Kitsap County Land Capacity Analysis

Preliminary Draft Technical Methodology Guidance

INTRODUCTION

Kitsap County is a Growth Management Act (GMA) jurisdiction and must plan for the accommodation of growth within its boundaries, with most growth focused into urban growth areas (UGAs) where urban services are available or can be made available. Per RCW 36.70A.110 and WAC 365-196-310, a Land Capacity Analysis (LCA) is a necessary component in this planning as it quantifies the housing units, population, and employment growth that can be accommodated within urban areas under existing development regulations. The LCA methodology is also one of the components of the Buildable Lands Program (BLP) required under RCW 36.70A.215 and WAC 365-196-315.

The BLP is required of the more populous counties and their cities (i.e., Clark, King, Kitsap, Pierce, Snohomish, Thurston, and Whatcom Counties) to determine if they are achieving their planned densities within UGAs and, if not, to identify reasonable measures other than adjusting UGAs to achieve targets and objectives of their comprehensive plans. The BLP review and evaluation efforts are led by Kitsap County, in coordination and participation with its constituent cities. For the Buildable Lands Report due June 2021, the buildable land capacity as of January 1,2020 will be measured against the CPP growth targets for the 2036 planning horizon.

The countywide LCA methodology described in this document (Kitsap County LCA) establishes an overall framework to promote consistency in the calculation of growth capacity, as required in the Kitsap Countywide Planning Policies (CPPs); however, cities may employ variations to the assumptions used in the methodology with proper "show your work" documentation to account for local circumstances.

The Kitsap County LCA methodology incorporates an analysis of housing and population capacity on residential land and employment capacity from land zoned for commercial and industrial uses. The work relies upon the data and work of the Kitsap County Assessor's office as their countywide parcel-level data with current uses and improvements will be merged with each municipality's permitting records of zoning. Additionally, the LCA relies upon County-maintained spatial data on existing land use and infrastructure conditions, including environmentally critical areas and transportation access. The methodology assumes the availability of GIS data listed in each analysis section and assumes that Assessor records provide an accurate record of property value (land vs. improvement value) and current land use.

An overview of the Kitsap County residential LCA methodology is shown in Exhibit 1. The methodology includes two phases. The first phase is the stand-alone Programmatic Infrastructure Gap Review that would typically be carried out by planning staff. The second phase consists of the nine LCA steps that are designed to be executed by a GIS analyst, with direction and input from planners for key assumptions. This document provides detailed guidance for each step of the process, highlighting assumptions that can be varied by individual jurisdictions based on local conditions, with proper documentation. The non-residential LCA follows a similar structure and is described later in this document.

Exhibit 1. Kitsap County Residential LCA Process

Source: BERK, 2020.

Data Inputs Required

- Kitsap County parcel polygons;
- Kitsap County Assessor parcel records;
- Public service providers and service area boundaries;
- Applicable capital facility plans and system plans;
- Recent building permit data, including a list of parcels created as part of an approved plat;
- Assumed residential density by zoning district (see text box); and
- Environmentally critical areas:
  - Streams (including stream type classification);
  - Water bodies;
  - Wetlands (including wetland type classification);
  - Hydric soils; and
  - Geologic hazard areas (moderate and high hazard risk).

STEP 0: PROGRAMMATIC INFRASTRUCTURE GAP REVIEW

In 2017, the state legislature added a requirement for the BLP to include consideration of infrastructure gaps as the lack of transportation or utility infrastructure can affect the amount and timing of future development and thus impact the amount of land suitable for development or redevelopment. Under the BLP, counties and cities are required to evaluate and identify lands subject to infrastructure gaps including but not limited to transportation, water, sewer, and stormwater. (RCW 36.70A.215 (3)(b)(i))

Assumed Density

For each residential zone, jurisdictions will need to select an assumed density (units per acre) to apply in Step 8 of the LCA. Assumed densities are those densities "at which future development is expected to occur." WAC 365-196-210(6). This assumed density will also be used in Step 1 when identifying partially utilized parcels.

Commerce recognizes that achieved density can be a starting point for determining assumed density. However, jurisdictions must draw upon local circumstances when selecting a reasonable assumed density and always consider situations, such as:

- If the zone had seen very little development activity in recent years;
- Zoning or development regulations have recently changed, and insufficient new permit data is available to evaluate the market response; or
- There have been significant new (or anticipated future) infrastructure investments or other amenities that change market conditions. An example might be new Fast Ferry service to Downtown Seattle.

In addition, jurisdictions should draw upon other sources of information to derive assumed densities, such as:

- Market studies
- Achieved densities in other jurisdictions with similar zoning and market characteristics.

Always consider the impacts of regulations such as setbacks, height limits, and parking requirements on development feasibility when selecting a reasonable assumed density.

The Department of Commerce Guidebook published in 2018 clarified that the infrastructure gap review should focus on those gaps that could prevent densities from being achieved or that could delay development during the remainder of the planning period. Commerce also states that adopted capital facilities plans may be relied upon for land capacity calculations but recognizes situations may arise that could result in gaps. Accordingly, the gap analysis should include:

- Identifying planned capital facility projects that would have added capacity but are no longer planned or are delayed beyond the 20-year planning period; Identifying planned transportation

improvements that, without being implemented, would limit additional development and redevelopment; and

- Identifying areas that are likely to remain outside of water and sewer service boundaries.

From the perspective of the LCA, properties with limited or no access to critical infrastructure during the planning period may be identified as constrained and either:

1) removed from the available land supply at the outset and not carried forward into the remaining Steps 1 through 9 or,
2) identified as subject to partially constrained growth and addressed in Step 6 (through alternative assumed densities) or Step 8 (through an alternative market factor).

This infrastructure gap review in Step 0 is meant to consider areas with system level challenges that affect whether parcels are candidates for growth. Infrastructure gaps should be identified prior to performing detailed analysis of land capacity for residential or commercial/industrial uses, as these infrastructure gaps will directly affect the amount of land available for both residential and employment purposes. In contrast, in Steps 4 and 5, a deduction will be applied to lands determined vacant, underutilized, and partially utilized for infrastructure installed as a natural course of development (e.g., rights of way, stormwater treatment, etc.).

Per the Commerce Guidebook, "Methodology steps are cumulative, so in determining how each is estimated, care should be taken to avoid double counting factors." (Guidebook, page 37) Careful consideration of whether land is partially or fully constrained due to infrastructure should be made, as well as whether the infrastructure issues can be addressed as part of development or redevelopment. There may be other factors at play due to the market conditions or allowable densities. It should be noted that depending on the overall LCA results and the chosen targets or densities, if there are inconsistencies reasonable measures may be needed.

Gap Analysis

The infrastructure gap review below is meant to provide a framework to review whether areawide infrastructure limitations exist to limit the supply of land that are candidates for growth. If there are no known systemwide or areawide infrastructure limitations for water, sewer, stormwater, or transportation that could prevent or delay development, you may use the worksheet in Exhibit 4 to briefly document this finding and move on to Step 1.

The Gap Analysis process consists of two major sub-steps:

- **Step 0.1:** Identify Relevant Infrastructure Systems that Could Prevent or Delay Development; and
- **Step 0.2:** Identify and Map System Capacity Challenges Using Available Information.

Step 0.1 is a high-level review of available information to identify which infrastructure systems may require more detailed review for their potential to prevent assumed densities from being achieved or delay urban development, while Step 0.2 is a more detailed review to identify specific geographic locations with infrastructure constraints.

Step 0.1. Identify Relevant Infrastructure Systems that Could Prevent or Delay Development

The County and cities have been planning under GMA and developing their Capital Facility Plan

elements and supporting system plans for decades. While the BLP newly identifies the infrastructure review and evaluation step, relevant information and capital programs already exists to support the land use plans of each jurisdiction and the LCA.

In Step 0.1, jurisdictions should review available information in the CFP to determine if any infrastructure systems have the potential to prevent assumed densities from being achieved during the 20-year planning period. These impediments could either be at a systemwide scale (for example, entire water or sewer system has supply or treatment capacity constraints) or in a specific area (e.g. neighborhood, district, subarea), and they could result in either a complete prevention of development potential (e.g., no improvement is planned to deliver necessary urban services for water, sewer, stormwater or transportation), or result in major differences in achievable densities.

This review should answer the following kinds of questions. An answer of "yes" or "maybe" would warrant closer review in the Step 0.2.

- **Water**: Are there major constraints in supply, pressure, or distribution that would prevent development, or markedly constrain expected densities?
- **Sewer**: Are there unsewered areas or areas currently operating on septic without capital plans in place to extend service? Are there areas of septic where failure has been identified by the Health District? Would the lack of areawide sewer due to physical or economic feasibility considerations alter an area's development potential during the planning period?
- **Stormwater**: Are *regional* systems necessary for urban-scale development at a systemwide or areawide level?[1]
- **Transportation**: Does the jurisdiction contain areas with long-term physical service challenges?[2]
  - Areas are inaccessible due to geographic constraints; or
  - No infrastructure currently exists to provide physical access.

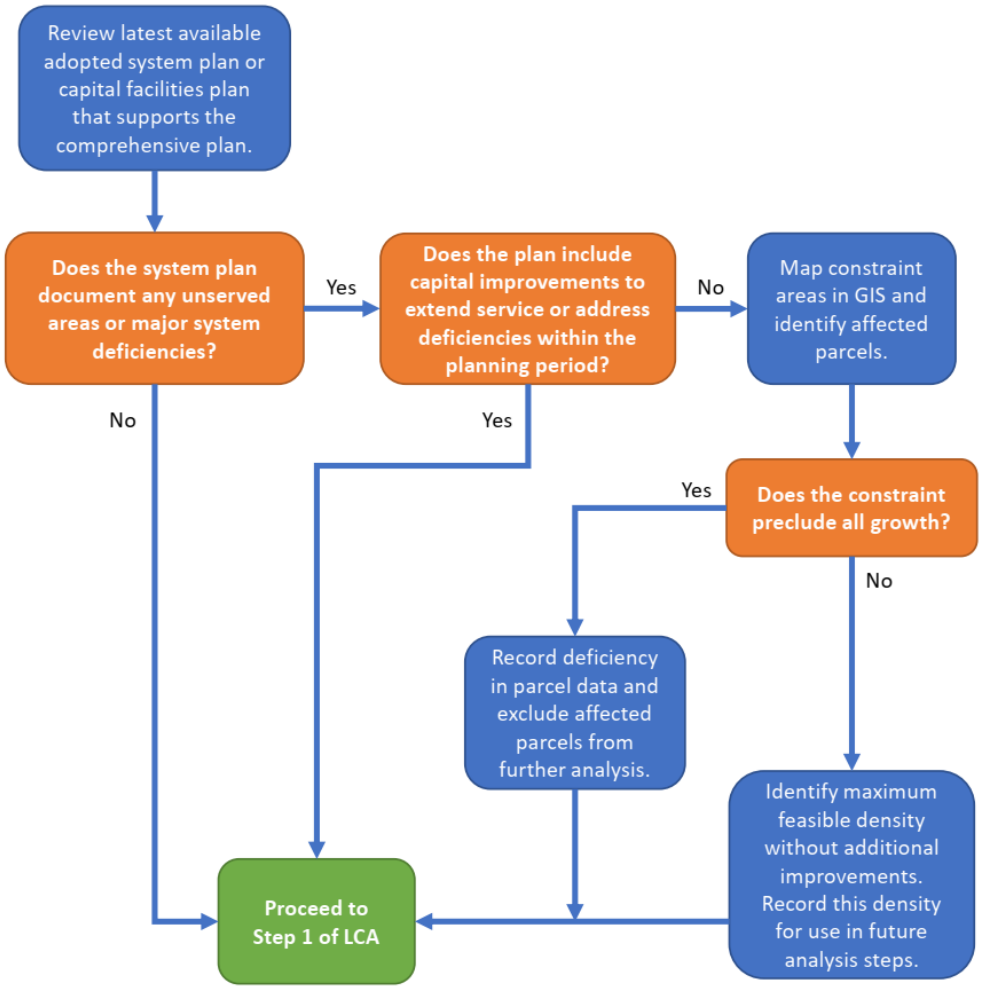
Step 0.2. Identify and Map Areas Using Available Information

After identifying potentially relevant infrastructure systems in Step 0.1, this Step 0.2 is meant for the County and cities to review available information and plans and consider if there are areawide infrastructure gaps that may reduce the supply of land considered candidates for growth.

This decision tree in Exhibit 2 illustrates the evaluation process that should be followed for each of the relevant infrastructure systems identified in Step 0.1, based on local conditions and service providers. For example, cities are likely to provide more services directly and have fewer unserved or inaccessible areas than the county. The decision tree in Exhibit 2 allows these jurisdictions to conduct the gap analysis efficiently and prioritize resources for detailed analysis only in situations where infrastructure systems are found to have meaningful gaps or major deficiencies.

[1] These questions address areawide/system concerns. See Step 5 Public Facilities deductions for site/parcel specific public and private facilities like stormwater needed for development of vacant, partially-utilized, or underutilized land.
[2] These questions are addressing areawide physical challenges or systemic issues. Parcel/site specific deductions are addressed in Step 4.

