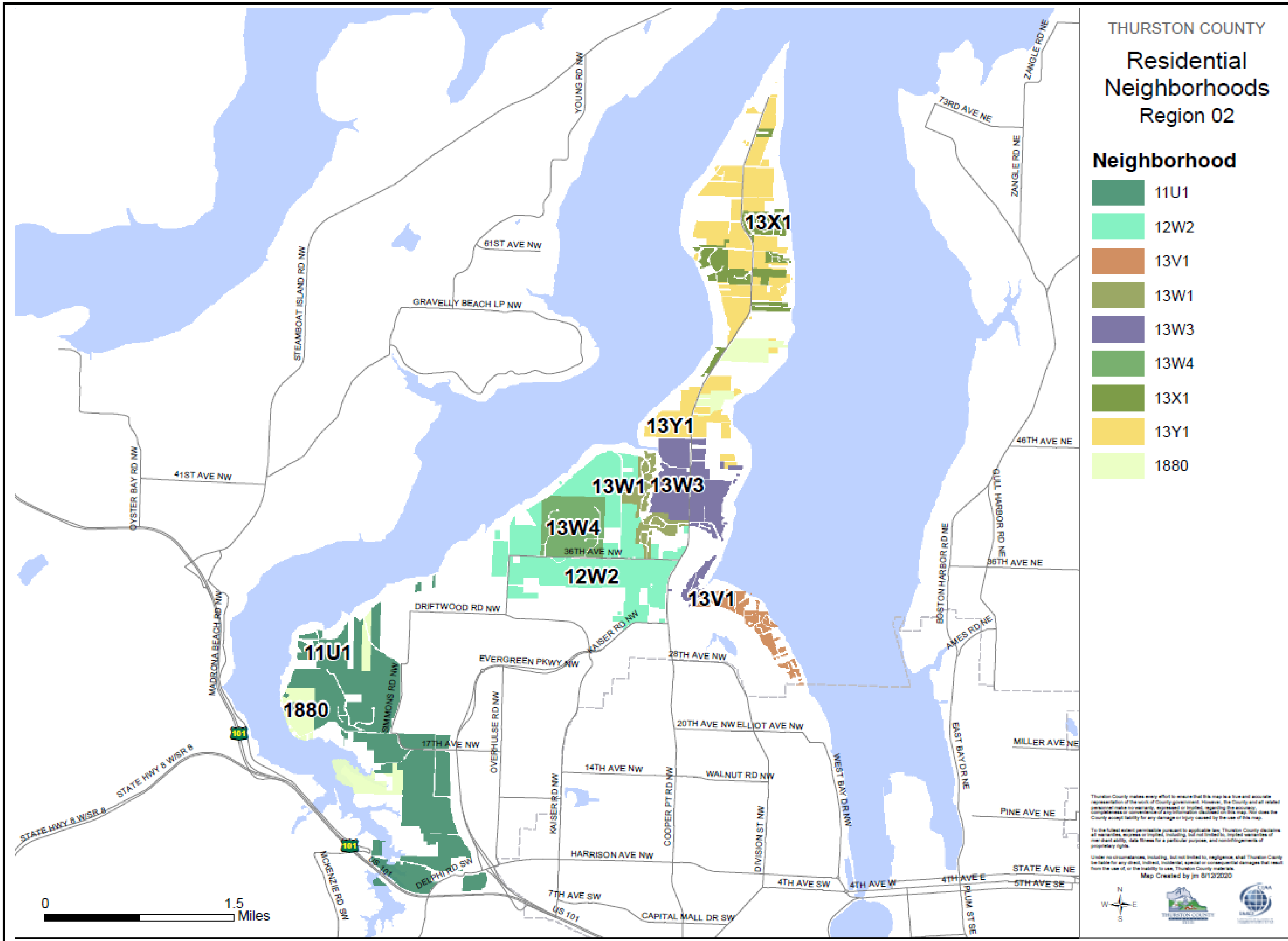


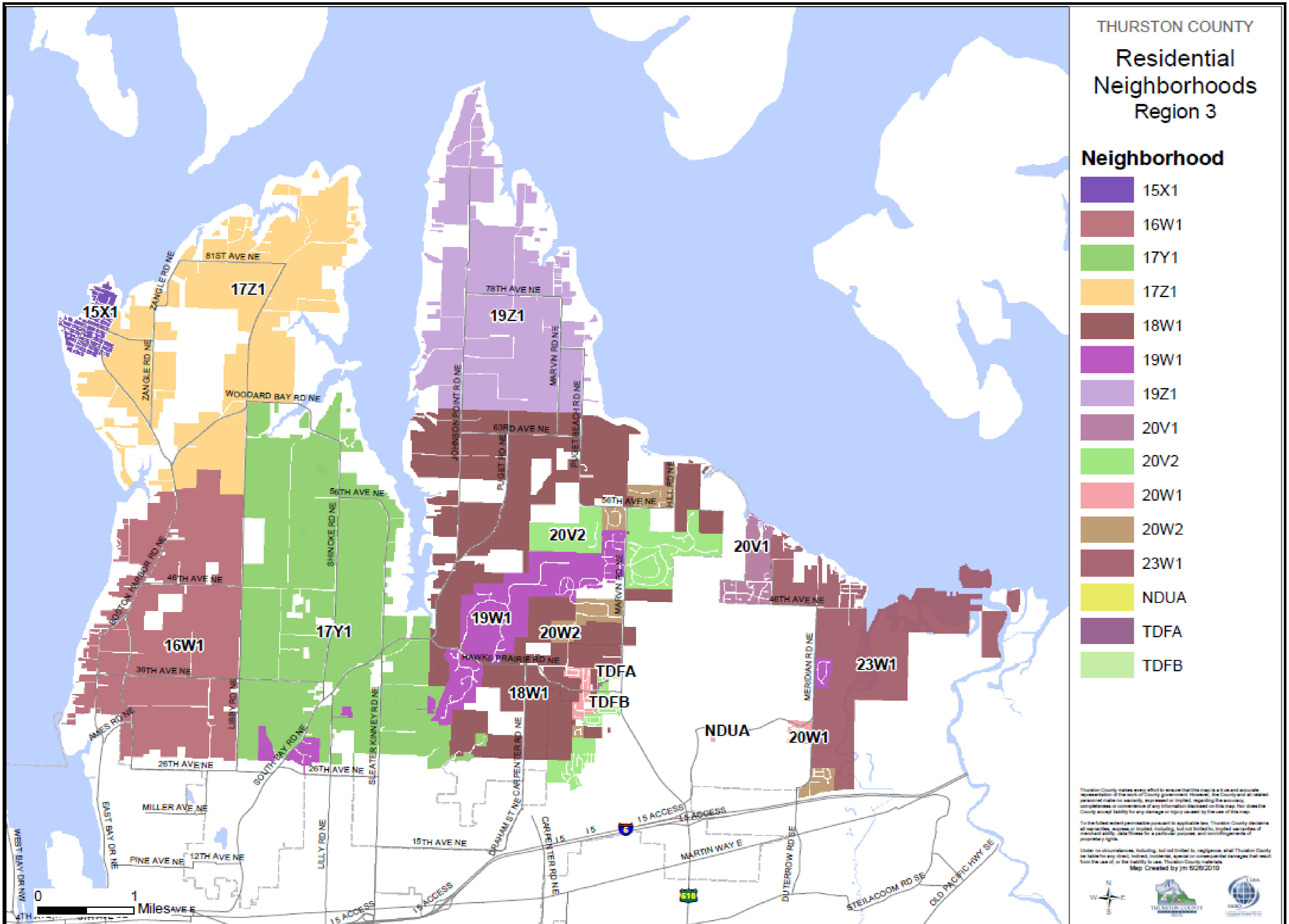
Region

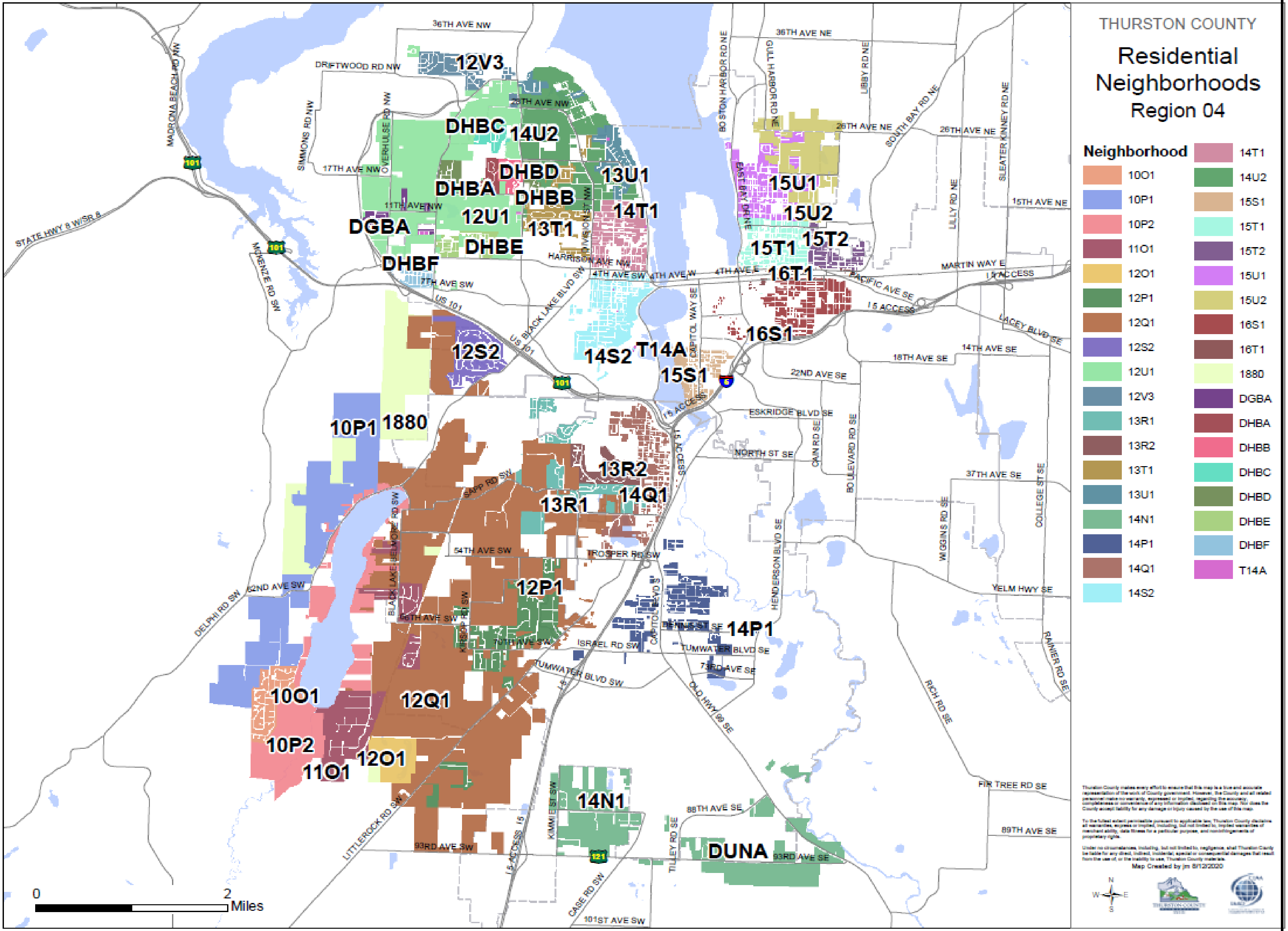
	Region
Red	01
Lavender	02
Light green	03
Blue-violet	04
Peach	05
Light blue	06
Green	07
Tan	08
Pink-magenta	09
Pale yellow	10
Mint	11
Light pink	14
Yellow	15
Light purple	16
Pink	17

