

---

# **Residential Revaluation**

## **Summary Report**

---

2022 Mass Appraisal of All Regions for 2023 Property Taxes

**Prepared For**  
**Steven J. Drew**  
**Thurston County Assessor**

# TABLE OF CONTENTS

Page

|                                                                       |    |
|-----------------------------------------------------------------------|----|
| CERTIFICATE OF APPRAISAL .....                                        | 1  |
| APPRAISAL TEAM.....                                                   | 2  |
| MASS APPRAISAL CONCLUSIONS.....                                       | 3  |
| CHECK FOR SALES CHASING.....                                          | 7  |
| PREMISE OF THE APPRAISAL.....                                         | 8  |
| Supporting Documents Used in the Mass Appraisal.....                  | 8  |
| CLIENT AND INTENDED USERS .....                                       | 9  |
| ASSUMPTIONS AND LIMITING CONDITIONS .....                             | 10 |
| SPECIAL ASSUMPTIONS, LIMITING AND HYPOTHETICAL CONDITIONS.....        | 10 |
| JURISDICTIONAL EXCEPTION .....                                        | 11 |
| PURPOSE AND INTENDED USE .....                                        | 11 |
| TRUE AND FAIR VALUE .....                                             | 11 |
| DATE OF APPRAISAL .....                                               | 11 |
| PROPERTY RIGHTS APPRAISED .....                                       | 12 |
| PERSONAL PROPERTY NOT INCLUDED IN THE APPRAISAL .....                 | 12 |
| MARKET AREA AND PROPERTIES APPRAISED .....                            | 12 |
| INSPECTED REGIONS BOUNDARY DESCRIPTION .....                          | 12 |
| ZONING.....                                                           | 13 |
| HIGHEST AND BEST USE.....                                             | 13 |
| SCOPE OF THE APPRAISAL .....                                          | 13 |
| RESIDENTIAL VALUATION PROCESS.....                                    | 15 |
| COST APPROACH .....                                                   | 16 |
| Land Model Specification .....                                        | 16 |
| Land Model Calibration .....                                          | 16 |
| Multiple Regression Analysis Assumptions .....                        | 17 |
| Square Footage Model Normal Distribution of the Residual Errors ..... | 17 |
| Scatterplot of Residual to Price as check for systemic bias .....     | 18 |
| Front Footage Model Normal Distribution of the Residual Errors .....  | 19 |
| Example of Land Square Feet Table Base Area Region 5.....             | 20 |
| Example of Acreage Table Base Region 5.....                           | 21 |
| Example of Land Influences .....                                      | 22 |
| Example of Saltwater Front Foot & Depth Tables.....                   | 23 |
| SALT WATER SPECIFIC INFLUENCES .....                                  | 24 |

|                                                          |           |
|----------------------------------------------------------|-----------|
| <b>BUILDING COST SPECIFICATION.....</b>                  | <b>25</b> |
| <b>2022 COST TABLE CALIBRATION.....</b>                  | <b>25</b> |
| Introduction .....                                       | 25        |
| Residential Structures .....                             | 25        |
| Construction Cost Tables .....                           | 26        |
| <b>DEPRECIATION ANALYSIS.....</b>                        | <b>27</b> |
| Effective Age .....                                      | 27        |
| Depreciation Rate Tables .....                           | 27        |
| Condition .....                                          | 28        |
| <b>NEIGHBORHOOD ADJUSTMENT MODEL SPECIFICATION .....</b> | <b>30</b> |
| <b>NEIGHBORHOOD ADJUSTMENT CALIBRATION .....</b>         | <b>30</b> |
| Residential Adjustment Model Validation .....            | 32        |
| Assessment Uniformity by Region .....                    | 33        |
| Assessment Uniformity by Quality Grade .....             | 34        |
| Assessment Uniformity by Condition.....                  | 35        |
| <b>RECONCILIATION AND CONCLUSION .....</b>               | <b>36</b> |
| <b>APPENDIX .....</b>                                    | <b>37</b> |
| Multiple Regression Analysis Assumptions .....           | 37        |
| <b>MARKET / TIME ADJUSTMENT AND MODEL SUMMARIES.....</b> | <b>39</b> |
| SQUARE FOOT LAND MODEL SUMMARY.....                      | 43        |
| SALT WATERFRONT LAND MODEL SUMMARY .....                 | 43        |
| NEIGHBORHOOD RATIO STATISTICS.....                       | 44        |
| CONDOMINIUMS .....                                       | 50        |
| MANUFACTURED HOMES ON LAND.....                          | 52        |
| MANUFACTURED HOMES IN PARKS .....                        | 52        |
| <b>ALL RESIDENTIAL REGIONS.....</b>                      | <b>53</b> |
| Region 1.....                                            | 534       |
| Region 2.....                                            | 55        |
| Region 3.....                                            | 56        |
| Region 4.....                                            | 57        |
| Region 5.....                                            | 58        |
| Region 6.....                                            | 59        |
| Region 7.....                                            | 60        |
| Region 8.....                                            | 61        |
| Region 9.....                                            | 62        |
| Region 10.....                                           | 63        |
| Region 11.....                                           | 64        |
| Region 14.....                                           | 65        |
| Region 15.....                                           | 66        |
| Region 16.....                                           | 67        |
| Region 17.....                                           | 68        |
| Condominium Neighborhoods.....                           | 69        |
| Mobile Home Neighborhoods.....                           | 70        |

## **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:

042 - Senior Appraiser  
057 - Senior Appraiser  
069 - Senior Appraiser  
071 - Senior Appraiser  
073 - Senior Appraiser  
074 - Senior Appraiser  
075 - Senior Appraiser  
076 - Appraiser Assistant  
077 - Appraiser Assistant  
078 - Appraiser Assistant  
079 - Appraiser Assistant  
081 - Senior Appraiser  
082 - 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  
072 - Appraiser Analyst

### Final Review:

062 - Chief Deputy  
080 - Appraiser Supervisor

## **MASS APPRAISAL CONCLUSIONS**

**Appraisal Date:** January 1, 2022

**Area Name / Number:** County Wide all Regional Summary

**Physical Inspection:** Active Inspections of 14,651 parcels in Regions 1, 2, 3,17

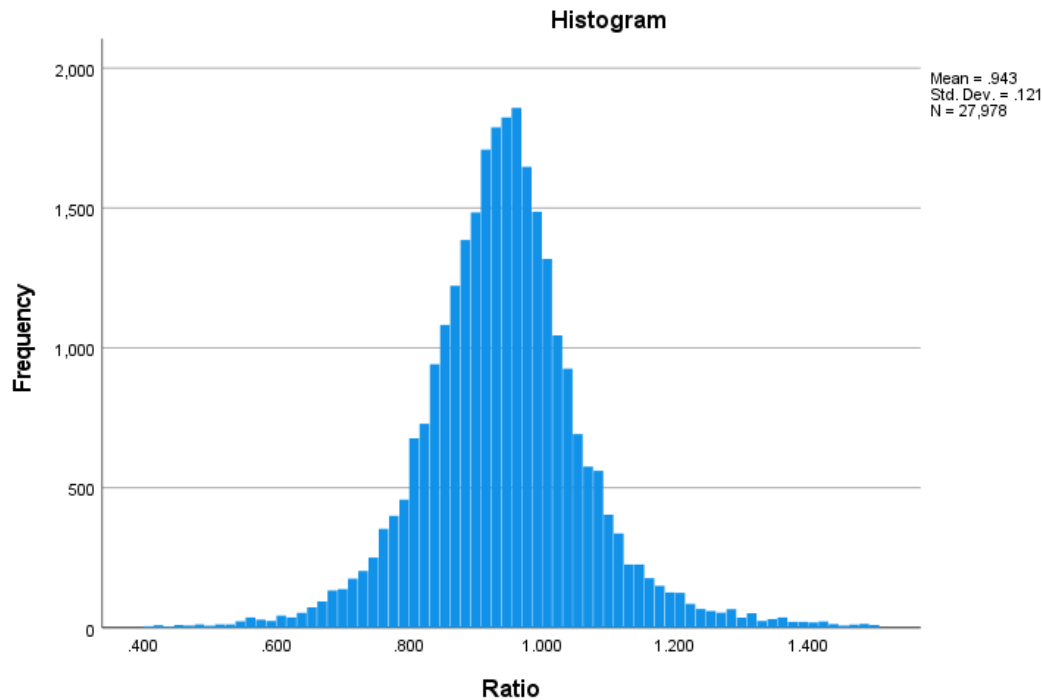
**Non-inspected Updates:** Non-Inspected Updates 97,340 parcels. Regions 4,5,6,7, 8,9,10,11,13,14,15,16

### **Summary of Regional Sales Ratios**

| Region  | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation |
|---------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|--------------------------|
| 01      | 0.952 | 0.945  | 0.973         | 0.151                      | 0.979                      | 0.159                     | 20.6%                    |
| 02      | 0.947 | 0.950  | 0.953         | 0.097                      | 0.993                      | 0.102                     | 14.4%                    |
| 03      | 0.944 | 0.946  | 0.948         | 0.079                      | 0.996                      | 0.084                     | 11.8%                    |
| 04      | 0.944 | 0.941  | 0.947         | 0.102                      | 0.997                      | 0.108                     | 14.2%                    |
| 05      | 0.939 | 0.934  | 0.938         | 0.087                      | 1.002                      | 0.094                     | 12.5%                    |
| 06      | 0.948 | 0.943  | 0.942         | 0.078                      | 1.006                      | 0.083                     | 11.2%                    |
| 07      | 0.944 | 0.942  | 0.949         | 0.091                      | 0.994                      | 0.096                     | 12.8%                    |
| 08      | 0.951 | 0.945  | 0.956         | 0.100                      | 0.996                      | 0.106                     | 14.4%                    |
| 09      | 0.930 | 0.931  | 0.928         | 0.108                      | 1.003                      | 0.116                     | 15.9%                    |
| 10      | 0.938 | 0.938  | 0.945         | 0.118                      | 0.993                      | 0.125                     | 16.8%                    |
| 11      | 0.901 | 0.900  | 0.902         | 0.111                      | 0.999                      | 0.123                     | 16.2%                    |
| 14      | 0.952 | 0.949  | 0.951         | 0.072                      | 1.000                      | 0.075                     | 10.5%                    |
| 15      | 0.952 | 0.948  | 0.950         | 0.051                      | 1.003                      | 0.054                     | 7.3%                     |
| 16      | 0.961 | 0.957  | 0.962         | 0.070                      | 0.999                      | 0.073                     | 9.7%                     |
| 17      | 0.928 | 0.922  | 0.928         | 0.115                      | 1.000                      | 0.124                     | 16.6%                    |
| Overall | 0.943 | 0.942  | 0.943         | 0.089                      | 1.000                      | 0.094                     | 12.9%                    |

**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 27,978 parcels. Adding sales of manufactured homes and condos brings the final sample to 31,495 total sales. Ratios are represented by properties which have not had a change in use.



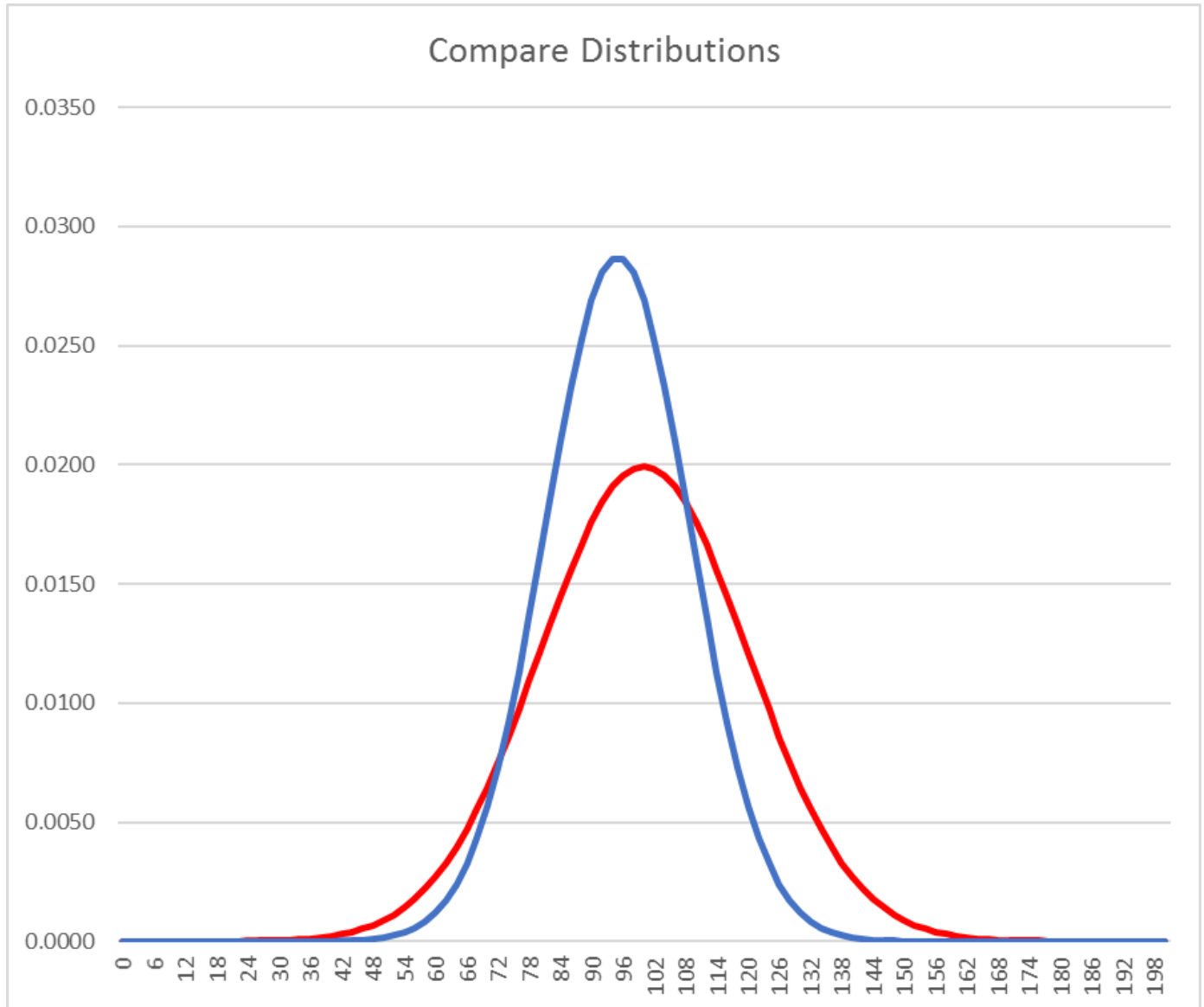
| Group   | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion |
|---------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|
| CNU     | 0.949 | 0.951  | 0.943         | 0.082                      | 1.007                      | 0.086                     |
| LND     | 0.867 | 0.871  | 0.851         | 0.183                      | 1.019                      | 0.210                     |
| MOB     | 0.960 | 0.932  | 0.929         | 0.200                      | 1.033                      | 0.214                     |
| RES     | 0.946 | 0.944  | 0.945         | 0.085                      | 1.001                      | 0.090                     |
| Overall | 0.945 | 0.943  | 0.944         | 0.096                      | 1.002                      | 0.101                     |

**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 2023 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 is an example of these standards.



## 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.

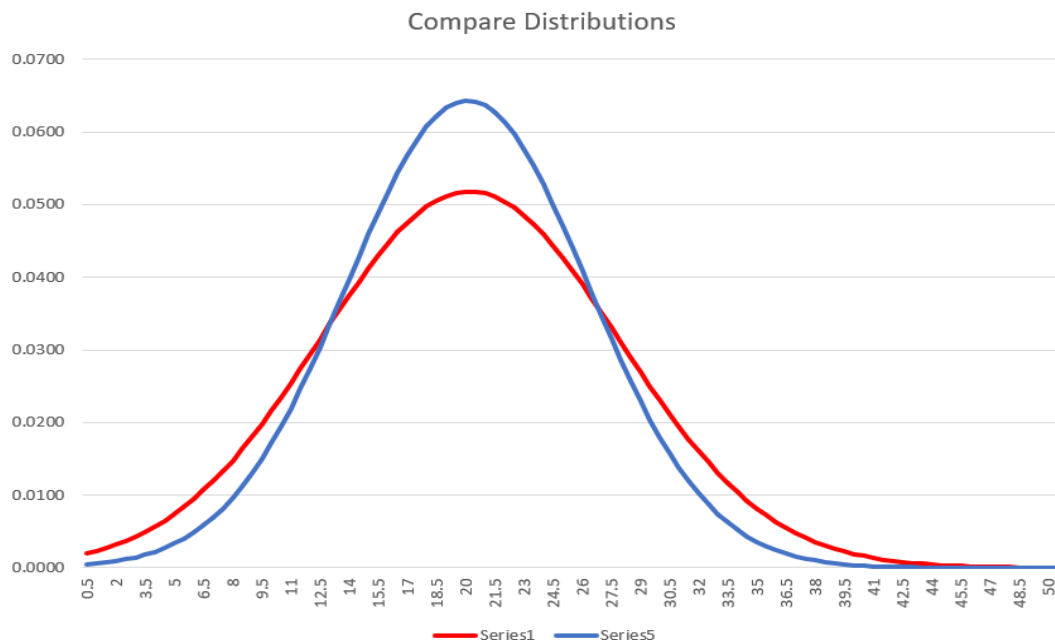
This is accomplished by drawing a RANDOM sample of properties which have sold in the last five years and another RANDOM sample of properties which have not sold (without replacement of the observation). The sample size was about 31,581 for sold properties and 54,508 inventory parcels that have not had a sale in 5 years, no use change or addition.

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 |          |
|-----------|----------------------------|----------|
|           | Mean                       | Std. Dev |
| Inventory | 20.2                       | 6.2      |
| Sales     | 20.2                       | 7.7      |



# **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."<sup>1</sup>

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.

---

<sup>1</sup> 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  
Washington State Schools  
Washington 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 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 2023. 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, 2022.**

This report was completed as of **August 18, 2022**

## **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.<sup>2</sup>

## **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 1, 2, 3 and 17 were physically inspected and their physical features recorded as of the effective date of January 1, 2022. 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 BOUNDARY DESCRIPTION**

Physical inspections occurred in Regions 1, 2, 3 and 17.

Region 1 includes all saltwater residential parcels in the county along Puget Sound (Toten, Eld, Budd, Henderson Inlets, and the Nisqually Reach).

Region 2 includes residential parcels on the Cooper Point peninsula excluding parcels adjacent to the saltwater. It starts on the north side of Evergreen Pkwy and the north side of French RD, excluding most parcels inside the UGA and city of Olympia.

Region 3 is located in the northern portion of the county and includes the unincorporated areas of the Boston Harbor and Johnson Point peninsulas north of 26<sup>th</sup> Avenue NE (some neighborhoods between Hawks Prairie Road NE and Britton Parkway NE that are within the Lacey city limits are also within this Region). The unincorporated area east of Meridian Road NE and north of I-5 are within Region 3, as well as the area north of 46<sup>th</sup> Avenue NE..

Region 17 is residential parcels north of state HWY 8 and HWY 101, starting at Mud Bay. This includes all of the Steamboat peninsula and extends to the Mason County and Grays Harbor County borders.

---

<sup>2</sup> *The Dictionary of Real Estate Appraisal. 3rd Ed. Appraisal Institute, p.140*

## **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 in Regions 1, 2, 3 and 17 began in August 2021 and extended through the second quarter of 2022. All neighborhood and regional maps are included in this report, beginning on page 53.

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

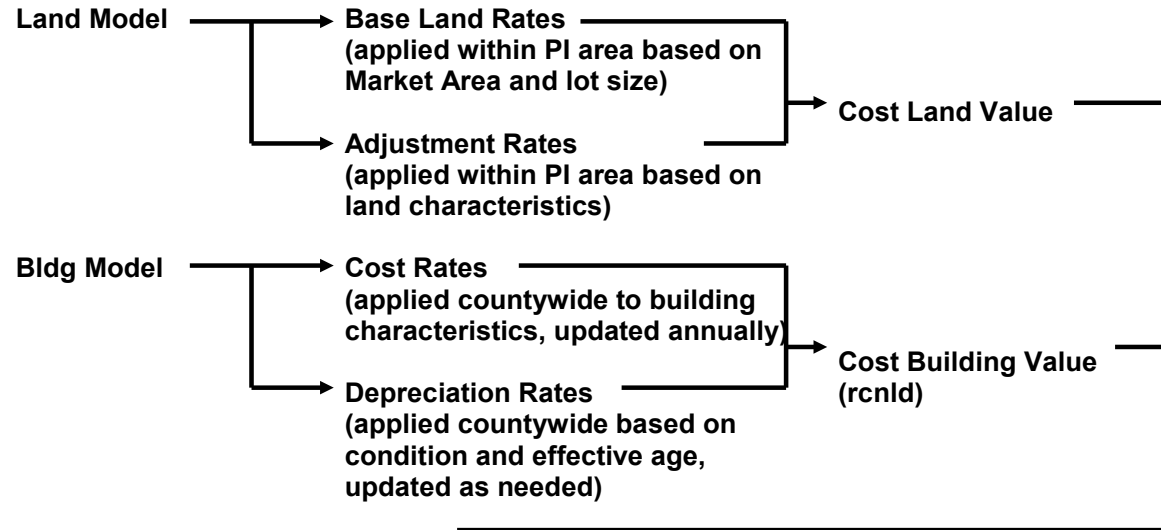
area multipliers to adjust for time and location. Because this is a national valuation service, we fine tune their cost rates even further to consider differences between neighborhoods and local market trends. Whether we make these adjustments to the raw land and cost rates or to the preliminary cost 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 2022 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.

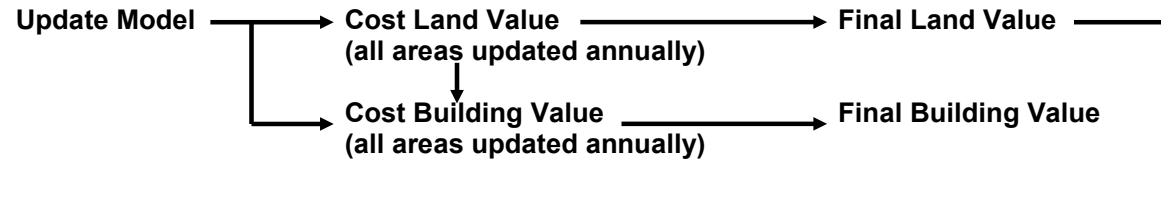
The flow chart on the next page describes the land model developed as part of the mass appraisal process and how it is used in the sales adjusted cost approach. The page following the flow chart begins to discuss the model in more detail.

