



DATE: January 29, 2020
TO: Clark County Buildable Lands Program Update Project Management Team
FROM: Ryan Knapp, Becky Hewitt, Margaret Raimann, and Bob Parker
SUBJECT: Buildable Lands Inventory Assumption Research for Pierce, Snohomish, and Thurston Counties

Introduction

This memorandum summarizes the approach that three comparator buildable lands counties in Washington State (Pierce, Snohomish, and Thurston) are taking on the issues identified in the Clark County Buildable Lands Program Update:

1. Land Classifications (e.g. vacant, underutilized, built, etc.)
2. Accounting for Redevelopment
3. Modeling Mixed-Use Areas
4. Infrastructure Gaps
5. Market Factor
6. Capacity on Rural Lands
7. Infrastructure Set-Asides
8. Population Capacity (i.e. residential density)
9. Employment Density
10. Data Collection Methods (e.g. building permits vs. assessor data)

Pierce County

Source document: Pierce County Planning and Land Services. *Pierce County Buildable Lands Report*. June 30, 2014.¹

Issue 1: Land Classifications

Pierce County's capacity analyses for housing and employment rely on their inventory of vacant and underutilized land. There are three categories: vacant, vacant (single-unit) and underutilized. All included parcels in these categories must satisfy two baseline criteria, which are: they must meet the minimum parcel size of 3,000 sq. ft (smaller parcels are excluded) and they must not be adjacent to marine shorelines.² The classifications are based first on the Assessor-Treasurer's (ATR) land use descriptions, with over-rides, refinements,

¹ <https://www.co.pierce.wa.us/923/Buildable-Lands>

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and additional factors considered as described below. The definitions of each category are as follows:

- **Vacant.** Vacant is based primarily on a set of ATR land use codes that identify the land as vacant.³ Stage 1A agriculture land is included as “vacant or redevelopable ... urban agriculture land is considered exclusively vacant.”⁴ For residential land, this group is further categorized based on ability to subdivide:
 - Vacant “represents those parcels that are assumed to be further subdividable and may accommodate more than one housing unit. These parcels are included in the full capacity calculations.”⁵
 - Vacant (single-unit) “represents an individual building lot that is assumed to accommodate only one housing unit. These parcels are separated from the ‘acreage’ capacity calculations and added in as one unit per parcel to the final ‘acreage’ capacity.”⁶
- **Underutilized.** Underutilized lands “include parcels that have an existing structure(s) or land use activity and have the ability to accommodate additional employment (jobs) or housing units. Not all parcels that can theoretically accommodate additional growth are categorized as ‘underutilized.’ A specific ratio between the existing jobs or housing to the calculated assumed future build-out must be met. The ratio is different between housing units and jobs.”⁷
- **Underutilized – Existing Residential Use.** For an existing residential use parcel, it may be classified as “underutilized” if one of the following criteria are met:
 1. “Residential or mixed-use zoning classification:
 - a. The ATR use code is single family/mobile home, multi-family, or mobile home park.
 - i. For existing single-family housing units, the improvement value is less than \$500,000
 - ii. For multi-family and mobile home parks, the improvement value is less than \$1,000,000
 - b. The ratio of assumed housing build-out to existing housing units is greater than or equal to 2.5.⁸

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⁸ For existing residential use parcels that are underutilized, the existing to build-out housing density ratio is calculated via the following steps:

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2. Commercial/industrial zoning classifications that prohibits residential units:
 - a. An existing single-family housing unit, excluding parcels that are within platted subdivisions.
 3. Commercial or mixed-use zoning classification:
 - a. An existing single-family housing unit which has an ATR land value greater than its improvement value.”⁹
- **Underutilized – Existing Commercial/Industrial Use.** For an existing commercial or industrial parcel, it may be deemed “underutilized” if it meets the following criteria:
 1. “Parcels within commercial, industrial, or mixed-use zoning classifications:
 - a. The ATR use code is non-residential.
 - b. The parcel has an improvement value less than \$1,000,000.
 - c. The ratio of assumed future job build-out to estimated existing jobs is greater than or equal to 5.”^{10,11}
 - **Undevelopable/Built Out.** “Parcels with existing uses that are categorized as ‘undevelopable’ or ‘built out’ are removed from the inventory outright. It is assumed that certain uses, such as utilities, cemeteries, drain fields, religious services, and

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1. “Determine the existing net housing units per acre for each parcel using ATS data for existing buildings/units.
 2. Calculated the assumed housing units per acre using the established density assumptions (... for each jurisdiction).
 3. Divide the assumed build-out density by the existing density (this is the existing density to build-out ratio).
 4. If the existing housing unit to build-out ratio is 2.5 or greater, the property is categorized as ‘underutilized.’ If the build-out ratio is less than 2.5, the property is assumed not to have additional housing capacity as is identified as ‘built out.’”

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¹¹ For existing commercial/industrial use parcels that are underutilized, the existing to build-out employment density ratio is calculated via the following steps:

1. “Determine the existing employment density for each parcel by dividing the square footage of the existing building(s) by the industry standard square footage assumption to estimate the existing number of employees using ATR data for existing building square footage.
2. Calculated the assumed future employment build-out for the parcel by multiplying the gross acreage of the parcel by the assumed employment density.
3. The assumed future employment build-out figure is divided by the estimated existing number of jobs (this is the existing employment to build-out ratio).
4. If the existing employment to assumed build-out ratio is 5 or greater, the property is categorized as ‘underutilized.’ If the build-out ratio is less than 5, the property is assumed not to have additional employment capacity and is counted as ‘built out’ in the inventory.”

other protected uses will not develop further or contribute to housing or employment capacity.”¹²

- **Pipeline Projects and Known Development.** For pipeline and major projects, “projects that are currently in the ‘pipeline’ may be counted separately from the vacant and underutilized land. Pipeline projects include those projects that have an active development application. For parcels that have pipeline projects, the number of units applied for are counted toward the capacity. ‘Major Projects’ are large scale planned development projects.”¹³ For known development, “the capacity targets for the analysis take into account the 20-year period of 2010 to 2030. Recognizing that parcels were developed between 2010 and 2014, the analysis categorizes the parcels associated with these projects as pipeline.”¹⁴

Issue 2: Accounting for Redevelopment

Pierce County assumes redevelopment occurs on underutilized lands (see definitions above). Existing housing units and jobs that are located on underutilized parcels are assumed to be displaced and subtracted from the capacity so that only the net additional units and jobs are counted.