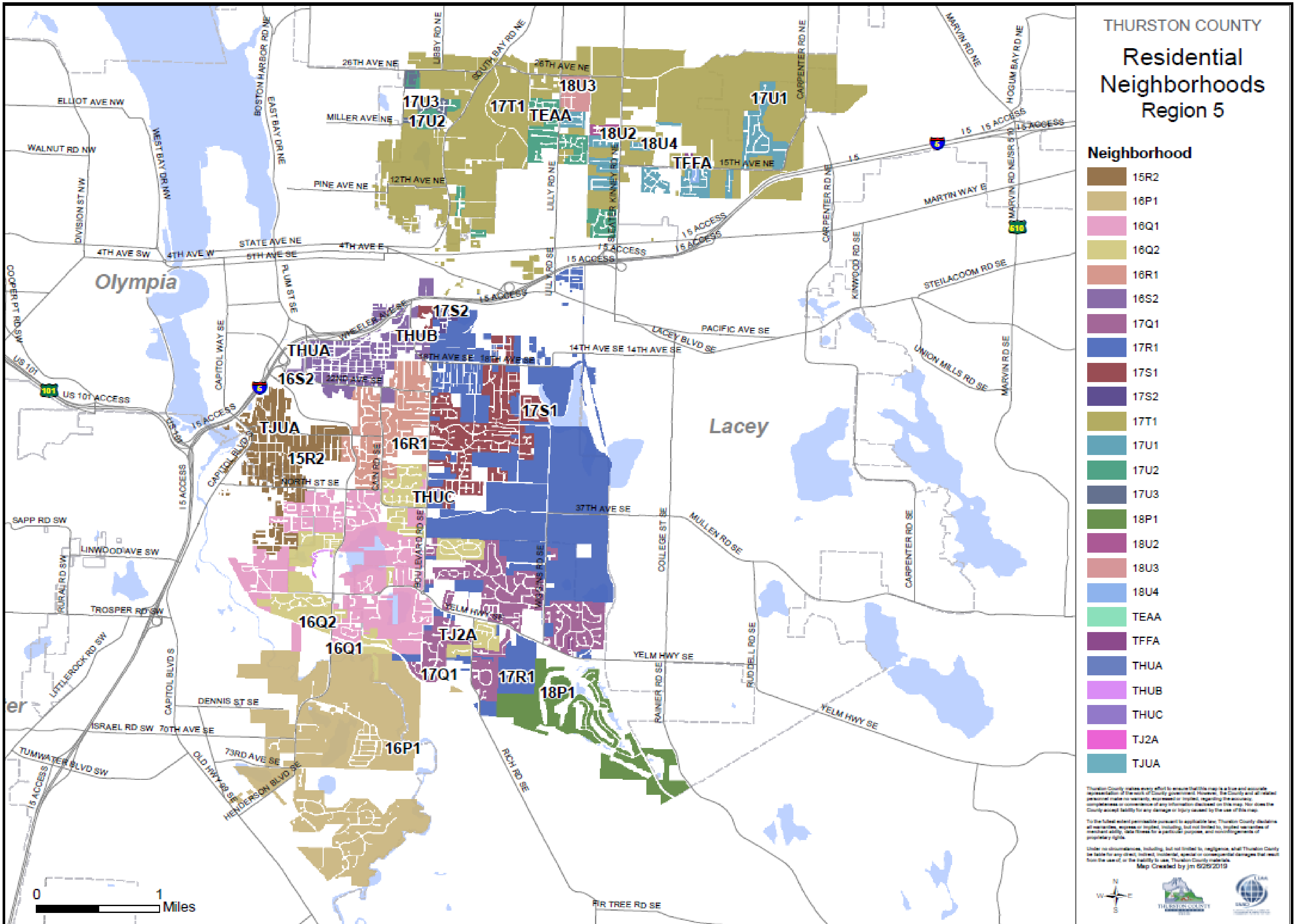
Map Created by jm 8/12/2020

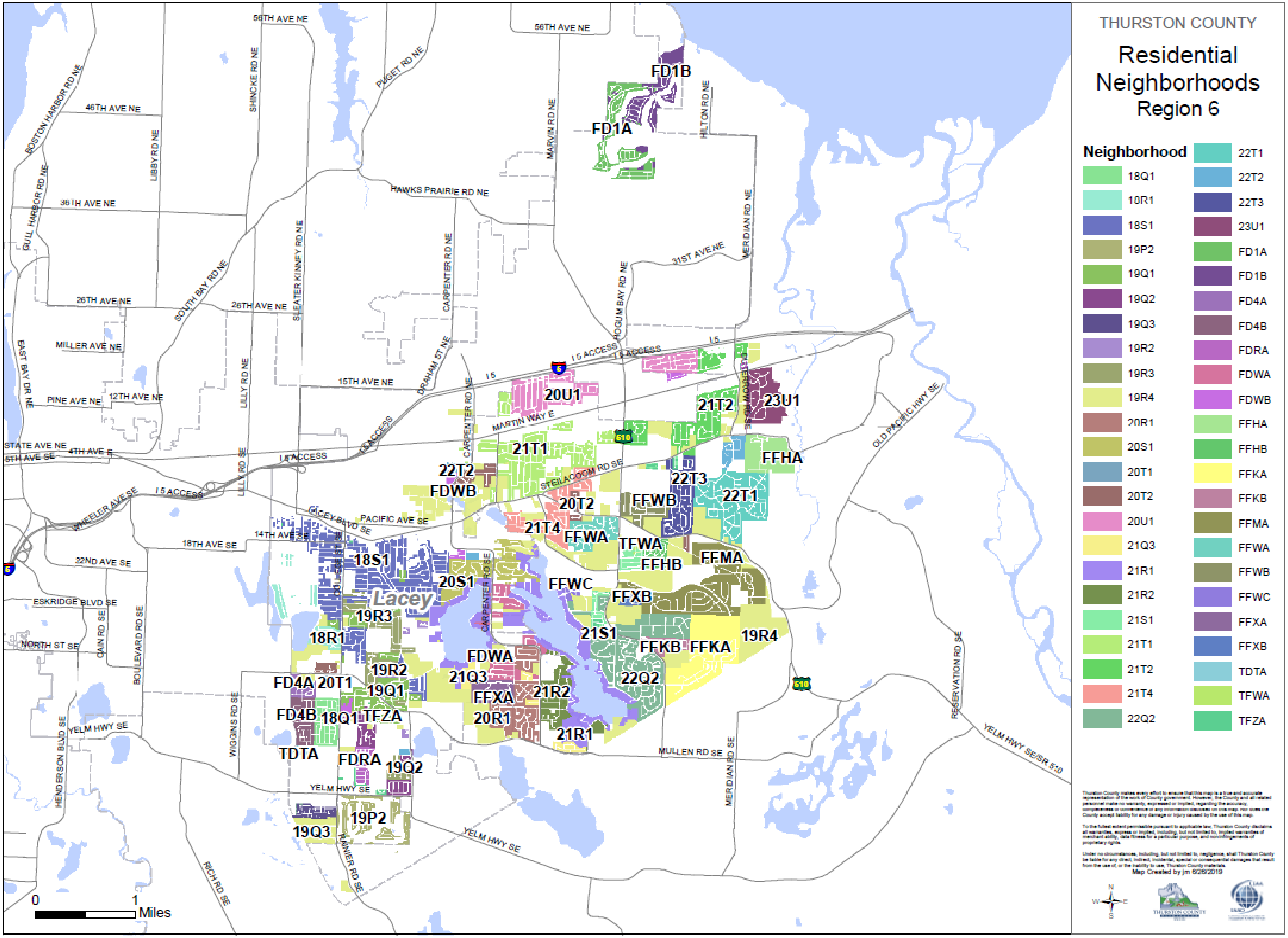

THURSTON COUNTY
Residential Neighborhoods Region 1
Neighborhood
09YS
11VS
11XS
12ZS
13YS
13ZS
15XS
17ZS
18YS
20ZS
13ZS
12ZS
17ZS
18YS
13YS
15XS
09YS
20ZS
11XS
11VS
Olympia
Lacey
STEAMBOAT ISLAND RD NW
YOUNG RD NW
61ST AVE NW
GRAVELLY BEACH LP NW
41ST AVE NW
36TH AVE NW
DRIFTWOOD RD NW
ELLIOT AVE NW
HARRISON AVE NW
STATE HWY 8 W/SR 8
US 101
ZANGLE RD NE
78TH AVE NE
JOHNSON POINT RD NE
MARVIN RD NE
PUGET BEACH RD NE
PUGET RD NE
56TH AVE NE
46TH AVE NE
LIBBY RD NE
SHINCKE RD NE
36TH AVE NE
26TH AVE NE
SOUTH BAY RD NE
BOSTON HARBOR RD NE
EAST BAY DR NE
12TH AVE NE
4TH AVE E
15TH AVE NE
MARTIN WAY E
SLEATER KINNEY RD NE
CARPENTER RD NE
31ST AVE NE
HOGUM BAY RD NE
MERIDIAN RD NE
DUTERROW RD SE
OLD PACIFIC HWY SE
PACIFIC HWY SE/SR 510
PACIFIC AVE SE
14TH AVE SE
18TH AVE SE
22ND AVE SE
I5 ACCESS
KINWOOD RD SE
BLACK LAKE BLVD SW
SAPP RD SW
49TH AVE SW
54TH AVE SW
62ND AVE SW
DELPHI RD SW
RURAL RD SW
CAPITOL BLVD S
HENDERSON BLVD SE
BOULEVARD RD SE
WIGGINS RD SE
COLLEGE ST SE
YELM HWY SE
MULLEN RD SE
YELM HWY SE
0 1 Miles
Map Created by jm 6/26/2019

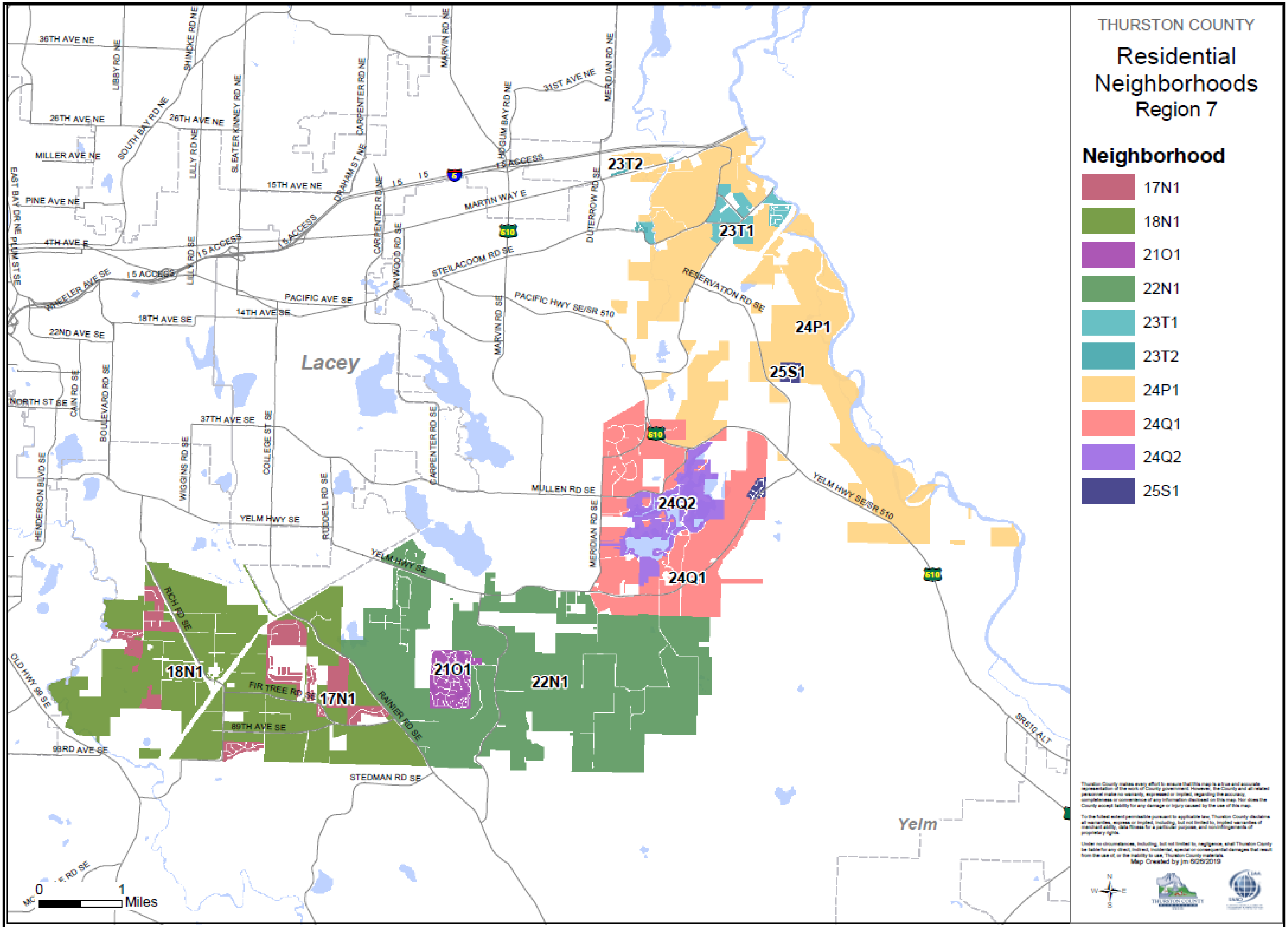

THURSTON COUNTY
Residential Neighborhoods
Region 02
Neighborhood
11U1
12W2
13V1
13W1
13W3
13W4
13X1
13Y1
1880
13X1
13Y1
13W1
13W3
13W4
12W2
13V1
11U1
1880
YOUNG RD NW
61ST AVE NW
GRAVELLY BEACH LP NW
STEAMBOAT ISLAND RD NW
41ST AVE NW
OYSTER BAY RD NW
MADRONA BEACH RD NW
STATE HWY 8 WSR 8
36TH AVE NW
DRIFTWOOD RD NW
KAISER RD NW
EVERGREEN PKWY NW
28TH AVE NW
SIMMONS RD NW
17TH AVE NW
OVERHULSE RD NW
20TH AVE NW
ELLIOT AVE NW
14TH AVE NW
WALNUT RD NW
COOPER PT RD NW
DIVISION ST NW
WEST BAY DR NW
HARRISON AVE NW
4TH AVE SW
4TH AVE W
4TH AVE E
5TH AVE SE
7TH AVE SW
CAPITAL MALL DR SW
US 101
DELPHI RD SW
MCKENZIE RD SW
101
ZANGLE RD NE
73RD AVE NE
46TH AVE NE
GULL HARBOR RD NE
36TH AVE NE
BOSTON HARBOR RD NE
AMES RD NE
EAST BAY DR NE
MILLER AVE NE
PINE AVE NE
STATE AVE NE
PLUM ST SE
0
1.5
Miles
Map Created by jm 8/12/2020