## Residential Valuation Process

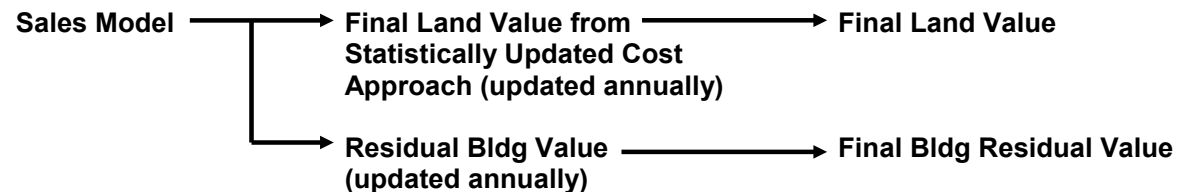
### Cost Approach



### Statistical Update of Cost Approach by Nbhd



### Sales Approach



# **COST APPROACH**

## **Land Model Specification**

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

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

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:  $SP = a \times SQFT^b \times c^{NBHD} \times \dots$

Log Linear form:  $LN(SP) = LN(a) + (b \times LN(SQFT)) + (LN(c) \times NBHD) + \dots$

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

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

- 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.

$$EXP[LN(SP)] = EXP[LN(a) + (b \times LN(SQFT))]$$

Due to the limited number of sales available, 5 years of data was utilized. 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. 61 candidate variables were presented to the model and a backward regression was utilized, with 40 variables being statistically significant. An Urban vs Suburban model was considered, but the model did not identify a significant difference in land values. There were 1214 sale observations available, dated from January 1, 2017 to February 24, 2022.

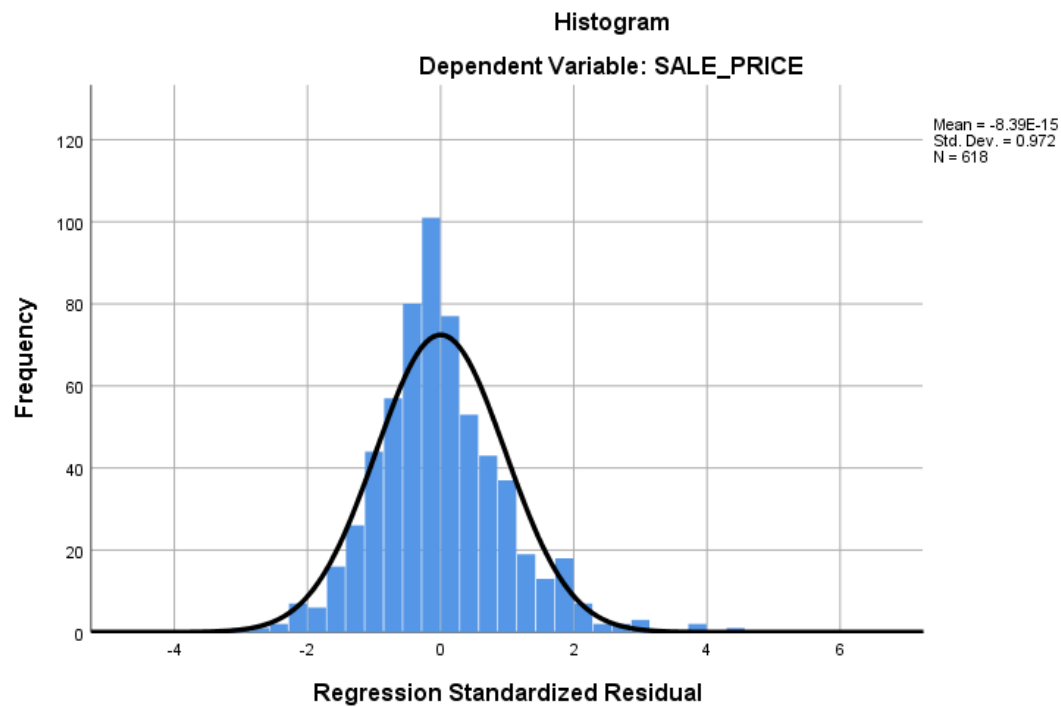
For salt waterfront properties a forced regression model was utilized using 28 variables land variable. The dependent variable was sale price, with the major independent variable being the natural log of the front footage as well as other control variables for region, market conditions (time) and site 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 sale 382 observations, dated from January 2, 2017 to April 19, 2022.

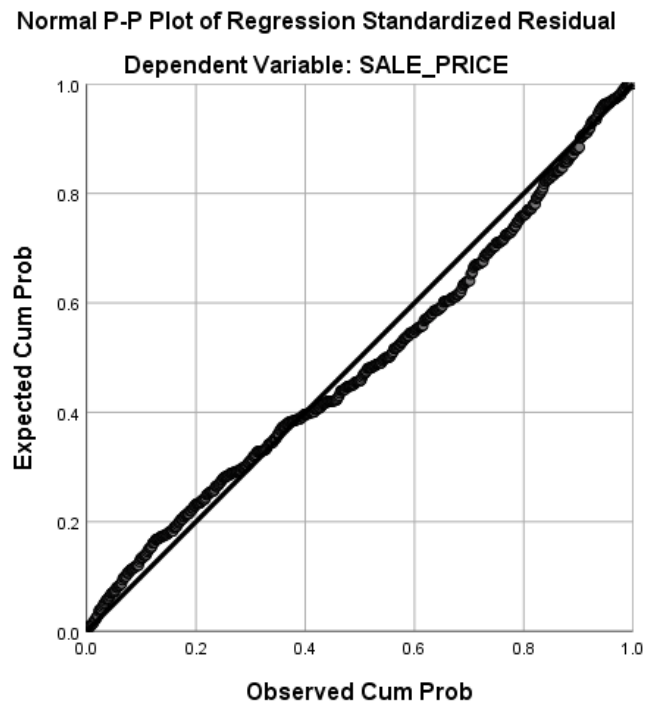
Each region was controlled for by using a variable for that region, time, and other control variables. The model at this point has been maximized at the regional level. However, stochastic errors have not yet been controlled for at the neighborhood level. An analysis of the residuals at the neighborhood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



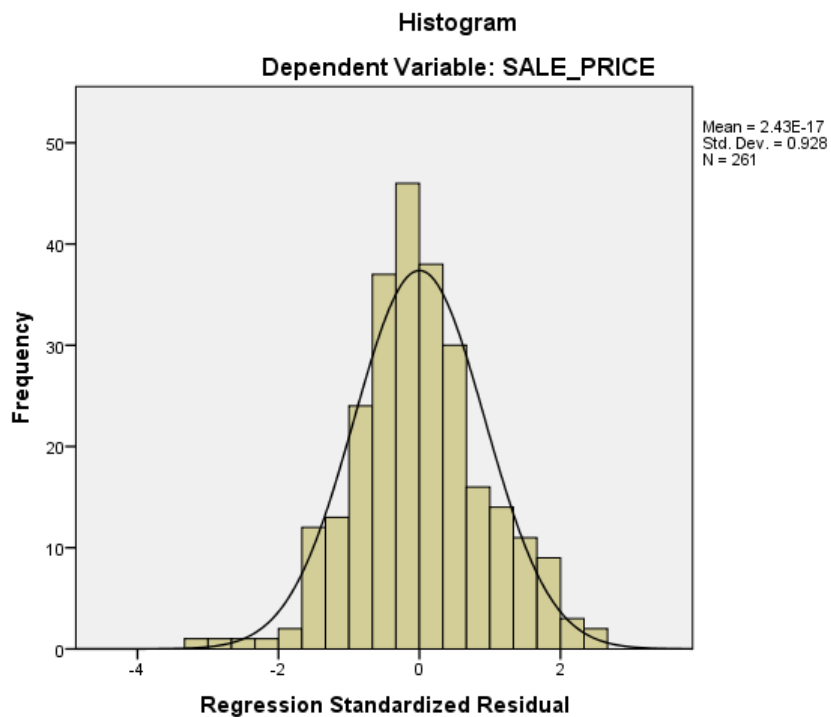


Scatterplot of Residual to Price as check for systemic bias

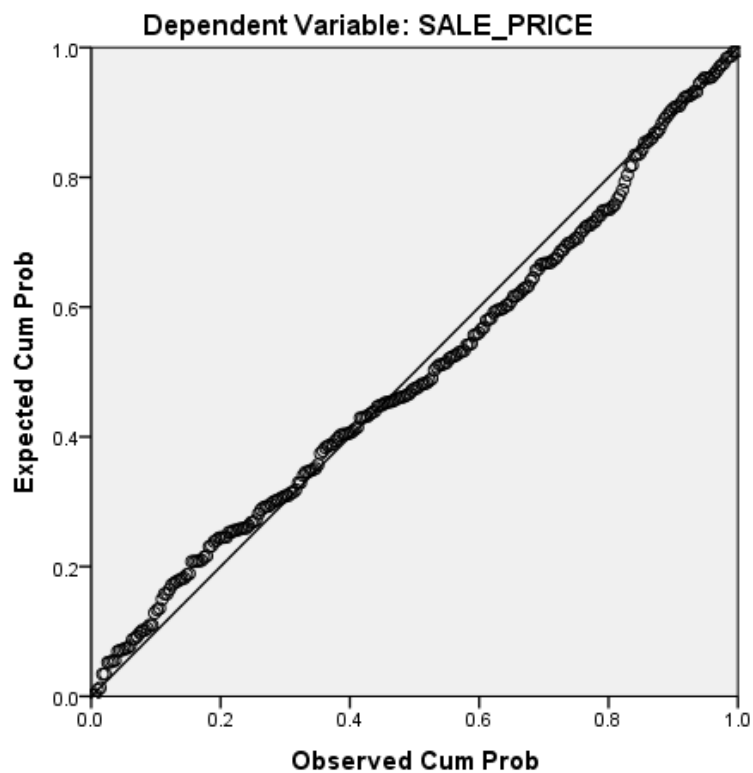


- The plot indicates that there is no systemic bias with respect to predicted value.

## Front Footage Model Normal Distribution of the Residual Errors



Normal P-P Plot of Regression Standardized Residual



## Example of Land Square Feet Table Base Area Region 5

| SQUARE FOOT TABLE  |         |              |                   |             |              |
|--------------------|---------|--------------|-------------------|-------------|--------------|
| Site Square Feet   | Value   | Base / Sq Ft | Act Price / Sq Ft | Size Factor | Value Factor |
| 2,500              | 46,165  | 9.588        | 18.466            | 0.2         | 1.926        |
| 5,000              | 92,330  | 9.588        | 18.466            | 0.4         | 1.926        |
| 7,500              | 101,505 | 9.588        | 13.534            | 0.6         | 1.412        |
| 10,000             | 110,680 | 9.588        | 11.068            | 0.8         | 1.154        |
| <b>BASE 12,500</b> | 119,850 | <b>9.588</b> | <b>9.588</b>      | <b>1</b>    | <b>1.000</b> |
| 15,000             | 126,780 | 9.588        | 8.452             | 1.2         | 0.882        |
| 17,500             | 135,380 | 9.588        | 7.736             | 1.4         | 0.807        |
| 20,000             | 143,980 | 9.588        | 7.199             | 1.6         | 0.751        |
| 22,500             | 144,923 | 9.588        | 6.441             | 1.8         | 0.672        |
| 25,000             | 145,875 | 9.588        | 5.835             | 2           | 0.609        |
| 27,500             | 146,823 | 9.588        | 5.339             | 2.2         | 0.557        |
| 30,000             | 147,780 | 9.588        | 4.926             | 2.4         | 0.514        |
| 32,500             | 148,720 | 9.588        | 4.576             | 2.6         | 0.477        |
| 35,000             | 149,695 | 9.588        | 4.277             | 2.8         | 0.446        |
| 37,500             | 150,638 | 9.588        | 4.017             | 3           | 0.419        |
| 40,000             | 151,600 | 9.588        | 3.79              | 3.2         | 0.395        |
| 42,500             | 152,575 | 9.588        | 3.59              | 3.4         | 0.374        |
| 45,000             | 153,090 | 9.588        | 3.402             | 3.6         | 0.355        |
| 47,500             | 153,995 | 9.588        | 3.242             | 3.8         | 0.338        |
| 50,000             | 154,900 | 9.588        | 3.098             | 4           | 0.323        |
| 52,500             | 155,820 | 9.588        | 2.968             | 4.2         | 0.310        |
| 55,000             | 156,695 | 9.588        | 2.849             | 4.4         | 0.297        |
| 57,500             | 157,608 | 9.588        | 2.741             | 4.6         | 0.286        |
| 60,000             | 158,520 | 9.588        | 2.642             | 4.8         | 0.276        |
| 62,500             | 159,438 | 9.588        | 2.551             | 5           | 0.266        |
| 65,000             | 160,355 | 9.588        | 2.467             | 5.2         | 0.257        |
| 67,500             | 161,258 | 9.588        | 2.389             | 5.4         | 0.249        |
| 70,000             | 162,120 | 9.588        | 2.316             | 5.6         | 0.242        |
| 72,500             | 163,053 | 9.588        | 2.249             | 5.8         | 0.235        |
| 75,000             | 163,950 | 9.588        | 2.186             | 6           | 0.228        |
| 77,500             | 164,843 | 9.588        | 2.127             | 6.2         | 0.222        |
| 80,000             | 165,760 | 9.588        | 2.072             | 6.4         | 0.216        |
| 82,500             | 166,650 | 9.588        | 2.02              | 6.6         | 0.211        |
| 85,000             | 167,535 | 9.588        | 1.971             | 6.8         | 0.206        |
| 87,500             | 168,438 | 9.588        | 1.925             | 7           | 0.201        |

### Example of Acreage Table Base Region 5

| ACRES         |                  |           |               |                  |             |              |
|---------------|------------------|-----------|---------------|------------------|-------------|--------------|
| Acres         | Site Square Feet | Value     | Base / Acre   | Act Price / Acre | Size Factor | Value Factor |
| 1             | 43,560           | 151,818   | 41,992        | 151,818          | 0.2         | 3.615        |
| 2             | 87,120           | 167,568   | 41,992        | 83,784           | 0.4         | 1.995        |
| 3             | 130,680          | 183,318   | 41,992        | 61,106           | 0.6         | 1.455        |
| 4             | 174,240          | 197,448   | 41,992        | 49,362           | 0.8         | 1.176        |
| <b>BASE 5</b> | <b>217,800</b>   | 209,958   | <b>41,992</b> | <b>41,992</b>    | <b>1</b>    | <b>1.000</b> |
| 6             | 261,360          | 222,468   | 41,992        | 37,078           | 1.2         | 0.883        |
| 7             | 304,920          | 234,978   | 41,992        | 33,568           | 1.4         | 0.799        |
| 8             | 348,480          | 247,488   | 41,992        | 30,936           | 1.6         | 0.737        |
| 9             | 392,040          | 252,891   | 41,992        | 28,099           | 1.8         | 0.669        |
| 10            | 435,600          | 258,294   | 41,992        | 25,829           | 2           | 0.615        |
| 11            | 479,160          | 263,697   | 41,992        | 23,972           | 2.2         | 0.571        |
| 12            | 522,720          | 269,100   | 41,992        | 22,425           | 2.4         | 0.534        |
| 13            | 566,280          | 274,503   | 41,992        | 21,116           | 2.6         | 0.503        |
| 14            | 609,840          | 279,906   | 41,992        | 19,993           | 2.8         | 0.476        |
| 15            | 653,400          | 285,309   | 41,992        | 19,021           | 3           | 0.453        |
| 16            | 696,960          | 290,712   | 41,992        | 18,170           | 3.2         | 0.433        |
| 17            | 740,520          | 296,115   | 41,992        | 17,419           | 3.4         | 0.415        |
| 18            | 784,080          | 301,518   | 41,992        | 16,751           | 3.6         | 0.399        |
| 19            | 827,640          | 306,921   | 41,992        | 16,154           | 3.8         | 0.385        |
| 20            | 871,200          | 312,324   | 41,992        | 15,616           | 4           | 0.372        |
| 40            | 1,742,400        | 358,334   | 41,992        | 8,958            | 8           | 0.213        |
| 60            | 2,613,600        | 434,314   | 41,992        | 7,239            | 12          | 0.172        |
| 80            | 3,484,800        | 510,294   | 41,992        | 6,379            | 16          | 0.152        |
| 100           | 4,356,000        | 586,274   | 41,992        | 5,863            | 20          | 0.140        |
| 200           | 8,712,000        | 966,174   | 41,992        | 4,831            | 40          | 0.115        |
| 400           | 17,424,000       | 1,725,974 | 41,992        | 4,315            | 80          | 0.103        |

## Example of Land Influences

### LAND INFLUENCE ADJUSTMENT FACTORS (Non-Saltwater Parcels)

|                                     |                                    |                                          |                                  |                                      |                                   |
|-------------------------------------|------------------------------------|------------------------------------------|----------------------------------|--------------------------------------|-----------------------------------|
| <b>Flood Area -<br/>FL</b>          | <b>20%<br/>Wetland -<br/>W2</b>    | <b>40%<br/>Wetland -<br/>W4</b>          | <b>60%<br/>Wetlands -<br/>W6</b> | <b>80%<br/>Wetlands -<br/>W8</b>     | <b>100%<br/>Wetlands -<br/>W0</b> |
| 0.50*                               | 0.93                               | 0.86                                     | 0.79                             | 0.60                                 | 0.30                              |
| <b>Limited<br/>View - LV</b>        | <b>Good View<br/>- GV</b>          | <b>Very-Good<br/>View - VV</b>           | <b>Excellent<br/>View - EV</b>   | <b>Fair Nbhd<br/>Appeal - FR</b>     | <b>Good Nbhd<br/>Appeal - GD</b>  |
| \$12,000                            | \$30,000                           | \$50,000                                 | \$80,000                         | 0.90                                 | 1.20                              |
| <b>Restrictions<br/>- RS</b>        | <b>Shape - SP</b>                  | <b>Steep<br/>Topography<br/>- ST</b>     | <b>Unbuildable<br/>- UN</b>      | <b>Unusable -<br/>US</b>             | <b>No Electric -<br/>NE</b>       |
| 0.50*                               | 0.85*                              | 0.85*                                    | 0.30                             | 0.05*                                | 0.489**                           |
| <b>Loc. on Golf<br/>Course - GC</b> | <b>Avg.<br/>Lakefront -<br/>LA</b> | <b>Below Avg.<br/>Lakefront -<br/>LB</b> | <b>No Road -<br/>NR</b>          | <b>No Site<br/>Improve. -<br/>NS</b> | <b>Prelim. Plat<br/>- PL</b>      |
| \$65,000                            | 2.50*                              | 2.00*                                    | 0.80*                            | 0.50*                                | 3.00*                             |

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

| STEAMBOAT |            |          |           |                 |
|-----------|------------|----------|-----------|-----------------|
|           | Front Feet | FF Value | Base Rate | FF Rate Group   |
| BASE>>>>> | 50         | 9,114    | 3,440     | 3525            |
|           | 75         | 6,375    | 3,440     | 3525            |
|           | 100        | 5,006    | 3,440     | 3525            |
|           | 150        | 3,440    | 3,440     | 3525            |
|           | 200        | 2,658    | 3,440     | 3525            |
|           | 250        | 2,188    | 3,440     | 3525            |
|           | 300        | 1,875    | 3,440     | 3525            |
|           | 350        | 1,651    | 3,440     | 3525            |
|           | 400        | 1,484    | 3,440     | 3525            |
|           | Lot Depth  | FF Value | Base Rate | Depth Adj Group |
| BASE>>>>> | 100        | 5        | 5,006     | 2530            |
|           | 200        | 5        | 5,006     | 2530            |
|           | 350        | 5        | 5,006     | 2530            |
|           | 500        | 5        | 5,006     | 2530            |
|           | 650        | 5        | 5,006     | 2530            |
|           | 800        | 5        | 5,006     | 2530            |
|           | 950        | 5        | 5,006     | 2530            |
|           | 1100       | 0        | 5,006     | 2530            |

## SALT WATER SPECIFIC INFLUENCES

| <u>Mean Influence</u> | <u>Description</u> |
|-----------------------|--------------------|
| .80                   | No Access          |
| .90                   | Moderate Access    |
| 1.00                  | Superior Access    |
| .90                   | Salt High          |
| .95                   | Salt Medium        |
| \$10,000              | Rec1st class       |
| \$10,000              | Rec2nd class       |
| -120,000              | No View            |
| -75,000               | Limited View       |
| -25,000               | Good View          |
| Base (no adj)         | Very Good View     |
| +25,000               | Excellent View     |
| 1.15                  | Good Quality NBHD  |
| Variable              | Restrictions       |
| Variable              | Lagoon             |

| <b>Restricted Parcel View Adjustments</b> |                    |
|-------------------------------------------|--------------------|
| <u>Mean Influence</u>                     | <u>Description</u> |
| 0.80                                      | No View            |
| 0.85                                      | Limited View       |
| 0.95                                      | Good View          |
| Base (no adj)                             | Very Good View     |
| 1.05                                      | Excellent View     |

# **Building Cost Specification**

## **Model Format for RCNLD:**

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

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

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

## **2022 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 Marshall & 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 with paired land only sales of the same parcel were queried for 2017 through 2022 and were adjusted for market conditions as of 1/1/2022. A total of 149 sales of vacant land followed by new homes sales were used in the analysis and dated from July 16, 2016 to December 1, 2021. A residual building market price was calculated by subtracting a trended land sale price from the new home sale price. The building market price was compared to the cost table replacement cost new to calibrate our cost table to recent new construction.

#### **Sales Analysis**

The descriptive table on the next page demonstrates that the supplied cost table rates did not match our actual construction costs within our local market. The Marshall & Swift building cost are good proxies for actual local building cost. The overall computed COD about the median is 12.8%.