For displaced employees, “the locally observed density of 500 square feet per employee for commercial and 900 square feet per employee for industrial/warehousing is applied to an existing building’s square footage. Given that all gross acreage is not considered developable, the total number of displaced employees per zone is adjusted down to reflect the same percent of deductions that was applied to the gross acreage to derive the net developable acreage.”¹⁵ “Residential net units equal the future residential units minus the 2010 inventoried units on the parcel.”¹⁶

Issue 3: Modeling Mixed-Use Areas

To account for the mixture in both the residential and commercial/industrial capacity analyses, a percentage of a zoning classification’s acreage is split between the housing and employment capacity calculations. The split varies by jurisdiction and by zone. In instances where vertical mixed use is anticipated, 100% of the land area is assumed to be both residential and commercial. In other instances, it is assumed a mixed-use zone will produce 100% commercial on the first floor, but only a percentage of that land will produce residential on the second and above floors.

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“For mixed-used commercial, 35% of the acreage is applied to housing and 65% is applied to commercial, which is then multiplied by the observed unit density and job density”¹⁷ for a given jurisdiction.

Issue 4: Infrastructure Gaps and Reliance on Urban Holding Overlay

NA.

Issue 5: Market Factor

A specific percent of net acreage is deducted from the buildable lands inventory to account for market availability and other factors. A higher percentage is deducted for properties that are categorized as underutilized because underutilized parcels correlate with a higher uncertainty for redevelopment of properties with existing improvements. The assumptions are set by each jurisdiction. Some use a single factor while others vary by residential vs. commercial, by zone, and/or land classification. The range of factors applied is summarized below for vacant and underutilized land:

- Vacant land: 0-30%
- Underutilized land: 0-70%

The methodology notes that comprehensive plan policies limit the “safety factor” or “market factor” to no more than 25% for urban Pierce County. However, this limitation does not appear to apply to the assumptions of land unavailable for development, given the ranges listed above. The City of Tacoma used a 25% market factor rate within Centers, without applying other deductions to land available for development, because their analysis assumes that land within designated Centers (Mixed Use Centers and Manufacturing/Industrial Centers) is more likely to develop and result in higher densities than land outside of the Centers.

Issue 6: Capacity on Rural Lands

The report includes a calculation of the urban/rural development split by year,¹⁸ and notes that rural densities are applied to gross land area based on the zoning.¹⁹ However, there does not appear to be a calculation of capacity on rural lands.

Issue 7: Infrastructure Set-Asides

The acreage associated with anticipated/planned public capital facilities is deducted from the total gross residential and commercial/industrial acreage. If the documented needs

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¹⁸ Page 243

¹⁹ Page 135

specify a parcel(s), those parcels are considered “undevelopable” or “built out” in the inventory and are subsequently excluded from the capacity calculations.

Plat deductions vary by jurisdiction. Some calculate units using a project’s gross acreage, while others use a net acreage. These plat deductions may include land reserved for roads, critical areas, parks and recreations, or storm water facilities. For example, the City of Bonney Lake has a 15% plat deduction for roads, a 5% deduction for storm water (in zones R-1, R-2, and R-3), and critical area deductions for steep slopes, wetlands (100 ft. wetland buffers), and areas identified by the Critical Area Enhancement Project. The City of Auburn has a 7% plat deduction for roads, a 2% deduction for recreation, no deduction for storm water, and deductions for critical areas are contingent upon GIS-identified wetlands and slopes.

In addition, a jurisdiction-specific percentage of the net residential acreage is deducted from the available buildable lands to account for non-residential developments allowed by zoning within residential districts, such as churches and day-care centers. This ranges from 0-16%, with multiple jurisdictions assuming 3-5%. (This land is not added to the commercial capacity calculations.)

Issue 8: Population Capacity

Residential density differs by jurisdiction and zoning district. Jurisdictions establish their density assumptions upon past trends and recent regulatory modifications. “For residential classifications future units equal the actual housing density observed within the zoning code for the last 10 years multiplied by the net acreage.”²⁰

Issue 9: Employment Density

Buildable acreage is converted to employee capacity via the application of assumed gross employees per acre. For Pierce County’s 2014 Buildable Lands Report, partners in the Traffic Division of Pierce County Public Works and Utilities Department provided a survey review of employment trends for the entire County. Their survey review found the following density assumptions: 19.37 employees per acre for commercial and services, and 8.25 for industrial warehousing and manufacturing. Table 11a of the 2014 Buildable Lands Report (page 225) shows that higher assumptions were used for Tacoma in many zones. The report does not provide an explanation of the source of the assumptions. Future jobs are equal to net acreage multiplied by the future job density assumptions from the survey review.

Issue 10: Data Collection Methods

Jurisdictions in Pierce County are required to submit three data sets on an annual basis: residential building permits, residential platting activity, and commercial building permits.

