

Memo

Date November 9, 2023

From Chris Osborne, RPP, MCIP, Manager of Planning

Subject OCP Build-Out Projections: Housing Units

Purpose

To provide “build out” projections associated with the full realization of the OCP land-use vision as inputs for transportation, water and sanitary sewer modeling.

Preamble

At the time of writing, numerical traffic modeling for the MTP is being confirmed, and water and sanitary scenarios being tested. The Municipality has also engaged Licker Geospatial Consulting to provide a parcel-by-parcel assessment of development potential and spatial build-out scenarios over a variety of timescales.

Due to time constraints, interim build-out projections have been requested ahead of the deliverable product from Licker Geospatial. This memo sets out the methodology used to provide such projections, along with constraints and assumptions.

Baseline Data

The spatial grid for analysis was provided by Watt consulting and consists of a shapefile of numbered polygons of varying sizes and shapes covering the entirety of the municipality. Polygons tend to be large in rural areas and small in urban ones, reflecting somewhat the necessary granularity of analysis according to built-environment context.

There does not exist a single source of data that accounts for every unit of accommodation within North Cowichan. While every parcel of land is known, the type and number of dwelling units on each parcel is not always readily ascertainable.

A GIS exercise was conducted to establish present day baseline unit counts for all polygons.

This used three primary data sources:

- GIS property address layer
- Actual Use Class assigned to property
- Utilities Service Connections/Accounts

The Use Class provides vital information about the type of residential development on a parcel. Non-residential use classes were not counted; therefore only use codes lying between 000 and 070 were counted. For example, where a parcel address has a “triplex” use class, a multiplier of

3 was applied to reflect the number of units associated with the single parcel address (in the case of a building strata). Bareland strata units remain individually countable. Use classes were also assigned a "SF" or "MF" label depending on whether they most accurately represented a single family living unit or a multifamily one.

In the case of multifamily buildings over 4 units, the actual use code does not provide any further information on number of units. All such instances of "indeterminate" unit count were then cross-referenced with utility service data to estimate the number of units. This methodology is reasonably, but not exactly, reliable.

Using this process, a total of **13,254** following residential units were counted, with an accurate spatial distribution across the polygon mesh, allowing total numbers of units for each individual polygon to be established. According to the 2021 Census, there were 13,741 occupied private dwellings, and North Cowichan is estimated to have gained over 1,000 units since the census count (building permit data). It is not entirely clear why there exists such a discrepancy, but the following reasons may apply:

- there are a number of secondary residential units associated with commercial uses, which would not be represented within the count;
- illegal units (mostly suites) unknown to the Municipality but counted within the census;
- some institutional-residential uses may not have been counted.

Given the scale of additional development represented in the build-out scenario (see below) the discrepancy between the 2021 census data and the 2023 baseline count of approximately 500 – 1,500 units is not significant.

Build Out

The OCP land use vision is contained within a series of Land Use Designations, which set a policy context for development within each different designation. Decisions about zoning will be based on these policies, but in general, the presumption is that OCP-consistent zoning proposals will largely be approved.

The concept of "Build Out" is therefore predicated on the realization of the OCP vision, in full, for each designation, to the point that any further development would start to transgress that vision. For example, the "Neighbourhood" LUD envisions a healthy mix of lower-density development, ranging from single family dwellings to row houses or very small low-rise apartments. This is approximately estimated to culminate in an average gross neighbourhood density of 14 dwellings per hectare (including suites). Any further development beyond this point would exceed the implicit density goal of the LUD. For this reason, the assumed build out represents an upper bound, and not a midpoint within a range of acceptable (i.e. OCP-consistent) trajectories.

Arriving at this "build out" scenario is not necessarily likely, or even achievable, within any short- or medium-term time period; however, given the very long lifetimes of key infrastructure components it is necessary to peer into the distant future to ensure that future growth capacity

is not needlessly curtailed by undersized infrastructure. Conversely, shorter lifespan infrastructure components and decisions are unlikely to be predicated on an ultimate build-out scenario, and instead based on a time period commensurate with the infrastructure's expected lifetime, such as 20 years. Finite time periods will only realize a proportion of a polygon's build-out in most cases, and in some cases a significantly lower one.

The OCP does not set numerical density targets; therefore, for the purposes of this numerical modeling exercise, putative densities must be assigned to each LUD in order to establish the maximum number of units that a given area could host while remaining consistent with the OCP vision, absent any significant policy change.

Once average gross build-out densities have been assigned, these are multiplied by the area of each LUD represented within each polygon to arrive at a maximum unit count for each polygon, assuming smoothly uniform density within each LUD.

Modeling Methodology and Results

LUD Distribution

The LUD distribution is set out within the OCP and exists as a shapefile. The polygon boundaries are not entirely precise and occasionally drift outside of the municipal boundaries, clip areas clearly supposed to be part of another polygon or exclude areas such as shoreline and water lots. This accounts for occasional unexpected results such as tiny areas of urban LUDs appearing in rural polygons due to a boundary imprecision, and other similar "noise" in the data. These are all small in scale and of no material consequence to the analysis. Accordingly, they have not been corrected.