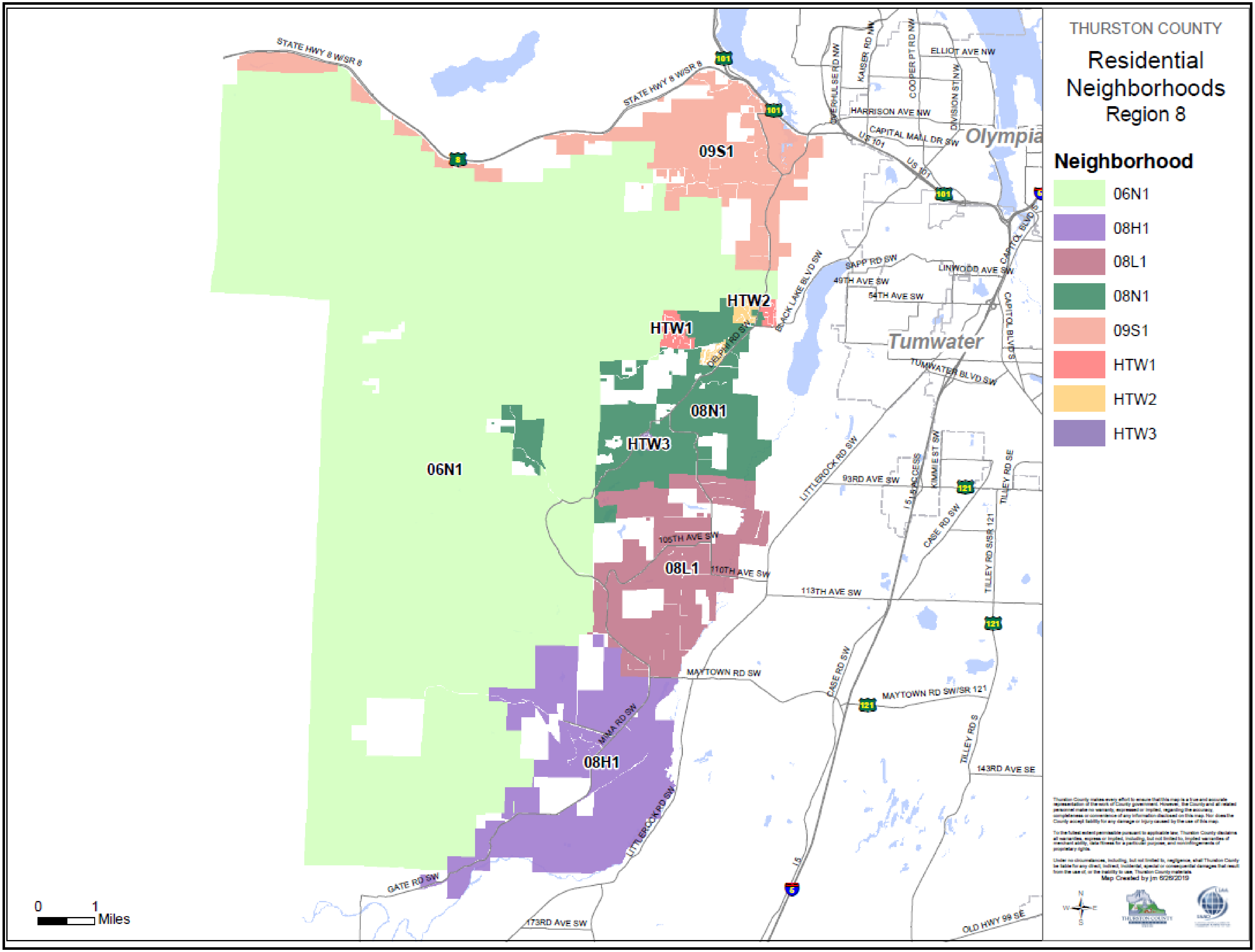

THURSTON COUNTY
Residential Neighborhoods
Region 3
Neighborhood
15X1
16W1
17Y1
17Z1
18W1
19W1
19Z1
20V1
20V2
20W1
20W2
23W1
NDUA
TDFA
TDFB
15X1
17Z1
19Z1
17Y1
16W1
19W1
20V2
20W2
20V1
18W1
TDFA
TDFB
NDUA
20W1
23W1
81ST AVE NE
ZANGLE RD NE
78TH AVE NE
MARVIN RD NE
WOODARD BAY RD NE
JOHNSON POINT RD NE
63RD AVE NE
PUGET RD NE
PUGET BEACH RD NE
HILL RD NE
56TH AVE NE
SHINCKE RD NE
BOSTON HARBOR RD NE
46TH AVE NE
36TH AVE NE
HAWKS PRAIRIE RD NE
MERIDIAN RD NE
AMES RD NE
LIBBY RD NE
SOUTH BAY RD NE
SLEATER KINNEY RD NE
CARPENTER RD NE
26TH AVE NE
MILLER AVE NE
EAST BAY DR NE
WEST BAY DR NW
PINE AVE NE
12TH AVE NE
LILLY RD NE
15TH AVE NE
GRAHAM ST NE
I5 ACCESS
MARTIN WAY E
DUTERROW RD SE
STEILACOOM RD SE
OLD PACIFIC HWY SE
0
1
Miles

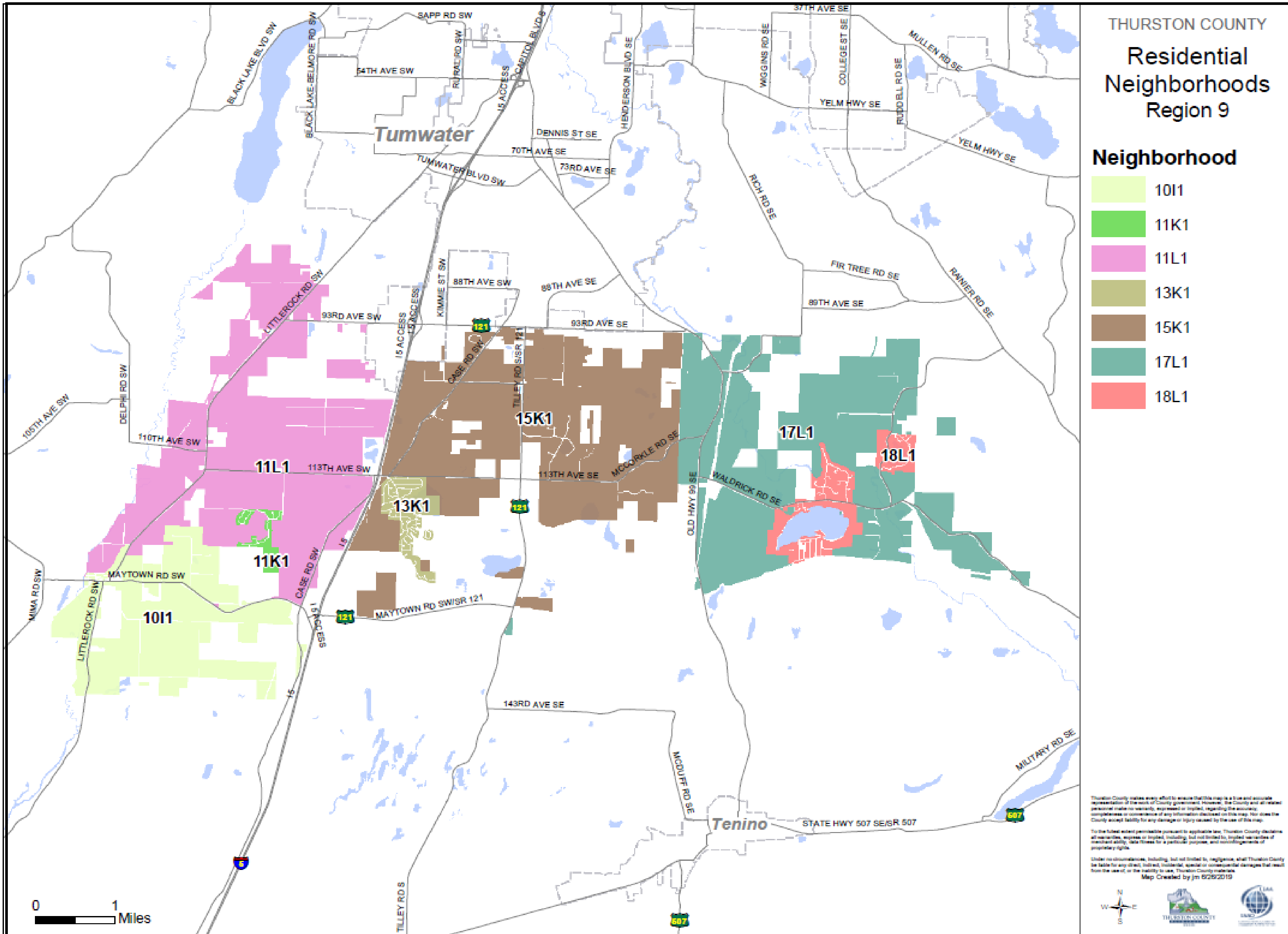

THURSTON COUNTY
Residential Neighborhoods Region 04
Neighborhood
10O1
10P1
10P2
11O1
12O1
12P1
12Q1
12S2
12U1
12V3
13R1
13R2
13T1
13U1
14N1
14P1
14Q1
14S2
14T1
14U2
15S1
15T1
15T2
15U1
15U2
16S1
16T1
1880
DGBA
DHBA
DHBB
DHBC
DHBD
DHBE
DHBF
T14A
DUNA
0
2
Miles