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- The residential building permit data set must include parcel number, plan designation, zoning district, parcel size, and site address, and it must calculate multi-family densities by zoning district; single-family permit reporting is optional.
 - The residential platting activity data set must include permitted units or lots, the area used to calculate the permitted number of units, and, if applicable to density calculations, the number of acres with environmental constraints, roads, and other land uses.
 - The commercial development data set must include the total building size and building use. Within the commercial data set, there must be calculations detailing the amount of land consumed by commercial and industrial activity and it must also track the quantity of non-residential uses permitted in residential zoning districts. If a jurisdiction does not submit complete information for an individual project, that project is not incorporated into the reported information.

Snohomish County

Source document: Snohomish County and Snohomish County Tomorrow. *Snohomish County 2012 Buildable Lands Report*. June 12, 2013.²¹

Issue 1: Land Classifications

Land classifications are defined as follows in Snohomish County:

- **Vacant.** “Vacant parcels are generally those where the Assessor’s building improvement value is less than \$2,000. Some exceptions include parks and cemeteries ..., paved parking lots in the downtown areas of Everett and Lynnwood often have assessed improvement over \$2,000 but are still considered vacant.”²²
- **Redevelopable.** This is described under Issue 2: Accounting for Redevelopment.
- **Partially-used.** “Partially-used parcels are those where the model assumes that the existing building(s) use only a portion of the site and that additional development on the parcel is possible without demolition.”²³ Criteria differ depending on land classification:
 - “For single-family residential zones, parcels normally must be at least twice the zoned lot size.
 - For multi-family zoned parcels, the building footprint must be less than 20% of the buildable parcel area. Further, the existing density must be less than the historic norm for the zone.
 - For commercial, industrial, and mixed-use zones, the floor area ratio is usually less than 25% and the building improvement to land value ratio is greater than 100%. For uses such as restaurants, auto dealerships and gas stations that require a substantial amount of parking, the floor area ratio is less than 10%. Some existing buildings are in good condition but have enough extra land to lower the ratio below 100% and are modeled as partially used.”²⁴

Issue 2: Accounting for Redevelopment

In Snohomish County, “redevelopable parcels are those non-vacant parcels which the buildable lands analysis considers are candidates for potential demolition of the existing building and replacement by something new at some time during the 20-year GMA plan horizon. Identification of buildings as redevelopable begins with the ratio of improvement-

²¹ <https://snohomishcountywa.gov/1352/Buildable-Lands>

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²⁴ Page 19

to-land value, the UGA in which the parcel is located, the zoning or plan designation, and the current use.

“For single family zoned or designated land, existing houses valued at less than \$100,000 and 75% of the land value are considered potentially redevelopable. If the parcel is too small to subdivide, then it is considered a replacement building, and no additional capacity is assigned to it. If the parcel is large enough to subdivide, and the improvement value of the house is over \$100,000, then it is considered partially-used ...

For multi-family, commercial, industrial, or mixed-use zoned or designated land, existing buildings valued at less than 100% of the land value are usually considered potentially redevelopable. Exceptions include condominiums and certain existing commercial uses. Gas stations are the most common commercial exception because they require a high visibility location, which means the land is expensive, while the condition of the building itself is of little importance to running the business. Similarly, many warehouse buildings are perfectly viable in a decrepit condition, and if the location is not attractive to other uses, it is unlikely to redevelop.”²⁵

Additionally, “for redevelopable parcels, any existing housing units on parcels that are assumed to be redeveloped (i.e., assumed to be demolished) are subtracted from the estimate of additional housing unit capacity.” Existing employment estimated on redevelopable parcels “(based on the square footage of existing commercial and industrial structures on the parcel, categorized into one of seven employment categories, that are assumed to be redeveloped, i.e., assumed to be demolished) was subtracted from the estimate of additional employment capacity using the same average square feet per employee assumptions for the current use classified by employment category.”²⁶

Issue 3: Modeling Mixed-Use Areas

“To the extent that commercial zones have been used for new residential development (almost always multi-family development), these observed residential densities have been applied to commercial zones to predict future residential development in lieu of commercial development in commercial zones.”²⁷

Issue 4: Infrastructure Gaps and Reliance on Urban Holding Overlay

“In some very limited areas, the presumed lack of sewer availability during the entire GMA plan horizon resulted in the preclusion of further subdivision assumptions in some unincorporated UGA locations. This was due to the county’s requirement to connect to sewers for subdivision approval within unincorporated UGAs. In these areas, additional

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capacity through subdivision was not modeled. However, individual single family residential building permits on vacant building lots were modeled.”

“In some unincorporated urban locations, however, where connection to public sewer is not economically or technically feasible, some low-density subdivision is possible using septic systems, although the circumstances allowing such exceptions are limited. These areas require issuance of an “unsewerable urban enclave” determination by the relevant sewer purveyor. In these situations, additional capacity at 2 units per buildable acre (assumed to be on septic systems) was modeled.”²⁸

“The 2002 buildable lands methodology used by Snohomish County allowed for consideration of a concurrency arrearage reduction factor that was designed to estimate the amount of land currently affected by arterial units in arrears (“concurrency arrearage”) that will still not be able to develop by 2012. This same approach was used for the 2007 report. A recent analysis (2012) from the Snohomish County Department of Public Works, however, showed that there are currently no arterial units in arrears within the County. Consequently, the concurrency arrearage reduction factor was zero for the 2012 buildable lands report.”²⁹