Exhibit 2. Infrastructure gap review Jurisdiction Decision Tree



Source: BERK, 2021.

The infrastructure gap review is meant to use readily available information. GIS analysis would only be required if mapping is called for in the decision tree.

If responses to the decision tree indicate mapping is necessary, then add the following fields to the parcel layer. The following steps below will explain how to calculate values for these fields.

Exhibit 3. GIS Database Fields to be Added – Infrastructure gap review

Field Name	Field Type	Comments
Infrastructure Gap	Text	Note infrastructure gap type (water, sewer, stormwater, etc.), if present.
Constant	Binary	If infrastructure gap is likely to prevent or delay development (i.e., conditions are expected to remain constant during the planning period), set value to TRUE. Otherwise, set value to FALSE.
Alt Density	Numeric	If infrastructure gap does not prevent or delay development, but limits density, note the alternative assumed density (or FAR for non-residential properties) for use in Step 8. Used in tandem with the "Alt Market Factor" field. Do NOT provide values for both fields.
Density Units	Text	Unit of measure for density: ▪ "du/ac" for residential properties. ▪ "FAR" for commercial/industrial properties.
Alt Market Factor	Numeric	If infrastructure gap does not prevent or delay development, but limits growth capacity, note the assumed market factor for use in Step 6. Used in tandem with the "Alt Density" field. Do NOT provide values for both fields.

Source: BERK, 2020.

Infrastructure Gap Review Worksheet

An infrastructure gap review worksheet is included in Exhibit 4 below. A jurisdiction would already have the information needed in existing plans and would focus only on systems with the potential to prevent assumed densities from being achieved or delay urban development during the 20-year planning period at a systemwide or areawide scale. If there are no systemwide or areawide constraints with any system, document this in Exhibit 4 and continue to Step 1.

Exhibit 4. Programmatic Infrastructure Gap Review Worksheet

Step	Response / Description
Step 0.1: Determine if any of the following infrastructure systems have the potential to prevent assigned densities from being achieved or delay urban development during the 20-year planning period at a systemwide or areawide scale. An answer of "yes" or "maybe" to the following questions would warrant closer review for that infrastructure type in the Step 0.2.	
▪ **Water**: Are there major constraints in supply, pressure, or distribution that would preempt development, or markedly constrain expected densities?	
▪ **Sewer**: Are there unsewered areas or areas currently operating on septic without capital plans in place to extend service? Are there areas of septic where failure has been identified by the Health District? Would the lack of areawide sewer due to physical or economic feasibility considerations alter an area's development potential during the planning period?	
▪ **Stormwater**: Are regional systems necessary for urban-scale development at a systemwide or areawide level?	
▪ **Transportation**: Does the jurisdiction contain areas with long-term physical service challenges? Areas are inaccessible due to geographic constraints; or no infrastructure currently exists to provide physical access.	
Step 0.2: Complete the following **using available information** only for **relevant systems** where you answered "yes" or "maybe" to the questions above. Answer the following questions separately for each relevant system identified.	
▪ Review latest available adopted system plan or capital facilities plan. Provide a list or links to plans relevant systems under review.	
▪ Does the system plan document any underserved or major system deficiencies? If yes, describe.	
▪ Does the plan include capital improvements to extend service or address deficiencies in the planning period? If yes, describe and proceed to Step 1.	
▪ Does the constraint prevent or delay all growth? If yes, identify affected parcels in GIS: ○ Document the infrastructure gap type in the **Infrastructure Gap** field. ○ Use the **Constant** field to flag any parcels where lack of infrastructure would make development unfeasible within the 20-year planning period and the current status of the property is unlikely to change. ○ Exclude affected parcels from further analysis. Continue to Step 1.	
▪ Does the constraint partially constrain growth? If yes, identify the areas spatially, document the infrastructure gap type in the **Infrastructure Gap** field, and note the alternative densities for Step 8, or alternative market factor for Step 6. Only one	

Step	Response / Description
assumption should be varied, either density or market factor, but not both, to avoid double counting. ○ **Density Limitation:** If infrastructure conditions would not preclude development, but they are likely to limit growth capacity, set the field **Alt Density** to the maximum anticipated density (dwelling units per acre or floor area ratio) and document the source of this assumption. The property would be flagged, and the appropriate density would be applied in Step 8. ○ **Market Factor:** If infrastructure conditions would not preclude development, but they are likely to limit growth capacity, and the limitation can be addressed by market factor considerations in Step 6, set the field **Alt Market Factor** equal to the anticipated market factor reduction associated with infrastructure conditions and document the source of the assumption. The parcels would be flagged, and the appropriate market factor would be applied in Step 6.	

RESIDENTIAL LCA

The Residential LCA identifies vacant, partially underutilized and underutilized parcels in residential zones to calculate available capacity for development of housing units and associated population. Results will demonstrate whether existing zoning regulations allow for the growth needed to meet chosen residential growth targets for the 20-year planning period. The first step in this process is to categorize properties according to their development potential. The following steps apply only to properties located in residential zoning districts.

Step 1. Define Development Status and Classify Parcels

The land capacity analysis is designed to measure capacity for new growth and therefore focuses primarily on vacant and redevelopable land. Assumptions regarding future development potential vary with site-specific conditions, so a detailed classification of properties must be performed as the first step in the analysis.

To prepare for this analysis add the following fields to the parcel layer. The steps below will explain how to calculate values for these fields.

Exhibit 5. GIS Database Fields to be Added – Residential LCA Step 1

Field Name	Field Type	Comments
Zone	Text	Zoning district
Assumed Density	Numeric	Assumed density (units per acre) for the zone. This assumption should consider factors such as the achieved density from the "look back" analysis, whether zoning or development regulations have recently changed, and insufficient new permit data is available to evaluate the market response, infrastructure investments or other amenities that change market conditions or impacts of development regulations such as setbacks, height limits, and parking requirements on development feasibility (see text box above). Set to NULL for all nonresidential or mixed-use zones.

Field Name	Field Type	Comments
Potential Units	Numeric	The potential residential units on the parcel based on assumed density with no deductions considered. This field is used only for determining which parcels are partially utilized. Not in final land capacity calculations.
LCA Class	Text	Land Capacity Analysis Classification, as determined in Step 1 (Excluded, Pipeline, Vacant, Partially Utilized, or Under-Utilized).
Pipeline Density	Numeric	Approved/proposed density (in du/ac) for Pipeline properties, as determined in Step 1.1. For non-Pipeline properties, set value to Null.
Platted Lot	Text	If the parcel is a platted lot, set to TRUE. Otherwise, set to FALSE.

Source: BERK, 2020.

- **Step 1.1: Identify Pipeline Properties (OPTIONAL).** Pipeline development refers to growth that has been permitted or approved between January 1, 2020 and December 31, 2020 and not captured during the 2013-2019 evaluation period. but was not built. Unless there is a reason to believe the growth will not actually be completed, this growth can be accounted for in the capacity calculations. Jurisdictions that wish to account for pipeline development separately in their LCA can remove the parcels from the land supply at the outset of the process and add them back in later based on approved final permits or development agreements. This can result in a more accurate accounting of capacity for growth. In addition, the process for approving plats, master plans, and building permits can provide a more accurate, site-level review of critical areas than the regional approach used in this LCA. Properties can be classified as "Pipeline" if they meet any of the following criteria. Jurisdictions that complete this optional step can select to use any or all of these criteria and can refine *these criteria to best reflect local circumstances*.
  - The property is part of an approved final single-family plat but has not yet been approved for any building permit. The primary purpose of including such properties in the pipeline is to capture large plots of land being developed for single-family home sites where individual lots have not yet been identified as lots in the County Assessor parcel data. Assign future growth for these parcels as one single-family unit per platted lot.
  - A preliminary plat has been approved and site development permits have been issued, but the final plat has not been filed or approved. The site development permits show evidence of commitment and the proposal densities appear to be best reflected in the final capacity rather than the typical LCA process. Treat lots like a final plat above – one single-family unit per plated lot.
  - A final land use permit has been approved for the property (e.g., multifamily or mixed-use site plan) but no construction occurred between January 1, 2020 and December 31, 2020. Assign future growth for these parcels consistent with type and number of units described in the approved land use permits.

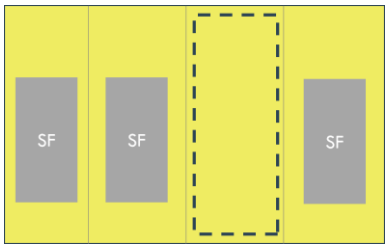
- The property is part of a master plan or a phased development under a development agreement. For final master plans or development agreements, assign approved density levels and classify the properties as "Pipeline." If the master plan or development agreement is preliminary or still pending, assign the proposed density levels, but do not classify the land as "Pipeline."

- **Step 1.2: Identify Excluded Properties.** Parcels with the following use classifications are not likely to redevelop and should be classified as "Excluded":
  - Utility parcels;
  - Transportation parcels or right-of-way;
  - Marinas;
  - Cemeteries;
  - Hospitals;
  - Governmental services;
  - Schools (including higher education);
  - Churches and other places of worship;
  - Cultural, entertainment, and parks/recreation properties;
  - Tidelands and water areas; and
  - Current Use Exempt parcels (RCW 84.34); note if there is a clear intent to develop in the planning period, treat as pipeline, vacant, or partially utilized as appropriate.
  - Open space
  - Shoreline parcels less than 1 acre

  In addition, any properties identified as "Constant" in the Infrastructure Gap Review (Step 0) should be classified as "Excluded."

- **Step 1.3: Identify Vacant Properties.** Vacant parcels are properties with no development or very minimal improvements, regardless of size (see Exhibit 6). These are identified in County Assessor parcel data as having a property class code associated with vacant/undeveloped land ("910 – Undeveloped Land," or "990 – Other Undeveloped Land"). For these parcels, set LCA_Class to "Vacant".

Exhibit 6. Example of a Vacant Parcel



Source: BERK, 2020.

Step 1.4: Identify Partially Utilized Properties. Partially utilized properties are parcels currently occupied by a use, but which encompass enough land to be further subdivided without rezoning. Typically, this category consists of parcels zoned for single-family residential development that are large enough to be subdivided for the creation of additional single-family lots (see Exhibit 7). For parcels not classified as Vacant or Pipeline, assign the "Partially Utilized" classification if the property meets **all** the following criteria:

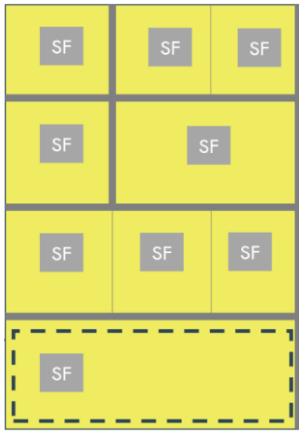
- The parcel is in a residential zone where the predominant form of new housing development is expected to be single family
- Based on assumed density for that zone, the parcel has potential to support at least 2.5 X number of existing units.
-

To identify Partially Utilized parcels in residential zones, do the following:

- Calculate the field Potential Units as number of units that could be built at the assumed density level for that zone (parcel acres x Assumed Density).
- Compare Potential Units to the existing units on the parcel. If Potential Units is at least 2.5x existing units, then classify the parcel as Partially Utilized. (LCA Class = "Partially Utilized")

Note: Critical areas will be accounted for in Step 3. Then remaining acreage of Partially Utilized parcels will be aggregated and standard deductions will be applied. The Potential Units field is not used to calculate land capacity.

Exhibit 7. Example of a Partially Utilized Parcel



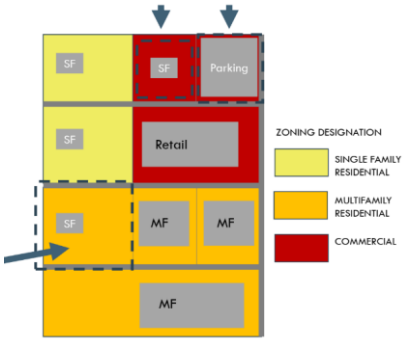
Source: BERK, 2020.

- **Step 1.5: Identify Under-Utilized Properties.** Under-utilized properties contain some amount of existing development, but there is a strong possibility that the existing use will be converted to a

more intensive use during the planning period. For example, a single-family home on a property with multifamily or commercial zoning could be considered under-utilized (see Exhibit 8).
For parcels not classified as Vacant, Pipeline, or Partially Utilized, assign the "Under-Utilized" classification if the property meets **any** of the following criteria:

- The property is in a residential or mixed-use zone where the predominant form of new housing development is expected to be multifamily, and the existing use is a detached single-family home, cottage, mobile/manufactured home, or garage/shed; or
- The property improvement to land value ratio is < 0.5 (i.e., assessed improvements value divided by assessed land value <0.5).

Exhibit 8. Examples of Under-Utilized Parcels



Source: BERK, 2020.