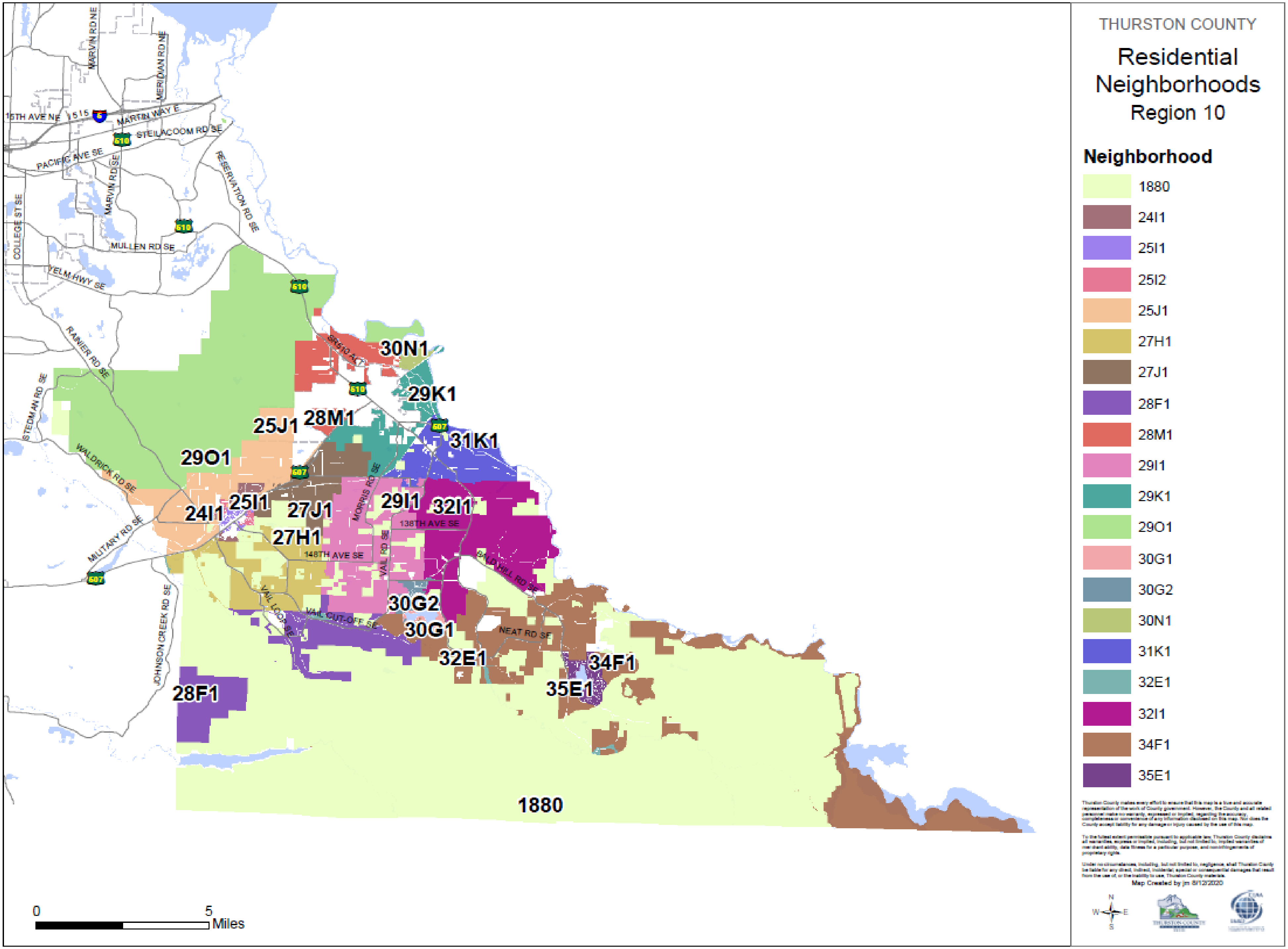

THURSTON COUNTY
Residential Neighborhoods Region 5
Neighborhood
15R2
16P1
16Q1
16Q2
16R1
16S2
17Q1
17R1
17S1
17S2
17T1
17U1
17U2
17U3
18P1
18U2
18U3
18U4
TEAA
TFFA
THUA
THUB
THUC
TJ2A
TJUA
Olympia
Lacey
0
1
Miles
Map Created by jm 6/26/2019
26TH AVE NE
ELLIOT AVE NW
MILLER AVE NE
WALNUT RD NW
PINE AVE NE
12TH AVE NE
15TH AVE NE
STATE AVE NE
4TH AVE SW
4TH AVE W
5TH AVE SE
4TH AVE E
PACIFIC AVE SE
LACEY BLVD SE
14TH AVE SE
MARTIN WAY E
STEILACOOM RD SE
UNION MILLS RD SE
37TH AVE SE
MULLEN RD SE
YELM HWY SE
SAPP RD SW
LINWOOD AVE SW
TROSPER RD SW
DENNIS ST SE
ISRAEL RD SW
70TH AVE SE
73RD AVE SE
TUMWATER BLVD SW
HENDERSON BLVD SE
OLD HWY 99 SE
RICH RD SE
FIR TREE RD SE
NORTH ST SE
BOSTON HARBOR RD NE
EAST BAY DR NE
WEST BAY DR NW
DIVISION ST NW
COOPER PT RD SW
CAPITOL WAY SE
CAPITOL BLVD SE
PLUM ST SE
LILLY RD NE
SOUTH BAY RD NE
LIBBY RD NE
CARPENTER RD NE
MARVIN RD NE
HOGUM BAY RD NE
KINWOOD RD SE
MARVIN RD SE
COLLEGE ST SE
RAINIER RD SE
RUDDELL RD SE
CARPENTER RD SE
BOULEVARD RD SE
WIGGINS RD SE
LITTLEROCK RD SW
RURAL RD SW
US 101
US 101 ACCESS
I5 ACCESS


THURSTON COUNTY
Residential Neighborhoods Region 6
Neighborhood
18Q1
18R1
18S1
19P2
19Q1
19Q2
19Q3
19R2
19R3
19R4
20R1
20S1
20T1
20T2
20U1
21Q3
21R1
21R2
21S1
21T1
21T2
21T4
22Q2
22T1
22T2
22T3
23U1
FD1A
FD1B
FD4A
FD4B
FDRA
FDWA
FDWB
FFHA
FFHB
FFKA
FFKB
FFMA
FFWA
FFWB
FFWC
FFXA
FFXB
TDTA
TFWA
TFZA
Lacey
56TH AVE NE
46TH AVE NE
36TH AVE NE
26TH AVE NE
MILLER AVE NE
15TH AVE NE
PINE AVE NE
12TH AVE NE
STATE AVE NE
4TH AVE E
5TH AVE SE
HAWKS PRAIRIE RD NE
31ST AVE NE
MARTIN WAY E
STEILACOOM RD SE
PACIFIC AVE SE
LACEY BLVD SE
14TH AVE SE
18TH AVE SE
22ND AVE SE
WHEELER AVE SE
ESKRIDGE BLVD SE
NORTH ST SE
YELM HWY SE
MULLEN RD SE
YELM HWY SE/SR 510
OLD PACIFIC HWY SE
BOSTON HARBOR RD NE
GULL HARBOR RD NE
EAST BAY DR NE
LIBBY RD NE
SHINCKE RD NE
PUGET RD NE
SOUTH BAY RD NE
SLEATER KINNEY RD NE
CARPENTER RD NE
GRAHAM ST NE
MARVIN RD NE
HILTON RD NE
MERIDIAN RD NE
HOGUM BAY RD NE
LILLY RD NE
I-5 ACCESS
I-5
BOULEVARD RD SE
HENDERSON BLVD SE
WIGGINS RD SE
RAINIER RD SE
RICH RD SE
RESERVATION RD SE
MERIDIAN RD SE
CARPENTER RD SE
0
1
Miles
Map Created by jm 6/28/2019


THURSTON COUNTY
Residential Neighborhoods
Region 7
Neighborhood
17N1
18N1
21O1
22N1
23T1
23T2
24P1
24Q1
24Q2
25S1
Lacey
Yelm
23T2
23T1
24P1
25S1
24Q2
24Q1
21O1
22N1
18N1
17N1
36TH AVE NE
26TH AVE NE
MILLER AVE NE
PINE AVE NE
4TH AVE E
15TH AVE NE
MARTIN WAY E
STEILACOOM RD SE
PACIFIC AVE SE
PACIFIC HWY SE/SR 510
RESERVATION RD SE
18TH AVE SE
14TH AVE SE
22ND AVE SE
NORTH ST SE
37TH AVE SE
MULLEN RD SE
YELM HWY SE
YELM HWY SE/SR 510
FIR TREE RD SE
89TH AVE SE
93RD AVE SE
STEDMAN RD SE
RAINIER RD SE
RICH RD SE
OLD HWY 99 SE
SR510 ALT
MERIDIAN RD SE
MARVIN RD SE
CARPENTER RD SE
COLLEGE ST SE
RUDDELL RD SE
WIGGINS RD SE
BOULEVARD RD SE
HENDERSON BLVD SE
0
1
Miles
Map Created by jm 6/26/2019

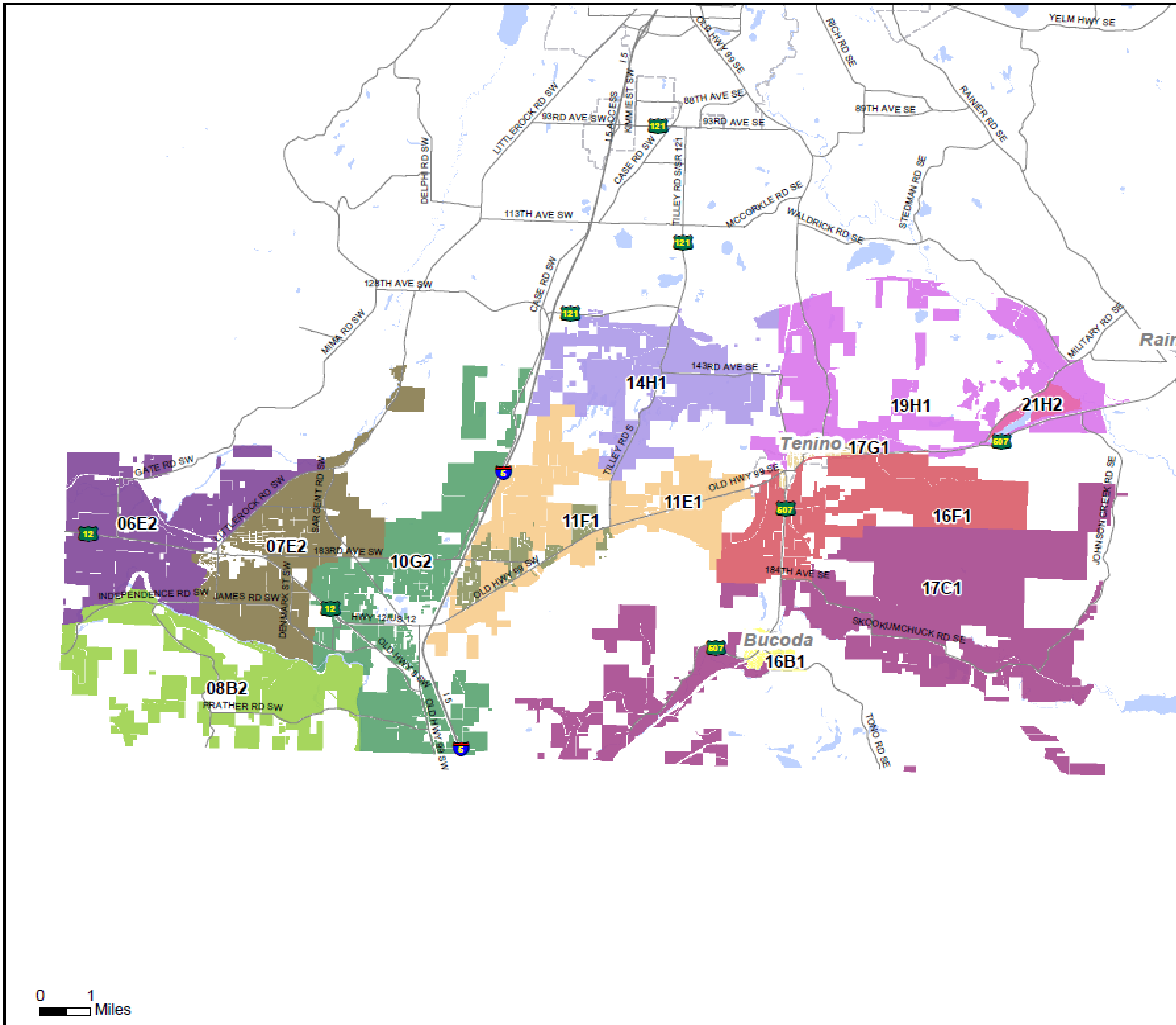

THURSTON COUNTY
Residential Neighborhoods
Region 8
Neighborhood
06N1
08H1
08L1
08N1
09S1
HTW1
HTW2
HTW3
Olympia
Tumwater
09S1
HTW2
HTW1
08N1
HTW3
06N1
08L1
08H1
STATE HWY 8 W/SR 8
US 101
ELLIOT AVE NW
HARRISON AVE NW
CAPITAL MALL DR SW
KAISER RD NW
COOPER PT RD NW
DIVISION ST NW
OVERHULSE RD NW
SAPP RD SW
49TH AVE SW
54TH AVE SW
LINWOOD AVE SW
BLACK LAKE BLVD SW
DELPHI RD SW
CAPITOL BLVD SE
TUMWATER BLVD SW
LITTLEROCK RD SW
93RD AVE SW
KIMMIE ST SW
CASE RD SW
TILLEY RD SE
105TH AVE SW
110TH AVE SW
113TH AVE SW
TILLEY RD S/SR 121
MAYTOWN RD SW
MAYTOWN RD SW/SR 121
MIMA RD SW
TILLEY RD S
143RD AVE SE
I 5
GATE RD SW
173RD AVE SW
OLD HWY 99 SE
0
1
Miles
Map Created by jm 6/28/2019


