CLIC-Tool Case Study: Campbell River

December, 2018

INTRODUCTION

In Spring 2018 the Green Communities Committee, a joint Provincial-UBCM committee established under the Climate Action Charter, launched a CLIC Tool Implementation Project to support local governments in achieving their Charter commitment to create complete, compact, more energy efficient communities.

The Ministry of Municipal Affairs and Housing's CLIC Tool is a free open source, excel-based tool that helps communities understand the long-term infrastructure cost implications of their land use decisions by facilitating the comparison of different development scenarios. The CLIC Tool has proven to be beneficial to informing land use decisions from site specific to broader land use policy development (e.g., Official Communities Plan). In most cases, it identifies that more compact growth scenarios are the most financially sustainable.

Five communities were selected to partake in this 5–6 month process, of which the City of Campbell River was one. This case study highlights their team, experience using the tool, key results, and lessons learned for future users of the tool. The process was led by:

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CAMPBELL RIVER'S JOURNEY

Campbell River is an oceanfront view community, the urbanized area of which is approximately 14km long but only 1-2km wide. This linear shape brings particular infrastructure and servicing challenges. Demand to live in Campbell River is strong and housing development has been brisk over the past five years, directed within a well-defined area by a longstanding urban containment policy within the OCP.

With diminishing availability of readily-developable greenfield land, the City is approaching a decision-point about where and how to grow, and about to embark upon a review of its urban containment and infill development policies, milestones and metrics.

The type of analysis facilitated by the CLIC tool is crucial to exploring growth and development options and understanding their costs and implications. Campbell River's work with CLIC is also timely given their work to create a longer-term asset management and investment plan.

Excerpt from Council's 2015 Strategic Plan:

We will plan proactively for the long-term costs of maintaining our critical infrastructure.

Excerpt from OCP:

A key aspect of growth management is defining the extent of development. The Urban Containment Boundary has long defined the extent of urban and infrastructure development in Campbell River. This plan [the OCP] reinforces the utility of this important policy tool for managing municipal expenditures on infrastructure and services.

Excerpt from Asset Management Strategy:

The Federation of Canadian Municipalities (FCM) stunned the government world in 2007 with its release of the report *Danger Ahead: The Coming Collapse of Canada's Municipal Infrastructure*. Since then, a new term "infrastructure deficit" has become synonymous with municipal governance. The Asset Management (AM) Strategy identifies how the City can address current shortcomings, safeguarding City assets, assisting in decision making and achieving a fully integrated AM plan by 2021

Figure 1: The policy context behind piloting CLIC.

APPLYING CLIC IN CAMPBELL RIVER

Using CLIC, staff set out to assess four scenarios, with the goal of understanding the relative costs of infill growth relative to greenfield growth. Scenario characteristics are summarized below.

	Rural Greenfield	Suburban Greenfield	Suburban Infill	Dense Urban Infill
Gross Area (ha)	164	62	450	12.75
Net Density (u/ha)	1	13	8	25
Total Dwellings	84	420	3,710	300
Population	~200	~1,000	~8,500	~700
Full Servicing?	No	Yes	Yes	Yes
Mix of land use	Single family dwelling (SFD)	SFD, some secondary suites/duplexes	SFD, some secondary suites/duplexes	Apartments
Roads, total length (m)	4,300	4,370	58,800	800
Describe other differentiating features (if any, such as location, road pattern, asset triggers)	• Hobby farm style developments • Large lots between 4ac and 20ac • City provides roads and stormwater drainage • Far from downtown	• Typical SFD lot configuration • Large central natural parkland feature • Far from downtown in currently unserviced location	• Typical SFD lot configuration • Closer to downtown • Area with known drainage issues • Full upgrade of road network	• Urban style apartment development • Brownfield Site • Close to downtown • Close to utilities • Significant naturalized areas on periphery