Issue 5: Market Factor

Snohomish County applies a market availability reduction factor of 15% for vacant land and 30% for partially-used and redevelopable land based on a property owner survey conducted in 2005.³⁰ However, “for parcels with pending development, the property owner intent to develop is evident. Consequently, the market availability reduction factor ... is not applied for these parcels during the capacity calculations.”³¹ In addition, a “‘market-ready overlay’ was added to the land status maps to denote sites without pending development but for which property owner intent to develop was evident. Consequently, the market availability reduction factor was not applied for these parcels during the capacity calculations. These sites included: developer-owned properties, development sites that are currently for sale, and development sites that are bank-owned due to foreclosure.”³²

The market availability reduction factor “is separate and distinct from the UGA safety factor calculation ... CTED’s 1992 urban land capacity guidebook clearly distinguishes between these concepts by describing them in two separate steps: “Step 5. Subtract all parcels which you assume will not be available for development within your plan’s 20-year timeframe. Assume that a certain percent of vacant, under-utilized, and partially-used lands will always be held out from development. Step 6. Build in a safety factor. IF you are unable to

²⁸ Page 26-27

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monitor land supply on a regular basis, consider building in a safety factor of land in addition to your projected 20-year land area needs to assure adequate availability and choice at all times.”³³

Issue 6: Capacity on Rural Lands

Snohomish County does not look at areas outside of UGAs. For areas annexed into the city that still retain rural zoning, they rely on future land use information to apply capacity.

Issue 7: Infrastructure Set-Asides

Density assumptions are applied to the buildable acres (gross acres minus critical/unbuildable areas and their buffers) rather than net acres after accounting for local streets, etc. Snohomish County accounted for infrastructure set-asides during two steps of the analysis. In Step 1 (Buildable Lands Inventory), the County removed “major utility easements,” including transmission lines, pipeline easements, etc, as well as “land needed for new transportation arterials and other capital facilities needs.” These areas were overlaid with the parcels and merged with other areas, such as critical areas, to avoid double-counting unbuildable land.

In Step 4 (Reductions for Uncertainty) Snohomish County completed a Capital Facilities Analysis, described as:

“An assessment of sewer availability within UGAs was conducted. In some very limited areas, the presumed lack of sewer availability during the entire GMA plan horizon resulted in the preclusion of further subdivision assumptions in some unincorporated UGA locations. This was due to the county’s requirement to connect to sewers for subdivision approval within unincorporated UGAs. In these areas, additional capacity through subdivision was not modeled. However, individual single family residential building permits on vacant building lots were modeled.

In some unincorporated urban locations, however, where connection to public sewer is not economically or technically feasible, some low-density subdivision is possible using septic systems, although the circumstances allowing such exceptions are limited. These areas require issuance of an “unsewerable urban enclave” determination by the relevant sewer purveyor. In these situations, additional capacity at 2 units per buildable acre (assumed to be on septic systems) was modeled. These areas included an area in the northwest portion of the Monroe UGA and portions of the SWUGA near Picnic Point and Norma Beach.”³⁴

Also in Step 4, Snohomish County applied a 5% “miscellaneous public/institutional use reduction” factor “for the uncertainty of land availability for development due to: new

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³⁴ Pages 27-28

stormwater regulations requiring larger detentions ponds (especially in the unincorporated UGAs), potential need for regional or local stormwater facilities, potential need for transmission line, utility or road or rail rights-of-way, potential need of land for public or institutional uses like police/fire stations, churches, water supply storage facilities, wastewater treatment and pump stations, landfills and transfer stations, cemeteries, libraries, daycares, small parks or open space, municipal offices, and other uses where we do not today have specific map coverage to use.”³⁵

Issue 8: Population Capacity

For the majority of cities in Snohomish County, zoning and plan designations are similar. However, most unincorporated areas in the County “allow a range of implementing zones.”³⁶ “In unincorporated areas however, the county’s future land use (FLU) designations were used due to the frequent and likely continued rezoning of property from lower to higher implementing zone categories within a plan designation prior to or concurrent with development of a property. The use of observed densities for County FLU designations would thus incorporate the likely continued practice of rezoning to higher densities within the same FLU designation in the same way that has been observed during the recent past.”³⁷

“The major exception to this is in unincorporated UGAs where cities control the extension of utilities. Some cities require annexation before granting utility extensions and thus development approval. Where this is the case, the city’s rezoning (or plan designations) and densities were used (Arlington, Granite Falls, Monroe, Snohomish, Sultan). In other unincorporated UGAs, consistency with the city’s development standards is required for the extension of city utilities to the unincorporated UGA (Marysville and Stanwood). For these areas, the analysis uses development densities from actual projects in the unincorporated UGA.”³⁸

“Minor exceptions to the use of adopted zoning and plan designations occur where the two are inconsistent or where there is an existing non-conforming use. In some isolated instances, densities and FARs associated with the County’s current zoning was determined to be more predictive than the more generalized future land use category. These situations were isolated to parcels in unincorporated UGAs with multi-family residential (MR), business park (BP), neighborhood business (NB), and rural conservation (RC) zoning.”³⁹

At the time of the County’s Buildable Lands Report writing, some parcels had pending applications for new construction and “some parcels had unoccupied new construction in

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April 2011.”⁴⁰ “In these situations (recent development and pending applications received since April 2011, and new but still unoccupied buildings as of April 2011), this report uses the actual development or pending application information (where this information is known) as the capacity on a given parcel.”⁴¹ “This pending capacity information overrides the theoretical capacity estimates calculated by the capacity analysis. Theoretical capacity estimates (based on historic observed densities for developable parcels in the same plan/zone designation) are used for parcels without recent or pending development.”⁴²

Observed “residential densities (housing units by type per buildable acre) ... were applied to the buildable acres of land (gross acres minus critical/unbuildable areas and their buffers) within either vacant, partially-used or redevelopable parcels as determined above, to estimate additional housing unit ... capacity potentially remaining per parcel.”⁴³