THURSTON COUNTY
Residential Neighborhoods
Region 9
Neighborhood
10I1
11K1
11L1
13K1
15K1
17L1
18L1
Tumwater
Tenino
10I1
11K1
11L1
13K1
15K1
17L1
18L1
SAPP RD SW
54TH AVE SW
BLACK LAKE BLVD SW
BLACK LAKE-BELMORE RD SW
RURAL RD SW
I5 ACCESS
CAPITOL BLVD S
HENDERSON BLVD SE
37TH AVE SE
WIGGINS RD SE
COLLEGE ST SE
RUDDELL RD SE
MULLEN RD SE
YELM HWY SE
DENNIS ST SE
70TH AVE SE
73RD AVE SE
TUMWATER BLVD SW
RICH RD SE
FIR TREE RD SE
89TH AVE SE
RAINIER RD SE
88TH AVE SW
88TH AVE SE
KIMMIE ST SW
93RD AVE SW
93RD AVE SE
LITTLEROCK RD SW
CASE RD SW
TILLEY RD S/SR 121
105TH AVE SW
DELPHI RD SW
110TH AVE SW
113TH AVE SW
113TH AVE SE
MCCORKLE RD SE
WALDRICK RD SE
OLD HWY 99 SE
MAYTOWN RD SW
MIMA RD SW
LITTLEROCK RD SW
MAYTOWN RD SW/SR 121
I5
143RD AVE SE
MCDUFF RD SE
MILITARY RD SE
STATE HWY 507 SE/SR 507
TILLEY RD S
121
507
5
0
1
Miles
Map Created by jm 6/26/2019
N
S
E
W


THURSTON COUNTY
Residential Neighborhoods Region 10
Neighborhood
1880
24I1
25I1
25I2
25J1
27H1
27J1
28F1
28M1
29I1
29K1
29O1
30G1
30G2
30N1
31K1
32E1
32I1
34F1
35E1
Map Created by jm 8/12/2020
30N1
29K1
28M1
25J1
31K1
29O1
24I1
25I1
27J1
29I1
32I1
27H1
30G2
30G1
32E1
34F1
35E1
28F1
1880
MARVIN RD NE
MERIDIAN RD NE
15TH AVE NE
MARTIN WAY E
STEILACOOM RD SE
PACIFIC AVE SE
MARVIN RD SE
RESERVATION RD SE
COLLEGE ST SE
MULLEN RD SE
YELM HWY SE
RAINIER RD SE
STEDMAN RD SE
WALDRICK RD SE
MILITARY RD SE
JOHNSON CREEK RD SE
MORRIS RD SE
138TH AVE SE
148TH AVE SE
VAIL RD SE
VAIL LOOP SE
VAIL CUT-OFF SE
BALD HILL RD SE
NEAT RD SE
0
5
Miles