- **Step 1.6: Identify Platted Lots.** Single-family parcels that are platted lots recorded prior to the January 1, 2020 "look back" date should be identified and removed from the land supply prior to application of critical areas deductions (Step 3) if they are classified as Vacant, Partially Utilized, or Under-Utilized. As part of approved plats, these properties have already undergone critical areas review and should not have deductions applied again. Development potential for these platted lots is calculated separately in Step 8. As part of this process, any parcel-level attribute information added as part of the Infrastructure Gap Review (Step 0) should be maintained to ensure that any density limits or modifications to market factor resulting from infrastructure gaps can be properly considered when calculating development potential in Step 8.

  Where platted lots are identified, set the "Platted Lot" field to TRUE. Platted lots are identified by Assessor tax account number with the following query:

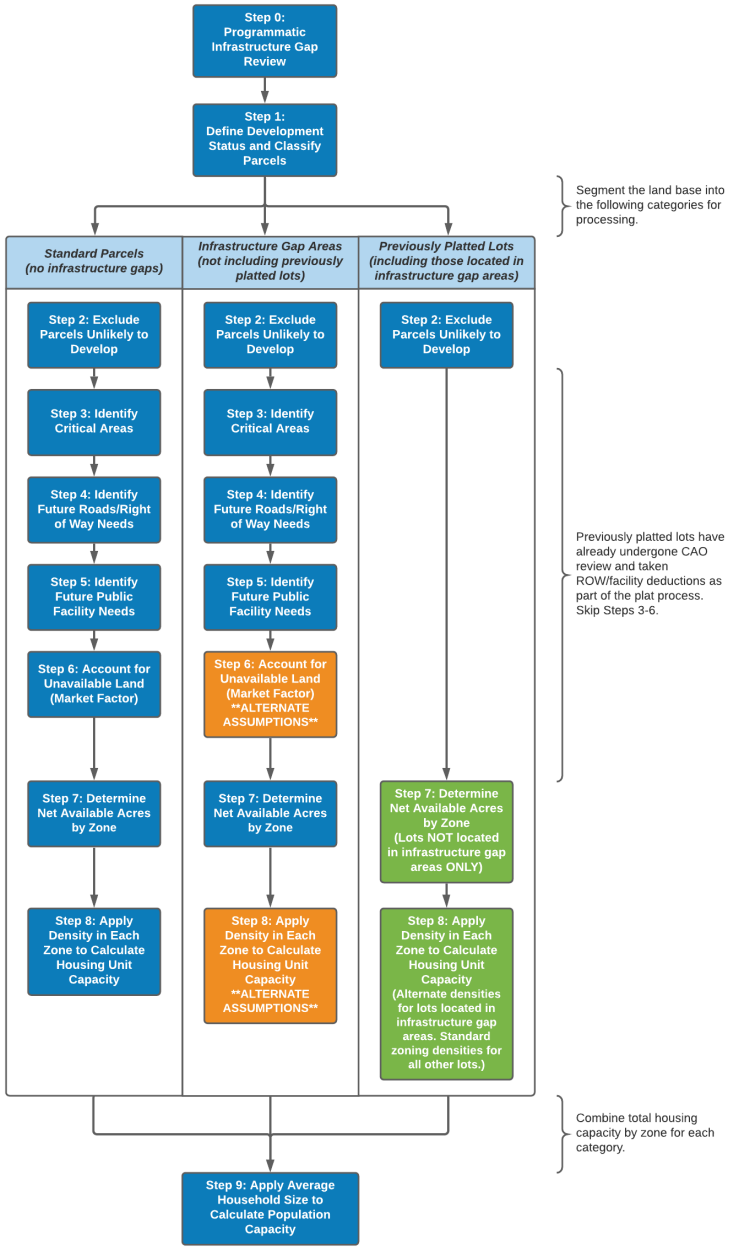
  ```
  SELECT FROM GIS.PARCEL_POLY WHERE [ACCT_NO] >= '37**-***-***-****'
  ```

- **Step 1.7: Segment Land Base for Processing.** While the LCA provides a standard methodology for analyzing land capacity, deviations are necessary to account for unique circumstances. Infrastructure gap areas as identified in Step 0 are one such special consideration, and platted lots identified in

Step 1.6 are another. In this sub-step, the land base should be segmented into three groups, and each group will proceed through Steps 2-8 separately. The net housing capacity by zone for each group will be recombined in Step 9 to determine total housing and population capacity. Using GIS, segment the land base into three feature classes based on the criteria below:

- **Previously Platted Lots:** Previously platted lots have already undergone review and deductions for critical areas, roads, and public facilities. As such, these properties should not repeat those steps in this LCA process. Previously Platted Lots will complete Step 2, then proceed to Step 7.
  - Using GIS, select all properties where "Platted Lot" equals TRUE. Export these properties to a new GIS feature class, "LCA_Platted_Lots."
    Any infrastructure-related attributes established in Step 0 should be maintained.
- **Infrastructure Gap Parcels:** Properties located within identified infrastructure gaps in Step 0 are not anticipated to achieve the same level or development as properties without infrastructure gaps. These properties will complete Steps 2-8, but they will use alternative growth assumptions (either an alternative assumed density or alternate market factor).
  - Using GIS, select all properties where "Infrastructure Gap" is not NULL, and "Platted Lot" equals FALSE. Export these properties to a new GIS feature class, "LCA_InfraGap_Parcels."
- **Standard Parcels:** Properties not flagged as Platted Lots and not located in an infrastructure gap area are not subject to special considerations and can complete Steps 2-8 without using alternate assumptions.
  - Using GIS, select all properties where "Platted Lot" equals FALSE, and "Infrastructure Gap" is NULL. Export these properties to a new GIS feature class, "LCA_Standard_Parcels."

Exhibit 9. Residential Land Supply Data Processing Diagram



Step 2: Exclude Parcels Unlikely to Develop

This step refines the classifications from Step 1. This refinement is intended to address additional factors that could affect development potential, such as high-value homes that may be unlikely to redevelop or subdivide, despite having adequate acreage to do so.

- **Step 2.1: Exclude High-Value Residential Parcels.** For parcels that meet the following criterion, change LCA Class to "Exclude":
  - The assessed value of property improvements is greater than 2.5 X the parcel's assessed land value.

DEVELOPMENT POTENTIAL OF HIGH-VALUE HOMES

Step 2.1 examines properties with special circumstances that make them unlikely to redevelop, regardless of subdivision potential or zoning. Often, these properties are high-value, luxury single-family homes with larger lot sizes and high improvement values relative to the value of the underlying land.

The methodology identifies these properties on the basis of improvement-to-land value ratio to control for variations in land values across large areas. Local jurisdictions may consider local property value conditions and set alternative thresholds, as appropriate.

Step 3: Identify Critical Areas

Critical areas are defined by the GMA generally as wetlands, frequently flooded areas, geologically hazardous areas, fish and wildlife habitat conservation areas, and critical aquifer recharge areas. These are all environmentally sensitive areas that must be protected under GMA and are generally not available for development. This step determines the location of critical areas and applies a mosaic feature that generalizes buffers and required setbacks. Once identified, these areas are deducted from the remaining vacant, partially utilized, and underutilized land supply.

CRITICAL AREAS

The methodology for Step 3 is based on Kitsap County's adopted framework for regulating critical areas. Local jurisdictions may include additional environmental constraints or apply different reduction factors, depending on local regulations.

This analysis assumes a percentage of critical areas can be legally developed under the current Critical Areas Ordinance. The likelihood that an area can be developed depends upon the type of environmental sensitivity. This method differentiates "Areas of Moderate Geologic Hazard" from other "Critical Areas" and applies a different partial reduction of acreage for each category when calculating developable land supply. Further, this analysis assumes that most jurisdictions do not limit residential development in critical aquifer recharge areas or in frequently flooded areas. For example, Kitsap County Code (KCC 19.600.620) does not list residential development as an activity with a potential groundwater threat and thus does not limit residential development. Also, Kitsap County Code (chapter 15.12 KCC) does not generally prohibit residential development in frequently flooded areas, except in designated floodways, but rather imposes structural building standards. After review of designated floodways in Flood Insurance Rate Maps, most of these areas are located outside of UGAs, along shorelines, are located on public lands, or are notated along DNR typed water courses. The DNR typed watercourses are already included in this reduction factor and so no additional reduction for FEMA flood hazard along streams corridors is included. Should city regulations prohibit or limit development in critical aquifer recharge areas or frequently flooded areas, those jurisdictions should account for and include these areas in the critical area mosaic.

The Critical Areas mosaic represents the areas most highly encumbered by the presence of environmental features. Components of the mosaic include the following critical areas categories:

- **Streams:** Both perennial and seasonal streams, as well as their associated buffer areas.
- **Wetlands:** Delineated wetland areas and their associated buffers, as regulated by the Critical Areas Ordinance.
- **Water Bodies:** Areas of standing water that cover a portion of a parcel, including lakes, ponds, bogs, or saltwater.
- **Hydric Soils:** Inclusion of hydric soils in the critical areas mosaic captures areas that have the potential to be classified as wetlands, even if no formal wetland delineation has been performed.
- **Areas of High Geologic Hazard:** Unstable areas with steep slopes or other geologic characteristics that make them highly unsuitable for development.

Areas of Moderate Geologic Hazard include lands with moderate slopes, seismic concerns, or erosion risks, but they are not as sensitive as the high geologic hazard areas included in the Critical Areas mosaic and are therefore assigned a lower reduction factor.

Exhibit 10 provides a detailed description of each critical areas mosaic component, data sources, associated buffer widths, and land supply reduction factors.

The following sub-steps are applied to the "LCA_Standard_Parcels" and "LCA_InfraGap_Parcels" land supply datasets. The "LCA_Platted_Lots" dataset does not complete Steps 3-6.

- **Step 3.1: Construct critical areas mosaic.** For each class of critical area (streams, water bodies, wetlands, hydric soils, and geologic hazards), apply the following GIS operations:
  - Buffer features according to adopted buffers and setbacks, as established in the latest Critical Areas Ordinance.
  - With the exception of Moderate Geologic Hazard area, dissolve all critical area and buffer/setback areas to create a single Critical Areas polygon.
  - Dissolve all Moderate Geologic Hazard features and associated buffer/setback areas to create a single polygon.
- **Step 3.2: Overlay critical areas mosaic on parcel base.**
  - Select Vacant, Partially Utilized, and Under-Utilized parcels and dissolve to create an aggregated Developable Lands GIS feature class. The dissolve operation should respect LCA classification, zoning, and any infrastructure gaps identified in Step 0. Ensure that the resulting feature class maintains the following attributes:
    - LCA Classification;
    - Zoning;
    - Infrastructure gap type; and
    - Alternative assumed density or alternative market factor (identified as part of Step 0.2).
  - Overlay the Critical Areas polygon and the Areas of Moderate Geologic Hazard polygon with

the aggregated Developable Lands feature class. Perform a union of these three datasets to generate an updated Developable Lands feature class consisting of the following:

- Areas with no environmental constraints;
- Critical Areas; and
- Areas of Moderate Geologic Hazard.

- Areas of environmental constraint that do not intersect Vacant, Partially Utilized, or Under-Utilized parcels should be excluded from the updated Developable Lands feature class.
- At this point, the GIS feature class can be exported into a tabular format for additional spreadsheet-based operations in Microsoft Excel or a similar program. Subsequent steps will refer to this as the "Buildable Lands table."

- **Step 3.3: Apply critical area reductions**
  - Add a "Developable Acres" column to the Buildable Lands table. This column represents the baseline aggregate acreage available for development after consideration of critical areas and is calculated in the following steps. Further deductions for roads, infrastructure, and public uses will be applied in Steps 4-7.
  - For each record in the Buildable Lands table, calculate developable acres as follows:
    - For areas without environmental constraints, set equal to total acreage of the polygon.
    - For areas impacted by Critical Areas, set Developable Acres to 25% of overall polygon acreage (75% reduction).
    - For areas impacted by Areas of Moderate Geologic Hazard, set Developable acres to 50% of overall polygon acreage (50% reduction).