However, two important manual adjustments were made to the LUD distribution both of which assume a future OCP amendment:

- 1) Polygon 1280, Future Growth Area: this urban reserve north of Herd Road would require an OCP amendment to bring it back into the Bell McKinnon LAP. For the purposes of ultimate infrastructure sizing, a future Council decision has been assumed that eventually recruits this urban reserve.
- 2) Polygon 1040, Village Core within Chemainus: a mapping error has become apparent in that a large Village Core designation has been applied to an established lower density residential area of Chemainus, absent any other policy direction or reasonable likelihood for this area to be developed in such a fashion. It is assumed a future OCP update will re-designate this area more appropriately to "Neighbourhood".

Build-Out Density Assignments

The qualitative vision set out within the OCP's LUD must be translated into an average density. The model was therefore initially calibrated against present-day unit counts to establish the

current average density. The density parameters were adjusted until the unit yields matched present-day unit counts estimated by LUD, and the (adjusted) baseline was recovered.

The values of these density parameters are as follows:

Present Day (2023)

Neighbourhood LUD:	8.0 dph	7,548 units
Rural Residential LUD:	1.5 dph	3,182 units
Village Core LUD:	10.0 dph	528 units
Village Residential LUD:	12.0 dph	2,081 units
Agric., Forestry & Conservation LUD	0.07 dph	1,052 units
TOTAL		14,576 units

Translating the OCP vision for these designations into an average density inevitably involves subjective imprecision. However, through comparison with established urban areas in other locations which might provide a proxy for the North Cowichan build-out scenarios, a reasonable upper bound for each has been assumed as follows (small rounding errors propagated through the model result in a total not exactly equal to the sum of the individual quantities):

Build Out (time period indefinite)

<i>Neighbourhood LUD:</i>	11.0 dph (<i>not including integral suites</i>)	10,378 units
Neighbourhood LUD:	13.0 dph including integral suites	12,265 units
Rural Residential LUD:	1.6 dph	3,394 units
Village Core LUD:	60 dph	3,166 units
Village Residential LUD:	90 dph	17,003 units
Agric., Forestry & Conservation LUD	0.08 dph	1,202 units
Future Growth Area	<i>manually entered</i>	1,000 units
TOTAL (including integral suites)		38,974 units

The above densities represent complete build-out, which incorporates all existing development. To arrive at “added development to reach full build out” the 2023 baseline is subtracted from the full build out. However, due to the different methodologies used in establishing baseline and build-out, some further processing was required. These steps are explained in the explanatory notes box in the file *Residential Build Out to OCP* and result in a very small overcount due to the non-addition of negative values in a small number of polygons where the existing unit count is already higher than would be generated under the model densities. The reason for this is as follows.

- Spatial unevenness: the model applies a uniform average density, but the density profile in reality is significantly non-uniform. While on balance higher-density areas compensate for lower density ones, there are localized areas with a negative unit increase when the model conditions are compared to the present-day baseline. Since build-out does not involve demolishing any pre-existing development to result in a net loss of units within a given area, no model results < 0 were summed.

In other words, existing development that already surpasses the OCP build-out vision remain in place and contribute towards the overall density – it is not scaled backwards to meet the build out maxima. This asymmetric accounting results in a residual between the modeled density and present-day unit count that is fractionally greater than the build-out scenario when added to the 2023 baseline. This effect is not significant and well within the margins of uncertainty inherent in the model.

Comments, Constraints and Disclaimers

A number of remarks are necessary to provide additional context regarding the reliability and usability of these projections:

- 1) This memo was written shortly after Provincial Bill 44 - 2023 was announced. The densities proposed to be permitted in Bill 44 would, at full build out, exceed the OCP vision for the "Neighbourhood" designation. This has not been modeled.
- 2) With the exception of the specific situations described in this memo where a future OCP amendment has been assumed, the projections are predicated on the current-day OCP. Any substantial change to the OCP, or the introduction of new Provincial legislation may significantly alter the projected housing delivery for any or all areas.
- 3) The polygon list includes areas under First Nations or City of Duncan jurisdiction, which share our utility systems. No attempt has been made to provide projections for these non-MNC areas. Modelers should make their own assumptions for these areas, or contact the relevant local governments to obtain build-out projections.
- 4) Build-out is presented in terms of "units", which include suites. All additional density units (including individual integral suites) are assumed to be of a MF typology (i.e. the SF count does not increase beyond the 2023 baseline) and no further distinction is drawn between any types of units. Modeling professionals will need to convert "units" into the variables of their choice, (e.g. head of population, vehicle trips, etc.) using their own assumptions.
- 5) "Build out" is considered an "upper bound" to the cone of time-unbounded development scenarios consistent with OCP policy, and not a midpoint.
- 6) The author is not aware of the origin/author of the polygon mesh providing the spatial grain of analysis, nor the strict rationale for its composition.
- 7) No estimates for non-residential development of any kind have been made.
- 8) The model provides a mechanistic method for estimating density associated with ultimate realization of the OCP vision as implied by its policies and spatial distribution of LUDs. This may not be achievable on a meaningful timeline, and as with any projections, no person or model can infallibly predict the future.
- 9) The model involves a subjective assessment of a single average gross density associated with each LUD which may not necessarily correspond with specific OCP vision at any given location. Numbers are sensitive to the choice of such densities.
- 10) Any person using these projections must consider the suitability for their context and may wish to adjust accordingly.
- 11) The author assumes no responsibility for any outcomes arising from decisions made on the basis of these projections.