THURSTON COUNTY

Residential Neighborhoods
Region 11

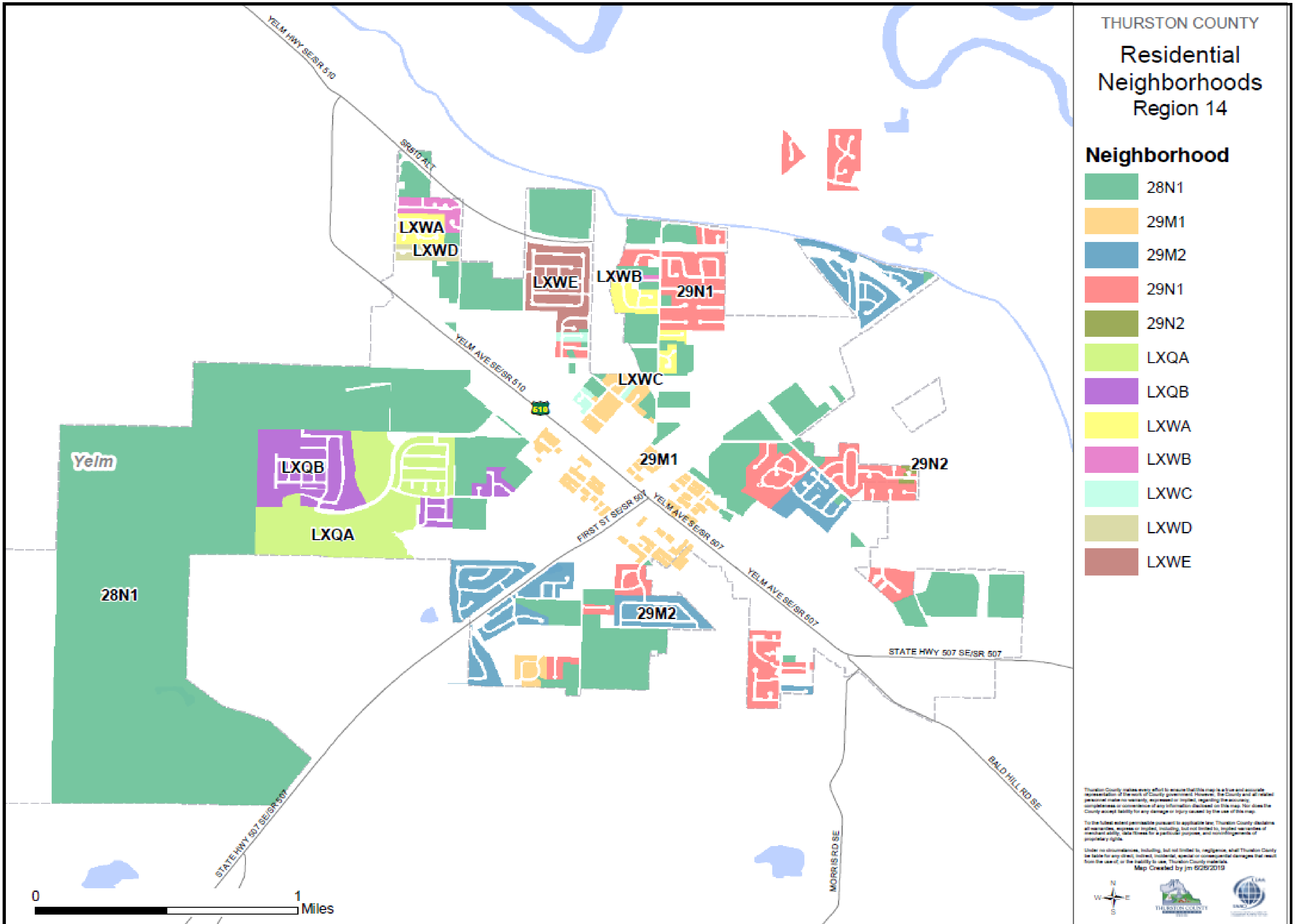


Neighborhood

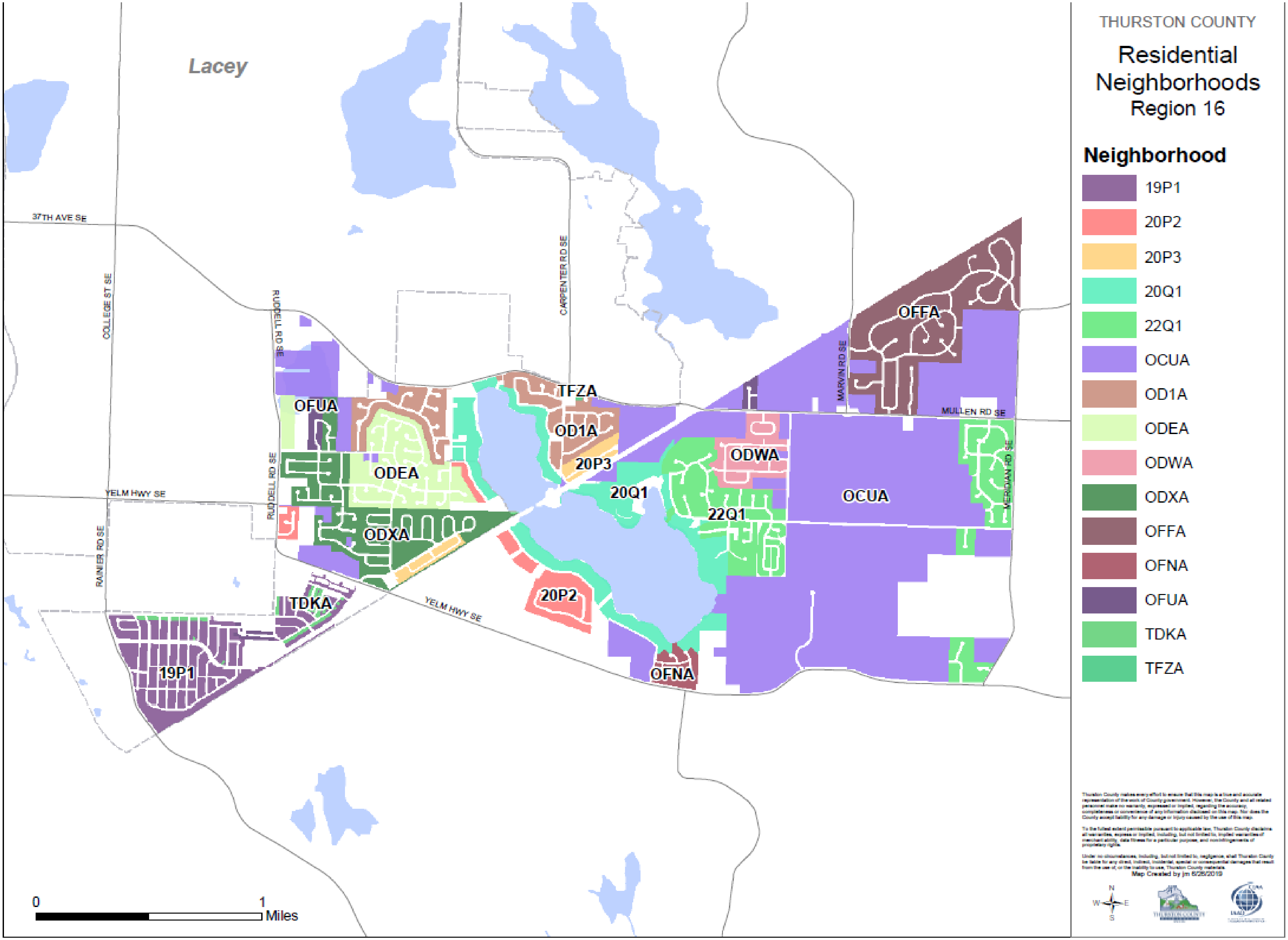
- 06E2
- 07E2
- 08B2
- 10G2
- 11E1
- 11F1
- 14H1
- 16B1
- 16F1
- 17C1
- 17G1
- 19H1
- 21H2

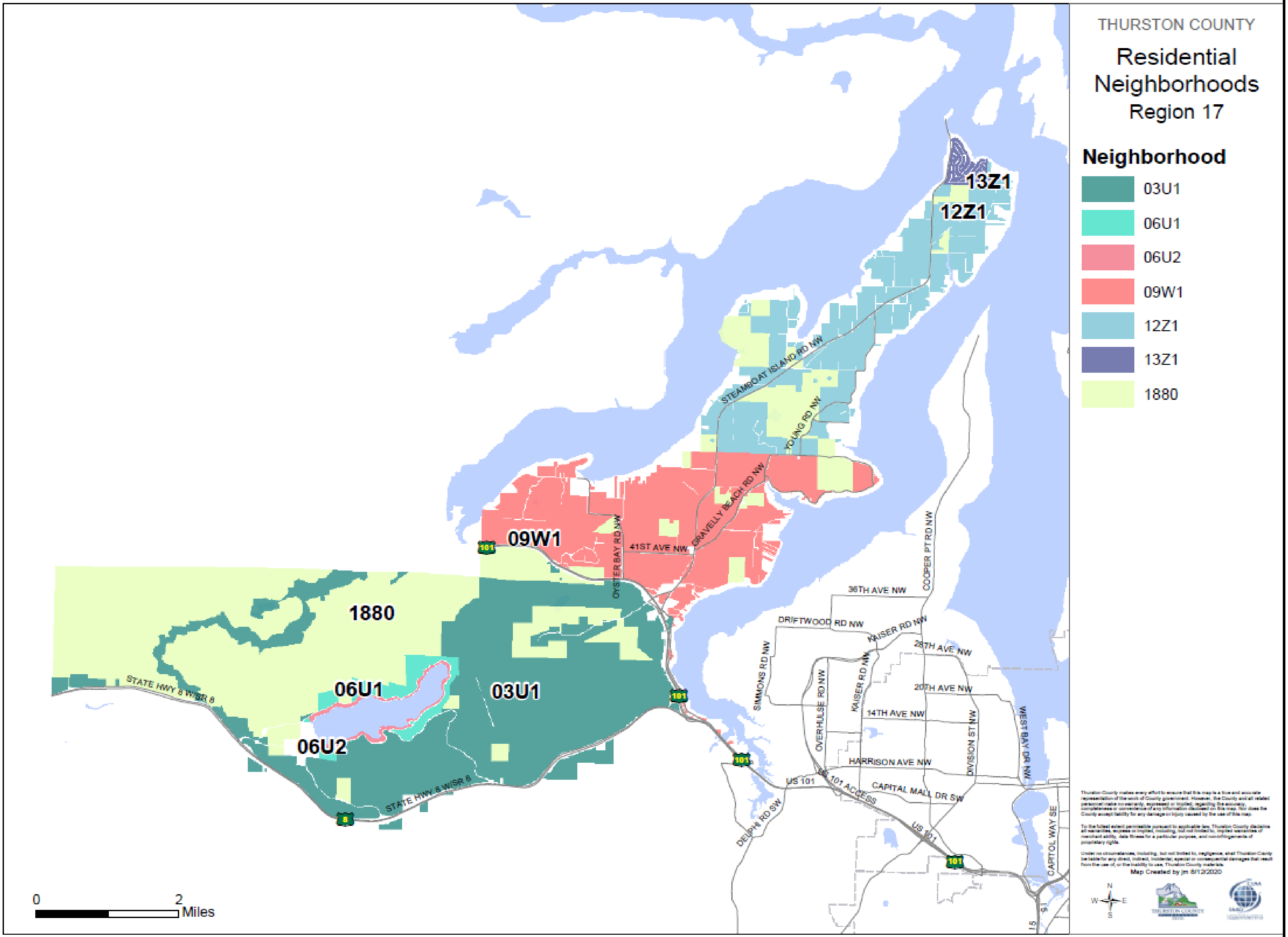
Map Created by jm 6/26/2019

0 1 Miles

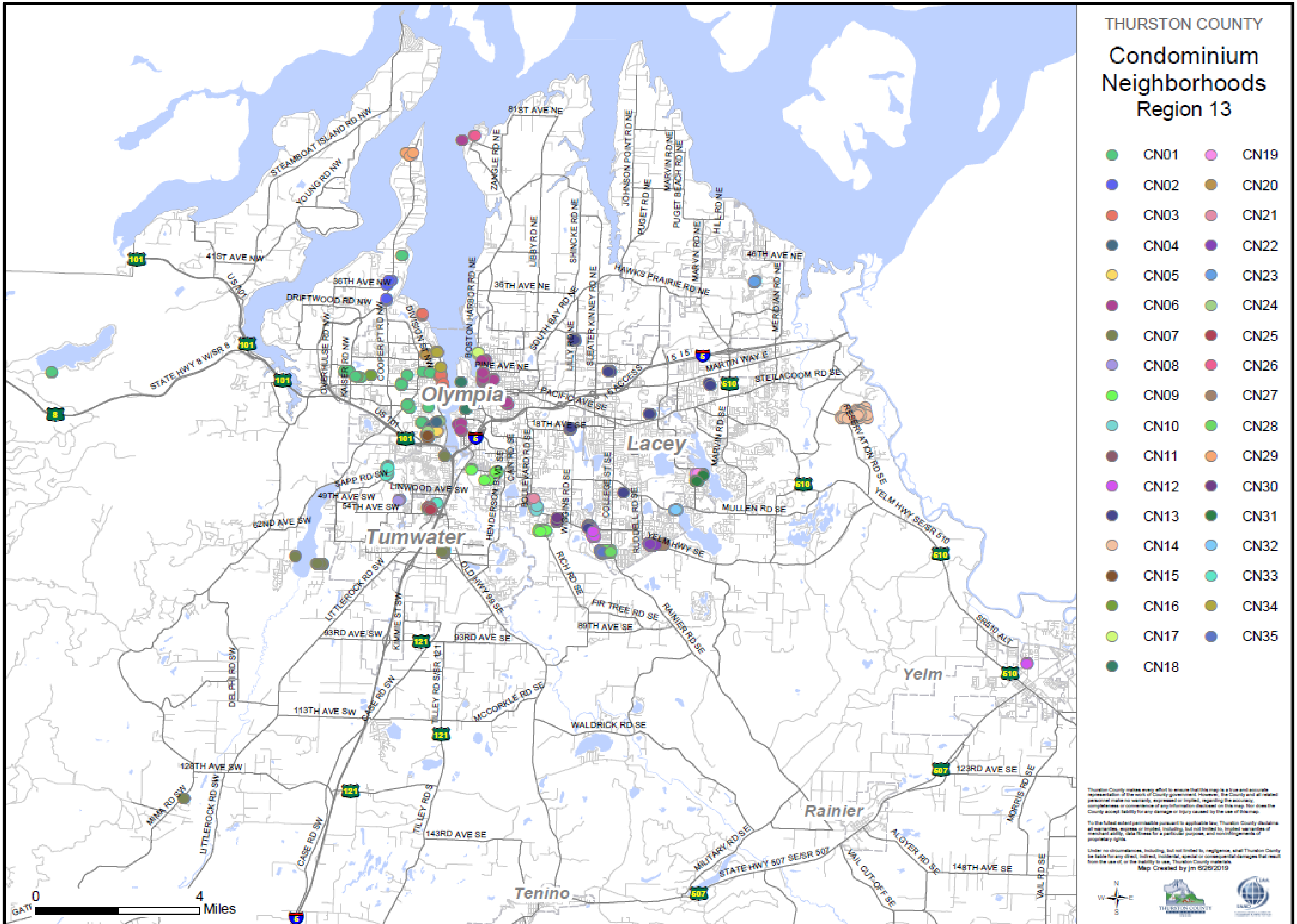

THURSTON COUNTY
Residential Neighborhoods
Region 14
Neighborhood
28N1
29M1
29M2
29N1
29N2
LXQA
LXQB
LXWA
LXWB
LXWC
LXWD
LXWE
Yelm
LXWA
LXWD
LXWE
LXWB
29N1
LXWC
29M1
29N2
LXQB
LXQA
28N1
29M2
YELM HWY SE/SR 510
YELM AVE SE/SR 510
YELM AVE SE/SR 507
FIRST ST SE/SR 507
STATE HWY 507 SE/SR 507
BALD HILL RD SE
MORRIS RD SE
510
0
1
Miles
Map Created by jm 6/26/2019