Exhibit 10. Parameters for Identifying Critical Area Reductions

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
Streams					
DNR Water-courses	**S:** All waters, within their bankfull width, as inventoried as "shoreline of the state" under chapter 90.58 RCW (Segments of Big Beef Creek, Curley Creek, Chico Creek, Burley Creek, Union River, Blackjack Creek and Tahuya River)	200 feet	15 feet beyond buffer	75%	WCHYDRO contains watercourses represented as arcs or lines created by the Washington State Department of Natural Resources. These occur

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
	F: Segments of natural waters other than Type S Waters, which are within the bankfull widths of defined channels and periodically inundated areas of their associated wetlands or within lakes, ponds or impoundments having a surface area of 0.5 acre or greater at seasonal low water and which in any case contain fish habitat.	150 feet	15 feet beyond buffer	75%	alone as single arc watercourses representing streams, ditches, or pipelines, or as centerlines through water body polygons such as double-banked streams, lakes, impoundments, reservoirs, wet areas, or glaciers. Also included are areas where the Wild Fish Conservancy has field-surveyed streams, where accessible, for fish presence and overall condition.
	NP: Segments of natural waters within the bankfull width of defined channels that are perennial nonfish habitat streams. Perennial streams are flowing waters that do not go dry any time of the year of normal rainfall.	50 feet	15 feet beyond buffer	75%	
	NS: Segments of natural waters within the bankfull width of defined channels that are not Type S, F or Np Waters. These are seasonal, nonfish habitat streams in which surface flow is not present for at least some portion of the year of normal rainfall.	50 feet	15 feet beyond buffer	75%	
Wetlands					
Wetlands	**Category I:** Category I wetlands include, but are not limited to, wetlands that represent rare or unique wetland types, those that are more sensitive to disturbance than most wetlands, those that are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime, or those that provide a high level of function. Category I wetlands score twenty-three points or more out of twenty-seven on the wetlands ratings system. *(Washington State Wetland Rating System for Western Washington, revised 2014, or as hereafter amended)*	92.5 feet		75%	All wetland delineations are done in accordance with the approved federal wetland delineation manual and applicable regional supplement. All areas within the county that meet the wetland designation criteria are designated critical areas and are subject to the provisions of Kitsap County Code

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
	Category II: Category II wetlands are those wetlands that are more difficult to replace and provide high levels of some functions. Category II wetlands score between twenty and twenty-two points out of twenty-seven on the wetlands ratings system. *(Washington State Wetland Rating System for Western Washington, revised 2014, or as hereafter amended)* **Category III:** Category III wetlands are those wetlands with a moderate level of function and can often be adequately replaced with mitigation. Category III wetlands score between sixteen and nineteen points on the wetlands ratings system. *(Washington State Wetland Rating System for Western Washington, revised 2014, or as hereafter amended)* **Category IV:** Category IV wetlands have the lowest level of function and are often heavily disturbed. Category IV wetlands score less than sixteen points out of twenty-seven on the wetlands ratings system. *(Washington State Wetland Rating System for Western Washington, revised 2014, or as hereafter amended)*				Title 19 – Critical Areas Ordinance. Through personal communication with environmental review staff, the most common wetland categories found in urban areas are Category III and IV wetlands. The characteristics of these common wetland types were moderate level of function. In very rare circumstances since the adoption of the 2017 CAO, low functioning/value Category II were delineated. Discussion was also held on common modifications of buffer standards allowed in code. This includes buffer averaging, administrative buffer reductions of 25% or less (Type II decision) of if greater than a 25% buffer reduction, buffer variance approved by the Hearings Examiner (Type III decision). To calculate average buffer widths, the most common wetland category found in urban areas was used (Category III to IV). The range of buffer widths from moderate functioning wetlands are 75ft to 110ft, with average at 92.5 feet.

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
Water Bodies					
Water Bodies	▪ **Bay, Estuary, Ocean or Sea** (Water Body cartographic feature code: 116) ▪ **Lake, Pond, Reservoir, Gravel pit or quarry filled with water** (Water Body cartographic feature code: 421, 101, 402) ▪ **Marsh, wet area, swamp or bog** (Water Body cartographic feature code: 111)			75%	WBHYDRO contains water body polygons, such as double-banked streams, lakes, impoundments, reservoirs, wet areas, or glaciers. The purpose of including these features in the mosaic is to ensure that isolated water areas (such as lakes, ponds, or bogs) not covered by other categories are properly accounted for and removed from the land supply.
Hydric Soils					
Department of Natural Resources Soil Survey	**Soil Description:** ▪ Bellingham silty clay loam ▪ McKenna gravelly loam ▪ Mukilteo peat ▪ Norma fine sandy loam ▪ Semiahmoo muck ▪ Shalcar muck ▪ Shelton-McKenna complex ▪ 0-10 percent slope ▪ Tacoma silt loam			75%	Potential wetlands

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
Geohazards					
Geohazard	**Areas of High Geologic Hazard:** a) Areas with slopes greater than thirty percent and mapped by the Coastal Zone Atlas or Quaternary Geology and Stratigraphy of Kitsap County as "Unstable" (U), "Unstable Old Land Slides" (UOS) or "Unstable Recent Slides" (URS). b) Areas deemed by a Geologist to meet the criteria.			75%	The GEOHAZARDS feature class is a union of the DNR & Natural Resource Conservation Service's (SCS) 1980 Soil Survey for Kitsap County and the soil STABILITY classification from the 1979 "Quaternary Geology and Stratigraphy of

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
	Areas of Moderate Geologic Hazard: a) Areas designated U, UOS, or URS in the Coastal Zone Atlas or Quaternary Geology and Stratigraphy of Kitsap County, with slopes less than thirty percent; or areas found by a qualified geologist to meet the criteria for U, URS, and UOS with slopes less than thirty percent; or b) Slopes identified as "Intermediate" (I) in the Coastal Zone Atlas or Quaternary Geology and Stratigraphy of Kitsap County, or areas found by a qualified geologist to meet the criteria of I; or c) Slopes fifteen percent or greater, not classified as I, U, UOS, or URS, with soils classified by the Natural Resources Conservation Service as "highly erodible" or "potentially highly erodible;" or d) Slopes of fifteen percent or greater with springs or groundwater seepage not identified in Items 1 and 2, above; or e) Seismic areas subject to liquefaction from earthquakes (seismic hazard areas) such as hydric soils as identified by the Natural Resources Conservation Service, and areas that have been filled to make a site more suitable. Seismic areas may include former wetlands which have been covered with fill.			50%	Kitsap County" thesis work by Jerald Deeter.

Source: Kitsap County, 2014.

Step 4: Identify Future Roads/Right of Way Needs

Roads, right of way, and traffic mitigation are necessary for new development, particularly undeveloped properties. The LCA applies a deduction for future road needs after accounting for environmentally critical areas in Step 3. Road and right of way deductions necessary for a given development project can depend on a variety of factors, including level of serve for roadway segments and intersections, site characteristics, environmental features, and permitting requirements. The standard deduction used here is based on review of permit trends and code requirements in unincorporated Kitsap County. The following applies to the "LCA_Standard_Parcels" and "LCA_InfraGap_Parcels" land supply datasets. The "LCA_Platted_Lots" dataset does not complete Steps 3-6.

For each record in the Buildable Lands table, calculate deductions for future roads and right-of-way as follows:

- Add column "ROW Deduction."
- Calculate deduction according to the following formula:
  - "ROW Deduction" = 20% of "Developable Acres"
  -

Step 5: Identify Future Public Facility Needs

After accounting for new roads, right of way, and traffic mitigation in Step 4, the LCA further deducts land necessary for construction of public facilities and other on-site improvements needed to serve new development, such as utility easements, on-site stormwater detention facilities, tree retention, trails, common open space and other on-site facilities required by development regulations. The deduction for these facilities should be taken based on the remaining buildable area after the road/right of way deduction is applied. The standard deduction used here is based on review of permit trends and code requirements in unincorporated Kitsap County. The following applies to the "LCA_Standard_Parcels" and

Customizing Road, Infrastructure, and Market Factor Deductions

The deductions described in Steps 4-7 are intended to address future infrastructure needs by new development and market conditions in unincorporated Kitsap County. Modifications to these assumptions may be necessary in more urban areas, and cities are encouraged to develop custom deductions that best fit their circumstances.

Road/Right of Way Deduction

Right of way and private circulation needs may vary between unincorporated areas and cities. Developable lands in urban areas may already be served by established road networks, thereby reducing the need for new roads or off-site improvements compared to other jurisdictions. The County guidance establishes a single deduction factor for all unincorporated areas, but cities may consider modifying roads/right of way deductions based on local conditions. For example, cities whose redevelopable land supply is concentrated in areas already served by roads and appropriate levels of service may establish a lower deduction factor for Under-Utilized properties compared to Vacant lands.

Public Facility Deduction

Public facilities and other on-site improvements needed to serve new development may vary across jurisdictions. Consider public facility needs such as, utility easements, on-site stormwater detention facilities, tree retention, trails, common open space and other on-site facilities required by local development regulations. These facilities may already exist in urban areas, requiring relatively little additional land associated with new development. If so, Cities may consider reducing deductions for public facilities accordingly.

Unavailable Land (Market Factor)

High demand for urban real estate may reduce the amount of land that stays unavailable for development, and market factors may also vary across a city, depending on planning/zoning frameworks in place.

"LCA_InfraGap_Parcels" land supply datasets. The "LCA_Platted_Lots" dataset does not complete Steps 3-6.

For each record in the Buildable Lands table, calculate deductions for future public facilities as follows:

- Add column "PubFac Deduction."
- Calculate deduction according to the following formula::
  - "PubFac Deduction" = 20% of ("Developable Acres" – "ROW Deduction")

Step 6: Account for Unavailable Lands (Market Factor)

In addition to land needed for public infrastructure, some percentage of otherwise developable land is likely to remain unavailable due to market conditions and landowner intent. In general, Commerce Guidance indicates larger urban jurisdictions with significant development and redevelopment activity observed or expected will likely find and assume lower market supply factors. Other jurisdictions not anticipating substantial redevelopment and/or still experiencing urbanization of unimproved areas will likely assume higher market supply factors (page 41).

The following sub-steps apply to the "LCA_Standard_Parcels" and "LCA_InfraGap_Parcels" land supply datasets. The "LCA_Platted_Lots" dataset does not complete Steps 3-6.

Step 6.1. Identify Residential Product Type for Each Zone

Assign a housing product type (Single Family or Multifamily/Mixed Residential) to each zone based on anticipated predominant uses. The product type assigned should represent the predominant residential building typology and use that is likely to be developed for that zone, based either on past buildout or what is envisioned and supported by development regulations and requirements.

Note, that the alternative assumed densities selected in Step 8 should be consistent with the product type selected in Step 6.1 to ensure the appropriate market factor range is applied to determine buildable land capacity.

Exhibit 11. Residential Product Type Examples

Product Type	Description/Application	Illustrative Examples
Single Family	All areas where single family residential product inclusive of any of the following listed as the predominant use: detached, duplex, tri-plex four plex or townhouse plat.	Detached single family homes and subdivisions, attached townhomes and duplexes
Multifamily/Mixed Residential	All areas where multilevel stacked residential product in the form of rental housing or condominium ownership is the predominant permitted use. Inclusive of high density multifamily and mixed use developments	Stacked flat apartment buildings, garden style apartment complexes, mid rise multifamily podium projects, mid rise multifamily podium projects with ground floor commercial uses, residential high rise, residential condominium projects.

Source: Heartland, 2021.

Step 6.2. Identify Market Factor Range by Geography

For each record in the Buildable Lands table:

- Add column "Market Factor Range."
- Assign the applicable market factor range for each zone based on its geographic location and assigned Product Type, according to the market factor matrix contained in Appendix X – Market Factor Guidance Framework:
  - Low (5-20%);
  - Medium (20-35%); or
  - High (35-50%).

The market factor ranges in Appendix X account for the expected rate of absorption of land supply development over the next 20 years. In other words, it accounts for the percentage of land that is unlikely to develop due to market conditions and demand. Therefore, a high assumed market factor means barriers to development may exist that could impact additional growth in that jurisdiction within the 20-year planning period.

Commented [LW1]: See attached slide deck from Heartland

Step 6.3. Establish Specific Market Factor Based on Local Conditions.

Step 6.3 provides a framework for selecting a final market factor from within the range assigned in Step 6.2, based on specific local conditions. A detailed discussion of conditions that warrant adjustments to market factors is contained in Appendix X – Market Factor Guidance Framework; the conditions include the following:

Commented [LW2]: See attached slide deck from Heartland

- Vacant vs. Partially Utilized or Under-Utilized lands;
- Local market conditions;
- Single-family uses in recently up-zoned areas;
- Restrictive covenants in planned communities;
- Known parcel size and assemblage challenges;
- Transit accessibility;
- Infrastructure limitations; and
- Areas designated as Growth Centers.

Local jurisdictions should review and incorporate these criteria when setting their local market factors and document their assumptions for each zone and geographic area.

For each record in the Buildable Lands table:

- Add 2 columns: "Market Factor Final" and "Market Deduction."
- For the "LCA_Standard_Parcels" dataset:
  - Apply the criteria in Appendix X – Market Factor Guidance Framework and set "Market Factor Final" equal to the finalized market factor.
  - Calculate "Market Deduction" as:
    ("Developable Acres" – ("ROW Deduction" + "PubFac Deduction"))

Commented [LW3]: See attached slide deck from Heartland

- For the "LCA_InfraGap_Parcels" dataset:
  - If an alternate market factor was established in Step 0, set "Market Factor Final" equal to this value.
  - If no alternate market factor was established in Step 0, apply the criteria in Appendix X – Market Factor Guidance Framework and set "Market Factor Final" equal to the finalized market factor.
  - Calculate "Market Deduction" as:
    ("Developable Acres" – ("ROW Deduction" + "PubFac Deduction")) x "Market Factor Final"
- For the "LCA_Platted_Lots" dataset, skip this step and proceed to Step 7.