#### **Conclusion**

The cost index as supplied by Marshall & Swift is was not 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   |
|------|------|------|------|
| 2022 | 1.62 | 1.76 | 1.94 |

### 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.

| STRUCTURE TYPE | SFLA | LOW   | FAIR  | AVG    | GOOD   | V-GD   | EXC    | EXCP   |
|----------------|------|-------|-------|--------|--------|--------|--------|--------|
| BASE-2STY-SS   | 900  | 89.09 | 95.47 | 107.50 | 129.13 | 149.51 | 201.23 | 277.69 |
| BASE-2STY-SS   | 1000 | 87.08 | 94.50 | 106.57 | 129.13 | 149.51 | 201.23 | 277.69 |
| BASE-2STY-SS   | 1200 | 84.08 | 92.03 | 103.82 | 129.62 | 149.51 | 201.23 | 277.69 |
| BASE-2STY-SS   | 1400 | 81.45 | 90.46 | 101.66 | 128.43 | 149.51 | 201.23 | 277.69 |
| BASE-2STY-SS   | 1600 | 79.30 | 88.61 | 99.71  | 127.53 | 149.51 | 201.23 | 277.69 |
| BASE-2STY-SS   | 1800 | 77.03 | 86.56 | 98.11  | 125.93 | 149.47 | 201.23 | 277.69 |
| BASE-2STY-SS   | 2000 | 75.35 | 85.06 | 96.29  | 125.19 | 148.62 | 200.86 | 277.19 |
| BASE-2STY-SS   | 2200 | 73.61 | 84.14 | 94.99  | 124.09 | 147.18 | 200.93 | 277.29 |
| BASE-2STY-SS   | 2400 | 72.49 | 82.47 | 93.56  | 122.72 | 145.30 | 200.31 | 276.43 |
| BASE-2STY-SS   | 2600 | 70.66 | 81.43 | 92.04  | 121.15 | 144.45 | 199.17 | 274.85 |
| BASE-2STY-SS   | 2800 | 69.48 | 80.33 | 91.13  | 120.77 | 143.33 | 197.60 | 272.69 |
| BASE-2STY-SS   | 3000 | 68.28 | 79.21 | 90.15  | 118.90 | 141.99 | 197.06 | 271.94 |
| BASE-2STY-SS   | 3200 | 67.25 | 78.33 | 89.13  | 118.28 | 141.84 | 196.24 | 270.81 |
| BASE-2STY-SS   | 3600 | 65.36 | 76.78 | 87.38  | 116.13 | 139.79 | 193.98 | 267.69 |
| BASE-2STY-SS   | 4000 | 63.67 | 75.35 | 85.82  | 114.40 | 137.33 | 191.08 | 263.69 |
| BASE-2STY-SS   | 4400 | 63.67 | 75.35 | 84.38  | 113.02 | 135.93 | 189.08 | 260.94 |
| BASE-2STY-SS   | 4800 | 63.67 | 75.35 | 83.07  | 111.78 | 134.29 | 186.74 | 257.70 |
| BASE-2STY-SS   | 5200 | 63.67 | 75.35 | 83.07  | 111.78 | 134.29 | 185.49 | 255.97 |
| BASE-2STY-SS   | 5400 | 63.67 | 75.35 | 81.34  | 110.04 | 131.99 | 184.78 | 255.00 |
| BASE-2STY-SS   | 5600 | 63.67 | 75.35 | 81.34  | 110.04 | 131.99 | 184.03 | 253.96 |
| BASE-2STY-SS   | 6000 | 63.67 | 75.35 | 81.34  | 108.39 | 129.72 | 182.40 | 251.71 |
| BASE-2STY-SS   | 6200 | 63.67 | 75.35 | 81.34  | 108.39 | 129.12 | 181.65 | 250.68 |
| BASE-2STY-SS   | 6400 | 63.67 | 75.35 | 81.34  | 108.39 | 128.50 | 181.08 | 249.89 |
| BASE-2STY-SS   | 7000 | 63.67 | 75.35 | 81.34  | 108.39 | 128.50 | 179.01 | 247.03 |
| BASE-2STY-SS   | 7600 | 63.67 | 75.35 | 81.34  | 108.39 | 128.50 | 177.14 | 244.46 |
| BASE-2STY-SS   | 8000 | 63.67 | 75.35 | 81.34  | 108.39 | 128.50 | 177.32 | 244.71 |

# Depreciation Analysis

## Effective Age

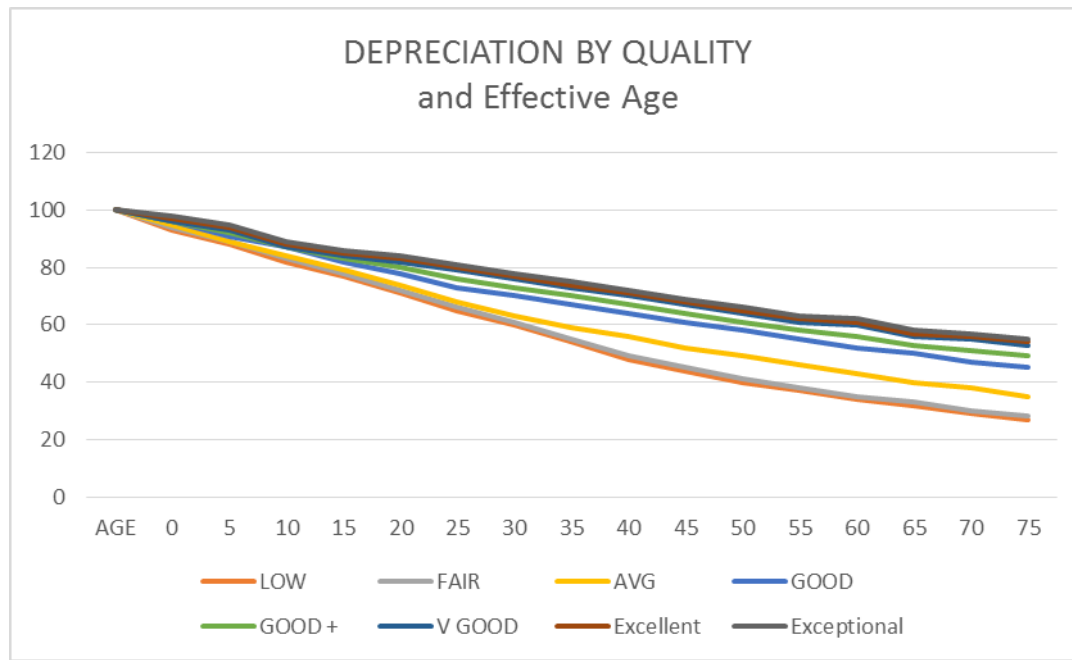
The effective age of a building is largely based on its overall condition. It is a measure of how old a building looks and not how old it actually is. As a result, any type of maintenance, repair, remodel, or renovation will tend to reduce the effective age. The more extensive the maintenance or repair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

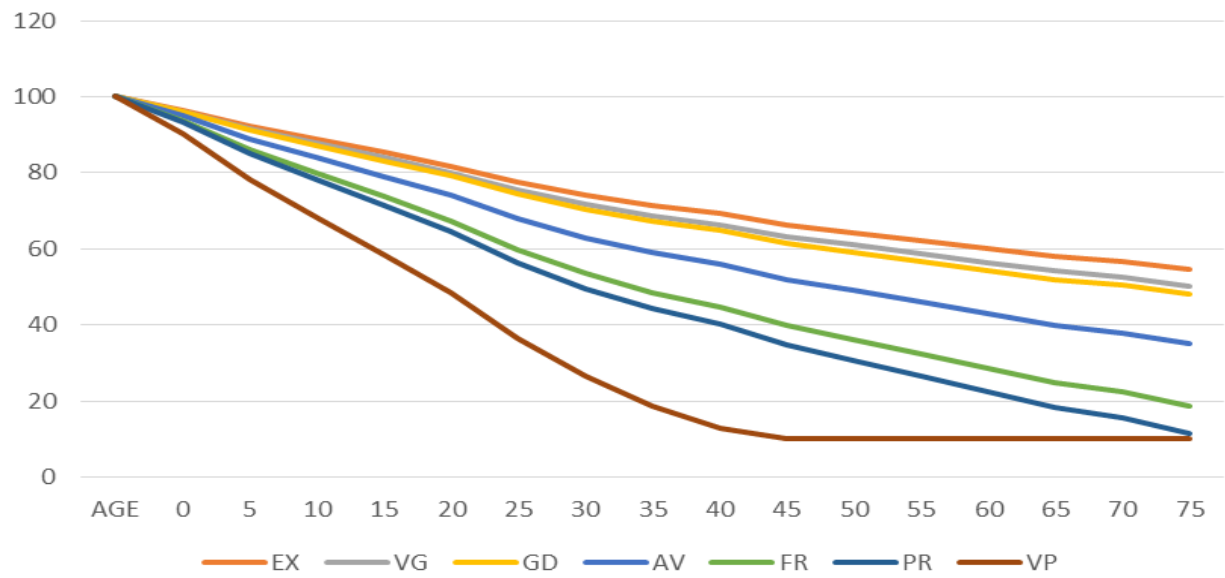
Generally, the appraiser does not have the benefit of an interior inspection. As a result, it is assumed that the interior inspection is the same as the exterior. On those occasions in which an interior inspection is granted, the condition is reflective of the overall property. Those parcels which have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

$$\text{Phy-Pct\_Good} = 100 - (\text{Cond-Factor} \times (100 - \text{Pct\_Gd\_Table}))$$

### AVG QUALITY CONDITION ADJUSTMENT by Selective Effective Age



## **Neighborhood Adjustment Model Specification**

The equation for the neighborhood adjustment is an additive model.

$$V = b_1(LV) + b_2(BV) + \text{systemic and random error}$$

- Where:
  - $b_1$  and  $b_2$  are based on a combination of regression analysis and appraiser judgment
- 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 2022 is 95.5%. 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 27,135 sales used to do develop these neighborhood ratios.

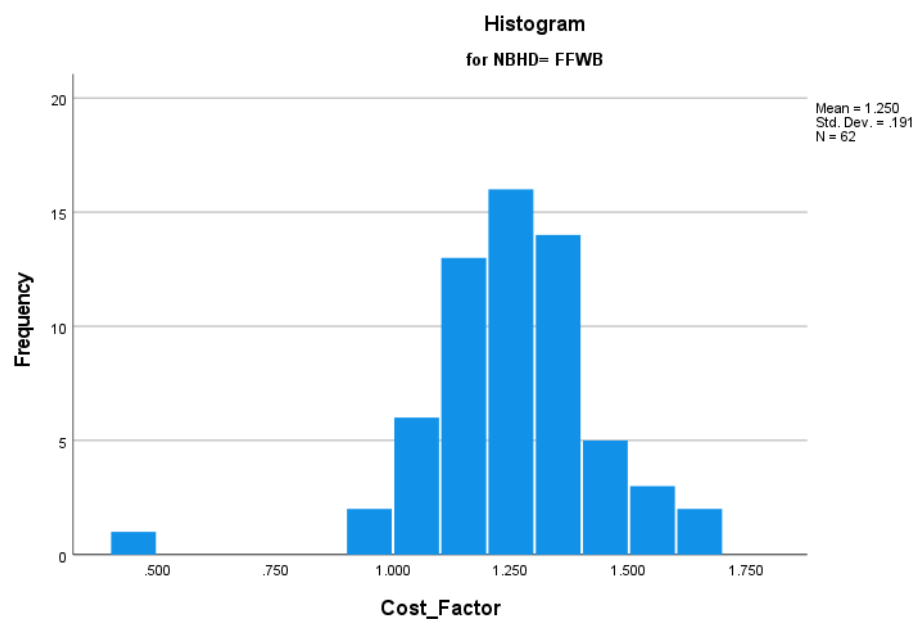
On the following page is an example: neighborhood "FFWB" with the original system cost to adjusted market value and the development of a market location adjustment.

**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%.

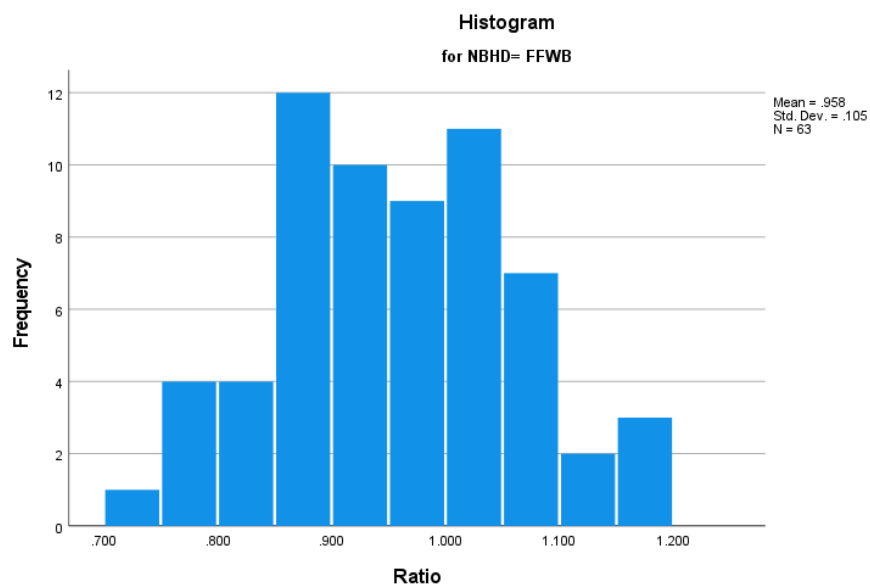
Below is the example neighborhood "FFWB" indicating the raw ratio data distribution, also the post treatment ratio.

## EXAMPLE

### Distribution of Raw Ratio for FFWB



### Distribution of Ratio for FFWB after neighborhood adjustments.

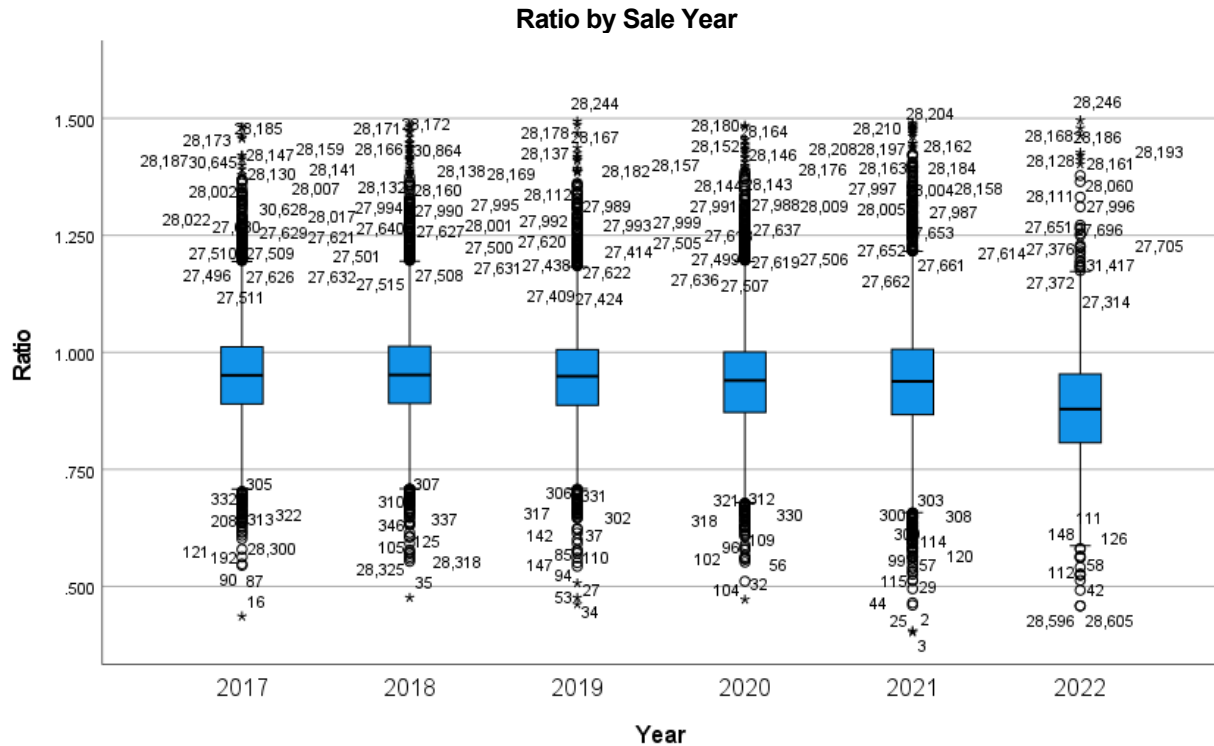


### Post Treatment of Residential FFWB

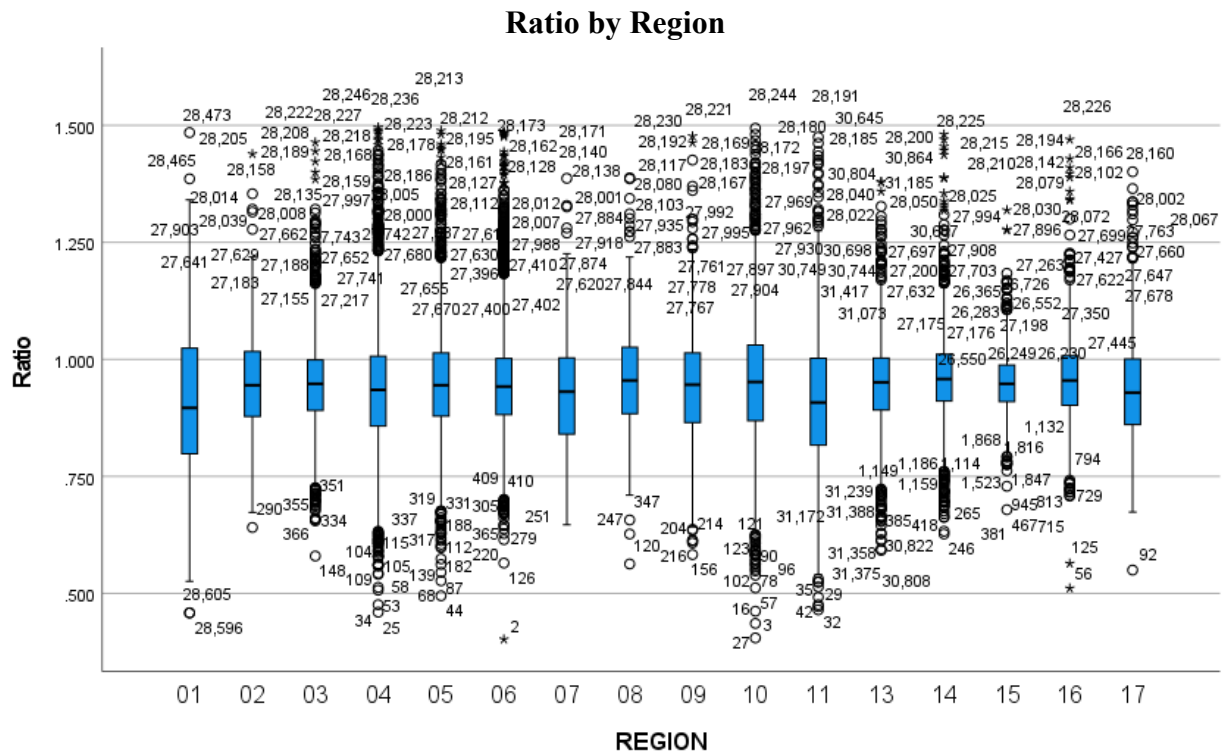
|                            |       |
|----------------------------|-------|
| Median                     | 0.963 |
| Coefficient of Dispersion  | 0.089 |
| Price Related Differential | 1.001 |

## Residential Adjustment Model Validation

Neighborhood trends were calibrated using 28,595 sales that took place between 1/1/2017 to 3/31/2022. 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.



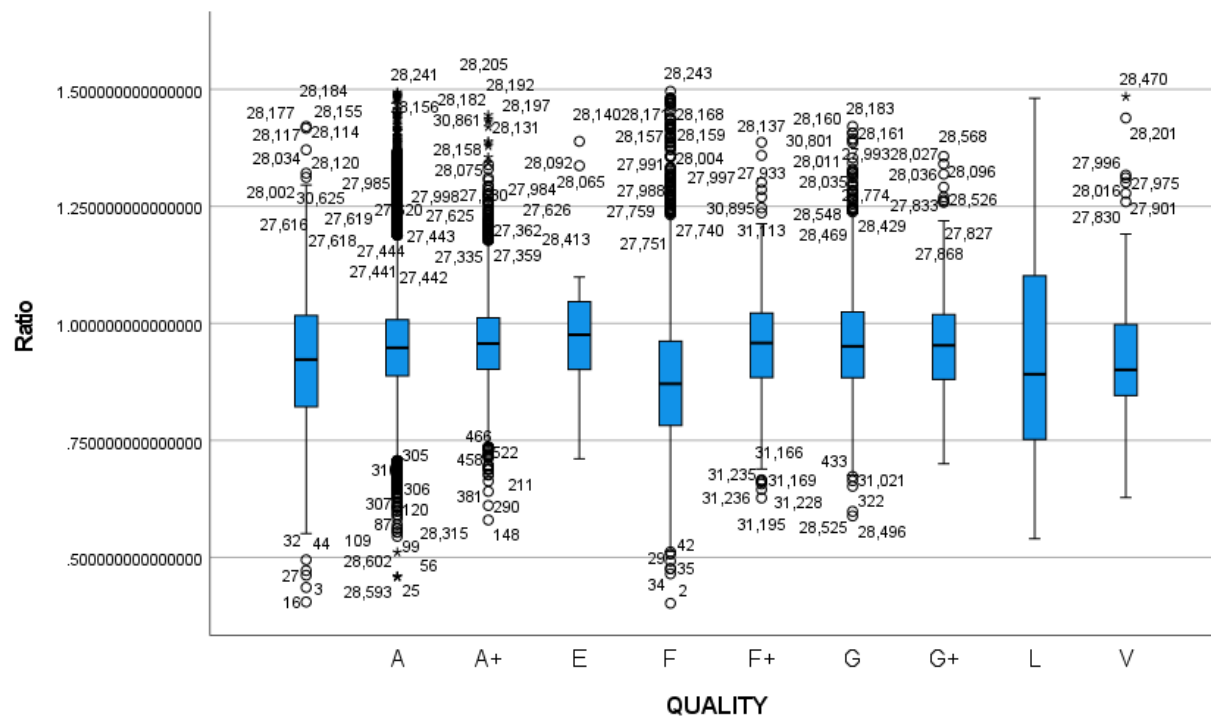
## Assessment Uniformity by Region



## Assessment Uniformity by Quality Grade

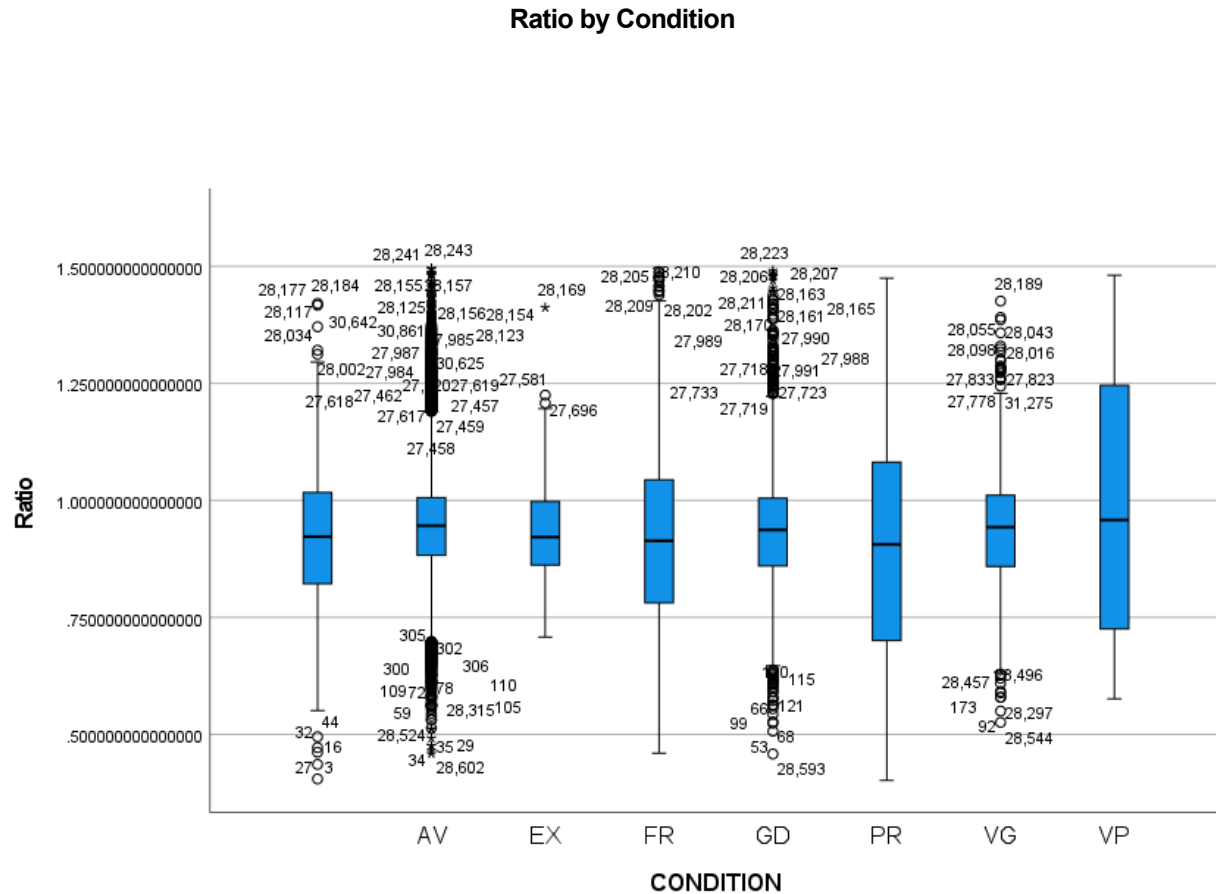
Total square feet of gross living area, quality and size are major value drivers. The median level between quality grades is fairly consistent at about the 93.4% level and the interquartile ranges are fairly consistent. The county is in the process of consolidating and creating better consistency between quality levels. While compliant, continuous improvement is expected. However, the data does indicate a propensity to slightly under value fair quality homes.