Issue 9: Employment Density

Snohomish County applies employment densities to the buildable acres on vacant, partially-used, or redevelopable parcels, which results in additional employment capacity. The County determines employment densities using the following method:

“For employment uses, additional calculations were performed to translate observed FARs into estimates of employees per buildable acre. Square footage of commercial and industrial permitted structures was first categorized into building type categories. For each building type category, an assumed percent distribution of square footage amounts into one of seven employment categories, based on the North American Industrial Classification System (NAICS), was applied in order to estimate actual square footage of construction by employment category. The resulting square footage amounts were then divided by an assumed amount of square footage space needs per employee by employment category to obtain an estimate of jobs (and jobs per buildable acre) by employment category in permitted commercial and industrial structures: 1) Food Services – 200 sq. ft. per employee; 2) Other Services – 400 sq. ft. per employee; 3) FIRE (mini-storage warehouses only) – 20,000 sq. ft. per employee; 4) FIRE (other) – 350 sq. ft. per employee; 5) Retail – 700 sq. ft. per employee; 6) Manufacturing – 500 sq. ft. per employee; 7) Wholesale, Transportation, and Utilities – 1,000 sq. ft. per employee; and 8) Government/Education – 300 sq. ft. per employee.”⁴⁴

“Pending ... commercial/industrial projects in the UGA were added to the parcel database through fall 2012” in Snohomish County.⁴⁵ “This pending capacity information overrides

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the theoretical capacity estimates calculated by the capacity analysis. Theoretical capacity estimates (based on historic observed densities for developable parcels in the same plan/zone designation) are used for parcels without recent or pending development.”⁴⁶

Issue 10: Data Collection Methods

The Buildable Lands Report does not specify the source of data used to create the development history database that informs the analysis.

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Thurston County

Source documents:

Thurston Regional Planning Council. *Buildable Lands Report 2014 for Thurston County*. March 2014.⁴⁷

Thurston Regional Planning Council. *Population and Employment Land Supply Assumptions for Thurston County*. April 2019.

Issue 1: Land Classifications

“Land suitable for development or buildable land is grouped into three general categories: (1) vacant land, (2) partially-used land, and (3) redevelopable land, after critical areas and buffers (lakes, wetlands, streams, etc., and associated buffer areas) are removed.”⁴⁸ Vacant parcels are “parcels of land that have no structures or have buildings with very little value, or have no designated use (for example, parks or open space have a designated use and are therefore considered developed).”⁴⁹ Partially-used land are those “parcels are those occupied by a use, but which contain enough land to be further subdivided without rezoning. For instance, a single house on a 10-acre parcel where urban densities are allowed is partially-used.”⁵⁰

Residential Land Classifications

“Lots that are less than one and a half acres in size, with a home built recently (2010 or later) or with homes with a value greater than \$250,000, are considered fully developed.”⁵¹ The types of residential land that are assumed to have further capacity in Thurston County are further described below:

- **Recently permitted:** “Accounts for lots under construction at the time the land use inventory was developed.”⁵²
- **Subdivision lots:** “Empty lots in subdivisions approved since 1970.”⁵³
- **Planned projects:** “Residential development applications submitted to local jurisdictions that are in the process of being reviewed.”⁵⁴

⁴⁷ <https://www.trpc.org/164/Buildable-Lands-Program>

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- **Master planned communities:** “On many of the larger pieces of urban buildable land in Thurston County, the cities and developers work together to develop a master plan, to combine opportunities for employment, parks, and housing, and in many cases schools.”⁵⁵
- **Vacant single lots:** “An inventory of vacant lots that were not platted through the subdivision process. Many of these are in the rural county.”⁵⁶ “In the rural county, under health code standards, existing lots must meet a minimum size threshold of 12,500 square feet of buildable land (this are cannot include critical areas or critical area buffers) to be considered buildable for purposes other than recreation.”⁵⁷
- **Vacant subdividable land:** “Vacant land has no commercial, industrial, or residential structures on it at the present time but has capacity of multiple single-family homes or a multifamily structure.”⁵⁸
- **Partially-used subdividable land:** “Land has an existing structure. Under current zoning it could potentially be subdivided to support multiple single-family homes or support multifamily development. The existing structure may either be preserved or demolished.”⁵⁹

The table below lists the minimum lot size for land to be classified as subdividable.⁶⁰

Table 4: Assumptions for Minimum Lot Size Requirements for Subdividable lots	
Area and Generalized Zoning	Minimum Lot Size to be Considered Subdividable
Cities Moderate to high-density urban zoning (more than 6 units per acre) and mixed-use zoning.	0.25 acres (any vacant lots smaller than a quarter acre are assumed to have a capacity of one home)
Cities Low-density urban zoning	0.33 acre minimum (any vacant lots smaller than a half acre are assumed to have a capacity of one home)
Unincorporated Urban Areas	1 acre minimum (any vacant lots smaller than one acre are assumed to have a capacity of one home)
Rural Zoning	Vacant lots must be able to accommodate 2 or more units to be considered subdividable <ul style="list-style-type: none"> • 1 unit per 5 acre zoning – 10 acre minimum • 1 unit per 10 acre zoning – 20 acre minimum

In addition, the County accounts for residential capacity through redevelopment (see next section), family member units (second residence for family members on a lot with an

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existing home, as permitted in rural Thurston County) and accessory dwellings (small second residence permitted on a lot with an existing home).