Commented [LW4]: See attached slide deck from Heartland

Step 7: Determine Available Net Acres

This step calculates Net Available Acres by applying the deductions from Steps 4-6 to the Developable Acres calculated in Step 3. Assumptions for under-utilized and partially utilized platted lots are different because redevelopment (typically on older plats from the 1960s-1970s) is often substantially impeded if not functionally prohibited, by plat requirements or covenants. An example of these impediments includes strict plat covenants and requirements for majority approval of affected landowners within a plat if additional lots are to be created. The 25% of under-utilized and partially utilized platted lots that remain in the land supply are intended to account for some additional development capacity, including capacity for accessory dwelling units (ADUs). Add a new column to the Buildable Lands table, "Net Acres," and calculate for each record as follows:

- "LCA_Standard_Parcels" and "LCA_InfraGap_Parcels" land supply datasets:
  - "Net Acres" = "Developable Acres" – ("ROW Deduction" + "PubFac Deduction" + "Market Deduction")
- "LCA_Platted_Lots" dataset:
  - If "Infrastructure Gap" is NULL, calculate net acreage by development classification:
    - **Vacant:** "Net Acres" = 100% of platted parcel area.
    - **Under-Utilized and Partially Utilized:** "Net Acres" = 25% of platted parcel area.
  - If "Infrastructure Gap" is not NULL, do not calculate net acreage. Capacity will be assigned to these records in Step 8.

Step 8: Apply Density in Each Zone to Calculate Housing Unit Capacity

Step 8.1. Calculate Gross Housing Unit Capacity

Gross housing unit capacity is calculated by applying density assumptions for each zone to net available acres. Density assumptions should consider factors such as historical achieved density in the zone, whether zoning or development regulations have recently changed, infrastructure investments or other amenities that change market conditions, market trends, and the impact of development regulations such as setbacks, height limits, and parking requirements on development feasibility. Local jurisdictions should set their own density assumptions based on each community's zoning scheme, historical achieved residential densities, market trends and other local circumstances. Jurisdictions should provide a description/rationale for density assumptions (see text box on Page 4 for guidance). Density assumptions for unincorporated Kitsap County based on a review of the factors above are shown in Exhibit 12.

Comparing Achieved and Assumed Densities

RCW 36.70A.215(3)(d): Determine the actual density of housing that has been constructed and the actual amount of land developed for commercial and industrial uses within the urban growth area since the adoption of a comprehensive plan under this chapter or since the last periodic evaluation…

WAC 365-196-315(5)(a)(ii): Evaluation under RCW 36.70A.215 (3)(b) should compare the achieved densities, type and density range for commercial, industrial and residential land uses with the assumed densities that were envisioned in the applicable county-wide planning policies, and the comprehensive plan.

Commerce Guidance on Lack of Information: When there are insufficient data to use in projecting future urban capacity for redevelopment areas, comparable sites, even if outside of the jurisdiction or assessment area, can provide useful data… (Page 35)

In mixed-use zones where new development is assumed to be single use (residential *or* commercial, not vertical mixed-use), jurisdictions should consider the proportion of developable land that is anticipated to be developed for residential versus commercial uses, based on residential densities allowed, achieved, and assumed. Special considerations for calculating capacity for vertical mixed-use development are described in the sidebar.

Calculate Gross Housing Unit Capacity for each record in the three land supply datasets as follows:

- **"LCA_Standard_Parcels":**
  - Use standard assumed densities by zone, as shown in Exhibit 12.
  - Gross Housing Unit Capacity = Net Acres x Standard Assumed Density x Residential Split
- **"LCA_InfraGap_Parcels":**
  - If alternative assumed densities were established in Step 0:
    - Gross Housing Unit Capacity = Net Acres x Alternative Assumed Density
  - If alternative assumed densities were not established in Step 0:
    - Gross Housing Unit Capacity = Net Acres x Standard Assumed Density x Residential Split
- **"LCA_Platted_Lots":**
  - If "Infrastructure Gap" is NULL, calculate gross capacity using standard assumed densities by zone.
    - Gross Housing Unit Capacity = Net Acres x Standard Assumed Density x Residential Split
  - If "Infrastructure Gap" is not NULL, calculate gross housing capacity by development classification:
    - **Vacant:** Assume 1 unit of capacity per vacant platted lot.
    - **Under-Utilized and Partially Utilized:** Assume zero housing capacity due to lack of infrastructure.

Density Assumptions for Mixed-Use Zones

Commerce Guidelines emphasize the importance of not duplicating residential and employment capacity in mixed use zones. Local jurisdictions may estimate future residential capacity in mixed use zone based on achieved residential densities (counting total residential units built per acre after deducting critical areas) or by dividing the land base proportionally between residential and commercial uses based on floor area ratios (page 25-27, including figure 8).

The example density assumptions for Kitsap County (Exhibit 12) assume that 50% of the developable acreage in mixed-use zones is available for residential development, and the remaining 50% is available for employment capacity.

Local jurisdictions are encouraged to develop their own assumptions based on local conditions, observed trends, example developments where there is no recent history, and/or mixed-use development regulations.

Considerations for Vertical Mixed-Use Development

In the example of vertical mixed-use areas, both residential and commercial densities should be calculated using total acreage.

For example, residential density would be calculated as total housing units divided by total acreage. Commercial FAR would be calculated as total developed commercial square footage divided by total acreage. These calculated densities can then each be applied to total developable acreage in the mixed-use zone to estimate residential and commercial capacity, without using an acreage split.

Exhibit 12. Example: County Residential Density Assumptions by Zone

Zoning	Allowed Density (units per acre)	Achieved Density (units per acre)	Density Assumed for Capacity Calculation (units per acre)	Percent Residential	Assumed Densities: Description/Rationale
Urban Restricted (UR)	1-5			100%	
Greenbelt (GB)	1-4			100%	
Urban Cluster Residential (UCR)	5-9			100%	
Urban Low Residential (UL)	5-9			100%	
Urban Medium Residential (UM)	10-18			100%	
Urban High Residential (UH)	19-30			100%	
Urban Village Center (UVC)	10+			50%	

Source: Kitsap County, 2020.

Step 8.2. Calculate Net Housing Unit Capacity

After applying density assumptions, aggregate gross housing capacity by zone. Net housing capacity by zone is calculated by subtracting existing housing units on Partially Utilized and Under-Utilized properties in each zone:

- Net Housing Unit Capacity = Gross Housing Unit Capacity – Existing Housing Units

Step 8.3. Address Pipeline Development

After Net Housing Unit Capacity is calculated for each zone, adjust for pipeline development that was set aside in Step 1. Development projects approved after the January 1, 2020 cutoff date, final platted lots without building permits, and approved master planned or phased development should be included. Calculate pipeline housing units for each zone as follows:

- **Final platted lots:** 1 single-family unit per lot;
- **Finalized land use permits or development proposals:** Total proposed housing unit count as approved by permit; and
- **Approved master planned or phased development:** If the property was set aside as "Pipeline" in

Step 1 and assigned an approved density level, calculate unit yield based on property acreage and approved density.

After calculating Pipeline units by zone, add them back into Net Housing Unit Capacity by zone.

Step 8.4. Address Capacity for Accessory Dwelling Units (ADU's) for Additional Urban Housing Capacity (Optional)

Accessory Dwelling Units (ADU's) offer the potential for additional housing capacity on **developed** single-family lots. Each jurisdiction may develop assumptions or analysis to determine the capacity for new ADUs that could reasonably be expected based on development regulations, permitting trends, and local market conditions. These assumptions should include a relatively high market factor to account for homeowners that would not choose to add an ADU. Any additional capacity factors for ADU's should **not** be applied to the "LCA_Platted_Lots" dataset. The potential for additional ADU development on Partially Utilized and Under-Utilized properties is already considered as part of the net acreage calculations in Step 7.

Maintain ADU capacity as a separate line-item from Net Housing Unit Capacity for each zone.

Step 9: Apply Average Household Size to Calculate Population Capacity

The final step of the Residential LCA is the calculation of population capacity based on Net Housing Unit Capacity by zone calculated in Step 8.

Step 9.1. Consolidate Land Supply Datasets

Consolidate the Net Housing Capacity tables for the three separate land supply datasets ("LCA_Platted_Lots," "LCA_InfraGap_Parcels," and "LCA_Standard_Parcels") into a single table and calculate total net housing capacity by zone.

Step 9.2. Calculate Population Capacity by Zone

For each zone in the consolidated table, calculate population capacity as follows:

- Apply a 5% discount to Net Housing Unit Capacity to reflect estimated vacancy rate.
- After applying vacancy discount, multiply the housing unit capacity by the assumed household size. Exhibit 13 provides average household size assumptions to use in each city and unincorporated UGA. Apply the single-family household size to capacity in zones assumed to be predominantly single-family homes. Apply the multifamily household size assumption to capacity in zones assumed to be predominantly multifamily homes.[3]

[3] Average household size varies across Kitsap County. And it also varies between single family and multifamily housing. Exhibit 13 uses the best available data from the Census to provide reasonable assumptions by jurisdiction and unincorporated UGA.

Exhibit 13. Average Household Assumptions by Jurisdiction and UGA

Jurisdiction/UGA	Single Family Household Size	Multifamily Household Size
City of Bainbridge Island	2.45	2.22
City of Bremerton	2.33	2.13
City of Port Orchard	2.64	2.42
City of Poulsbo	2.51	2.07
Bremerton - Unincorporated UGA	2.33	2.13
Central Kitsap - Unincorporated UGA	2.56	2.31
Kingston - Unincorporated UGA	2.36	1.8
Port Orchard - Unincorporated UGA	2.76	2.11
Poulsbo - Unincorporated UGA	2.51	2.07
Silverdale - Unincorporated UGA	2.77	2.12

Note: The Census does not publish average household size by housing type. Therefore, average ownership household size is used as a proxy for single family and average renter household size is used as a proxy for multifamily. For unincorporated UGAs, household sizes are based on the best matching Census Defined Place, which may be the neighboring city. For Central Kitsap the county averages are used.

Source: U.S. Census American Community Survey 5-Yr Estimates, 2015-2019; BERK, 2021.

- Calculate population capacity for ADU's. For each zone, apply a 5% vacancy discount to ADU capacity, and then multiply by the latest renter household size reported by the ACS.
- Summarize total population capacity by zone.

COMMERCIAL/INDUSTRIAL LCA

Step 1. Define Development Status and Classify Parcels

The Commercial/Industrial LCA identifies vacant, partially underutilized and underutilized parcels in non-residential and mixed-use zones to calculate available capacity for development of commercial and industrial space and associated employment. The first step in this process is to categorize properties according to their development potential. The following steps apply only to properties located in non-residential and mixed-use zoning districts.

Exhibit 14. GIS Database Fields to be Added – Commercial/Industrial LCA Step 1

Field Name	Field Type	Comments
Zone	Text	Zoning district
LCA Class	Text	Land Capacity Analysis Classification, as determined in Step 1 (Excluded, Pipeline, Vacant, or Under-Utilized).
Pipeline FAR	Numeric	Approved/proposed floor area ratio (total building square footage/total lot square footage) for Pipeline properties, as determined in Step 1.1. For non-Pipeline properties, set value to Null.

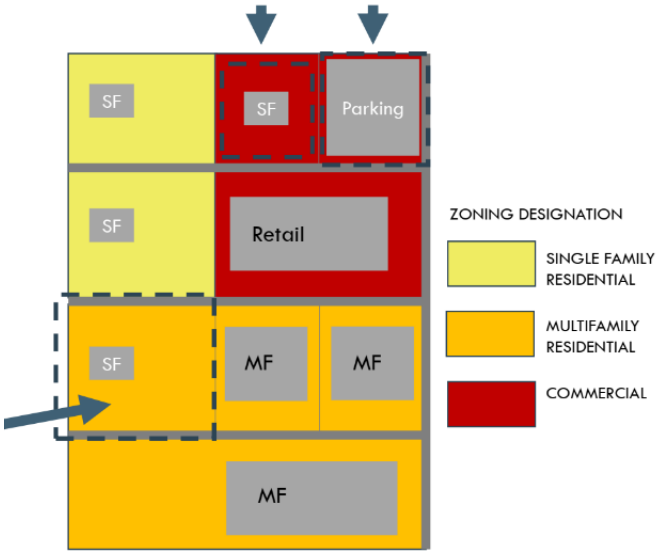
Source: BERK, 2020.

- **Step 1.1: Identify Pipeline Properties (OPTIONAL).** Pipeline development refers to growth that has been permitted or approved between January 1, 2020 and December 31, 2020 and not captured during the 2013-2019 evaluation period. but was not built. Unless there is a reason to believe the growth will not actually be completed, this growth can be accounted for in the capacity calculations. Jurisdictions that wish to account for pipeline development separately in their LCA can remove the parcels from the land supply at the outset of the process and add them back in later based on approved final permits or development agreements. This can result in a more accurate accounting of capacity for growth. In addition, the process for approving plats, master plans, and building permits can provide a more accurate, site-level review of critical areas than the regional approach used in this LCA. Properties can be classified as "Pipeline" if they meet any of the following criteria. Jurisdictions that complete this optional step can select to use any or all of these criteria and can refine *these criteria to best reflect local circumstances*.
  - A final land use permit has been approved for the property (e.g., mixed-use, commercial, or industrial site plan) but no construction occurred between January 1, 2020 and December 31, 2020. Assign future growth for these parcels consistent with type and square footage described in the approved land use permits.
  - The property is part of a master plan or a phased development under a development agreement. For final master plans or development agreements, assign approved FAR and classify the properties as "Pipeline." If the master plan or development agreement is preliminary or still pending, assign a FAR based on building and site square footages in the proposal, but do not classify the land as "Pipeline."