Ratio by Quality update



## 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 93.2%



## **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:**

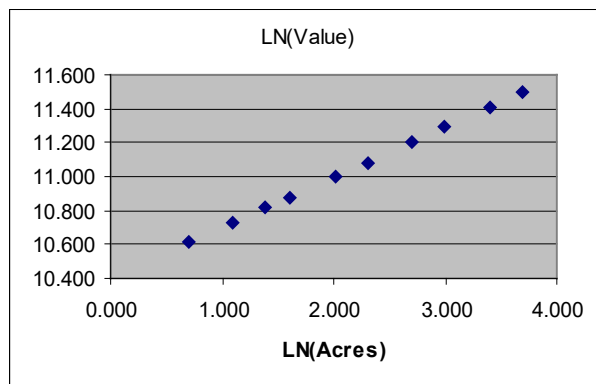
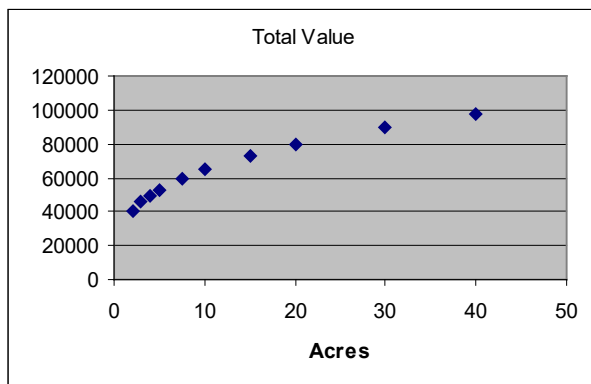
- Data definitions and standards have been developed to ensure our data is as complete and accurate as possible.
- A procedure has been established to ensure sales are properly verified.
- Annual training is conducted to remind appraisers of the standards that have been developed.

### **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:**

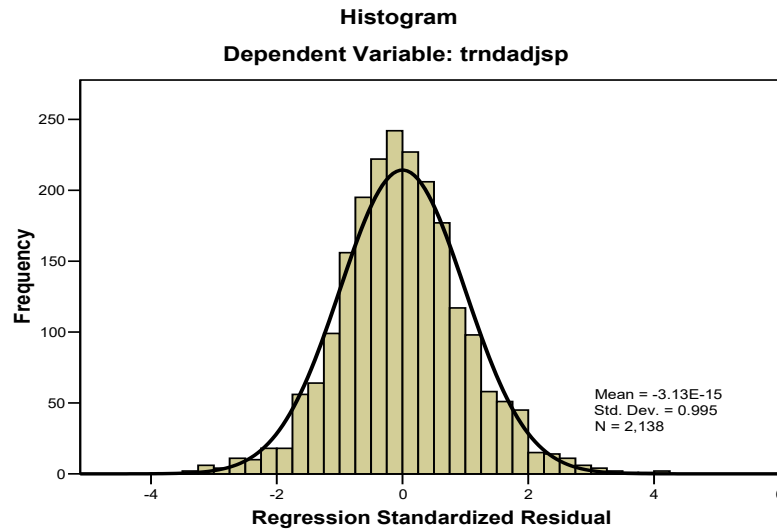
- It is assumed that the marginal contribution of one independent variable is not affected by the changes in other variables.
- The assumption is violated when one independent variable interacts with another.
- This assumption generally does not hold for land models.
- Land characteristics are often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

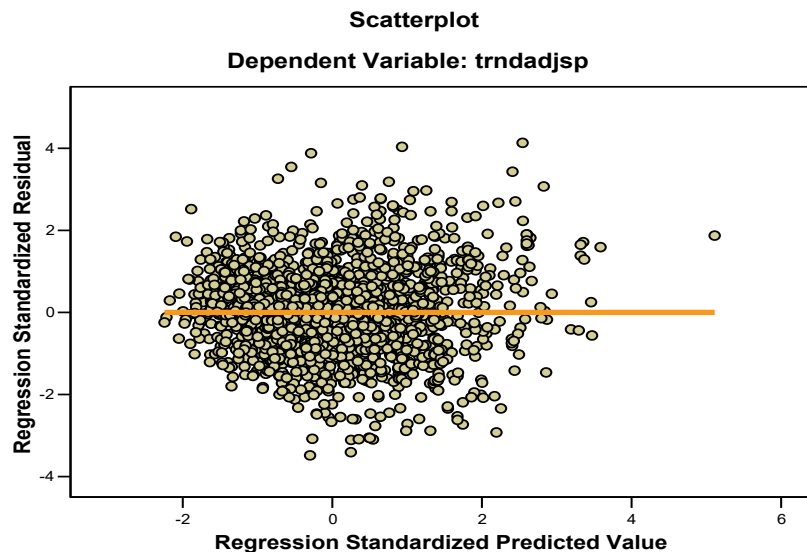
### Normal Distribution of Residual Errors:

- 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.



### 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.



## 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 rationale 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.

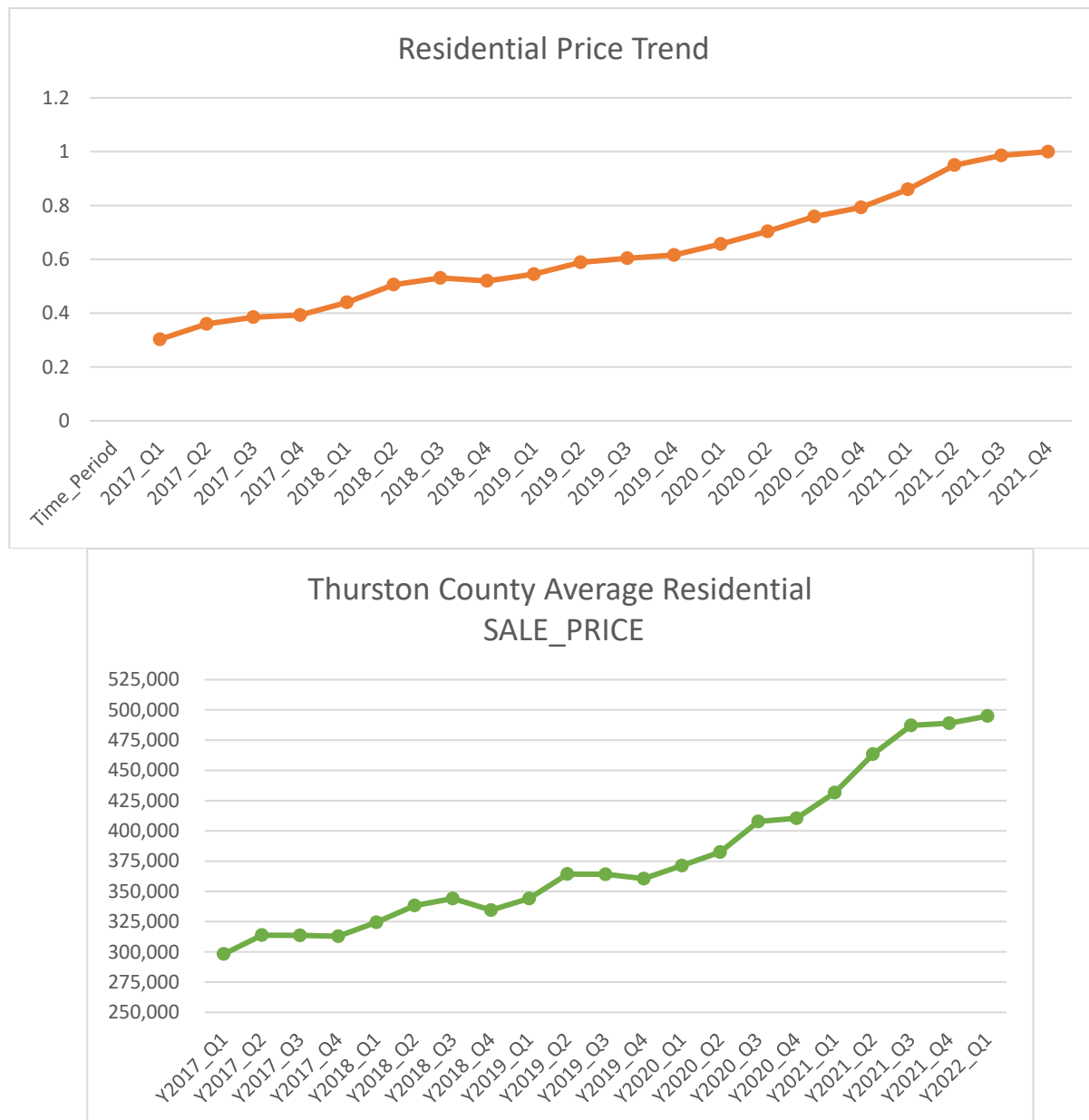
Real estate prices are subject to many factors and when analyzed in sequence can exhibit predictable patterns. These patterns are generally seasonal and cyclical. For residential properties these values tend to peak in late spring/early summer and bottom out around mid-November to early-February. However, 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. **The 2020 Covid-19 lockdown did not slow the residential sales market, actually the market during this time has had unprecedented increases. One of the main reasons for such a steep increase is the supply is low and the demand is very high. This phenomenon continued through the first quarter of 2022.**

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 26,443 observations which occurred from January 2, 2017 to February 17, 2022. A total of 95 variables were presented for backward regression modeling of which 73 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:

| Time_Period | Time_Factor | Time_Period | Time_Factor |
|-------------|-------------|-------------|-------------|
| 2017_Q1     | 1.697       | 2019_Q3     | 1.396       |
| 2017_Q2     | 1.640       | 2019_Q4     | 1.384       |
| 2017_Q3     | 1.615       | 2020_Q1     | 1.343       |
| 2017_Q4     | 1.607       | 2020_Q2     | 1.296       |
| 2018_Q1     | 1.560       | 2020_Q3     | 1.241       |
| 2018_Q2     | 1.494       | 2020_Q4     | 1.207       |
| 2018_Q3     | 1.469       | 2021_Q1     | 1.140       |
| 2018_Q4     | 1.480       | 2021_Q2     | 1.050       |
| 2019_Q1     | 1.455       | 2021_Q3     | 1.014       |
| 2019_Q2     | 1.411       | 2021_Q4     | 1.000       |

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.



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 **77** variables with **26,506** observations used. The F-test value was **1.870** which is highly significant ( $t < .000$ ). 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 **.851**. One way to imagine this is that **85%** 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 **.851**, or effectively, that these chosen variables explain **85%** 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 77 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 1.102 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 Summary |      |          |                   |                            |                   |          |     |       |               |               |
|---------------|------|----------|-------------------|----------------------------|-------------------|----------|-----|-------|---------------|---------------|
| 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 |               |
| 8             | .923 | .852     | .851              | 51206.582                  | .000              | 1.870    | 1   | 26428 | .171          | <.001         |

ANOVA<sup>a</sup>

| Model |            | Sum of Squares      | df    | Mean Square       | F        | Sig.              |
|-------|------------|---------------------|-------|-------------------|----------|-------------------|
| 8     | Regression | 397430926886534.000 | 76    | 5229354301138.600 | 1994.328 | .000 <sup>j</sup> |
|       | Residual   | 69299852124399.600  | 26429 | 2622114046.101    |          |                   |
|       | Total      | 466730779010933.000 | 26505 |                   |          |                   |

## SQUARE FOOT LAND MODEL SUMMARY

This model is a hybrid model with the dependent variable being the sales price. A backward regression methodology was utilized. The independent variables are a combination of size, region, and site influences. 45 variables were statistically significant to predict the value land.

| Land Model Summary |      |          |                   |                            |                   |          |     |      |               |               |
|--------------------|------|----------|-------------------|----------------------------|-------------------|----------|-----|------|---------------|---------------|
| 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 |               |
| 19                 | .848 | .719     | .709              | 42902                      | -.001             | 2.305    | 1   | 1172 | .129*         | 1.902         |

| Model |            | Sum of Squares    | df   | Mean Square      | F      | Sig.               |
|-------|------------|-------------------|------|------------------|--------|--------------------|
| 19    | Regression | 5515820481926.275 | 40   | 137895512048.157 | 74.919 | <.001 <sup>t</sup> |
|       | Residual   | 2159004996168.575 | 1173 | 1840583969.453   |        |                    |
|       | Total      | 7674825478094.851 | 1213 |                  |        |                    |

## 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. 51 variables were statistically significant to predict value. The reference group for this single region is for very good view, medium bank, properties.

| Salt Land Model Summary |      |          |                   |                            |                   |          |     |     |               |               |
|-------------------------|------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|---------------|
| 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 |               |
| 1                       | .913 | .834     | .810              | 174840.454                 | .834              | 35.654   | 47  | 334 | <.001         | 1.493         |

### ANOVA

| Model |            | Sum of Squares | Df  | Mean Square   | F      | Sig.               |
|-------|------------|----------------|-----|---------------|--------|--------------------|
| 1     | Regression | 51226588745079 | 47  | 1089927420108 | 35.654 | <.001 <sup>b</sup> |
|       | Residual   | 10210107585591 | 334 | 30569184388   |        |                    |
|       | Total      | 61436696330671 | 381 |               |        |                    |

## NEIGHBORHOOD RATIO STATISTICS

### SINGLE FAMILY RESIDENCES & LAND

| NBHD | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| 03U1 | 0.916 | 0.901  | 0.950         | 0.136                      | 0.964                      | 0.151                     | 18.0%                                  |
| 06E2 | 0.953 | 0.952  | 0.961         | 0.098                      | 0.992                      | 0.103                     | 13.6%                                  |
| 06U1 | 0.891 | 0.894  | 0.899         | 0.130                      | 0.991                      | 0.146                     | 19.3%                                  |
| 06U2 | 0.962 | 0.923  | 0.943         | 0.125                      | 1.020                      | 0.135                     | 17.8%                                  |
| 07E2 | 0.924 | 0.933  | 0.928         | 0.109                      | 0.996                      | 0.116                     | 15.3%                                  |
| 08B2 | 0.977 | 0.953  | 0.950         | 0.113                      | 1.029                      | 0.119                     | 16.0%                                  |
| 08H1 | 0.957 | 0.955  | 0.947         | 0.081                      | 1.010                      | 0.085                     | 12.0%                                  |
| 08L1 | 0.970 | 0.966  | 0.980         | 0.109                      | 0.990                      | 0.113                     | 15.9%                                  |
| 08N1 | 0.898 | 0.916  | 0.930         | 0.112                      | 0.965                      | 0.123                     | 18.9%                                  |
| 09S1 | 0.965 | 0.967  | 0.961         | 0.096                      | 1.004                      | 0.099                     | 12.3%                                  |
| 09YS | 0.833 | 0.875  | 0.870         | 0.153                      | 0.958                      | 0.175                     | 22.6%                                  |
| 10G2 | 0.941 | 0.936  | 0.937         | 0.112                      | 1.005                      | 0.120                     | 15.6%                                  |
| 10I1 | 0.946 | 0.955  | 0.955         | 0.119                      | 0.990                      | 0.124                     | 15.8%                                  |
| 10O1 | 0.932 | 0.909  | 0.928         | 0.079                      | 1.004                      | 0.087                     | 12.1%                                  |
| 10P1 | 0.908 | 0.904  | 0.919         | 0.111                      | 0.989                      | 0.122                     | 15.5%                                  |
| 10P2 | 0.924 | 0.931  | 0.916         | 0.069                      | 1.008                      | 0.074                     | 10.1%                                  |
| 11E1 | 0.898 | 0.904  | 0.898         | 0.102                      | 1.000                      | 0.112                     | 16.5%                                  |
| 11F1 | 0.897 | 0.881  | 0.909         | 0.104                      | 0.987                      | 0.119                     | 14.5%                                  |
| 11K1 | 0.914 | 0.922  | 0.913         | 0.051                      | 1.002                      | 0.055                     | 7.9%                                   |
| 11L1 | 0.938 | 0.932  | 0.935         | 0.119                      | 1.003                      | 0.127                     | 16.6%                                  |
| 11O1 | 0.945 | 0.942  | 0.944         | 0.077                      | 1.001                      | 0.082                     | 11.0%                                  |
| 11U1 | 0.927 | 0.933  | 0.944         | 0.108                      | 0.981                      | 0.116                     | 15.0%                                  |
| 11VS | 0.943 | 0.916  | 0.924         | 0.149                      | 1.021                      | 0.163                     | 18.5%                                  |
| 11XS | 0.886 | 0.873  | 0.918         | 0.164                      | 0.965                      | 0.188                     | 22.9%                                  |
| 12O1 | 0.910 | 0.877  | 0.915         | 0.095                      | 0.995                      | 0.108                     | 12.1%                                  |
| 12P1 | 0.932 | 0.943  | 0.935         | 0.079                      | 0.997                      | 0.084                     | 11.6%                                  |
| 12Q1 | 0.925 | 0.929  | 0.941         | 0.123                      | 0.983                      | 0.132                     | 17.3%                                  |
| 12S2 | 0.944 | 0.926  | 0.936         | 0.089                      | 1.008                      | 0.097                     | 12.3%                                  |
| 12U1 | 0.936 | 0.937  | 0.939         | 0.154                      | 0.997                      | 0.165                     | 20.7%                                  |
| 12V3 | 0.925 | 0.923  | 0.923         | 0.055                      | 1.002                      | 0.060                     | 7.7%                                   |
| 12W2 | 0.962 | 0.953  | 0.958         | 0.090                      | 1.004                      | 0.094                     | 11.7%                                  |
| 12ZS | 0.872 | 0.790  | 0.897         | 0.228                      | 0.973                      | 0.289                     | 33.7%                                  |
| 13K1 | 0.952 | 0.953  | 0.945         | 0.101                      | 1.007                      | 0.106                     | 15.0%                                  |
| 13R1 | 0.934 | 0.940  | 0.936         | 0.075                      | 0.997                      | 0.080                     | 10.4%                                  |
| 13R2 | 0.914 | 0.915  | 0.919         | 0.098                      | 0.994                      | 0.107                     | 12.9%                                  |

| NBHD | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| 13T1 | 0.940 | 0.938  | 0.940         | 0.099                      | 1.000                      | 0.106                     | 13.9%                                  |
| 13U1 | 0.971 | 0.938  | 0.958         | 0.089                      | 1.014                      | 0.095                     | 13.4%                                  |
| 13V1 | 0.905 | 0.931  | 0.900         | 0.109                      | 1.006                      | 0.117                     | 16.5%                                  |
| 13W1 | 0.931 | 0.940  | 0.930         | 0.060                      | 1.001                      | 0.064                     | 8.3%                                   |
| 13W3 | 0.948 | 0.938  | 0.955         | 0.094                      | 0.992                      | 0.100                     | 12.5%                                  |
| 13W4 | 0.885 | 0.926  | 0.934         | 0.143                      | 0.948                      | 0.155                     | 23.0%                                  |
| 13X1 | 0.979 | 0.959  | 0.975         | 0.069                      | 1.004                      | 0.072                     | 12.0%                                  |
| 13Y1 | 0.958 | 0.938  | 0.962         | 0.113                      | 0.996                      | 0.121                     | 16.8%                                  |
| 13YS | 0.873 | 0.861  | 0.880         | 0.150                      | 0.992                      | 0.175                     | 22.8%                                  |
| 13Z1 | 0.952 | 0.943  | 0.964         | 0.114                      | 0.988                      | 0.121                     | 16.0%                                  |
| 13ZS | 0.927 | 0.903  | 0.942         | 0.144                      | 0.984                      | 0.160                     | 20.2%                                  |
| 14H1 | 0.856 | 0.858  | 0.855         | 0.111                      | 1.002                      | 0.129                     | 17.4%                                  |
| 14N1 | 0.923 | 0.948  | 0.914         | 0.095                      | 1.009                      | 0.100                     | 14.2%                                  |
| 14P1 | 0.937 | 0.934  | 0.939         | 0.114                      | 0.998                      | 0.121                     | 15.4%                                  |
| 14Q1 | 0.915 | 0.911  | 0.928         | 0.121                      | 0.986                      | 0.133                     | 16.5%                                  |
| 14S2 | 0.943 | 0.952  | 0.948         | 0.114                      | 0.995                      | 0.120                     | 15.3%                                  |
| 14T1 | 0.945 | 0.927  | 0.943         | 0.135                      | 1.002                      | 0.146                     | 18.1%                                  |
| 14U2 | 0.937 | 0.937  | 0.942         | 0.111                      | 0.994                      | 0.118                     | 15.9%                                  |
| 15K1 | 0.957 | 0.954  | 0.953         | 0.089                      | 1.004                      | 0.093                     | 13.1%                                  |
| 15R2 | 0.957 | 0.953  | 0.958         | 0.126                      | 0.998                      | 0.132                     | 16.9%                                  |
| 15S1 | 0.925 | 0.928  | 0.928         | 0.125                      | 0.997                      | 0.135                     | 17.5%                                  |
| 15T1 | 0.953 | 0.939  | 0.953         | 0.126                      | 1.000                      | 0.134                     | 16.5%                                  |
| 15T2 | 0.973 | 0.957  | 0.970         | 0.126                      | 1.003                      | 0.132                     | 16.9%                                  |
| 15U1 | 0.912 | 0.911  | 0.921         | 0.108                      | 0.990                      | 0.119                     | 15.3%                                  |
| 15U2 | 0.930 | 0.930  | 0.917         | 0.114                      | 1.014                      | 0.123                     | 16.1%                                  |
| 15X1 | 0.937 | 0.937  | 0.948         | 0.108                      | 0.989                      | 0.115                     | 15.2%                                  |
| 15XS | 0.924 | 0.895  | 0.941         | 0.111                      | 0.982                      | 0.124                     | 15.6%                                  |
| 16B1 | 0.909 | 0.884  | 0.884         | 0.152                      | 1.028                      | 0.172                     | 21.9%                                  |
| 16F1 | 0.892 | 0.882  | 0.889         | 0.094                      | 1.004                      | 0.107                     | 15.6%                                  |
| 16P1 | 0.949 | 0.953  | 0.952         | 0.079                      | 0.997                      | 0.083                     | 10.6%                                  |
| 16Q1 | 0.968 | 0.955  | 0.961         | 0.097                      | 1.006                      | 0.102                     | 13.3%                                  |
| 16Q2 | 0.942 | 0.932  | 0.941         | 0.070                      | 1.002                      | 0.075                     | 9.6%                                   |
| 16R1 | 0.950 | 0.941  | 0.953         | 0.091                      | 0.997                      | 0.097                     | 12.4%                                  |
| 16S1 | 0.937 | 0.921  | 0.935         | 0.124                      | 1.003                      | 0.135                     | 17.1%                                  |
| 16S2 | 0.956 | 0.943  | 0.962         | 0.119                      | 0.994                      | 0.127                     | 16.3%                                  |
| 16T1 | 0.841 | 0.847  | 0.855         | 0.141                      | 0.984                      | 0.166                     | 20.2%                                  |
| 16W1 | 0.945 | 0.953  | 0.945         | 0.123                      | 1.001                      | 0.129                     | 17.1%                                  |
| 17C1 | 0.923 | 0.914  | 0.912         | 0.137                      | 1.012                      | 0.150                     | 19.0%                                  |
| 17G1 | 0.891 | 0.884  | 0.901         | 0.137                      | 0.989                      | 0.155                     | 18.5%                                  |