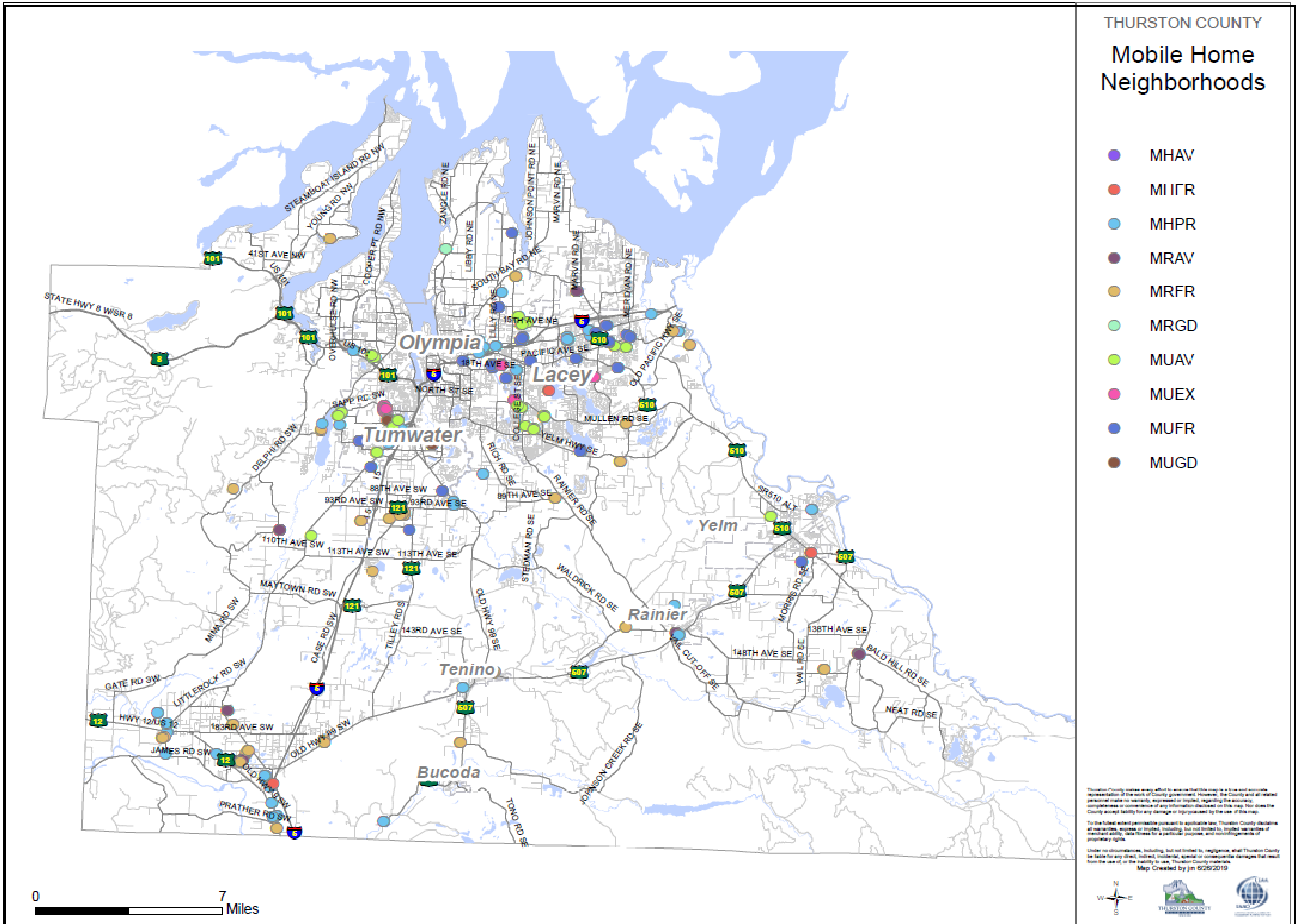

THURSTON COUNTY
Residential Neighborhoods Region 15
Neighborhood
NDAA
NDAB
NDFA
NDFB
NDFC
NDUA
NDWA
NDWB
NDWC
NDXA
TFZA
46TH AVE NE
HILTON RD NE
MARVIN RD NE
MERIDIAN RD NE
HOGUM BAY RD NE
31ST AVE NE
0
1
Miles
N
S
E
W


THURSTON COUNTY
Residential Neighborhoods
Region 16
Neighborhood
19P1
20P2
20P3
20Q1
22Q1
OCUA
OD1A
ODEA
ODWA
ODXA
OFFA
OFNA
OFUA
TDKA
TFZA
Lacey
37TH AVE SE
COLLEGE ST SE
RUDDELL RD SE
CARPENTER RD SE
MARVIN RD SE
MULLEN RD SE
MERIDIAN RD SE
YELM HWY SE
RAINIER RD SE
OFUA
TFZA
OD1A
20P3
ODEA
20Q1
ODWA
OCUA
22Q1
OFFA
ODXA
TDKA
20P2
19P1
OFNA
0
1
Miles
Map Created by jm 6/28/2019



THURSTON COUNTY
Residential Neighborhoods Region 17
Neighborhood
03U1
06U1
06U2
09W1
12Z1
13Z1
1880
13Z1
12Z1
09W1
1880
06U1
03U1
06U2
STEAMBOAT ISLAND RD NW
YOUNG RD NW
GRAVELLY BEACH RD NW
41ST AVE NW
OYSTER BAY RD NW
COOPER PT RD NW
36TH AVE NW
DRIFTWOOD RD NW
KAISER RD NW
28TH AVE NW
20TH AVE NW
14TH AVE NW
SIMMONS RD NW
OVERHULSE RD NW
DIVISION ST NW
WEST BAY DR NW
HARRISON AVE NW
CAPITAL MALL DR SW
US 101
US 101 ACCESS
DELPHI RD SW
CAPITOL WAY SE
STATE HWY 8 W/SR 8
0
2
Miles
Map Created by jm 8/12/2020


THURSTON COUNTY
Condominium Neighborhoods
Region 13
CN01
CN02
CN03
CN04
CN05
CN06
CN07
CN08
CN09
CN10
CN11
CN12
CN13
CN14
CN15
CN16
CN17
CN18
CN19
CN20
CN21
CN22
CN23
CN24
CN25
CN26
CN27
CN28
CN29
CN30
CN31
CN32
CN33
CN34
CN35
Olympia
Lacey
Tumwater
Yelm
Rainier
Tenino
0
4
Miles
STEAMBOAT ISLAND RD NW
YOUNG RD NW
41ST AVE NW
36TH AVE NW
DRIFTWOOD RD NW
STATE HWY 8 W/SR 8
81ST AVE NE
ZANGLE RD NE
JOHNSON POINT RD NE
HAWKS PRAIRIE RD NE
46TH AVE NE
MARTIN WAY E
STEILACOOM RD SE
PINE AVE NE
PACIFIC AVE SE
18TH AVE SE
MULLEN RD SE
YELM HWY SE
YELM HWY SE/SR 510
LINWOOD AVE SW
49TH AVE SW
54TH AVE SW
62ND AVE SW
93RD AVE SW
93RD AVE SE
89TH AVE SE
FIR TREE RD SE
RAINIER RD SE
113TH AVE SW
MCCORKLE RD SE
WALDRICK RD SE
128TH AVE SW
143RD AVE SE
123RD AVE SE
148TH AVE SE
STATE HWY 507 SE/SR 507
MILITARY RD SE
ALGYER RD SE
VAIL CUT-OFF SE
LITTLEROCK RD SW
CASE RD SW
TILLEY RD S
Map Created by jm 8/26/2019



THURSTON COUNTY
Mobile Home Neighborhoods
MHAV
MHFR
MHPR
MRAV
MRFR
MRGD
MUAV
MUEX
MUFR
MUGD
Olympia
Lacey
Tumwater
Yelm
Rainier
Tenino
Bucoda
STEAMBOAT ISLAND RD NW
YOUNG RD NW
41ST AVE NW
STATE HWY 8 W/SR 8
COOPER PT RD NW
OVERHULSE RD NW
ZANGLE RD NE
LIBBY RD NE
SOUTH BAY RD NE
JOHNSON POINT RD NE
MARVIN RD NE
MERIDIAN RD NE
15TH AVE NE
PACIFIC AVE SE
18TH AVE SE
NORTH ST SE
SAPP RD SW
DELPHI RD SW
OLD PACIFIC HWY SE
MULLEN RD SE
YELM HWY SE
COLLEGE ST SE
RICH RD SE
RAINIER RD SE
88TH AVE SW
93RD AVE SW
93RD AVE SE
89TH AVE SE
110TH AVE SW
113TH AVE SW
113TH AVE SE
SR510 ALT
MAYTOWN RD SW
WALDRICK RD SE
STEDMAN RD SE
OLD HWY 99 SE
TILLEY RD S
143RD AVE SE
CASE RD SW
MIMA RD SW
MORRIS RD SE
138TH AVE SE
148TH AVE SE
VAIL RD SE
VAIL CUT-OFF SE
BALD HILL RD SE
NEAT RD SE
GATE RD SW
LITTLEROCK RD SW
HWY 12/US 12
183RD AVE SW
JAMES RD SW
OLD HWY 99 SW
PRATHER RD SW
JOHNSON CREEK RD SE
TONO RD SE
Map Created by jm 6/26/2019
0
7
Miles