- **Step 1.2: Identify Excluded Properties.** Parcels with the following use classifications are not likely to redevelop and should be classified as "Excluded":
  - Utility parcels;
  - Transportation parcels or right-of-way;
  - Marinas;
  - Cemeteries;
  - Hospitals;
  - Governmental services;
  - Schools (including higher education);
  - Churches and other places of worship;
  - Cultural, entertainment, and parks/recreation properties;
  - Tidelands and water areas; and
  - Current Use Exempt parcels (RCW 84.34); note if there is a clear intent to develop in the planning period, treat as pipeline, vacant, or partially utilized as appropriate.
  - Open space
  - Shoreline parcels less than 1 acre

  In addition, any properties identified as "Constant" in the Infrastructure Gap Review (Step 0) should be classified as "Excluded."
- **Step 1.3: Identify Vacant Properties.** Vacant parcels are properties with no development or very minimal improvements, regardless of size. These are identified in County Assessor parcel data as having a property class code associated with vacant/undeveloped land ("910 – Undeveloped Land," or "990 – Other Undeveloped Land"). For these parcels, set LCA_Class to "Vacant".
- **Step 1.4: Identify Under-Utilized Properties.** Under-utilized properties contain some amount of existing development, but there is a strong possibility that the existing use will be converted to a more intensive use during the planning period. For example, a single-family home on a property with commercial zoning could be considered under-utilized, as could a small commercial building on a property zoned for greater height or lot coverage than currently exists. (see Exhibit 15~~Exhibit 16~~). For parcels not classified as Vacant or Pipeline, assign the "Under-Utilized" classification if the property meets **any** of the following criteria:
  - The property is located in a mixed-use, commercial, or industrial zone and is occupied by a detached single-family home, cottage, mobile/manufactured home, or garage/shed; or
  - The property's improvement to land value ratio is < 0.5 (i.e., assessed improvements value divided by assessed land value <0.5).

Exhibit 15~~16~~. Examples of Under-Utilized Parcels



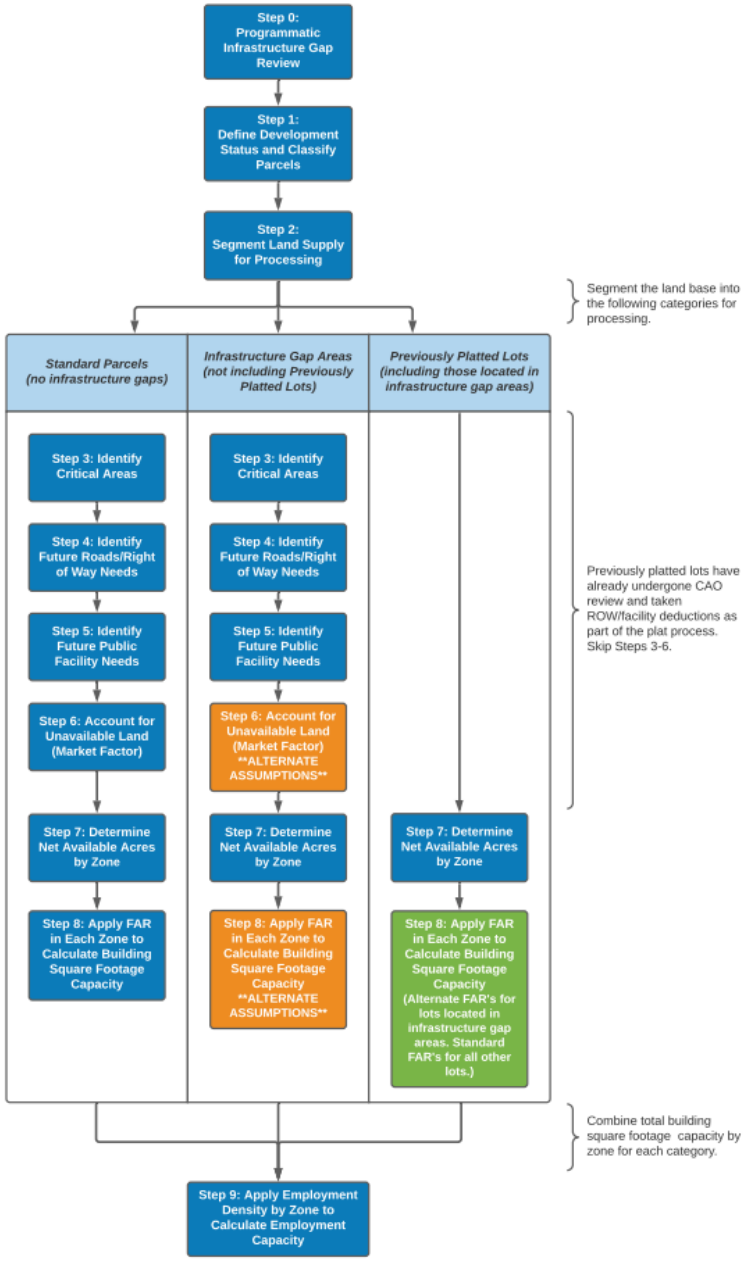
Source: BERK, 2020.

Step 2. Segment Land Base for Processing

While the LCA provides a standard methodology for analyzing land capacity, deviations are necessary to account for unique circumstances, such as infrastructure gap areas as identified in Step 0. In this Step 2, the land base should be segmented into two groups, and each group will proceed through Steps 3-8 separately. The net development capacity by zone for each group will be recombined in Step 9 to determine total building square footage and employment capacity. Using GIS, segment the land base into two feature classes based on the criteria below:

- **Previously Platted Lots:** Previously platted lots have already undergone review and deductions for critical areas, roads, and public facilities. As such, these properties should not repeat those steps in this LCA process. Previously Platted Lots will complete Step 2, then proceed to Step 7.
    - Using GIS, select all properties where "Platted Lot" equals TRUE. Export these properties to a new GIS feature class, "LCA_Comm_Platted_Lots."
- **Infrastructure Gap Parcels:** Properties located within identified infrastructure gaps in Step 0 are not anticipated to achieve the same level or development as properties without infrastructure gaps. These properties will complete Steps 3-8, but they will use alternative growth assumptions (either an alternative FAR or alternative market factor).
    - Using GIS, select all properties where "Infrastructure Gap" is not NULL and "Platted Lot" equals FALSE. Export these properties to a new GIS feature class, "LCA_Comm_InfraGap_Parcels."
- **Standard Parcels:** Properties not located in an infrastructure gap area are not subject to special considerations and can complete Steps 3-8 without using alternate assumptions.
    - Using GIS, select all properties where "Infrastructure Gap" is NULL. Export these properties to a new GIS feature class, "LCA_Comm_Standard_Parcels."

Exhibit 16~~17~~. Commercial/Industrial Land Supply Data Processing Diagram



Step 3. Identify Critical Areas

Critical areas are defined by the GMA generally as wetlands, frequently flooded areas, geologically hazardous areas, fish and wildlife habitat conservation areas, and critical aquifer recharge areas. These are all environmentally sensitive areas that must be protected under GMA and are generally not available for development. This step determines the location of critical areas and applies a mosaic feature that generalizes buffers and required setbacks. Once identified, these areas are deducted from the remaining vacant, partially utilized, and underutilized land supply.

CRITICAL AREAS

The methodology for Step 3 is based on Kitsap County's adopted framework for regulating critical areas. Local jurisdictions may include additional environmental constraints or apply different reduction factors, depending on local regulations.

This analysis assumes a percentage of critical areas can be legally developed under the current Critical Areas Ordinance. The likelihood that an area can be developed depends upon the type of environmental sensitivity. This method differentiates "Areas of Moderate Geologic Hazard" and "Critical Aquifer Recharge Areas" from other "Critical Areas" and applies a different partial reduction of acreage for each category when calculating developable land supply. This is because Kitsap County Code (in chapters 19.400 and 19.600 KCC) generally allows development with the submittal of adequate geological or hydrogeological reports; therefore, this analysis includes different reductions for those areas. Additionally, Kitsap County Code (chapter 15.12 KCC) does not generally prohibit development in frequently flooded areas, except in designated floodways, but rather imposes structural building standards. After review of designated floodways in Flood Insurance Rate Maps, most of these areas are located outside of UGAs, are located on public lands, or are notated along DNR typed water courses. The DNR typed watercourses are already included in this reduction factor and so no additional reduction for FEMA flood hazard along streams corridors is included. Should city regulations prohibit or limit development in critical aquifer recharge areas or frequently flooded areas, those jurisdictions should account for and include these areas in the critical area mosaic.

The Critical Areas mosaic represents the areas most highly encumbered by the presence of environmental features. Components of the mosaic include the following critical areas categories:

- **Streams:** Both perennial and seasonal streams, as well as their associated buffer areas.
- **Wetlands:** Delineated wetland areas and their associated buffers, as regulated by the Critical Areas Ordinance.
- **Water Bodies:** Areas of standing water that cover a portion of a parcel, including lakes, ponds, bogs, or saltwater.
- **Hydric Soils:** Inclusion of hydric soils in the critical areas mosaic captures areas that have the potential to be classified as wetlands, even if no formal wetland delineation has been performed.
- **Areas of High Geologic Hazard:** Unstable areas with steep slopes or other geologic characteristics that make them highly unsuitable for development.

Areas of Moderate Geologic Hazard include lands with moderate slopes, seismic concerns, or erosion risks, but they are not as sensitive as the high geologic hazard areas included in the Critical Areas mosaic

and are therefore assigned a lower reduction factor.

Critical Aquifer Recharge Areas (CARAs) include areas that contain hydrogeologic conditions that facilitate aquifer recharge and/or transmit contaminants to an underlying aquifer. Development activities in these areas are regulated by Kitsap County Code (KCC 19.600), with development standards applied based on the sensitivity of the individual CARA.

Exhibit 10 provides a detailed description of each critical areas mosaic component, data sources, associated buffer widths, and land supply reduction factors.

The following sub-steps are applied to the "LCA_Comm_Standard_Parcels" and "LCA_Comm_InfraGap_Parcels" land supply datasets. The "LCA_Comm_Platted_Lots" dataset does not complete Steps 3-6.

- **Step 3.1: Construct critical areas mosaic.** For each class of critical area (streams, water bodies, wetlands, hydric soils, and geologic hazards), apply the following GIS operations:
  - Buffer features according to adopted buffers and setbacks, as established in the latest Critical Areas Ordinance.
  - With the exception of Moderate Geologic Hazard area and Critical Aquifer Recharge Areas, dissolve all critical area and buffer/setback areas to create a single Critical Areas polygon.
  - Dissolve all Moderate Geologic Hazard features and associated buffer/setback areas to create a single polygon.
  - Dissolve all Critical Aquifer Recharge Area features to create a single polygon.
- **Step 3.2: Overlay critical areas mosaic on parcel base.**
  - Select Vacant and Under-Utilized parcels and dissolve to create an aggregated Developable Lands GIS feature class. The dissolve operation should respect LCA classification, zoning, and any infrastructure gaps identified in Step 0. Ensure that the resulting feature class maintains the following attributes:
    - LCA Classification;
    - Zoning;
    - Infrastructure gap type; and
    - Infrastructure FAR limit or alternate market factor (identified as part of Step 0.2).
  - Overlay the Critical Areas polygon, the Areas of Moderate Geologic Hazard polygon, and the Critical Aquifer Recharge Areas polygon with the aggregated Developable Lands feature class. Perform a union of these four datasets to generate an updated Developable Lands feature class consisting of the following:
    - Areas with no environmental constraints;
    - Critical Areas;
    - Areas of Moderate Geologic Hazard; and
    - Critical Aquifer Recharge Areas.

- Areas of environmental constraint that do not intersect Vacant or Under-Utilized parcels should be excluded from the updated Developable Lands feature class.
- At this point, the GIS feature class can be exported into a tabular format for additional spreadsheet-based operations in Microsoft Excel or a similar program. Subsequent steps will refer to this as the "Buildable Lands table."

- **Step 3.3: Apply critical area reductions.**
  - Add a "Developable Acres" column to the Buildable Lands table. This column represents the baseline aggregate acreage available for development after consideration of critical areas and is calculated in the following steps. Further deductions for roads, infrastructure, and public uses will be applied in Steps 4-7.
  - For each record in the Buildable Lands table, calculate developable acres as follows:
    - For areas without environmental constraints, set equal to total acreage of the polygon.
    - For areas impacted by Critical Areas, set Developable Acres to 25% of overall polygon acreage (75% reduction).
    - For areas impacted by Areas of Moderate Geologic Hazard, set Developable acres to 50% of overall polygon acreage (50% reduction).
    - For areas impacted by Critical Aquifer Recharge Areas, set Developable acres to 75% of overall polygon acreage (25% reduction).