| NBHD | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| 17L1 | 0.913 | 0.929  | 0.925         | 0.123                      | 0.987                      | 0.132                     | 17.1%                                  |
| 17Q1 | 0.962 | 0.954  | 0.960         | 0.063                      | 1.002                      | 0.066                     | 9.0%                                   |
| 17R1 | 0.955 | 0.975  | 0.955         | 0.126                      | 1.000                      | 0.130                     | 17.5%                                  |
| 17S1 | 0.952 | 0.954  | 0.955         | 0.081                      | 0.997                      | 0.085                     | 11.0%                                  |
| 17S2 | 0.920 | 0.933  | 0.920         | 0.079                      | 1.001                      | 0.085                     | 11.7%                                  |
| 17T1 | 0.943 | 0.947  | 0.936         | 0.137                      | 1.008                      | 0.145                     | 18.4%                                  |
| 17U1 | 0.963 | 0.953  | 0.964         | 0.104                      | 1.000                      | 0.109                     | 14.0%                                  |
| 17U2 | 0.966 | 0.949  | 0.967         | 0.085                      | 1.000                      | 0.090                     | 12.4%                                  |
| 17U3 | 0.957 | 0.934  | 0.957         | 0.075                      | 1.000                      | 0.081                     | 9.7%                                   |
| 17Y1 | 0.950 | 0.932  | 0.958         | 0.125                      | 0.992                      | 0.134                     | 17.0%                                  |
| 17Z1 | 0.978 | 0.960  | 0.980         | 0.123                      | 0.998                      | 0.128                     | 15.6%                                  |
| 17ZS | 0.891 | 0.900  | 0.909         | 0.136                      | 0.980                      | 0.151                     | 19.2%                                  |
| 18L1 | 0.977 | 0.963  | 0.984         | 0.117                      | 0.993                      | 0.122                     | 15.7%                                  |
| 18N1 | 0.942 | 0.941  | 0.947         | 0.099                      | 0.995                      | 0.106                     | 13.7%                                  |
| 18P1 | 0.927 | 0.925  | 0.921         | 0.074                      | 1.007                      | 0.080                     | 10.9%                                  |
| 18Q1 | 0.944 | 0.946  | 0.943         | 0.047                      | 1.001                      | 0.050                     | 6.7%                                   |
| 18U2 | 0.965 | 0.967  | 0.965         | 0.035                      | 1.000                      | 0.036                     | 4.4%                                   |
| 18U3 | 0.910 | 0.903  | 0.910         | 0.063                      | 1.000                      | 0.069                     | 8.6%                                   |
| 18U4 | 0.952 | 0.954  | 0.950         | 0.044                      | 1.003                      | 0.046                     | 5.9%                                   |
| 18W1 | 0.896 | 0.871  | 0.907         | 0.124                      | 0.988                      | 0.142                     | 18.1%                                  |
| 18YS | 0.881 | 0.879  | 0.885         | 0.130                      | 0.995                      | 0.148                     | 18.3%                                  |
| 19H1 | 0.896 | 0.896  | 0.912         | 0.141                      | 0.983                      | 0.157                     | 20.4%                                  |
| 19P1 | 0.962 | 0.965  | 0.963         | 0.060                      | 0.999                      | 0.062                     | 8.1%                                   |
| 19P2 | 0.956 | 0.945  | 0.954         | 0.070                      | 1.001                      | 0.074                     | 9.8%                                   |
| 19Q1 | 0.981 | 0.958  | 0.981         | 0.081                      | 0.999                      | 0.085                     | 11.0%                                  |
| 19Q2 | 0.973 | 0.955  | 0.968         | 0.080                      | 1.005                      | 0.084                     | 11.5%                                  |
| 19Q3 | 0.955 | 0.949  | 0.953         | 0.061                      | 1.002                      | 0.064                     | 7.8%                                   |
| 19R2 | 0.939 | 0.932  | 0.937         | 0.059                      | 1.002                      | 0.064                     | 7.8%                                   |
| 19R3 | 0.963 | 0.951  | 0.961         | 0.077                      | 1.001                      | 0.081                     | 10.5%                                  |
| 19R4 | 0.906 | 0.914  | 0.911         | 0.155                      | 0.995                      | 0.170                     | 21.5%                                  |
| 19W1 | 0.917 | 0.916  | 0.920         | 0.088                      | 0.997                      | 0.096                     | 11.8%                                  |
| 19Z1 | 0.912 | 0.907  | 0.918         | 0.105                      | 0.994                      | 0.116                     | 15.2%                                  |
| 20P2 | 0.933 | 0.949  | 0.936         | 0.063                      | 0.997                      | 0.066                     | 9.1%                                   |
| 20P3 | 0.951 | 0.939  | 0.959         | 0.092                      | 0.992                      | 0.098                     | 11.6%                                  |
| 20Q1 | 0.960 | 0.936  | 0.962         | 0.093                      | 0.998                      | 0.099                     | 11.7%                                  |
| 20R1 | 0.950 | 0.940  | 0.948         | 0.074                      | 1.002                      | 0.079                     | 10.5%                                  |
| 20S1 | 0.944 | 0.943  | 0.950         | 0.091                      | 0.995                      | 0.096                     | 12.4%                                  |
| 20T1 | 0.951 | 0.947  | 0.952         | 0.049                      | 0.999                      | 0.052                     | 7.1%                                   |
| 20U1 | 0.974 | 0.961  | 0.968         | 0.086                      | 1.006                      | 0.089                     | 11.5%                                  |

| NBHD | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| 20V1 | 0.954 | 0.942  | 0.954         | 0.080                      | 0.999                      | 0.085                     | 10.5%                                  |
| 20V2 | 0.942 | 0.948  | 0.947         | 0.054                      | 0.995                      | 0.057                     | 8.0%                                   |
| 20W1 | 0.988 | 0.991  | 0.997         | 0.099                      | 0.991                      | 0.100                     | 14.4%                                  |
| 20W2 | 0.974 | 0.967  | 0.981         | 0.092                      | 0.993                      | 0.095                     | 11.5%                                  |
| 20ZS | 0.885 | 0.886  | 0.911         | 0.131                      | 0.971                      | 0.148                     | 19.7%                                  |
| 21H2 | 0.957 | 0.911  | 0.942         | 0.154                      | 1.016                      | 0.169                     | 20.6%                                  |
| 21O1 | 0.935 | 0.935  | 0.935         | 0.075                      | 1.000                      | 0.080                     | 9.9%                                   |
| 21Q3 | 0.931 | 0.943  | 0.930         | 0.056                      | 1.000                      | 0.059                     | 7.3%                                   |
| 21R1 | 0.988 | 0.968  | 0.970         | 0.118                      | 1.019                      | 0.121                     | 15.0%                                  |
| 21R2 | 0.957 | 0.954  | 0.954         | 0.069                      | 1.003                      | 0.072                     | 9.5%                                   |
| 21S1 | 0.946 | 0.945  | 0.948         | 0.070                      | 0.997                      | 0.074                     | 9.4%                                   |
| 21T1 | 0.918 | 0.916  | 0.918         | 0.085                      | 1.000                      | 0.093                     | 12.2%                                  |
| 21T2 | 0.954 | 0.943  | 0.946         | 0.096                      | 1.008                      | 0.102                     | 13.7%                                  |
| 21T4 | 0.969 | 0.951  | 0.955         | 0.102                      | 1.015                      | 0.107                     | 14.2%                                  |
| 22N1 | 0.927 | 0.934  | 0.943         | 0.110                      | 0.983                      | 0.118                     | 15.7%                                  |
| 22Q1 | 0.940 | 0.922  | 0.936         | 0.076                      | 1.005                      | 0.082                     | 11.4%                                  |
| 22Q2 | 0.949 | 0.945  | 0.945         | 0.070                      | 1.004                      | 0.075                     | 10.7%                                  |
| 22T1 | 0.983 | 0.962  | 0.975         | 0.085                      | 1.008                      | 0.089                     | 12.8%                                  |
| 22T2 | 0.933 | 0.934  | 0.925         | 0.098                      | 1.008                      | 0.105                     | 13.7%                                  |
| 22T3 | 0.955 | 0.948  | 0.952         | 0.063                      | 1.003                      | 0.067                     | 9.4%                                   |
| 23T1 | 0.943 | 0.939  | 0.928         | 0.096                      | 1.017                      | 0.102                     | 13.1%                                  |
| 23T2 | 0.948 | 0.934  | 0.948         | 0.078                      | 1.000                      | 0.084                     | 11.3%                                  |
| 23U1 | 0.898 | 0.883  | 0.897         | 0.060                      | 1.002                      | 0.068                     | 8.2%                                   |
| 23W1 | 0.943 | 0.951  | 0.955         | 0.068                      | 0.988                      | 0.072                     | 9.6%                                   |
| 24I1 | 0.957 | 0.943  | 0.954         | 0.108                      | 1.004                      | 0.115                     | 16.0%                                  |
| 24P1 | 0.929 | 0.897  | 0.933         | 0.140                      | 0.995                      | 0.156                     | 19.8%                                  |
| 24Q1 | 0.942 | 0.946  | 0.955         | 0.089                      | 0.986                      | 0.094                     | 11.9%                                  |
| 24Q2 | 0.907 | 0.917  | 0.919         | 0.124                      | 0.987                      | 0.135                     | 16.7%                                  |
| 25I1 | 0.969 | 0.958  | 0.968         | 0.110                      | 1.002                      | 0.115                     | 16.2%                                  |
| 25I2 | 0.949 | 0.953  | 0.949         | 0.063                      | 0.999                      | 0.066                     | 8.5%                                   |
| 25J1 | 0.909 | 0.936  | 0.925         | 0.113                      | 0.983                      | 0.121                     | 16.3%                                  |
| 25S1 | 0.946 | 0.935  | 0.953         | 0.095                      | 0.993                      | 0.102                     | 14.1%                                  |
| 27H1 | 0.972 | 0.985  | 0.977         | 0.125                      | 0.994                      | 0.127                     | 17.5%                                  |
| 27J1 | 0.925 | 0.951  | 0.933         | 0.103                      | 0.991                      | 0.109                     | 16.1%                                  |
| 28F1 | 0.930 | 0.942  | 0.922         | 0.092                      | 1.009                      | 0.098                     | 12.8%                                  |
| 28M1 | 0.923 | 0.924  | 0.939         | 0.125                      | 0.983                      | 0.135                     | 19.7%                                  |
| 28N1 | 0.957 | 0.955  | 0.954         | 0.147                      | 1.003                      | 0.154                     | 20.5%                                  |
| 29I1 | 0.937 | 0.933  | 0.947         | 0.107                      | 0.989                      | 0.115                     | 15.8%                                  |
| 29K1 | 0.983 | 0.968  | 0.989         | 0.127                      | 0.994                      | 0.131                     | 16.7%                                  |

| NBHD | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| 29M1 | 0.960 | 0.949  | 0.962         | 0.148                      | 0.998                      | 0.155                     | 19.2%                                  |
| 29M2 | 0.954 | 0.955  | 0.956         | 0.067                      | 0.999                      | 0.070                     | 9.2%                                   |
| 29N1 | 0.979 | 0.965  | 0.976         | 0.087                      | 1.003                      | 0.090                     | 11.8%                                  |
| 29N2 | 0.950 | 0.948  | 0.949         | 0.027                      | 1.001                      | 0.029                     | 4.1%                                   |
| 30G1 | 0.964 | 0.931  | 0.965         | 0.158                      | 1.000                      | 0.170                     | 20.3%                                  |
| 30G2 | 0.981 | 0.961  | 0.983         | 0.110                      | 0.997                      | 0.114                     | 14.6%                                  |
| 30N1 | 0.944 | 0.954  | 0.944         | 0.099                      | 1.001                      | 0.103                     | 13.8%                                  |
| 31K1 | 0.958 | 0.957  | 0.962         | 0.106                      | 0.996                      | 0.111                     | 15.2%                                  |
| 32E1 | 0.956 | 0.913  | 0.998         | 0.200                      | 0.957                      | 0.220                     | 27.3%                                  |
| 32I1 | 0.924 | 0.933  | 0.939         | 0.108                      | 0.984                      | 0.116                     | 16.3%                                  |
| 34F1 | 0.931 | 0.944  | 0.922         | 0.163                      | 1.010                      | 0.172                     | 21.8%                                  |
| 35E1 | 0.936 | 0.947  | 0.949         | 0.121                      | 0.986                      | 0.128                     | 16.8%                                  |
| DGBA | 0.919 | 0.910  | 0.925         | 0.084                      | 0.994                      | 0.093                     | 12.6%                                  |
| DHBA | 0.954 | 0.930  | 0.949         | 0.062                      | 1.005                      | 0.067                     | 9.7%                                   |
| DHBB | 0.906 | 0.913  | 0.902         | 0.097                      | 1.004                      | 0.106                     | 14.4%                                  |
| DHBC | 0.974 | 0.952  | 0.973         | 0.063                      | 1.000                      | 0.066                     | 10.1%                                  |
| DHBD | 0.944 | 0.945  | 0.945         | 0.052                      | 0.998                      | 0.055                     | 6.6%                                   |
| DHBE | 0.942 | 0.939  | 0.947         | 0.078                      | 0.995                      | 0.083                     | 10.0%                                  |
| DHBF | 0.957 | 0.949  | 0.958         | 0.049                      | 1.000                      | 0.052                     | 7.9%                                   |
| DUNA | 0.945 | 0.942  | 0.942         | 0.071                      | 1.003                      | 0.076                     | 9.0%                                   |
| EUFA | 0.960 | 0.959  | 0.964         | 0.101                      | 0.996                      | 0.106                     | 13.9%                                  |
| FCZG | 0.975 | 0.991  | 0.966         | 0.089                      | 1.009                      | 0.090                     | 11.4%                                  |
| FD1A | 0.871 | 0.863  | 0.871         | 0.074                      | 1.000                      | 0.086                     | 10.4%                                  |
| FD1B | 0.877 | 0.868  | 0.870         | 0.057                      | 1.008                      | 0.066                     | 8.3%                                   |
| FD4A | 0.955 | 0.947  | 0.953         | 0.058                      | 1.003                      | 0.062                     | 8.8%                                   |
| FD4B | 0.974 | 0.951  | 0.973         | 0.072                      | 1.001                      | 0.075                     | 10.4%                                  |
| FDRA | 0.960 | 0.958  | 0.959         | 0.049                      | 1.001                      | 0.052                     | 6.7%                                   |
| FDU1 | 0.933 | 0.943  | 0.956         | 0.115                      | 0.975                      | 0.121                     | 15.6%                                  |
| FDWA | 0.957 | 0.967  | 0.955         | 0.070                      | 1.002                      | 0.072                     | 8.7%                                   |
| FDWB | 0.967 | 0.960  | 0.965         | 0.078                      | 1.003                      | 0.081                     | 10.2%                                  |
| FDYA | 0.963 | 0.953  | 0.960         | 0.090                      | 1.003                      | 0.095                     | 12.5%                                  |
| FDYB | 0.956 | 0.941  | 0.949         | 0.090                      | 1.007                      | 0.095                     | 12.2%                                  |
| FFHA | 0.910 | 0.900  | 0.908         | 0.054                      | 1.002                      | 0.060                     | 7.5%                                   |
| FFHB | 0.888 | 0.892  | 0.889         | 0.050                      | 0.999                      | 0.056                     | 7.4%                                   |
| FFKA | 0.994 | 0.979  | 0.980         | 0.090                      | 1.014                      | 0.092                     | 11.0%                                  |
| FFKB | 0.944 | 0.944  | 0.943         | 0.050                      | 1.001                      | 0.053                     | 6.6%                                   |
| FFMA | 0.932 | 0.936  | 0.938         | 0.076                      | 0.994                      | 0.081                     | 12.1%                                  |
| FFWA | 0.958 | 0.955  | 0.958         | 0.056                      | 1.000                      | 0.058                     | 7.4%                                   |
| FFWB | 0.958 | 0.963  | 0.957         | 0.085                      | 1.001                      | 0.089                     | 10.9%                                  |

| NBHD | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| FFWC | 0.953 | 0.957  | 0.953         | 0.046                      | 1.000                      | 0.048                     | 6.0%                                   |
| FFXA | 0.918 | 0.915  | 0.911         | 0.031                      | 1.008                      | 0.034                     | 5.4%                                   |
| FFXB | 0.935 | 0.927  | 0.933         | 0.058                      | 1.002                      | 0.062                     | 7.7%                                   |
| GTUE | 0.969 | 0.961  | 0.967         | 0.063                      | 1.002                      | 0.066                     | 8.8%                                   |
| GTUF | 0.836 | 0.808  | 0.834         | 0.079                      | 1.002                      | 0.098                     | 12.2%                                  |
| GTUG | 0.966 | 0.954  | 0.964         | 0.059                      | 1.002                      | 0.062                     | 7.6%                                   |
| GTUH | 0.978 | 0.993  | 0.981         | 0.080                      | 0.997                      | 0.081                     | 11.9%                                  |
| HTW1 | 0.973 | 0.942  | 0.971         | 0.087                      | 1.002                      | 0.093                     | 12.5%                                  |
| HTW2 | 0.852 | 0.869  | 0.855         | 0.053                      | 0.997                      | 0.061                     | 8.3%                                   |
| HTW3 | 1.004 | 1.010  | 1.009         | 0.100                      | 0.994                      | 0.099                     | 12.5%                                  |
| HTW4 | 0.943 | 0.949  | 0.947         | 0.067                      | 0.996                      | 0.070                     | 9.1%                                   |
| LXQA | 0.980 | 0.972  | 0.976         | 0.058                      | 1.004                      | 0.059                     | 7.9%                                   |
| LXQB | 0.952 | 0.957  | 0.957         | 0.064                      | 0.994                      | 0.066                     | 9.2%                                   |
| LXWA | 0.960 | 0.955  | 0.962         | 0.073                      | 0.998                      | 0.077                     | 10.8%                                  |
| LXWB | 0.976 | 0.970  | 0.976         | 0.075                      | 1.001                      | 0.078                     | 10.5%                                  |
| LXWC | 0.974 | 0.952  | 0.973         | 0.074                      | 1.001                      | 0.077                     | 9.5%                                   |
| LXWD | 0.969 | 0.970  | 0.968         | 0.040                      | 1.001                      | 0.041                     | 5.0%                                   |
| LXWE | 0.951 | 0.952  | 0.950         | 0.040                      | 1.002                      | 0.042                     | 5.4%                                   |
| NDAA | 0.943 | 0.942  | 0.943         | 0.053                      | 1.000                      | 0.056                     | 7.4%                                   |
| NDAB | 0.950 | 0.948  | 0.948         | 0.049                      | 1.002                      | 0.051                     | 6.5%                                   |
| NDFA | 0.927 | 0.929  | 0.923         | 0.054                      | 1.004                      | 0.058                     | 7.4%                                   |
| NDFB | 0.957 | 0.950  | 0.952         | 0.050                      | 1.006                      | 0.053                     | 8.3%                                   |
| NDFC | 0.954 | 0.953  | 0.953         | 0.041                      | 1.000                      | 0.043                     | 5.5%                                   |
| NDUA | 0.965 | 0.963  | 0.966         | 0.039                      | 0.999                      | 0.041                     | 5.2%                                   |
| NDWA | 0.961 | 0.956  | 0.962         | 0.050                      | 1.000                      | 0.052                     | 7.1%                                   |
| NDWB | 0.913 | 0.904  | 0.915         | 0.063                      | 0.998                      | 0.070                     | 8.9%                                   |
| NDWC | 0.912 | 0.900  | 0.909         | 0.071                      | 1.003                      | 0.079                     | 9.4%                                   |
| NDXA | 0.954 | 0.945  | 0.952         | 0.055                      | 1.003                      | 0.058                     | 7.5%                                   |
| OCUA | 0.939 | 0.952  | 0.937         | 0.112                      | 1.002                      | 0.118                     | 15.8%                                  |
| OD1A | 0.981 | 0.955  | 0.974         | 0.083                      | 1.007                      | 0.087                     | 12.5%                                  |
| ODEA | 0.955 | 0.950  | 0.956         | 0.056                      | 0.999                      | 0.059                     | 7.4%                                   |
| ODWA | 0.958 | 0.967  | 0.960         | 0.054                      | 0.998                      | 0.056                     | 7.6%                                   |
| ODXA | 0.971 | 0.962  | 0.970         | 0.064                      | 1.002                      | 0.066                     | 8.9%                                   |
| OFFA | 0.951 | 0.946  | 0.951         | 0.067                      | 1.000                      | 0.070                     | 9.5%                                   |
| OFUA | 0.903 | 0.913  | 0.901         | 0.058                      | 1.003                      | 0.063                     | 7.4%                                   |
| QZA1 | 0.902 | 0.917  | 0.913         | 0.108                      | 0.988                      | 0.117                     | 15.9%                                  |
| QZA4 | 0.907 | 0.919  | 0.918         | 0.101                      | 0.989                      | 0.110                     | 15.1%                                  |
| QZU1 | 0.927 | 0.924  | 0.924         | 0.099                      | 1.004                      | 0.107                     | 15.1%                                  |
| QZU4 | 0.907 | 0.905  | 0.904         | 0.095                      | 1.004                      | 0.105                     | 13.8%                                  |

| NBHD | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| T14A | 0.975 | 0.983  | 0.971         | 0.140                      | 1.004                      | 0.143                     | 19.0%                                  |
| TDFA | 0.936 | 0.941  | 0.935         | 0.052                      | 1.000                      | 0.055                     | 7.1%                                   |
| TDFB | 0.956 | 0.951  | 0.955         | 0.036                      | 1.001                      | 0.037                     | 5.2%                                   |
| TDKA | 0.959 | 0.968  | 0.960         | 0.068                      | 0.999                      | 0.070                     | 9.1%                                   |
| TDTA | 0.933 | 0.952  | 0.933         | 0.059                      | 1.000                      | 0.062                     | 8.2%                                   |
| TEAA | 0.981 | 0.956  | 0.977         | 0.058                      | 1.005                      | 0.061                     | 9.4%                                   |
| TFFA | 0.959 | 0.955  | 0.961         | 0.097                      | 0.998                      | 0.101                     | 13.0%                                  |
| TFWA | 0.975 | 0.967  | 0.972         | 0.046                      | 1.003                      | 0.048                     | 6.2%                                   |
| TFZA | 0.952 | 0.962  | 0.952         | 0.065                      | 1.000                      | 0.068                     | 8.6%                                   |
| THUA | 0.954 | 0.952  | 0.952         | 0.058                      | 1.002                      | 0.061                     | 7.8%                                   |
| THUB | 0.909 | 0.902  | 0.907         | 0.057                      | 1.003                      | 0.063                     | 8.8%                                   |
| THUC | 0.948 | 0.962  | 0.949         | 0.065                      | 0.998                      | 0.067                     | 8.6%                                   |
| TJ2A | 0.936 | 0.953  | 0.935         | 0.028                      | 1.001                      | 0.029                     | 3.6%                                   |
| TJUA | 0.955 | 0.955  | 0.955         | 0.000                      | 1.000                      | 0.000                     |                                        |
| XC2A | 0.901 | 0.909  | 0.901         | 0.088                      | 0.999                      | 0.097                     | 12.7%                                  |