Figure 2: Characteristics of the scenarios under comparison

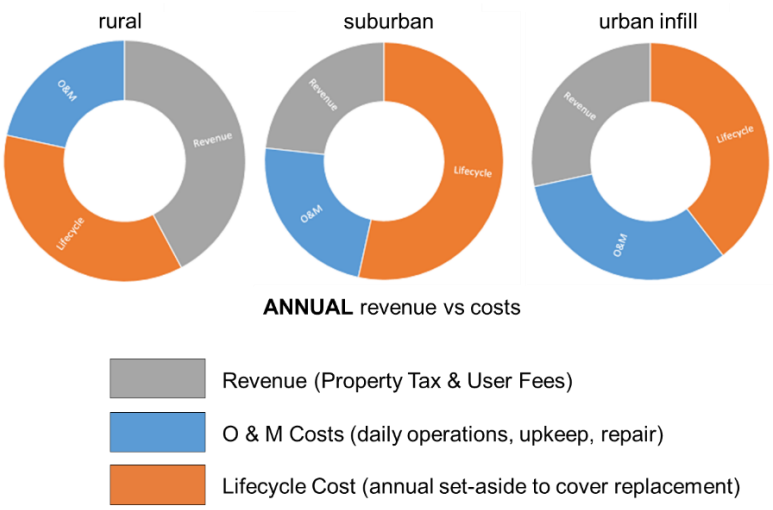
Once hypothetical development scenarios were created, road costings by typology were developed using the City's standardized material, equipment and excavation costs for capital works projects and applying those to the standards set out in the Subdivision and Development Servicing Bylaw. Additional infrastructure requirements such as stormwater detention ponds or trigger points for water and sanitary upgrades were determined through discussions with utilities staff. Policing, schools and fire coverage implications were all explored with service representatives. Engineering costs and assumptions were compared and "ground-truthed" with cost schedules submitted by applicants' consulting engineers in conjunction with previous subdivision applications.

One particular challenge was reflecting the operating and maintenance (O&M) implications of new development on existing roads, trunk lines and networks, and distinguishing the different requirements of lift stations and pumps from pipes. Distance from water supply and sewage treatment was used in part as a proxy. To ascertain revenues, assumptions had to be made regarding household composition, average property values, value uplift from secondary suites, and demographic patterns.

THE CAMPBELL RIVER RESULTS

Using CLIC, Campbell River demonstrated that:

- **Lowest density un-serviced rural development is the most cost effective, but uses up land.** Potential tax revenue from large-lot rural uses outpaces the very limited servicing implications, but this uses up large areas of a municipality's land base without accommodating a diverse and sizeable population to support businesses and amenities.
- **Once initial servicing costs have been covered (usually by the developer) the subsequent revenues are comparable only to O&M implications and do not address lifecycle costs.** The current densities, typologies and property values typically seen in Campbell River do not yield revenue to cover replacement of outworn infrastructure.
- **Densifying very low density but fully serviced areas to more suburban densities reduces the per-household costs, but still results in an overall revenue loss.** This result was somewhat surprising in that infrastructure improvements and long-term cost benefits from densification were not seen. Fundamentally, it appears that suburban development (circa 10 dwellings per hectare net) costs more in terms of infrastructure than it yields in revenue, wherever it is located. This issue needs further testing.
- **Annual lifecycle costs for high-density urban infill development are approximately 50% lower than for suburban development.** As expected, significant densification in urban areas is far more efficient to service. However per unit property values are lower, and critically, user fee revenue for sewer and water is negligible due to the City's current "per parcel" tariff structure.
- **Development that passes trigger points for school capacity upgrades have significant cost implications.** Adding a new school in association with suburban development equates approximately to an additional $5k of cost per household per year. However the indirect mechanism of school funding makes it difficult to establish direct links to new development.
- **Households also experience other non-tax-based savings (about 25% less) with the more compact infill scenario, in terms of driving and transit costs, and lower home energy costs.** The scenario models a housing typology where vehicle ownership rates are lower and services and amenities are walkable.
- **External costs of vehicle collisions, air pollution, and climate change are lower (about 20% less) with the more compact infill scenario**. Locating population density in areas remote from grocery stores, employment areas and schools inevitably drives up vehicle ownership rates, creating additional socialized costs, in addition to contributing towards poorer physical health and mental wellbeing outcomes.