Exhibit 17~~18~~. Parameters for Identifying Critical Area Reductions

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
Streams					
DNR Water-courses	**S:** All waters, within their bankfull width, as inventoried as "shoreline of the state" under chapter 90.58 RCW (Segments of Big Beef Creek, Curley Creek, Chico Creek, Burley Creek, Union River, Blackjack Creek and Tahuya River)	200 feet	15 feet beyond buffer	75%	WCHYDRO contains watercourses represented as arcs or lines created by the Washington State Department of Natural Resources. These occur

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
	F: Segments of natural waters other than Type S Waters, which are within the bankfull widths of defined channels and periodically inundated areas of their associated wetlands or within lakes, ponds or impoundments having a surface area of 0.5 acre or greater at seasonal low water and which in any case contain fish habitat.	150 feet	15 feet beyond buffer	75%	alone as single arc watercourses representing streams, ditches, or pipelines, or as centerlines through water body polygons such as double-banked streams, lakes, impoundments, reservoirs, wet areas, or glaciers. Also included are areas where the Wild Fish Conservancy has field-surveyed streams, where accessible, for fish presence and overall condition.
	NP: Segments of natural waters within the bankfull width of defined channels that are perennial nonfish habitat streams. Perennial streams are flowing waters that do not go dry any time of the year of normal rainfall.	50 feet	15 feet beyond buffer	75%	
	NS: Segments of natural waters within the bankfull width of defined channels that are not Type S, F or Np Waters. These are seasonal, nonfish habitat streams in which surface flow is not present for at least some portion of the year of normal rainfall.	50 feet	15 feet beyond buffer	75%	
Wetlands					
Wetlands	**Category I:** Category I wetlands include, but are not limited to, wetlands that represent rare or unique wetland types, those that are more sensitive to disturbance than most wetlands, those that are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime, or those that provide a high level of function. Category I wetlands score twenty-three points or more out of twenty-seven on the wetlands ratings system. *(Washington State Wetland Rating System for Western Washington, revised 2014, or as hereafter amended)*	92.5 feet		75%	All wetland delineations are done in accordance with the approved federal wetland delineation manual and applicable regional supplement. All areas within the county that meet the wetland designation criteria are designated critical areas and are subject to the provisions of Kitsap County Code

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
	Category II: Category II wetlands are those wetlands that are more difficult to replace and provide high levels of some functions. Category II wetlands score between twenty and twenty-two points out of twenty-seven on the wetlands ratings system. *(Washington State Wetland Rating System for Western Washington, revised 2014, or as hereafter amended)* **Category III:** Category III wetlands are those wetlands with a moderate level of function and can often be adequately replaced with mitigation. Category III wetlands score between sixteen and nineteen points on the wetlands ratings system. *(Washington State Wetland Rating System for Western Washington, revised 2014, or as hereafter amended)* **Category IV:** Category IV wetlands have the lowest level of function and are often heavily disturbed. Category IV wetlands score less than sixteen points out of twenty-seven on the wetlands ratings system. *(Washington State Wetland Rating System for Western Washington, revised 2014, or as hereafter amended)*				Title 19 – Critical Areas Ordinance. Through personal communication with environmental review staff, the most common wetland categories found in urban areas are Category III and IV wetlands. The characteristics of these common wetland types were moderate level of function. In very rare circumstances since the adoption of the 2017 CAO, low functioning/value Category II were delineated. Discussion was also held on common modifications of buffer standards allowed in code. This includes buffer averaging, administrative buffer reductions of 25% or less (Type II decision) of if greater than a 25% buffer reduction, buffer variance approved by the Hearings Examiner (Type III decision). To calculate average buffer widths, the most common wetland category found in urban areas was used (Category III to IV). The range of buffer widths from moderate functioning wetlands are 75ft to 110ft, with average at 92.5 feet.

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
Water Bodies					
Water Bodies	▪ **Bay, Estuary, Ocean or Sea** (Water Body cartographic feature code: 116) ▪ **Lake, Pond, Reservoir, Gravel pit or quarry filled with water** (Water Body cartographic feature code: 421, 101, 402) ▪ **Marsh, wet area, swamp or bog** (Water Body cartographic feature code: 111)			75%	WBHYDRO contains water body polygons, such as double-banked streams, lakes, impoundments, reservoirs, wet areas, or glaciers. The purpose of including these features in the mosaic is to ensure that isolated water areas (such as lakes, ponds, or bogs) not covered by other categories are properly accounted for and removed from the land supply.
Hydric Soils					
Department of Natural Resources Soil Survey	**Soil Description:** ▪ Bellingham silty clay loam ▪ McKenna gravelly loam ▪ Mukilteo peat ▪ Norma fine sandy loam ▪ Semiahmoo muck ▪ Shalcar muck ▪ Shelton-McKenna complex ▪ 0-10 percent slope ▪ Tacoma silt loam			75%	Potential wetlands

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
Geohazards					
Geohazard	**Areas of High Geologic Hazard:** a) Areas with slopes greater than thirty percent and mapped by the Coastal Zone Atlas or Quaternary Geology and Stratigraphy of Kitsap County as "Unstable" (U), "Unstable Old Land Slides" (UOS) or "Unstable Recent Slides" (URS). b) Areas deemed by a Geologist to meet the criteria.			75%	The GEOHAZARDS feature class is a union of the DNR & Natural Resource Conservation Service's (SCS) 1980 Soil Survey for Kitsap County and the soil STABILITY classification from the 1979 "Quaternary Geology and Stratigraphy of

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
	Areas of Moderate Geologic Hazard: a) Areas designated U, UOS, or URS in the Coastal Zone Atlas or Quaternary Geology and Stratigraphy of Kitsap County, with slopes less than thirty percent; or areas found by a qualified geologist to meet the criteria for U, URS, and UOS with slopes less than thirty percent; or b) Slopes identified as "Intermediate" (I) in the Coastal Zone Atlas or Quaternary Geology and Stratigraphy of Kitsap County, or areas found by a qualified geologist to meet the criteria of I; or c) Slopes fifteen percent or greater, not classified as I, U, UOS, or URS, with soils classified by the Natural Resources Conservation Service as "highly erodible" or "potentially highly erodible;" or d) Slopes of fifteen percent or greater with springs or groundwater seepage not identified in Items 1 and 2, above; or e) Seismic areas subject to liquefaction from earthquakes (seismic hazard areas) such as hydric soils as identified by the Natural Resources Conservation Service, and areas that have been filled to make a site more suitable. Seismic areas may include former wetlands which have been covered with fill.			50%	Kitsap County" thesis work by Jerald Deeter.

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
Critical Aquifer Recharge Areas (CARAs)					
CARA	**Critical Aquifer Recharge Area:** a) **Category I Critical Aquifer Recharge Areas.** Category I critical aquifer recharge areas are those areas where the potential for certain land use activities to adversely affect groundwater is high. Category I critical aquifer recharge areas include: 1) Areas inside the five-year time of travel zone for Group A water system wells, calculated in accordance with the Washington State Wellhead Protection Program. 2) Areas inside the ten-year time of travel zones in wellhead protection areas when the well draws its water from an aquifer that is at or above sea level and is overlain by permeable soils without any underlying protective impermeable layer. 3) Areas identified as significant recharge areas due to special circumstances or identified in accordance with WAC 365-190-100(4) as aquifer areas of significant potable water supply with susceptibility to groundwater contamination, including but not limited to the following: ▪ Hansville Significant Recharge Area. The Hansville aquifer is a significant potable water supply that is highly susceptible to the introduction of pollutants. Additional information regarding this aquifer is available from the Kitsap public utility district.			TBD	TBD

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
	▪ Seabeck Significant Recharge Area. The Seabeck aquifer is a significant potable water supply that is being developed for use in central and north Kitsap County. Additional information regarding this aquifer is available from the Kitsap public utility district. ▪ Island Lake Significant Recharge Area. The Island Lake aquifer is a significant potable water supply for the Silverdale area. Additional information regarding this aquifer is available from the Silverdale water district. ▪ Gorst Significant Recharge Area. Aquifers in the Gorst basin are highly susceptible to the introduction of pollutants and provide significant potable water supplies for the city of Bremerton. ▪ Poulsbo Significant Recharge Area. The Poulsbo aquifer is highly susceptible to the introduction of pollutants and provides a significant potable water supply for the Kitsap public utility district and city of Poulsbo. 4) The department may add, reclassify or remove Category I critical aquifer recharge areas based on additional information about areas of significant potable water supply with susceptibility to groundwater contamination or supply reduction, or based on changes to sole source aquifers or wellhead protection areas as identified in wellhead protection programs.				

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
	b) **Category II Critical Aquifer Recharge Areas.** Category II critical aquifer recharge areas are areas that provide recharge effects to aquifers that are current or potentially will become potable water supplies and are vulnerable to contamination based on the type of land use activity. The general location of these areas is available on the Kitsap County geographic information system. Category II critical aquifer recharge areas include: 1) Highly permeable soils (Group A hydrologic soils). The general location and characteristics of Group A hydrologic soils in Kitsap County are given in the Soil Survey of Kitsap County by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). The soil survey information is available on the Kitsap County geographic information system (GIS). 2) Areas above shallow aquifers or surface areas that are separated from the underlying aquifers by an impermeable layer that provides adequate protection from contamination to the aquifer(s) below. The general location of shallow aquifers in Kitsap County is based upon the professional judgment of licensed hydrogeologists with knowledge of the area. The location of shallow aquifers is available on the Kitsap County geographic information system (GIS).			TBD	TBD

Type	Type Description	Buffer Width	Minimum Building Setback	% Reduction	Comment
	3) Areas above the Vashon aquifer. Surface areas above the Vashon aquifer that are not separated from the underlying aquifers by a poorly permeable layer that provides adequate protection to preclude the proposed land use from contaminating the Vashon aquifer below. Vashon aquifers in Kitsap County are typically mapped as "Qva" (Vashon advance aquifer) or "Qvr" (Vashon recessional aquifer) on geologic maps. Best available information concerning the location of Vashon aquifers is available on the Kitsap County geographic information system (GIS). 4) Areas with high concentration of potable water supply wells. 5) The department may add, reclassify or remove Category II critical aquifer recharge areas based on additional information about areas of potential potable water supply with susceptibility to groundwater contamination or supply reduction, or based on changes to sole source aquifers or wellhead protection areas as identified in wellhead protection programs.				

Source: Kitsap County, 2021.

Step 4. Identify Future Roads/Right of Way Needs

Roads, right of way, and traffic mitigation are necessary for new development, particularly undeveloped properties. The LCA applies a deduction for future road needs after accounting for environmentally critical areas in Step 3. Road and right of way deductions necessary for a given development project can depend on a variety of factors, including level of serve for roadway segments and intersections, site characteristics, environmental features, and permitting requirements. The standard deduction used here is based on review of permit trends and code requirements in unincorporated Kitsap County. Modifications to these assumptions may be necessary in more urban areas, and cities are encouraged to develop custom deductions that best fit their circumstances. Local customizations made as part of Step 4 of the Residential LCA should be incorporated here.

The following applies to the "LCA_Comm_Standard_Parcels" and "LCA_Comm_InfraGap_Parcels" land supply datasets. The "LCA_Comm_Platted_Lots" dataset does not complete Steps 3-6.

For each record in the Buildable Lands table, calculate deductions for future roads and right-of-way as follows:

- Add column "ROW Deduction."
- Calculate deduction according to the following formula:
  - "ROW Deduction" = 20% of "Developable Acres"

Step 5. Identify Future Public Facility Needs

After accounting for new roads, right of way, and traffic mitigation in Step 4, the LCA further deducts land necessary for construction of public facilities and other on-site improvements needed to serve new development, such as utility easements, on-site stormwater detention facilities, tree retention, trails, common open space and other on-site facilities required by development regulations. The deduction for these facilities should be taken based on the remaining buildable area after the road/right of way deduction is applied. The standard deduction used here is based on review of permit trends and code requirements in unincorporated Kitsap County. The following applies to the "LCA_Comm_Standard_Parcels" and "LCA_Comm_InfraGap_Parcels" land supply datasets. The "LCA_Comm_Platted_Lots" dataset does not complete Steps 3-6.

For each record in the Buildable Lands table, calculate deductions for future public facilities as follows:

- Add column "PubFac Deduction."
- Calculate deduction according to the following formula:
  - "PubFac Deduction" = 20% of ("Developable Acres" – "ROW Deduction")

Step 6. Account for Unavailable Lands (Market Factor)

In addition to land needed for public infrastructure, some percentage of otherwise developable land is likely to remain unavailable due to market conditions and landowner intent. In general, Commerce Guidance indicates larger urban jurisdictions with significant development and redevelopment activity observed or expected will likely find and assume lower market supply factors. Other jurisdictions not anticipating substantial redevelopment and/or still experiencing urbanization of unimproved areas will likely assume higher market supply factors (page 41).

The following sub-steps apply to the "LCA_Comm_Standard_Parcels" and "LCA_Comm_InfraGap_Parcels" land supply datasets. The "LCA_Comm_Platted_Lots" dataset does not complete Steps 3-6.

Step 6.1. Identify Primary Non-Residential Product Type for Each Zone

Assign an employment product type (Commercial or Industrial) to each zone based on anticipated predominant uses. The product type assigned should represent the predominant non-residential building typology and use that is likely to be developed for that zone, based either on past buildout or what is envisioned and supported by development regulations and requirements.