#### CONDOMINIUMS

| NBHD | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| CN01 | 0.957 | 0.955  | 0.957         | 0.067                      | 1.000                      | 0.070                     | 9.6%                                   |
| CN02 | 0.950 | 0.952  | 0.949         | 0.016                      | 1.001                      | 0.017                     | 2.6%                                   |
| CN03 | 0.933 | 0.939  | 0.934         | 0.052                      | 0.999                      | 0.055                     | 6.9%                                   |
| CN04 | 0.977 | 0.957  | 0.964         | 0.093                      | 1.013                      | 0.097                     | 12.1%                                  |
| CN05 | 0.956 | 0.953  | 0.935         | 0.116                      | 1.023                      | 0.121                     | 16.3%                                  |
| CN06 | 0.967 | 0.958  | 0.956         | 0.087                      | 1.011                      | 0.091                     | 12.3%                                  |
| CN07 | 0.939 | 0.943  | 0.933         | 0.075                      | 1.006                      | 0.080                     | 10.8%                                  |
| CN08 | 0.924 | 0.916  | 0.913         | 0.087                      | 1.013                      | 0.095                     | 13.7%                                  |
| CN09 | 0.950 | 0.954  | 0.947         | 0.044                      | 1.003                      | 0.046                     | 6.4%                                   |
| CN10 | 0.938 | 0.950  | 0.936         | 0.054                      | 1.002                      | 0.057                     | 6.7%                                   |
| CN11 | 0.951 | 0.939  | 0.942         | 0.074                      | 1.010                      | 0.079                     | 9.9%                                   |
| CN12 | 0.943 | 0.952  | 0.938         | 0.060                      | 1.005                      | 0.063                     | 7.9%                                   |
| CN13 | 0.956 | 0.940  | 0.951         | 0.066                      | 1.005                      | 0.070                     | 9.8%                                   |
| CN14 | 0.936 | 0.915  | 0.921         | 0.129                      | 1.017                      | 0.141                     | 17.0%                                  |
| CN15 | 0.957 | 0.952  | 0.956         | 0.030                      | 1.001                      | 0.032                     | 4.3%                                   |
| CN16 | 0.941 | 0.941  | 0.941         | 0.000                      | 1.000                      | 0.000                     |                                        |

| NBHD | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| CN17 | 0.954 | 0.922  | 0.950         | 0.039                      | 1.005                      | 0.042                     | 5.6%                                   |
| CN18 | 0.986 | 0.950  | 0.972         | 0.070                      | 1.015                      | 0.074                     | 9.1%                                   |
| CN19 | 0.938 | 0.937  | 0.936         | 0.064                      | 1.003                      | 0.068                     | 9.0%                                   |
| CN20 | 0.915 | 0.912  | 0.907         | 0.065                      | 1.008                      | 0.071                     | 10.3%                                  |
| CN21 | 0.969 | 0.951  | 0.958         | 0.059                      | 1.012                      | 0.062                     | 10.7%                                  |
| CN22 | 0.958 | 0.957  | 0.956         | 0.071                      | 1.002                      | 0.074                     | 10.2%                                  |
| CN23 | 0.970 | 0.963  | 0.968         | 0.031                      | 1.001                      | 0.032                     | 4.4%                                   |
| CN24 | 0.976 | 0.946  | 0.969         | 0.086                      | 1.007                      | 0.090                     | 11.1%                                  |
| CN25 | 0.903 | 0.949  | 0.878         | 0.159                      | 1.029                      | 0.168                     | 21.8%                                  |
| CN27 | 1.031 | 1.008  | 1.015         | 0.102                      | 1.016                      | 0.101                     | 15.0%                                  |
| CN28 | 0.956 | 0.952  | 0.954         | 0.044                      | 1.002                      | 0.046                     | 6.0%                                   |
| CN29 | 0.959 | 0.984  | 0.922         | 0.116                      | 1.041                      | 0.118                     | 18.9%                                  |
| CN30 | 1.015 | 0.951  | 0.994         | 0.116                      | 1.021                      | 0.122                     | 16.6%                                  |
| CN31 | 0.935 | 0.947  | 0.930         | 0.048                      | 1.006                      | 0.051                     | 8.1%                                   |
| CN32 | 0.952 | 0.956  | 0.952         | 0.038                      | 1.001                      | 0.040                     | 4.9%                                   |
| CN33 | 0.917 | 0.960  | 0.929         | 0.110                      | 0.987                      | 0.114                     | 15.1%                                  |
| CN34 | 0.895 | 0.865  | 0.882         | 0.091                      | 1.015                      | 0.105                     | 14.3%                                  |
| CN35 | 0.970 | 0.943  | 0.967         | 0.057                      | 1.004                      | 0.060                     | 7.7%                                   |

CN26 – no valid sales

### MANUFACTURED HOMES ON LAND

| Region  | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|---------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| 01      | 0.804 | 0.804  | 0.804         | 0.000                      | 1.000                      | 0.000                     |                                        |
| 02      | 0.889 | 0.889  | 0.984         | 0.234                      | 0.904                      | 0.263                     | 37.2%                                  |
| 03      | 0.930 | 0.936  | 0.922         | 0.146                      | 1.008                      | 0.156                     | 19.1%                                  |
| 04      | 0.973 | 0.964  | 0.944         | 0.155                      | 1.031                      | 0.161                     | 19.6%                                  |
| 05      | 0.925 | 0.984  | 0.918         | 0.109                      | 1.008                      | 0.110                     | 15.0%                                  |
| 06      | 0.969 | 0.952  | 0.959         | 0.163                      | 1.011                      | 0.172                     | 22.9%                                  |
| 07      | 0.943 | 0.938  | 0.934         | 0.135                      | 1.010                      | 0.144                     | 19.8%                                  |
| 08      | 0.942 | 0.915  | 0.917         | 0.110                      | 1.028                      | 0.120                     | 16.9%                                  |
| 09      | 0.981 | 0.957  | 0.958         | 0.162                      | 1.023                      | 0.169                     | 22.2%                                  |
| 10      | 0.947 | 0.933  | 0.927         | 0.157                      | 1.021                      | 0.168                     | 21.5%                                  |
| 11      | 0.928 | 0.904  | 0.915         | 0.147                      | 1.014                      | 0.162                     | 21.5%                                  |
| 14      | 0.927 | 0.915  | 0.902         | 0.161                      | 1.028                      | 0.176                     | 22.8%                                  |
| 16      | 0.938 | 0.958  | 0.937         | 0.109                      | 1.002                      | 0.113                     | 14.4%                                  |
| 17      | 0.996 | 0.962  | 0.972         | 0.152                      | 1.025                      | 0.158                     | 20.2%                                  |
| Overall | 0.948 | 0.929  | 0.931         | 0.153                      | 1.019                      | 0.164                     | 21.2%                                  |

### MANUFACTURED HOMES IN PARKS

| NBHD    | Mean  | Median | Weighted Mean | Average Absolute Deviation | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Mean Centered |
|---------|-------|--------|---------------|----------------------------|----------------------------|---------------------------|----------------------------------------|
| MHPR    | 0.888 | 0.862  | 0.796         | 0.445                      | 1.115                      | 0.516                     | 61.6%                                  |
| MRAV    | 0.971 | 0.936  | 0.882         | 0.270                      | 1.102                      | 0.288                     | 40.5%                                  |
| MRFR    | 0.991 | 0.915  | 0.827         | 0.363                      | 1.198                      | 0.397                     | 46.5%                                  |
| MRGD    | 1.031 | 0.959  | 0.995         | 0.179                      | 1.037                      | 0.187                     | 26.1%                                  |
| MUAV    | 0.981 | 0.935  | 0.911         | 0.259                      | 1.077                      | 0.277                     | 35.2%                                  |
| MUEX    | 0.959 | 0.933  | 0.929         | 0.133                      | 1.032                      | 0.142                     | 19.0%                                  |
| MUFR    | 0.988 | 0.942  | 0.894         | 0.323                      | 1.105                      | 0.342                     | 42.9%                                  |
| MUGD    | 0.944 | 0.950  | 0.933         | 0.111                      | 1.011                      | 0.117                     | 15.3%                                  |
| Overall | 0.974 | 0.937  | 0.915         | 0.258                      | 1.065                      | 0.275                     | 36.7%                                  |

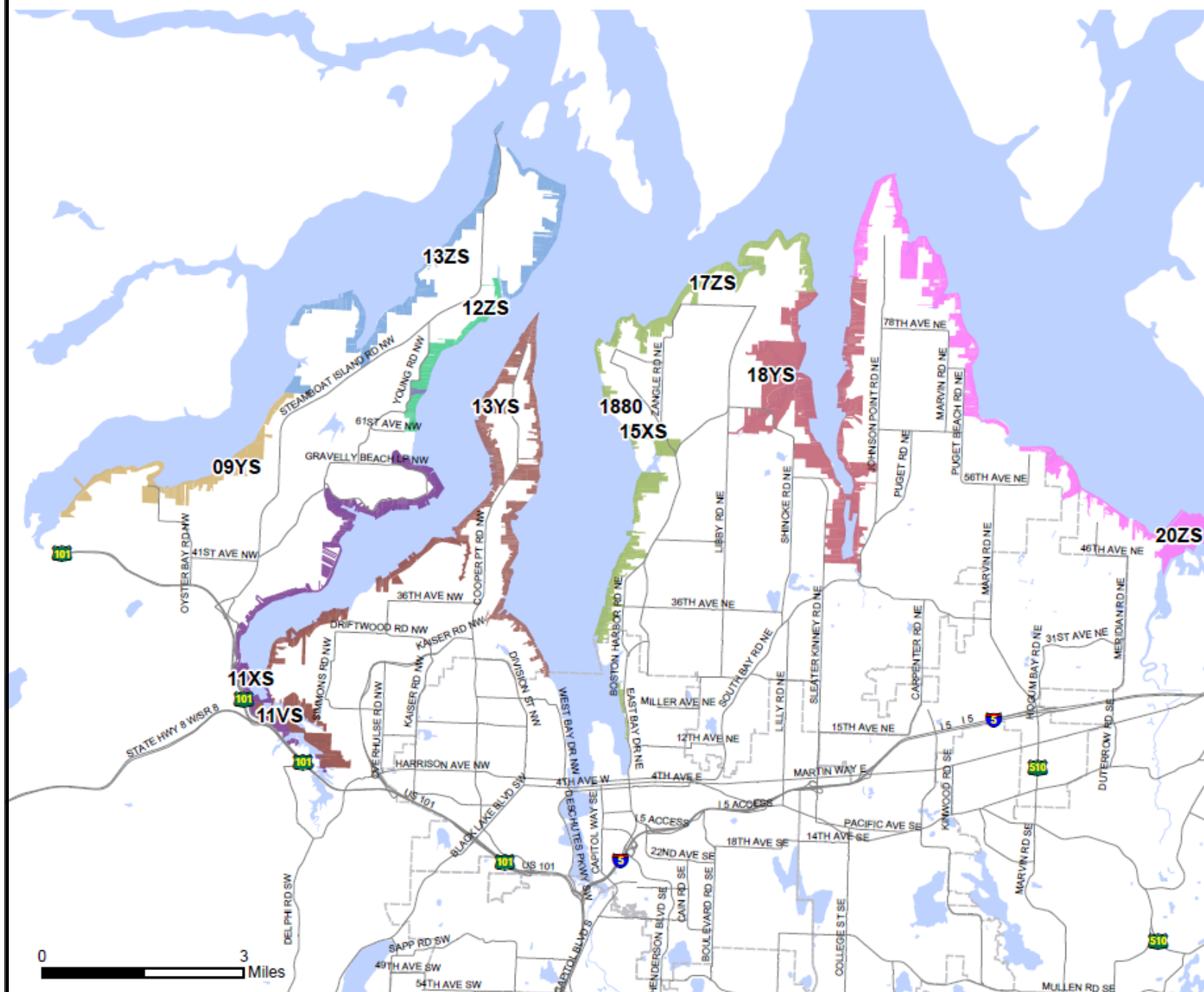


# THURSTON COUNTY

## Residential Neighborhoods Region 01

### Neighborhood

- 09YS
- 11VS
- 11XS
- 12ZS
- 13YS
- 13ZS
- 15XS
- 17ZS
- 1880
- 18YS
- 20ZS



Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of the County government, however, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or consistency of any information displayed on this map, nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, Thurston County disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability, data fitness for a particular purpose, and noninfringement of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

Map Created by Jim 8/5/2022

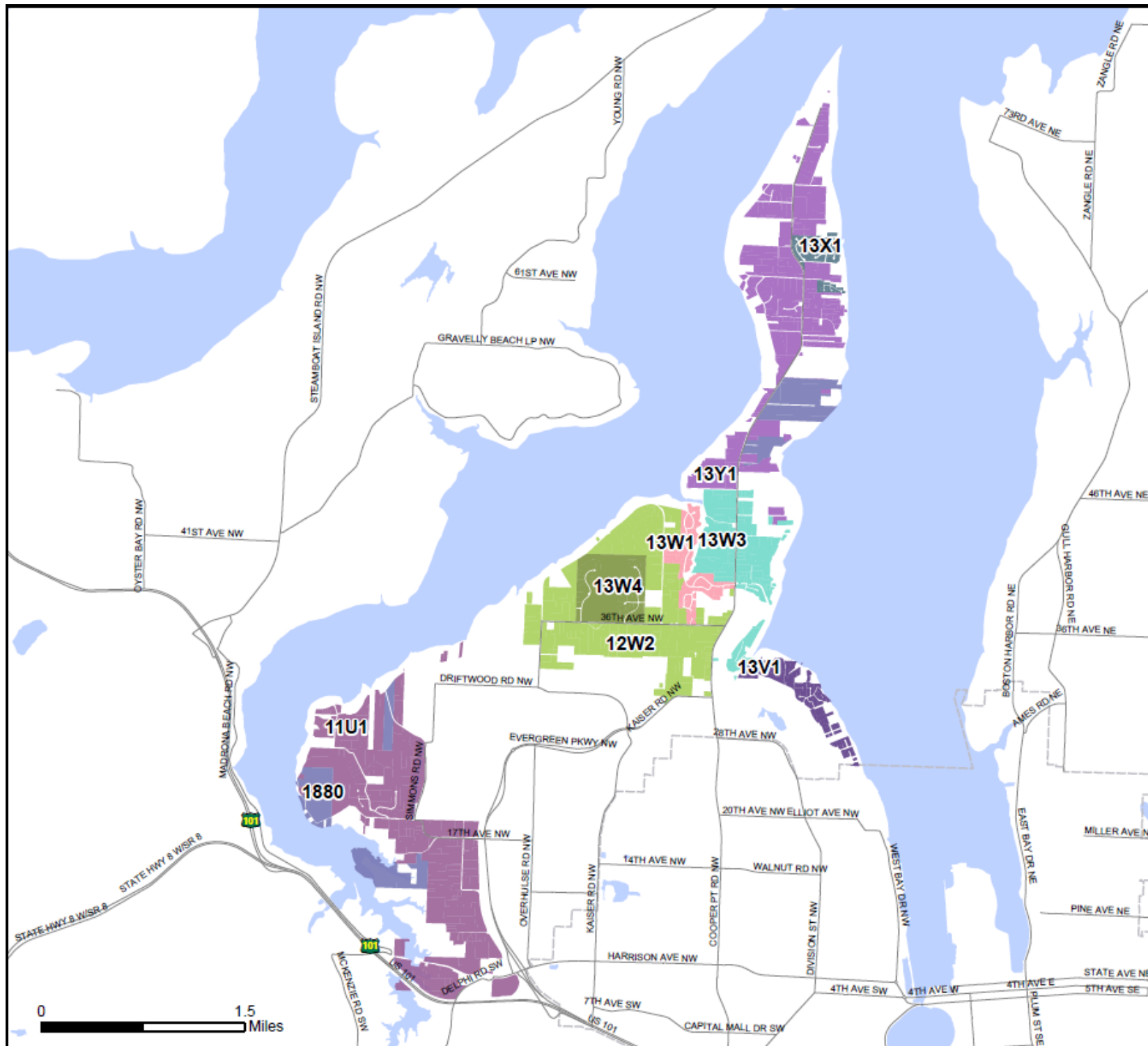


# THURSTON COUNTY

## Residential Neighborhoods Region 02

### Neighborhood

- 11U1
- 12W2
- 13V1
- 13W1
- 13W3
- 13W4
- 13X1
- 13Y1
- 1880



Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government. However, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or currency of any information displayed on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, Thurston County disclaims all warranties, express or implied, including but not limited to, implied warranties of merchantability, data fitness for a particular purpose, and non-infringement of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

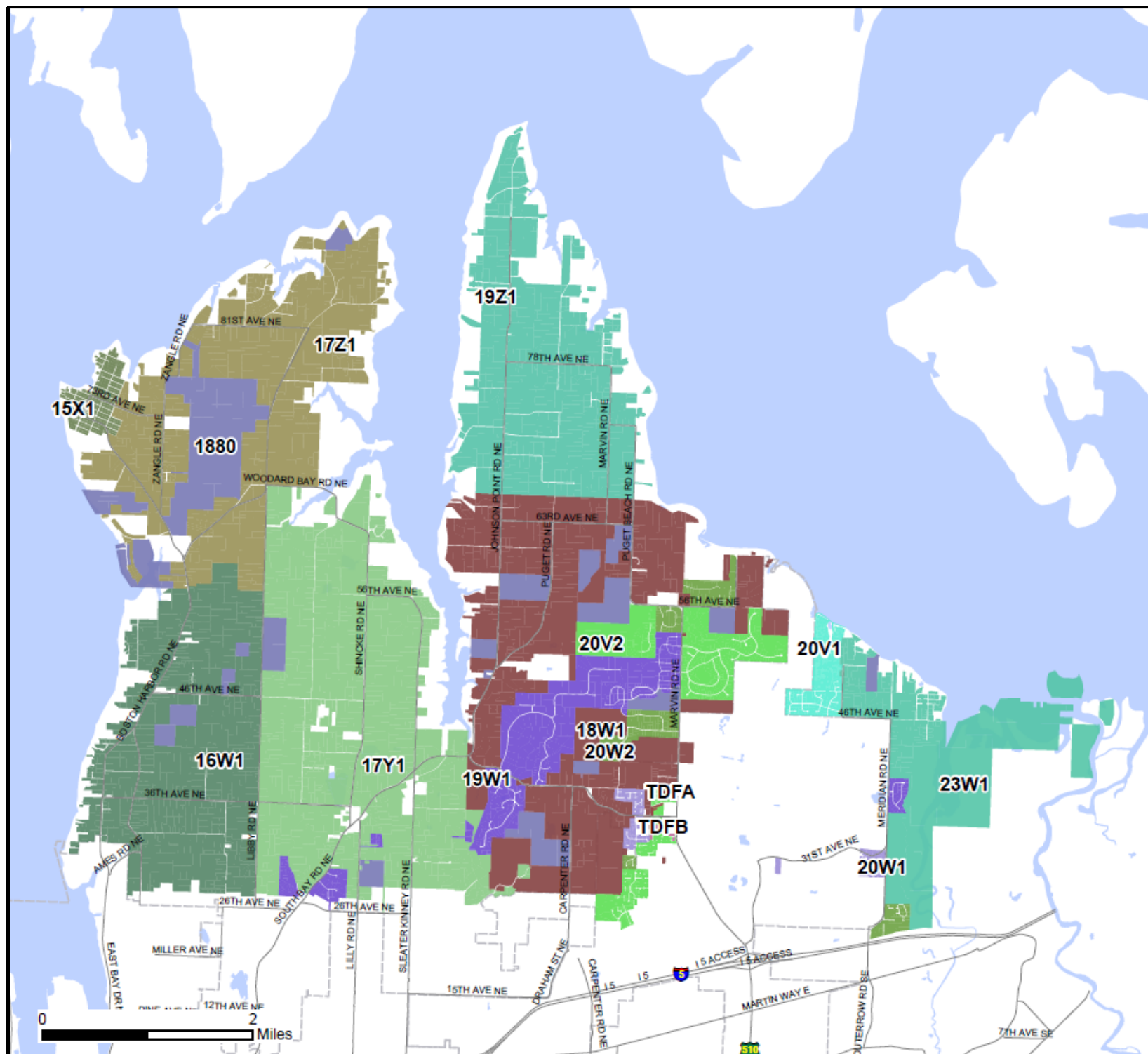
Map Created by Jim 8/5/2022



THURSTON COUNTY  
Residential  
Neighborhoods  
Region 03

Neighborhood

- 15X1
- 16W1
- 17Y1
- 17Z1
- 1880
- 18W1
- 19W1
- 19Z1
- 20V1
- 20V2
- 20W1
- 20W2
- 23W1
- TDFA
- TDFB



Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government; however, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or currency of any information included on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, Thurston County disclaims all warranties, express or implied, including, but not limited to, implied warranties of merchantability, data fitness for a particular purpose, and knowings of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