Commercial/Industrial Land Classifications

“If a tax parcel contains one or more commercial or industrial structure, it is evaluated to determine if it is fully developed or partially-used. In general, tax parcels that appear fully developed on aerial photos have a building-to-area relationship of more than 3,000 square feet per acre. This means that on a one-acre parcel, if the commercial or industrial building is 3,000 square feet or more, then the parcel will be considered fully developed. One residential unit in a commercial or industrial zoning district (such as a high-density corridor) will be the equivalent of 3,000 square feet. These homes are often converted to small businesses.

If the same one-acre parcel contains less than 3,000 square feet of commercial or industrial space, then it is considered partially-used. If the existing buildings are 1,500 square feet, then they are assumed to have a half-acre footprint. The remaining half acre of the parcel is considered buildable.”⁶¹

Issue 2: Accounting for Redevelopment

Based on market conditions in Thurston County, redevelopable land is only identified in mixed-use, commercial, and industrial zoning districts. Fully developed or partially-used residential parcels in residential zoning districts are not considered redevelopable. The assumption is that the original home remains in place over the planning period.

Redevelopable land can be developed for future residential, commercial, or industrial activity. Residential development capacity is exclusively assigned to multifamily (apartments and condominium) types of development. Commercial and industrial redevelopment potential is evaluated by comparing building value to land value. Below is the table of criteria Thurston County uses to assess redevelopment potential.

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Category	Building area to Parcel Area ratio (sq. ft. building to acres)	Building Value to Land Value	Model Assumption: Percent of Land Assigned as Redevelopable
Partially-Used Commercial/Industrial lands	<3,000 bldg. sq. ft./acre	n/a	Portion assigned as buildable; remainder assessed for redevelopment potential.
Very High Redevelopment	>3,000 bldg. sq. ft./acre	0.0 to 0.5	100%
High Redevelopment	>3,000 bldg. sq. ft./acre	0.5 to 1.0	75%
Medium Redevelopment	>3,000 bldg. sq. ft./acre	to 2.0	50%
Low Redevelopment Potential	>3,000 bldg. sq. ft./acre	> 2.0	10%
Note: Implicit assumptions are made for large redevelopment parcels such as the Tumwater Brewery and Port of Olympia Commercial/Industrial Lands.			

Issue 3: Modeling Mixed-Use Areas

Some zoning districts in Thurston County allow for, or encourage, a mix of commercial and residential uses. Thurston County’s model distributes buildable and redevelopable lands into residential and commercial portions, based on a mixed-use assumptions factor. This factor varies from low (2% residential) in mainly commercial zoning districts, to fairly high in Urban Villages and Master Planned Communities. The mixed-use factor is developed based on past trends and proposed projects.

Issue 4: Infrastructure Gaps and Reliance on Urban Holding Overlay

Thurston County notes that the following are not part of the market factor assumption, but merit evaluation and discussion through the buildable lands analysis. It is unclear whether these considerations were used in the most recent update or whether they are noted for future consideration.

- Access to municipal sewer and water
 - “Example: Urban services are not currently available everywhere throughout all the urban areas. In particular, of the South County towns, only Yelm and Tenino have sewer, and none of them extend water service outside the city limits. Availability of sewer and water determines potential density. If development occurs at densities constrained by lack of municipal sewer and/or water, the potential capacity of the urban areas will be reduced.
 - Comment: The Buildable Lands analysis uses the adopted sewer and water service plans of the jurisdictions to identify where and when municipal sewer and water will be made available. These plans all commit to serving their respective urban areas over the 20-year planning time horizon. A recent

Central Puget Sound Growth Management Hearings Board case, while not applicable to Thurston County, offers a relevant analysis of the GMA requirements (*Kitsap Citizens for Responsible Planning v Kitsap County*, Case 06-3-0007, FDO July 26, 2006). In that case, The Central Board ruled that the GMA requires that jurisdictions must plan to develop urban areas in an urban manner, providing urban services to enable it. Thus, urban areas should not include lands that cannot be provided urban services within 20 years.”⁶²

- Varying costs to extend water or sewer
 - “Example: Some parts of the urban areas will be costly to serve with water or sewer, such as outlying areas that might require multiple pump stations or other factors raising costs well above what the current housing market can bear.
 - Comment: This is a legitimate issue and may be an appropriate basis for adjusting UGA boundaries. If excessive costs imply that certain areas cannot reasonably be urbanized within the 20-year planning time horizon, they should not be included in the UGA. This may imply a need to reduce the size of the UGA accordingly, or it may imply a need to shift the UGA to add different areas instead, where services can be provided more cost-effectively.”⁶³
- Availability of Water Rights
 - “Example: Local cities and towns were reaching the limits of their water rights by the end of the last decade. Lacey had to temporarily deny access to municipal water service to new subdivisions proposed for the unincorporated Lacey UGA. Also, in rural areas the water rights exemption for six or fewer houses per parcel could limit the potential capacity of rural areas.
 - Comment: By working together, the Cities resolved some of the issues relating to water rights availability for the urban areas. This is likely to be an ongoing concern – where cities will increasingly look to strategies other than new water rights (such as increased conservation) to be able to supply water to a growing population.”⁶⁴

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Issue 5: Market Factor

Thurston County's previous market factor rate used in their 2007-2008 Urban Growth Evaluation and Buildable Lands Report ranged from 0% to 25%.⁶⁵ "When designing suitable market factors, Thurston County and local cities and town took into account the various factors that TRPC already includes in the analysis that relate to development inefficiencies and could be considered potential market factors."⁶⁶ "New market factors are anticipated to be developed for the 2021 Buildable Lands Report and will be consistent with updated program guidance from the Washington State Department of Commerce."⁶⁷ Their documentation notes the following considerations to inform the updated market factor:

- "Proportion of residentially developable land area that will not be on the market during the 20-year planning horizon."⁶⁸
- "Added margin for small town and cities to recognize greater fluctuation in their growth rates and potential access to sewer."⁶⁹
- "Varying levels of impact fees."⁷⁰ However, they note that although different jurisdictions have different levels of development impact exactions, "these differentials have been in place for more than a decade and are well reflected in market trends already. Since the growth allocations are deliberately based in large measure on observed market trends (i.e., building permit trends collected by TRPC annually since 1986), these factors are already incorporated into the TRPC forecast allocation and buildable lands modeling. The TRPC modeling process combines trend analysis based on building permits to determine future demand (e.g., how much of the recent growth has gone to Lacey and/or its UGA) with the buildable lands analysis to determine future supply (e.g., how much more growth Lacey and/or its UGA can accommodate). This modeling approach assumes that the jurisdictions in which it is currently more expensive to develop will remain more expensive, etc.; and that this will continue to affect growth rates in those jurisdictions similar to today."⁷¹

Thurston County defines "excess capacity" as "the amount of Total Capacity (supply) in a given area, minus the amount of capacity expected to be used or built (demand) within the planning horizon."⁷² In the County's review of their 2007-2008 Urban Growth Area

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report, they compared excess capacity to the report’s market range factor.⁷³ The County also calculated, for each jurisdiction, the supply and demand for housing units into 2035.⁷⁴ These estimates are provided in the table below. The County notes that “Supply should exceed demand (percent excess) by a reasonable market factor in order to account for land that is not available for development during the planning horizon. The rule of thumb is a county-wide market factor between 10% and 25% is considered reasonable. Smaller jurisdictions tend to have higher market factors due to the statistical difficulties in estimating supply versus demand for small areas.”⁷⁵

**Table 3-1
Residential Supply versus Demand**

Jurisdiction	2010 Dwelling Units	DEMAND		SUPPLY	
		Units required to Accommodate 2035 Population		Capacity for Additional Dwellings 2010 Plus	Percent Excess 2035
		Total	2010-2035		
Bucoda & UGA	240	460	220	350	37%
Lacey & UGA	31,740	45,560	13,820	17,560	21%
Olympia & UGA	26,950	40,410	13,460	16,880	20%
Rainier & UGA	770	1,300	530	750	29%
Tenino & UGA	750	1,550	800	1,200	33%
Tumwater & UGA	10,570	19,170	8,600	11,010	22%
Yelm & UGA	3,050	10,250	7,200	10,310	30%
Grand Mound UGA	380	690	310	430	28%
Total Urban Areas	74,450	119,390	44,940	58,490	23%

Issue 6: Capacity on Rural Lands

Rural land is included in the model, using the land classifications and lot sizes for subdivision described under Issue 1.

Issue 7: Infrastructure Set-Asides

Smaller subdividable lots, also called short subdivisions, are smaller subdividable lots that do not require public streets or other public facilities (e.g., stormwater ponds) because of the

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⁷⁴ Buildable Land Report 2014, page 38

⁷⁵ Buildable Land Report 2014, page 38

small number of lots created.⁷⁶ Their “capacity is determined by taking total buildable acres and multiplying by density (units per acre).”⁷⁷

Multifamily and mixed-use projects “do not go through a typical subdivision process. While they do require parking, internal streets, and other public facilities such as stormwater ponds, these features are included as part of the site design rather than on separate lots. Capacity is determined by taking total buildable acres and multiplying by density.”⁷⁸

Residential single-family (attached or detached) is a larger subdividable lot located in urban areas that, at the time of their division, require outlays of roads, right-of-ways, open space, and stormwater facilities.⁷⁹ “To account for these public spaces, a density factor is applied to the base density in the model.”⁸⁰ The assumed deductions for long plat subdivisions are provided in the table below.

Table 5: Assumptions for Deductions for Long Plat Subdivisions

Jurisdiction	Open Space/Tree Tract, (whatever is greater)	Storm-water Facility	Roads & Rights-of-Way	Total (whatever is greater)
Lacey	10% or 10% plus critical*	10%	20%	40% or 40% plus critical*
Tumwater	10% or 5% plus critical*	10%	20%	40% or 35% plus critical*
Olympia	5% or critical*	10%	25%	40% or 35% plus critical*
Yelm	5% or critical*	5%	22%	32% or 27% plus critical*
Bucoda	-	-	-	40% or 40% plus critical*
Rainier	-	-	-	40% or 40% plus critical*
Tenino	-	-	-	35% or 35% plus critical*
Unincorporated Growth Areas	5% or 2.5% plus critical*	10%	22%	37% or 34.5% plus critical*

* Critical areas and critical area buffers as estimated in the GIS.
 Note: part or all the open space or tree tract requirement may be met in critical area buffers, or partial density can be applied, depending on the jurisdiction.

The table below provides deductions for non-residential uses in residential zoning districts.⁸¹

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Table 6: Factor for Non-Residential Uses in Residential Zoning Districts	
Type of Capacity	Non-Residential Use Deduction in addition to road and open space deductions taken in subdivisions
Subdividable Urban Land	10%
Subdividable Rural Land	1%
Mixed-use Residential Capacity Note: The mixed-use zoning districts assume a proportion on non-residential and residential uses, so no further deductions are necessary.	0%
Redevelopment Capacity Note: This type of capacity assumes a proportion on non-residential and residential uses, so no further deductions are necessary	0%
Platted Single-family Home and Duplex Lots	0%
Planned Projects The number of units in these projects is already established and needs no further reduction	0%

Issue 8: Population Capacity

Thurston County’s model includes a residential density estimate for each zoning district. This estimate is developed based on the range of allowable densities, the actual densities being achieved in each zoning district, and calibration against proposed development projects. It is measured as the number of units per total buildable acres.