Exhibit 18~~19~~. Commercial/Industrial Product Type Examples

Product Type	Description/Application	Illustrative Examples
Commercial	Inclusive of all nonindustrial commercial uses. Appropriate to apply in mixed use areas where the commercial use is the predominant use inclusive of instances where mixed residential is allowed but commercial component is primary.	Retail and office development (standalone or mixed). Commercial components of residential mixed-use products.
Industrial	Industrial facilities inclusive of manufacturing, warehousing, distribution, and light industrial facilities.	Heavy industrial and manufacturing, warehousing, and logistics development, light industrial and flex industrial facilities.

Source: Heartland, 2021.

Step 6.2. Identify Market Factor Range by Geography

For each record in the Buildable Lands table:

- Add column "Market Factor Range."
- Assign the applicable non-residential market factor range for each zone based on its geographic location and assigned Product Type, according to the market factor matrix contained in Appendix X – Market Factor Guidance:
  - Low (5-20%);
  - Medium (20-35%); or
  - High (35-50%).

The market factor ranges in Appendix X account for the expected rate of absorption of land supply development over the next 20 years. In other words, it accounts for the percentage of land that is unlikely to develop due to market conditions and demand. Therefore, a high assumed market factor means barriers to development may exist that could impact additional growth in that jurisdiction within the 20-year planning period.

Commented [LW5]: See attached slide deck from Heartland

Step 6.3. Establish Specific Market Factor Based on Local Conditions.

Step 6.3 provides a framework for selecting a final market factor from within the range assigned in Step 6.2, based on specific local conditions. A detailed discussion of conditions that warrant adjustments to market factors is contained in Appendix X – Market Factor Guidance; the conditions include the following:

Commented [LW6]: See attached slide deck from Heartland

- Vacant vs. Under-Utilized lands;
- Local market conditions;
- Known parcel size and assemblage challenges;
- Restrictive covenants that run with the land and limit how development may occur;
- Transit accessibility;
- Infrastructure limitations; and

- Areas designated as Growth Centers.

Local jurisdictions should review and incorporate these criteria when setting their local market factors and document their assumptions for each zone and geographic area.

For each record in the Buildable Lands table:

- Add 2 columns: "Market Factor Final" and "Market Deduction."
- For the "LCA_Comm_Standard_Parcels" dataset:
  - Apply the criteria in Appendix X – Market Factor Guidance and set "Market Factor Final" equal to the finalized market factor.
  - Calculate "Market Deduction" as:
    ("Developable Acres" – ("ROW Deduction" + "PubFac Deduction"))
- For the "LCA_Comm_InfraGap_Parcels" dataset:
  - If an alternative market factor was established in Step 0, set "Market Factor Final" equal to this value.
  - If no alternative market factor was established in Step 0, apply the criteria in Appendix X – Market Factor Guidance and set "Market Factor Final" equal to the finalized market factor.
  - Calculate "Market Deduction" as:
    ("Developable Acres" – ("ROW Deduction" + "PubFac Deduction")) x "Market Factor Final"

Commented [LW7]: See attached slide deck from Heartland

Commented [LW8]: See attached slide deck from Heartland

Step 7. Determine Available Net Acres

This step calculates Net Available Acres by applying the deductions from Steps 4-6 to the Developable Acres calculated in Step 3. Add a new column to the Buildable Lands table, "Net Acres," and calculate for each record as follows:

- "LCA_Comm_Standard_Parcels" and "LCA_Comm_InfraGap_Parcels" land supply datasets:
  - "Net Acres" = "Developable Acres" – ("ROW Deduction" + "PubFac Deduction" + "Market Deduction")
- "LCA_Comm_Platted_Lots" dataset:
  - Calculate net acreage by development classification:
    - **Vacant:** "Net Acres" = 100% of platted parcel area.
    - **Under-Utilized:** "Net Acres" = 25% of platted parcel area.

Step 8. Apply FAR in each Zone to Calculate Building Square Footage Capacity

Step 8.1. Calculate Gross Commercial/Industrial Square Footage Capacity

Gross building square footage capacity is calculated by applying Floor Area Ratio (FAR) assumptions for each zone to net available acres. FAR is a ratio that compares the total area of a building to the total area of the building site. For example, a 5,000 square-foot building on 10,000 square-foot lot would have a FAR of 0.5. Multi-story buildings in dense urban areas may have FARs greater than 1.0 if the

total square footage of all floors is greater than the size of the development site.

FAR assumptions may be based on a combination of development regulations (for jurisdictions that have adopted FAR standards for commercial and industrial development) or a combination of historical achieved building square footage in the zone. For jurisdictions that do not use FAR standards to regulate non-residential development, FAR equivalents can be developed based on other development standards, such as setbacks, height limits, and parking and open space requirements. Jurisdictions may further adjust these assumptions based on other factors, including whether zoning or development regulations have recently changed, infrastructure investments or other amenities that change market conditions, and market trends. Also, in mixed-use zones where development is assumed to be single-use (residential or commercial, not vertical mixed-use), jurisdictions should consider the proportion of developable land that is anticipated to be developed for commercial versus residential uses.

Local jurisdictions should set their own assumptions based on each community's zoning scheme and historical trends, and each jurisdiction should provide a description/rationale for the assumptions used in their analysis. FAR assumptions for unincorporated Kitsap County are based on a review of the factors above and are shown in Exhibit 19~~Exhibit 20~~.

Calculate Gross Building Square Footage Capacity for each record in the three land supply datasets as follows:

- **"LCA_Comm_Standard_Parcels":**
  - Use standard FAR assumptions by zone, as shown in Exhibit 19~~Exhibit 20~~.
  - Gross Building Square Footage Capacity = Net Acres x Standard Assumed FAR x Commercial Split
- **"LCA_Comm_InfraGap_Parcels":**
  - If alternate FAR assumptions were established in Step 0:
    - Gross Building Square Footage Capacity = Net Acres x Alternate FAR
  - If alternate density assumptions were not established in Step 0:
    - Gross Building Square Footage Capacity = Net Acres x Standard Assumed FAR x Commercial Split
- **"LCA_Comm_Platted_Lots":**
  - If "Infrastructure Gap" is NULL, calculate gross capacity using standard assumed densities by zone.
    - Gross Building Square Footage Capacity = Net Acres x Standard Assumed FAR x Commercial Split
  - If "Infrastructure Gap" is not NULL, calculate gross capacity similar to "LCA Comm_InfraGap_Parcels" above:
    - If alternative FAR assumptions were established in Step 0:
      - Gross Building Square Footage Capacity = Net Acres x Alternate FAR
    - If alternative density assumptions were not established in Step 0:

- Gross Building Square Footage Capacity = Net Acres x Standard Assumed FAR x Commercial Split

Exhibit 19~~20~~. Example: Non-Residential Floor Area Ratio (FAR) or Lot Coverage Assumptions by Zone

Zoning	FAR Assumed for Capacity Calculation	Percent Non-Residential	Assumed FAR: Description/Rationale
Commercial (C)		100%	
Neighborhood Commercial (NC)		100%	
Urban Village Center (UVC)		50%	
Regional Center (RC)		80%	
Low Intensity Commercial (LIC)		50%	
Business Center (BC)		100%	
Business Park (BP)		100%	
Industrial (IND)		100%	

Source: Kitsap County, 2020.

Step 8.2. Calculate Net Commercial/Industrial Square Footage Capacity

After applying FAR assumptions, aggregate gross building square footage capacity by zone. Net capacity by zone is calculated by subtracting existing commercial and industrial square footage on Under-Utilized properties in each zone:

- Net Building Square Footage Capacity = Gross Building Square Footage Capacity – Existing Commercial/Industrial Space

Step 8.3. Address Pipeline Development

After Net Commercial/Industrial Square Footage Capacity is calculated for each zone, adjust for pipeline development that was set aside in Step 1. Development projects approved after the January 1, 2020 cutoff date and approved master planned or phased development should be included. Calculate pipeline commercial/industrial square footage for each zone as follows:

- **Finalized land use permits or development proposals:** Total proposed commercial/industrial square footage as approved by permit; and

- **Approved master planned or phased development:** If the property was set aside as "Pipeline" in Step 1 and assigned an approved FAR, calculate building square footage yield based on property acreage and approved FAR.

After calculating Pipeline square footage by zone, add to Net Commercial/Industrial Square Footage Capacity by zone.

Step 9. Apply Employment Density by Zone to Determine Employment Capacity

This final step is to convert net commercial and industrial building square footage to a measurable capacity for accommodating job growth. To do this, jurisdictions must select appropriate assumptions regarding the average square footage per job expected within new nonresidential development. This metric can vary widely by building type or employment sector. For example, warehouses devote a great deal of square footage to storing inventory or other goods, and therefore they typically require considerably more square footage per job than office space. Therefore, average employment density assumptions should reflect the range and types of job growth that are expected in an area.

This guidance provides default assumptions that are appropriate for use in many areas of Kitsap County. Jurisdictions may wish to customize assumptions in some zones or areas based on local circumstances. See the text box in Step 9.2 for a discussion of considerations for customization.

Step 9.1 Classify each Zone as Either Commercial or Industrial

Similar to Step 6.1, jurisdictions should determine the predominant nonresidential development type expected in each zone: either commercial or industrial. In mixed-use zones where residential is allowed, jurisdictions should typically select commercial. If the zone is expected to receive a mix of both commercial and industrial development, pick the predominant type or consider developing customized assumptions.

Step 9.2 Select Employment Density Assumptions for Commercial and Industrial Zones

Typically, employment density assumptions are applied for each zone within a jurisdiction. In the 2014 BLR, Kitsap County assumed the following:

- 500 sq. ft./job in all commercial zones
- 969 sq. ft./job in all industrial zones

These values are within the range of measured employment densities found within other parts of the Central Puget Sound region and are appropriate for use in areas of Kitsap County where the mix of future nonresidential development and job growth is expected to look fairly similar to trends over the past 10 years. Alternative assumptions may be more appropriate in some locations such as the PSRC designated Regional Growth Centers of Bremerton and Silverdale, particularly in downtowns where a higher proportion of nonresidential development is expected to be in office space, food service, and other uses that require less space per job. See the textbox below for guidance for selecting customized employment density assumptions. Note below that commercial assumptions can also include considerations for other non-industrial employment, such as public education and government jobs that may be found in comparable types of space.

Customizing Employment Density Assumptions

Current statutes and regulations (RCW 36.70A.215 and WAC 365-196-315) and the Commerce Guidelines do not provide specific requirements for employment density calculations. Jurisdictions have the discretion to develop assumptions consistent with local circumstances, provided they document the rationale. The table below provides recommended ranges for commercial and industrial employment densities, as well as considerations for selecting alternative density assumptions.

Zone Type	Recommended Range (square foot per job)	Considerations for Selecting Density Assumptions
Commercial/ Non-Industrial	300–600	Select a value at the **lower end** of this range if you expect a significant portion of future growth to include the following types of uses: ▪ **Restaurant and smaller-format retail uses.** This includes commercial uses in mixed-use buildings. ▪ **Office space.** Some personal and professional services may have specialized space needs (e.g., on-site storage and warehousing). ▪ **Hospital** and **medical office.** These uses will tend to be low- to mid-range, with medical offices requiring slightly more space per employee than standard office spaces. Select a value at the **higher end** of this range if you expect a significant portion of future growth to include the following types of uses: ▪ **Large-format retail** (e.g., "big box" stores) and **wholesale trade.** ▪ **Accommodations** (e.g. hotels, motels). These uses typically have employment densities above this range and will increase estimates for overall space requirements per employee in an area. Space needs of other land use types can vary: ▪ **Recreation.** These uses are highly variable in their space requirements and may depend on the nature of the activities and whether outdoor recreation is involved. If relevant, these should be evaluated on a case-by-case basis. ▪ **Government, educational,** and **institutional.** Employment capacity will depend on the type of expected uses. Back-end office functions may require less space, comparable to commercial office space. Classrooms, meeting/gathering rooms, auditoriums, and specialized facilities will significantly increase the expected space per employee.
Industrial	700–1,200	Select a value at the **lower end** of this range if you expect a significant portion of future growth to include the following types of uses: ▪ **Manufacturing.** These uses are expected to be at the low end of this range but may be dependent on specific activities that require on-site storage or additional space (e.g., heavy equipment manufacturing). Select a value at the **higher end** of this range if you expect a significant portion of future growth to include the following types of uses: ▪ **Warehousing and logistics**. ▪ **Mini-warehousing** (e.g., consumer-oriented, small-unit storage facilities) and **data centers.** These typically have the highest square footage per employee of any land use (in some cases, around 10,000 square feet per employee). Significant growth in these types of uses would increase average employment density assumptions to the highest end of this range.

Step 9.3 Divide Net Square Foot Capacity by Employment Density to Calculate Employment Capacity

For each zone, employment capacity is derived by dividing the net square foot capacity calculated in Step 8.2 by the selected employment density assumption from Step 9.2.

- Employment Capacity = Net Building Square Footage / Assumed Employment Density