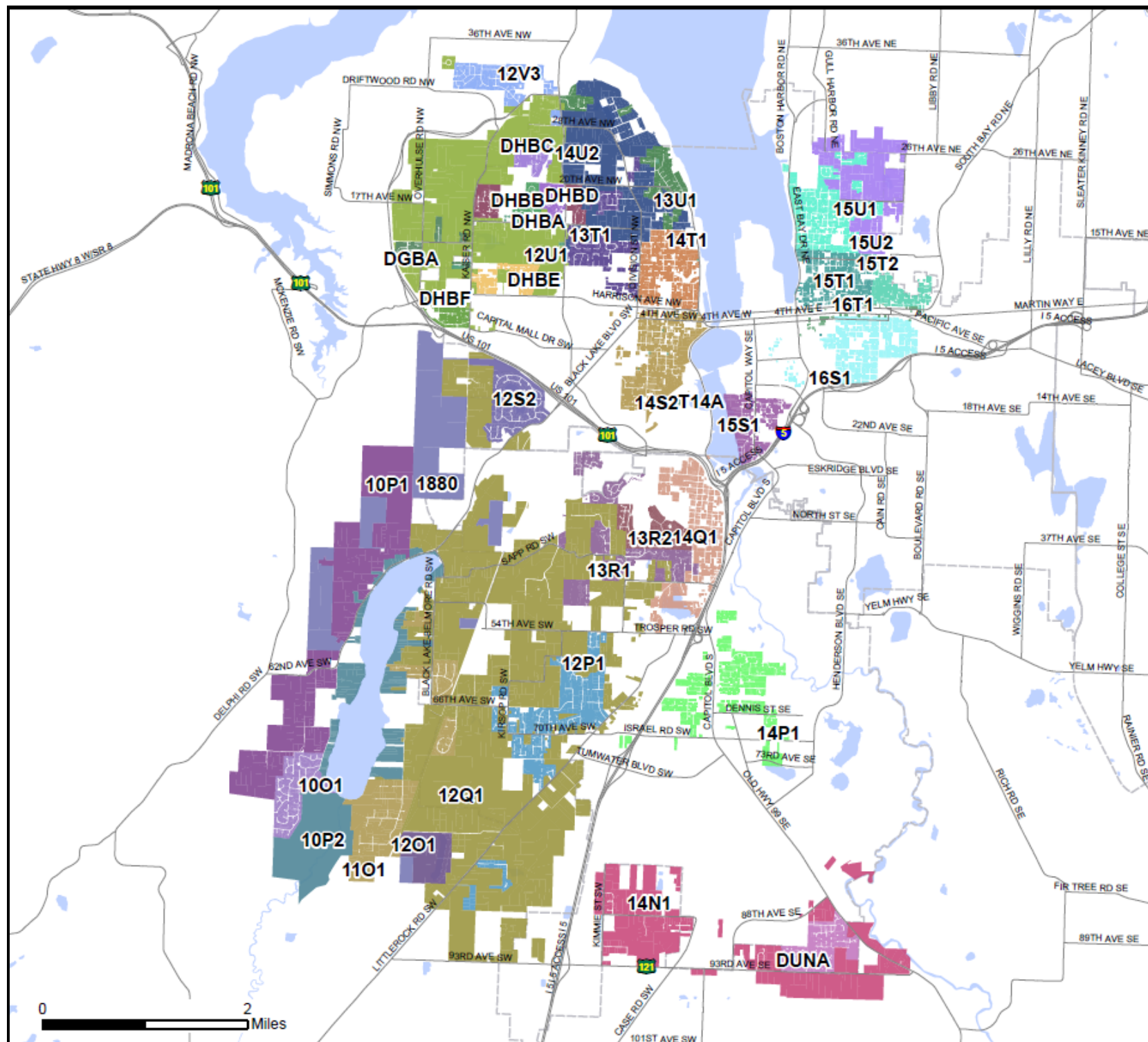
Map Created by Jim 8/5/2022



# THURSTON COUNTY

## Residential Neighborhoods Region 04

| Neighborhood |  | 14T1 |
|--------------|--|------|
| 1001         |  | 14U2 |
| 10P1         |  | 15S1 |
| 10P2         |  | 15T1 |
| 11O1         |  | 15T2 |
| 12O1         |  | 15U1 |
| 12P1         |  | 15U2 |
| 12Q1         |  | 16S1 |
| 12S2         |  | 16T1 |
| 12U1         |  | 1880 |
| 12V3         |  | DGBA |
| 13R1         |  | DHBA |
| 13R2         |  | DHBB |
| 13T1         |  | DHBC |
| 13U1         |  | DHBD |
| 14N1         |  | DHBE |
| 14P1         |  | DHBF |
| 14Q1         |  | DUNA |
| 14S2         |  | T14A |



Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government. However, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or currency of any information displayed on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, the County and all related personnel shall not be held liable for any damage or injury caused by the use of this map. The County disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability, data fitness for a particular purpose, and non-infringement of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be held liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, this map. Thurston County disclaims.

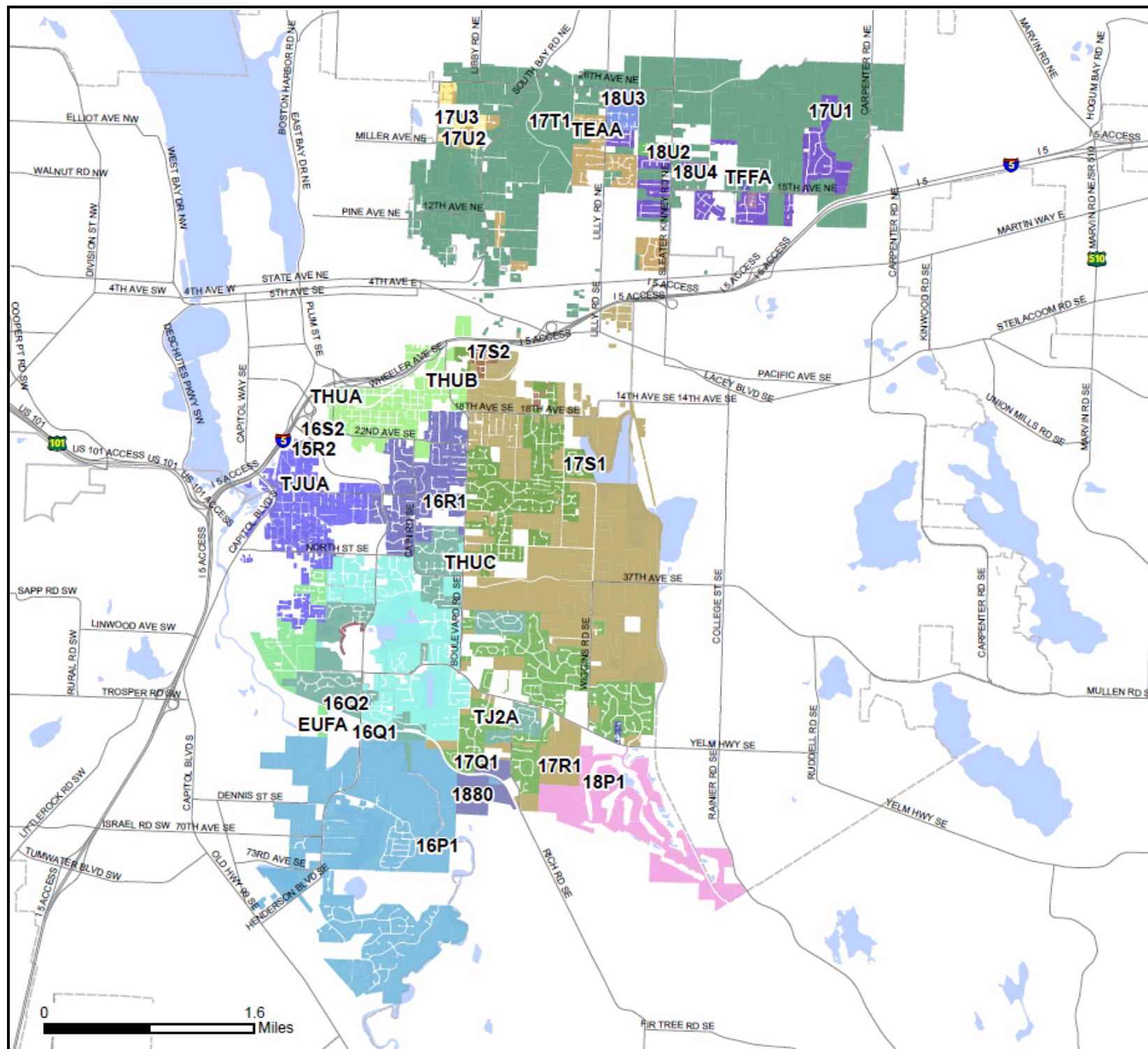
Map Created by Jim 8/5/2022



# THURSTON COUNTY

## Residential Neighborhoods Region 05

| Neighborhood | 17U3 |
|--------------|------|
| 15R2         | 1880 |
| 16P1         | 18P1 |
| 16Q1         | 18U2 |
| 16Q2         | 18U3 |
| 16R1         | 18U4 |
| 16S2         | EUFA |
| 17Q1         | TEAA |
| 17R1         | TFFA |
| 17S1         | THUA |
| 17S2         | THUB |
| 17T1         | THUC |
| 17U1         | THUC |
| 17U2         | TJ2A |
|              | TJUA |



Thurston County makes every effort to ensure that this map is a true and accurate representation of the map of County government. However, the County and all third parties make no warranty, expressed or implied, regarding the accuracy, completeness or timeliness of any information displayed on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, Thurston County disclaims all warranties, express or implied, including, but not limited to, implied warranties of merchantability, fitness for a particular purpose, and non-infringement of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

Map Created by jn 4/5/2022





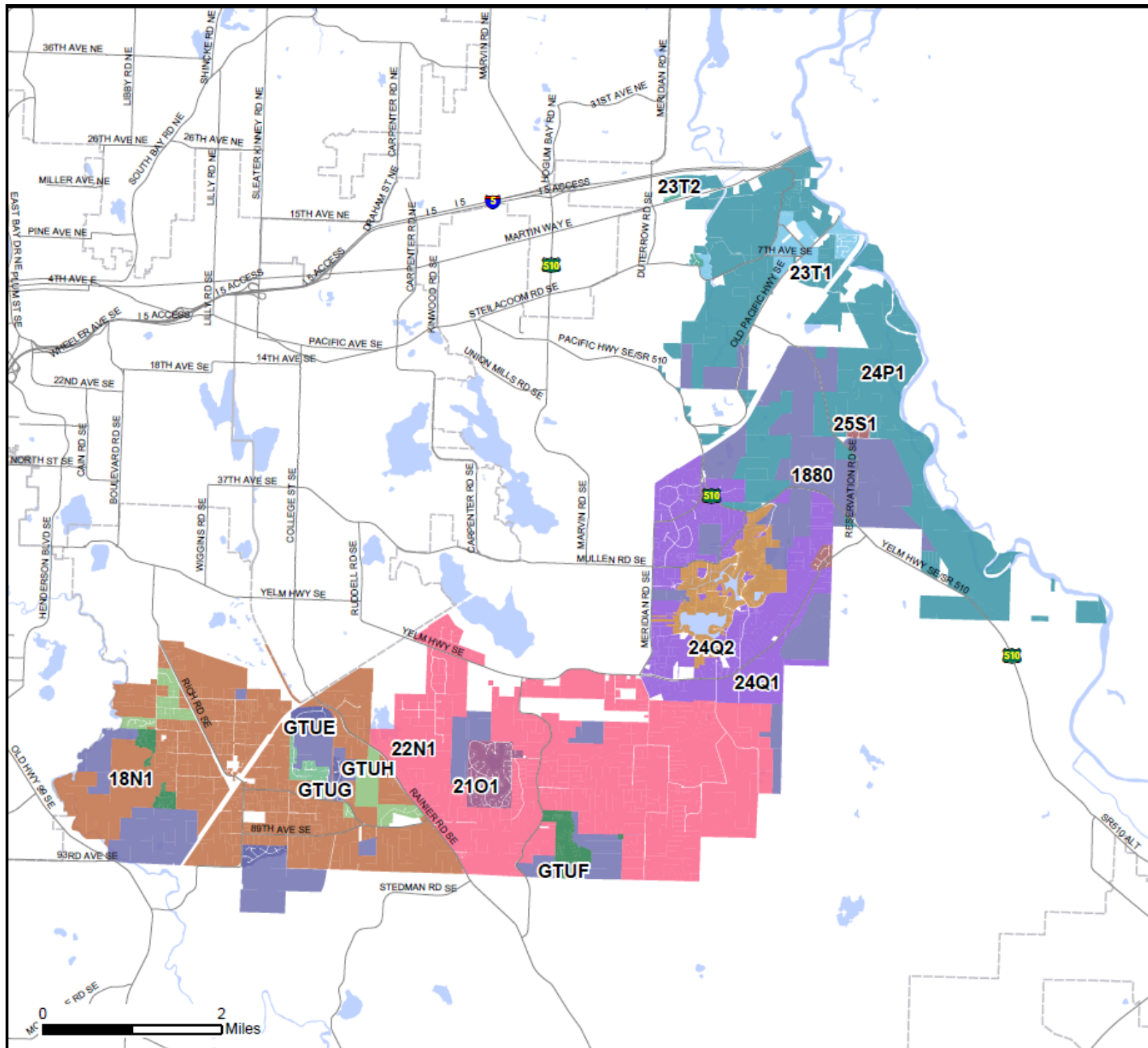
# THURSTON COUNTY

## Residential Neighborhoods

### Region 07

#### Neighborhood

- 1880
- 18N1
- 21O1
- 22N1
- 23T1
- 23T2
- 24P1
- 25S1
- 1880
- 24Q1
- 24Q2
- 25S1
- GTUE
- GTUF
- GTUG
- GTUH



Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government. However, the County does not warrant, represent or guarantee the accuracy, completeness or timeliness of any information contained on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, the County disclaims all warranties, express or implied, including but not limited to, implied warranties of merchantability, fitness for a particular purpose, and noninfringement of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

Map Created by Jim 8/5/2022



# THURSTON COUNTY

## Residential Neighborhoods Region 08

### Neighborhood

- 06N1
- 08H1
- 08L1
- 08N1
- 09S1
- 1880
- HTW1
- HTW2
- HTW3
- HTW4

0 3 Miles

Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government; however, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or timeliness of any information contained on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, Thurston County disclaims all warranties, express or implied, including, but not limited to, implied warranties of merchantability, fitness for a particular purpose, and noninfringement of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

Map Created by Jim 8/5/2022

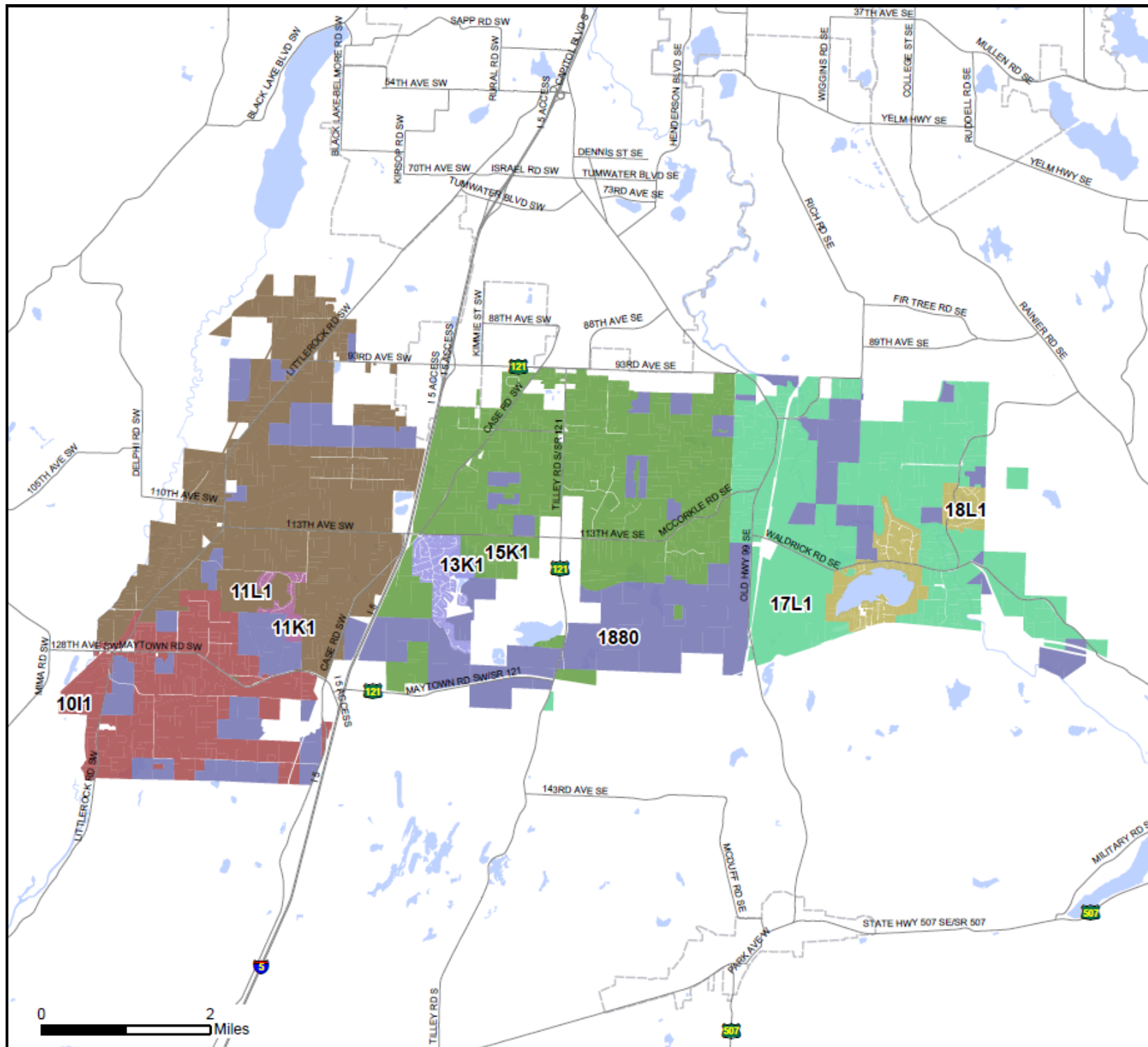


# THURSTON COUNTY

## Residential Neighborhoods Region 09

### Neighborhood

- 10I1
- 11K1
- 11L1
- 13K1
- 15K1
- 17L1
- 1880
- 18L1



Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government. However, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or propriety of any information contained on this map. For those the County accepts liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, Thurston County disclaims all warranties, express or implied, including, but not limited to, implied warranties of merchantability, data fitness for a particular purpose, and noninfringement of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

Map Created by Jim 8/5/2022

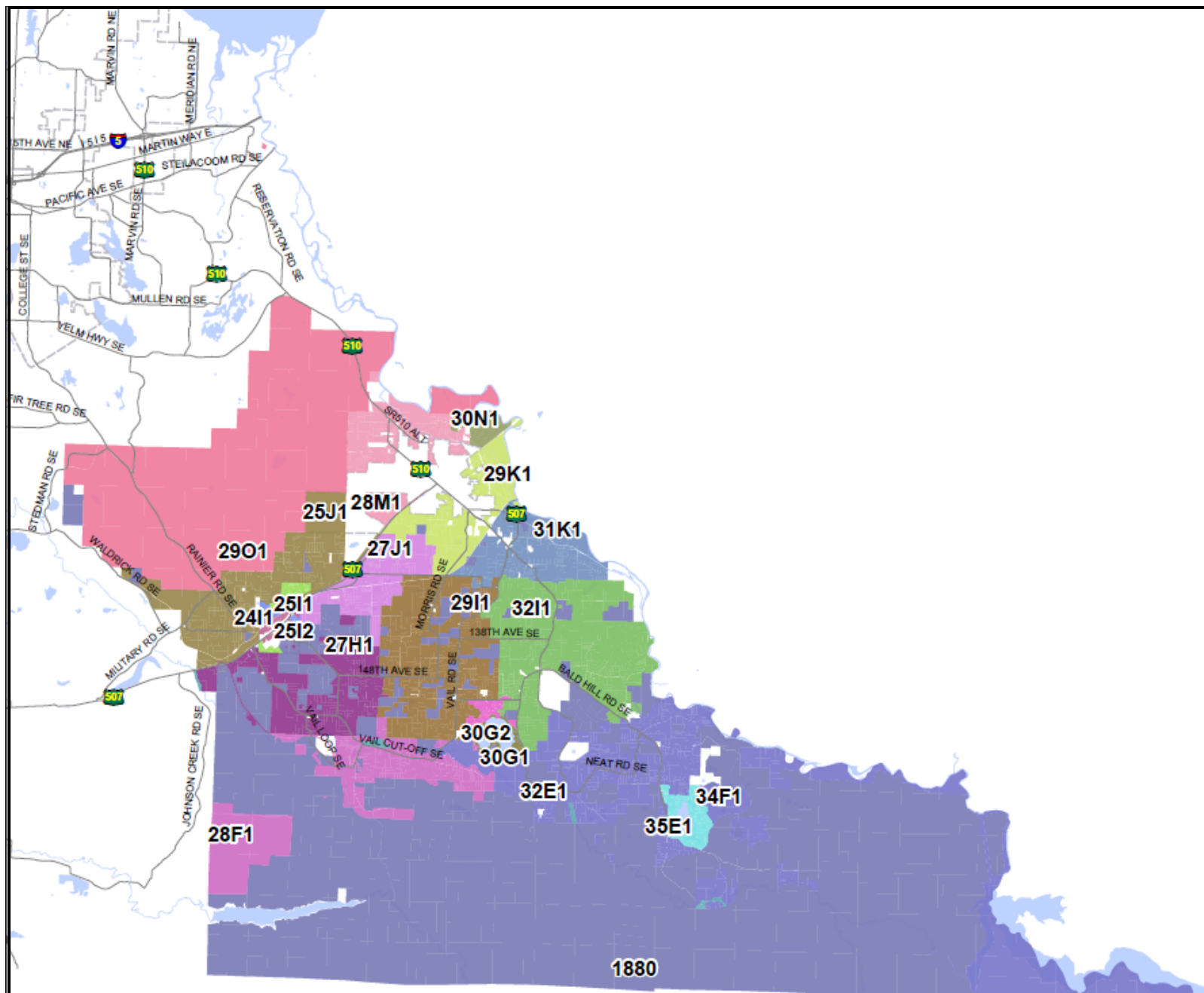


# THURSTON COUNTY

## Residential Neighborhoods Region 10

### Neighborhood

- 1880
- 2411
- 2511
- 2512
- 25J1
- 27H1
- 27J1
- 28F1
- 28M1
- 2911
- 29K1
- 29O1
- 30G1
- 30G2
- 30N1
- 31K1
- 32E1
- 3211
- 34F1
- 35E1



0 5 Miles

Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government. However, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or currency of any information contained on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, the County and its employees, agents, contractors, consultants, or other personnel, shall not be liable for any damages, including but not limited to, special, consequential or punitive damages, arising from the use of this map.

Under no circumstances, including but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, this map. Thurston County materials.