rural
suburban
urban infill
O&M
Revenue
Lifecycle
Revenue
Lifecycle
O&M
Revenue
Lifecycle
O&M
ANNUAL revenue vs costs
Revenue (Property Tax & User Fees)
O & M Costs (daily operations, upkeep, repair)
Lifecycle Cost (annual set-aside to cover replacement)

THE VALUE OF USING CLIC

Using CLIC enabled planning staff to develop hypothetical development scenarios which were then reviewed by the City's engineering team. This review highlighted technical issues that were not immediately apparent, prompting further exploration. These additional analyses helped to inform a narrative that necessarily surrounds any proposed development scenario.

The key benefit, observed by the City, of using the tool is in creating a standardized assessment method with which to compare different developments and locations directly. One can model different development concepts in the same location or the same development concept in two or more different locations. This rapidly identifies the key sensitivities, pinch points and trigger points that can "make or break" a given development or location in terms of asset management, servicing or externalized impacts. Although some fairly broad demographic and financial assumptions had to be made, staff were also able to model the effects of permitting widespread secondary suites, carriage houses or laneway houses within a development. This provides valuable information to inform policy options for increasing density and helps evaluate different options.

A further benefit is highlighting the disparity between typical tax/user fee revenues from development compared to the cost not only of maintaining infrastructure and services, but in renewing such infrastructure at the end of its useable life.

LESSONS LEARNED

Campbell River identified several lessons to share with other communities looking to use the CLIC Tool:

- **Identify a champion with good knowledge of the organization and community.** The exercise to create testable development scenarios and then solicit the necessary technical input from various departments required knowledge of the types of information held by various staff. It also required back-and-forth discussions with external agencies such as the RCMP and school board administration, which are much easier when these relationships already exist.
- **Use the model to test the implications of well-defined development concepts.** Given the level of detail required by the tool, a large neighbourhood scale analysis was challenging due to the number of generalized assumptions that had to be made. The more focused your scenario, the less uncertainty in your inputs, and hence the outputs too.
- **Protect yourself! Use disclaimers and cautions**. Staff need to have the freedom to create and test different development concepts without any suggestion that they are supporting or recommending any given scenario. Similarly, engineering staff need to know that estimates they provide won't be quoted back as expressions of "fact" in the future. Make sure you qualify all assumptions made.
- **Use your catalogue of past subdivision and development applications as a source of data**. Value was found in comparing City-generated cost estimates with private-sector engineering assessments associated with recent subdivisions, including giving a sense of the range of cost variables in different locations.
- **Carry out sensitivity testing**. For some inputs there can be considerable uncertainty, particularly if engineering or capacity assessments are absent. Try running the model using high- and low- end estimates for these inputs. If the outputs change significantly, then it's worth putting more effort into refining the estimates. If however the outputs are only weakly affected by the change in that variable, then you can note this and with justification, use an intermediate figure.

NEXT STEPS FOR CAMPBELL RIVER

The utility of the tool having been demonstrated, the City's next steps will be to refine a number of inputs which will in turn improve the reliability of the outputs. For this reason, the results are considered preliminary, highlighting the need for further detailed evaluation of some assumptions and estimated costs. The City is approaching the first growth milestone set out in its OCP and will be conducting a review of options for future growth. The CLIC tool will be used to model the costs, impacts and opportunities of growth scenarios in various locations, including infill locations within the existing urban containment area. While the tool cannot account for all the factors that influence the location of development, it presents a starting point for comparison and in particular, for asset management consideration. To improve the reliability of outputs, more work will be done refining inputs and assumptions, particularly with regards to macroscopic infrastructure servicing needs.

The tool's capability goes beyond the infrastructure needs of physical development; financial implications can be modelled too. The tool may therefore also be used to inform analyses of user fees and charges, development cost charges, and parcel tax schemes. Different charging regimes and pricing structures for various servicing typologies can be tested on existing or proposed developments and revenues can be compared to costs.

The CLIC tool is available for free download at:

https://www2.gov.bc.ca/gov/content/governments/local-governments/planning-land-use/local-government-planning/community-lifecycle-infrastructure-costing