There are exceptions based on the residential land classification:

- “In the cities and urban growth areas, parcels that have been legally subdivided through the long plat process since 1970 are assumed to have a capacity as indicated on the plat map. For the most part this means each vacant residential lot in these subdivisions will be assigned a capacity of one home. In a few instances duplexes to fourplexes were planned for the lots. In these subdivisions, lots with one or more homes on them are considered developed, with no room for further development.
- “Any lots (vacant, partially-used or redevelopable) where a developer has submitted an application for development to city or county staff will be assigned the planned development capacity. All master planned communities, urban villages, and urban centers will be given a development capacity (both residential and commercial) based on the proposed master plan.”⁸²

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- To determine the capacity of partially-used properties, Thurston County assumes the existing home will require, on average, an area consistent with Table 1. (Partially-used parcels containing more than three residential units (manufactured home parks and apartment complexes) are assessed on an individual basis.)

Generalized Zoning	Existing Homes: Minimum Space Requirements
Cities Moderate- to high-density urban zoning (more than 6 units per acre) and mixed-use zoning	0.20 acres. In most cases the existing home is optimally placed on one side of a 'double or triple lot' and matching the overall fabric of the surrounding neighborhood. Examples of this are in the Garfield Neighborhood in West Olympia.
Cities Low-density urban zoning	0.33 acres. The existing home is not optimally placed, but the land values and development opportunities generally result in no more than a third of an acre being given to the existing home. A third of an acre is ample room for a home on a septic system – although connection to sewer would be required if the property were to further develop.
Unincorporated Urban Areas	1 acre. The existing home is not optimally placed and will likely require room for a well and septic system – although a connection to sewer and municipal water would be required if the property were to further redevelop.
Rural Zoning	The existing home is assumed to require an area of at least one acre but as this is much lower than rural zoning densities it does not really come into play. Therefore, the existing home is assigned an area relative to zoning. For instance, in the 1 unit per 5 acres zoning district the existing home is given an area of 5 acres.
Low-value Properties Assessed building value is less than \$50,000	Minimum lot size – the inverse of the zone's density assumption – is used. For these parcels it is assumed that any existing structures are demolished

Issue 9: Employment Density

Thurston County uses two factors to estimate employment density and the amount of land needed for commercial and industrial uses:

- **Employees per Building Square Feet:** “In Thurston County’s urban areas there is an average of 3.3 employees per 1,000 square feet of commercial building space (including vacancies). (Note – the vacancy rate is high at the current time). For industrial or warehouse spaces, there is an average of 1.5 employees per 1,000 square feet. These figures do not include schools, churches, and other buildings used for community gathering spaces. They also do not include warehouse distribution centers, which tend to have much lower employee per square foot ratios.”⁸³
- **Average Building Square Foot Floor to Area Ratio (FAR):** “This factor looks at how much total land area commercial and industrial building require. In addition to the building footprint, space is needed for parking, stormwater ponds, and landscaping. Commercial buildings tend to have a higher floor to area ratio – often more than double

⁸³ Thurston Regional Planning Council. *Buildable Lands Report 2014 for Thurston County*. March 2014, page 64.

that of industrial buildings. In Thurston County it averages around 11,000 square feet per acre. Compare this to industrial buildings, where it averages around 6,000 square feet per acre.”⁸⁴

“These factors vary by area. Where land prices are higher and vacant land is harder to find, land is used more efficiently. For comparison, downtown Tacoma has approximately 300 employees per acre, while Olympia has 46 employees per acre in commercial areas (city and urban growth area).”⁸⁵ To arrive at employment density per acre, it appears that jurisdictions multiply the two factors of employees per building square foot and average building square foot FAR together. As an example, see the table below.⁸⁶

Commercial Buildings

Jurisdiction	Total Building Floor Area (square feet)	Developed Land (acres)	1,000 Square Feet Gross Floor Area per Gross Acre	Generalized Employee per 1,000 SF	Generalized Employee per Gross Developed Acre
Bucoda & UGA	19,400	1	24	3.3	79
Grand Mound UGA	604,000	70	9	3.3	28
Lacey & UGA	7,532,000	810	9	3.3	31
Olympia & UGA	13,082,200	940	14	3.3	46
Rainier & UGA	72,800	20	4	3.3	12
Tenino & UGA	178,800	10	13	3.3	59
Tumwater & UGA	4,574,000	550	8	3.3	27
Yelm & UGA	1,285,700	150	8	3.3	28
Total/Average	27,348,900	2,550	11	3.3	35

Issue 10: Data Collection Methods

Thurston County collects the following data from its local jurisdictions:

- Residential and commercial building permits from Bucoda, Lacey, Olympia, Rainier, Tenino, Thurston County, the Confederated Tribes of the Chehalis Reservation and Nisqually Indian Tribe
- Approved subdivisions (long plats) from the Thurston County Auditor’s office
- Residential projects in the development pipeline (application stages) from the aforementioned jurisdictions and tribes

⁸⁴ Thurston Regional Planning Council. *Buildable Lands Report 2014 for Thurston County*. March 2014, page 64.

⁸⁵ Thurston Regional Planning Council. *Buildable Lands Report 2014 for Thurston County*. March 2014, page 64.

⁸⁶ Thurston Regional Planning Council. *Buildable Lands Report 2014 for Thurston County*. March 2014, page 69.

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- Building and land valuations from the Thurston County Assessor's office
 - The parcel GIS data layer from the Thurston Geodata Center
 - Annexations

Thurston County's land capacity model is calibrated to a database of planned projects (over 130 projects and almost 6,000 residential units). These calibrations are by jurisdiction and zoning category.