Map Created by Jim 8/5/2022

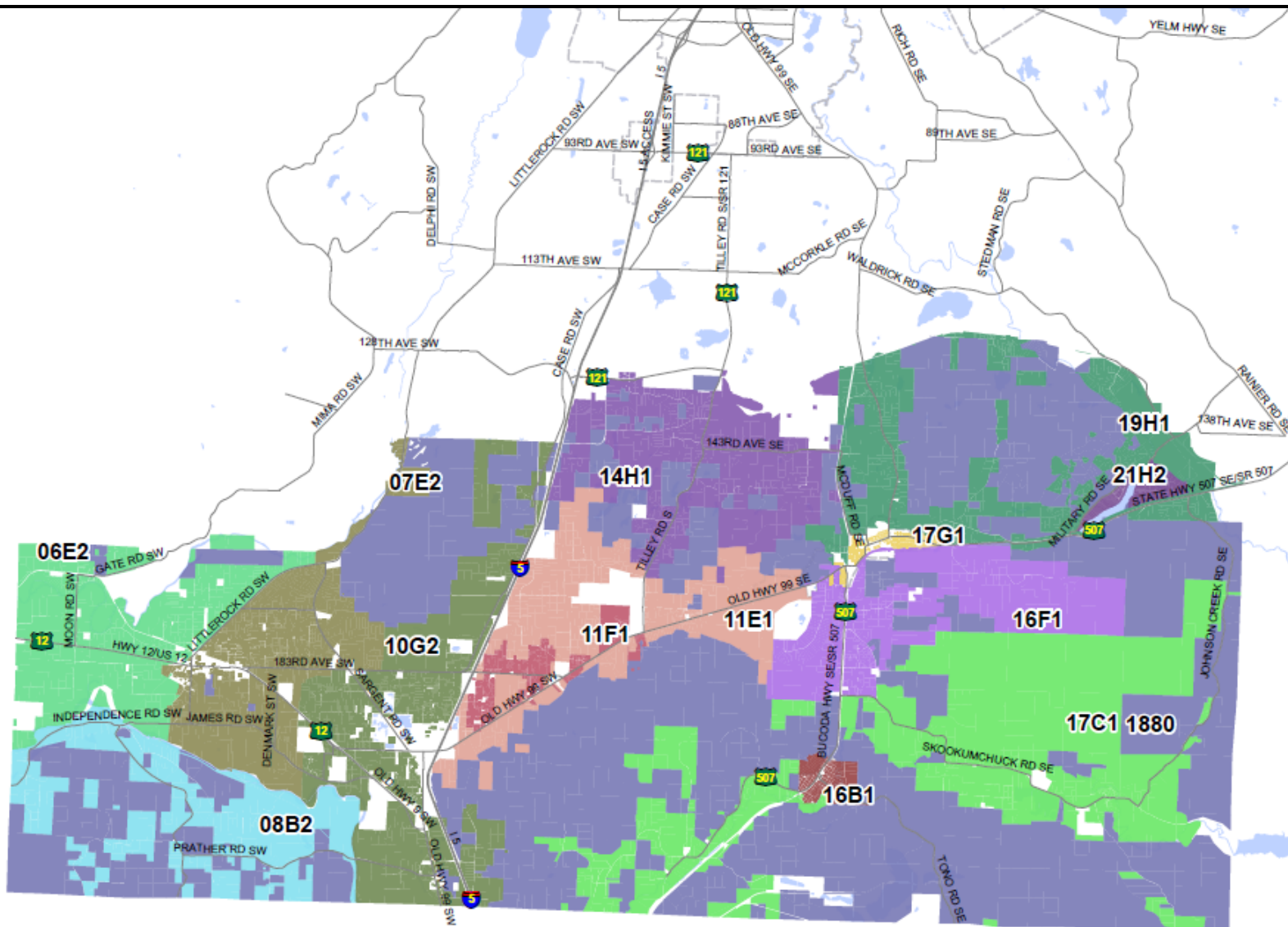


# THURSTON COUNTY

## Residential Neighborhoods Region 11

### Neighborhood

- 06E2
- 07E2
- 08B2
- 10G2
- 11E1
- 11F1
- 14H1
- 16B1
- 16F1
- 17C1
- 17G1
- 1880
- 19H1
- 21H2



0 4 Miles

Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government. However, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or consistency of any information displayed on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

It is the intent of the County to provide a map for informational purposes only. It is not intended to be used for any other purpose, including, but not limited to, navigation, and no warranty is made for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, this map. Thurston County makes no warranty, expressed or implied, regarding the accuracy, completeness or consistency of any information displayed on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

Map Created by Jim 8/5/2022



THURSTON COUNTY  
Residential  
Neighborhoods  
Region 14

Neighborhood

- 28N1
- 29M1
- 29M2
- 29N1
- 29N2
- LXQA
- LXQB
- LXWA
- LXWB
- LXWC
- LXWD
- LXWE

Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government. However, the County and its elected personnel make no warranty, expressed or implied, regarding the accuracy, completeness or convenience of any information included on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, Thurston County disclaims all warranties, express or implied, including but not limited to, implied warranties of merchantability, title fitness for a particular purpose, and non-infringement of proprietary rights.

Under no circumstances, including but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, this map.

Map Created by Jim 8/5/2022



0 0.7 Miles

YELM HWY SE/SR 510

SR10 ALY

LXWA  
LXWD

LXWC

LXWE

LXWB

YELM AVE SE/SR 510

510

LXQB

LXQA

29M1

FIRST ST SE/SR 507

29N1

29N2

29M2

YELM AVE SE/SR 507

STATE HWY 507 SE/SR 507

BALD HILL RD SE

MORRIS RD SE

STATE HWY 507 SE/SR 507

28N1

# THURSTON COUNTY

## Residential Neighborhoods Region 15

### Neighborhood

- NDAA
- NDAB
- NDFA
- NDFB
- NDFC
- NDUA
- NDWA
- NDWB
- NDWC
- NDXA
- TFZA

Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government; however, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or appropriateness of any information included on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

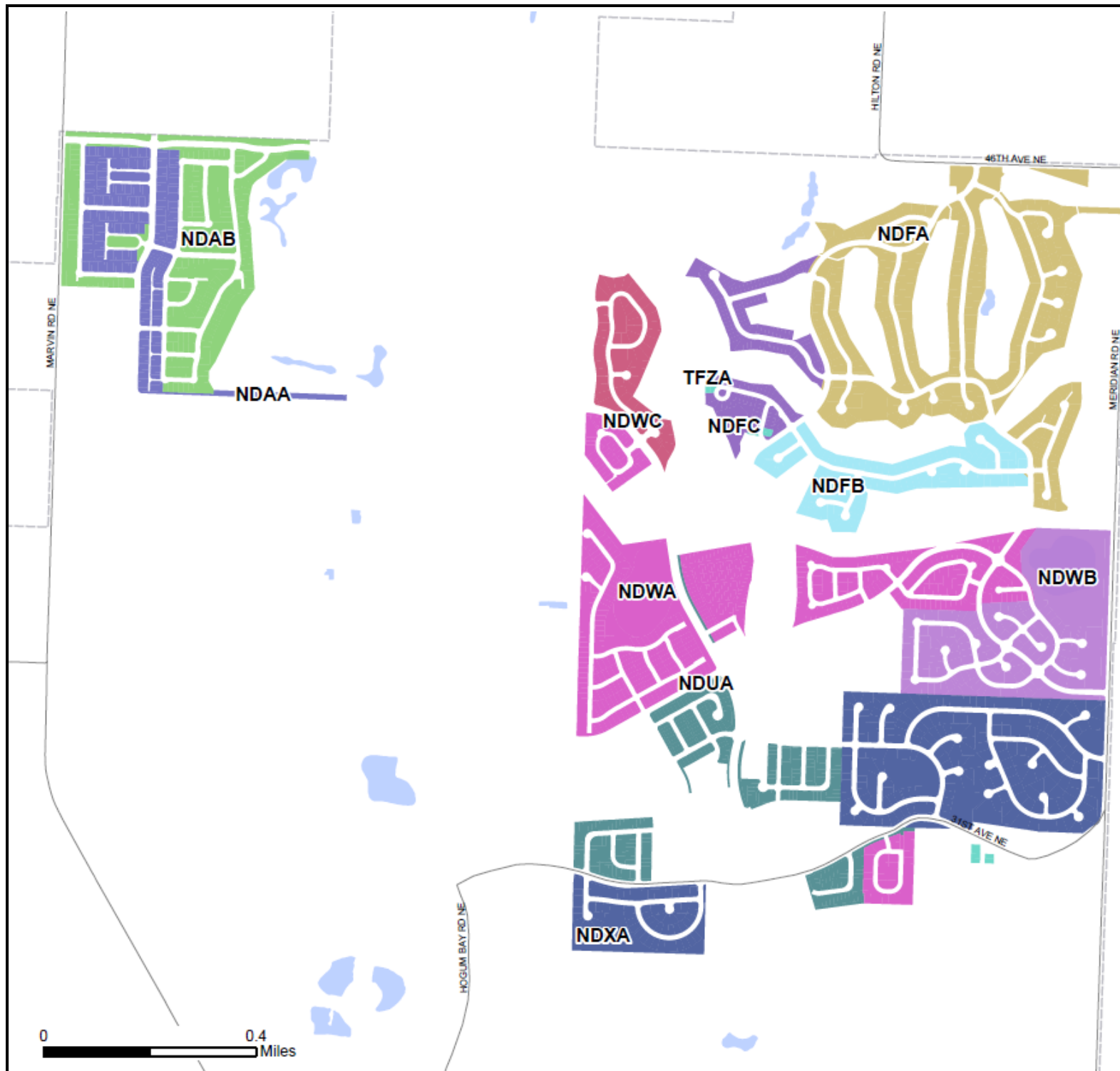
To the fullest extent permitted by law, Thurston County disclaims all warranties, express or implied, including but not limited to, implied warranties of merchantability, data fitness for a particular purpose, and non-infringement of proprietary rights.

Under no circumstances, including but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

Map Created by Jim 8/5/2022



0 0.4 Miles

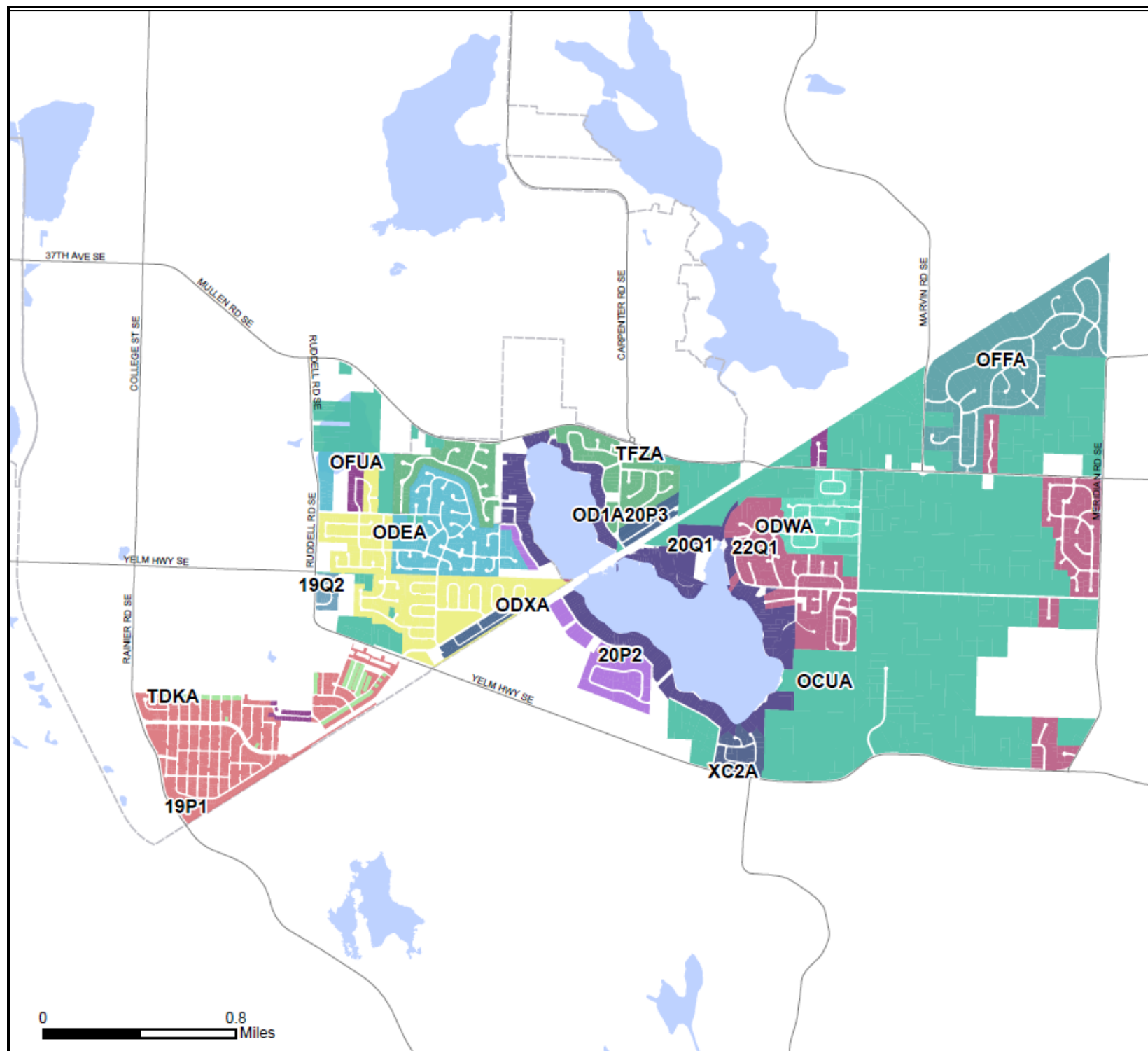


# THURSTON COUNTY

## Residential Neighborhoods Region 16

### Neighborhood

- 19P1
- 19Q2
- 20P2
- 20P3
- 20Q1
- 22Q1
- OCUA
- OD1A
- ODEA
- ODWA
- ODXA
- OFFA
- OFUA
- TDKA
- TFZA
- XC2A



Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government. However, the County and its related parties make no warranty, expressed or implied, regarding the accuracy, completeness or consistency of any information displayed on this map. Nor does the County accept liability for any damages or injury caused by the use of this map.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, this map.

Map Created by Jim 8/5/2022



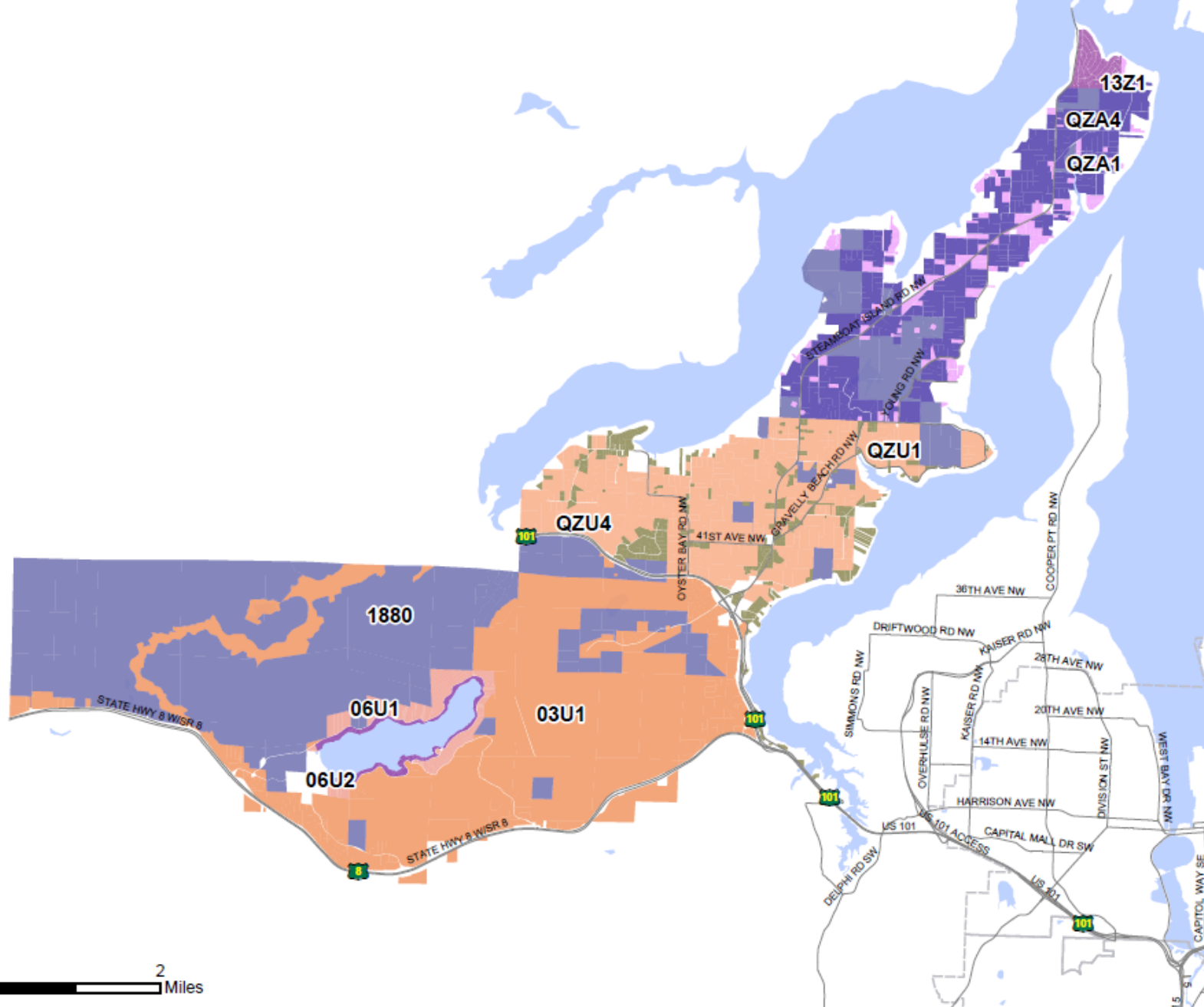
0 0.8 Miles

# THURSTON COUNTY

## Residential Neighborhoods Region 17

### Neighborhood

- 03U1
- 06U1
- 06U2
- 13Z1
- 1880
- QZA1
- QZA4
- QZU1
- QZU4



Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government. However, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or appropriateness of any information displayed on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permitted by law, Thurston County disclaims all warranties, express or implied, including but not limited to, implied warranties of merchantability, data fitness for a particular purpose, and non-infringement of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

Map Created by Jim 8/5/2022



# THURSTON COUNTY

## Condominium Neighborhoods Region 13

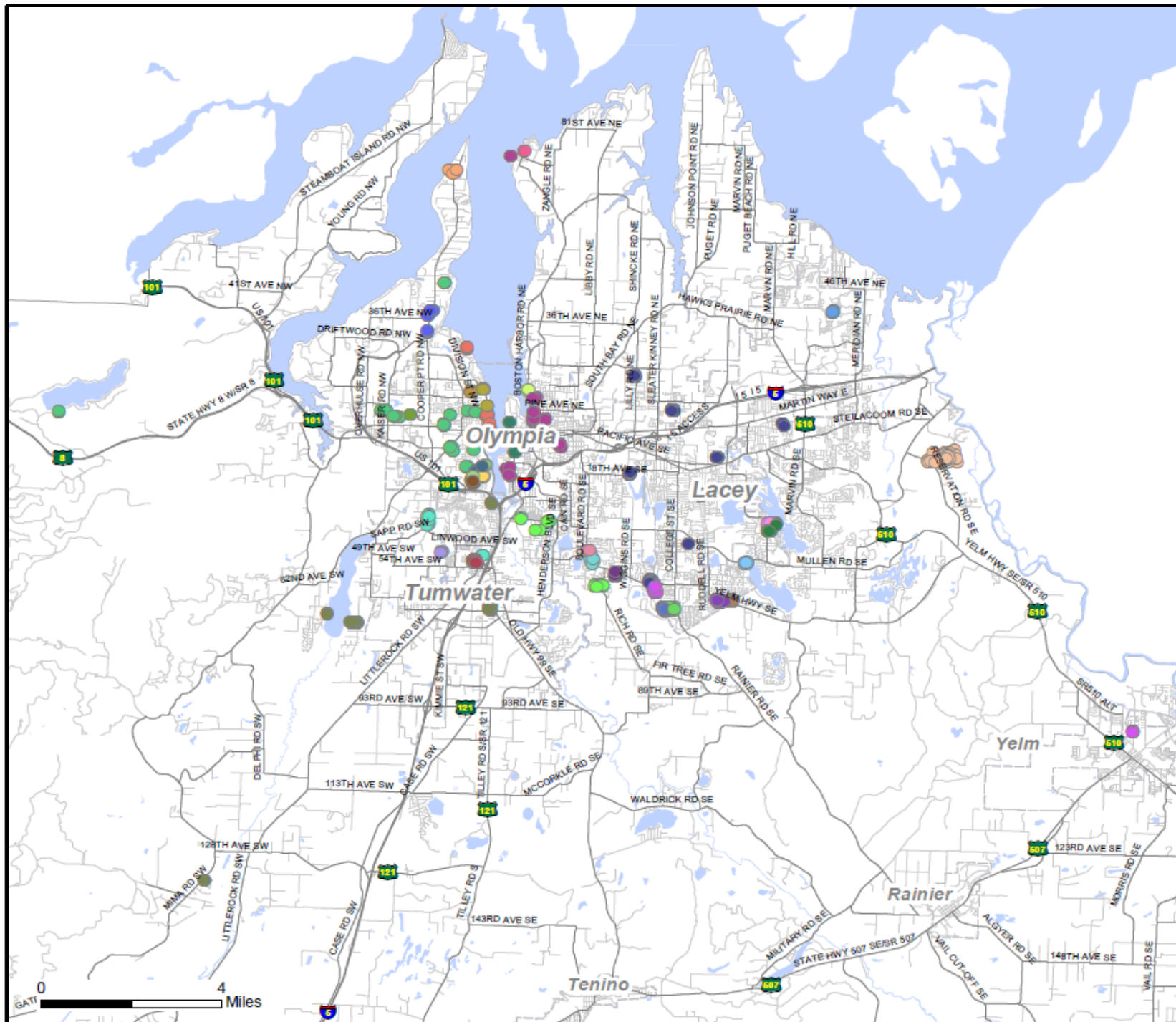
- |        |        |
|--------|--------|
| ● CN01 | ● CN19 |
| ● CN02 | ● CN20 |
| ● CN03 | ● CN21 |
| ● CN04 | ● CN22 |
| ● CN05 | ● CN23 |
| ● CN06 | ● CN24 |
| ● CN07 | ● CN25 |
| ● CN08 | ● CN26 |
| ● CN09 | ● CN27 |
| ● CN10 | ● CN28 |
| ● CN11 | ● CN29 |
| ● CN12 | ● CN30 |
| ● CN13 | ● CN31 |
| ● CN14 | ● CN32 |
| ● CN15 | ● CN33 |
| ● CN16 | ● CN34 |
| ● CN17 | ● CN35 |
| ● CN18 |        |

Thurston County makes every effort to ensure that this map is a true and accurate representation of the most current information. However, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or currency of any information displayed on this map. Nor does the County accept liability for any damages or injury caused by the use of this map.

To the fullest extent permitted by law, Thurston County disclaims all warranties, express or implied, including, but not limited to, implied warranties of merchantability, fitness for a particular purpose, and noninfringement of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

Map Created by jrm 5/25/2019



# Mobile Home Neighborhoods

- MHAV
- MHFR
- MHPR
- MRV
- MRFR
- MRGD
- MUAV
- MUEX
- MUFR
- MUGD



0 7 Miles

Thurston County makes every effort to ensure that this map is a true and accurate representation of the work of County government. However, the County and all related personnel make no warranty, expressed or implied, regarding the accuracy, completeness or consistency of any information displayed on this map. Nor does the County accept liability for any damage or injury caused by the use of this map.

To the fullest extent permissible pursuant to applicable law, Thurston County disclaims all warranties, express or implied, including, but not limited to, implied warranties of merchantability, title, fitness for a particular purpose, and non-infringement of proprietary rights.

Under no circumstances, including, but not limited to, negligence, shall Thurston County be liable for any direct, indirect, incidental, special or consequential damages that result from the use of, or the inability to use, Thurston County materials.

Map Created by jm 6/26/2019

