CLIC-Tool Case Study: Fort St. John

November 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.

Three communities participated in this 5–6 month process, of which Fort St. John 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:

- **Champion** (facilitated process and prepared case study):
  Renée Jamurat, MCIP RPP - Planning Manager
  Planning Manager – Planning & Engineering Department
  City of Fort St. John
  Telephone 250 787 8150
  Fax 250 787 8180
  10631 100 Street | Fort St. John, BC | V1J 3Z5

- **Core Team:**
  Jim Stewart, Engineering Manager
  Angie Bernardin, Deputy Treasurer

FORT ST. JOHN'S JOURNEY

Fort St. John is the largest community in northeastern British Columbia with a population of 20,115 (2016 Census). Incorporated in 1947, the municipality is one of seven municipalities in the Peace River Regional District. Fort St. John is known as the "Energetic City", which reflects not only the large resource base of energy, forestry and agriculture, but also the professional and information economy and the vitality of its citizens.

Growth and development needs are expected to continue and challenges include keeping pace with growth in a responsible and sustainable manner. This is demonstrated with an estimated population growth of 34,952 by 2036. Based on growth projections, it is expected that approximately 4,300 new residential units will be required in the next 20 years.

Fort St. John was involved in a previous CLIC Tool pilot project and had a desire to continue work with the Tool to help inform growth in the community. The City is taking active steps to pursue and implement a community asset management strategy and process. Laying the groundwork, the OCP supports asset management and has incorporated supporting policies related to Growth, Municipal Infrastructure and Financial Sustainability. The City has base data available for this project, and a maintenance program to track cost and age of infrastructure involving the engineering, operations, and finance departments.

The City also summarizes tangible capital assets for the City's Annual Financial Report. A tracking process was started to develop a dataset for asset management and financial reporting of new developments. Other datasets of city infrastructure assets involving engineering & GIS have been developed with historical and current data provided to finance.

Excerpt from OCP:

The OCP incorporates supporting policies and strategies related to Municipal Infrastructure and Financial Sustainability, such as:
- Developing an approach and process for managing City assets.
- Developing financial goals, principles and strategies to enhance financial sustainability and guide decision-making to achieve financial goals.
- Ensuring that expansions made to municipal infrastructure are undertaken in a manner that is cost effective for all tax payers and that lifecycle costs are understood.
- Investing in infrastructure based on life-cycle costs analysis, recognizing capital, maintenance, operations, and replacement costs.
- Review of servicing charges to ensure future costs account for maintenance and upgrades.
- Guiding development through a process that prioritizes infill development on parcels already serviced or beside existing infrastructure.
- Investing in infrastructure based on lifecycle costs analysis, recognizing capital, maintenance, operations, and replacement costs.
- Ensuring efficient use of land, infrastructure and other resources in accommodating growth.

Figure 1: The policy context behind piloting CLIC.

APPLYING CLIC IN FORT ST. JOHN

Using CLIC, staff set out to assess four scenarios to understand the impact on an area considering factors including density, infill and subdivision layout design and road network connection, and to examine and understand the costs of various greenfield (new) urban residential development densities, the impacts of developing mainly new residential low density and the impacts of infill development. These scenario characteristics are summarized below.

	Scenario 1 Existing LDR	Scenario 2 Infill MDR	Scenario 3 Greenfield LDR	Scenario 4 Greenfield MDR
Gross Area (ha)	8.5	8.5	8.5	8.5
Net Density (u/ha)	10.8	51	10.5	51
Population (2016 Census: 20,155)	[92 units * 2.5 hh size] 230	[434 du] 1085	[89 du] 222	[434 du] 1085
Mix of land use	single family dwelling (SFD), some semi-attached	Semi-attached, townhouse, apartment	SFD	Semi-attached, townhouse, apartment
Roads, total length (m)	606m	221m	885m	165m
Describe other differentiating features (if any, such as location, road pattern, asset triggers)	• grid design • minimal supporting uses • no transit • 1 sidewalk • limited park space • local roads	• grid design • supporting uses • some transit • 2 sidewalks • maybe park space • local & collector roads	• cul-de-sac or unconnected design • 1 sidewalks • limited park space • local roads	• grid design • supporting uses • transit • 2 sidewalks • park space • local & collector roads

*Figure 2: Characteristics of the scenarios under comparison*

The champion team was comprised of staff from planning, engineering and finance. Staff that assisted the champion team with data mining and collection were drawn from: public works, community services (facilities, grounds), and fire services.

Sources used to gather data include census, tangible capital assets, property tax, budgets, BC assessment, service fees (i.e. water, sewer, waste), and transit fees. In instances where data was unavailable, assumptions were made based on staff knowledge with a rationale documented such that it could be later verified with data.

THE FORT ST. JOHN RESULTS

Using CLIC, the community was able to demonstrate that:

- Annual lifecycle cost to all parties for community services is estimated to decrease under the medium density scenarios. The lifecycle cost is 2.3-2.8 times higher for low density scenarios.
- School costs for low density scenarios are estimated to be 1.8-2.1 time higher than medium density scenarios.
- Lifecycle cost to the City for community services is the same in scenarios 1 & 2, where the infrastructure is already in place and there is no expected replacement by the developer.
- Where the developer pays for the initial infrastructure capital costs on greenfield sites (scenarios 3 & 4), the lifecycle cost to the City is lower. However, the overall lifecycle cost trend is 2.5 times higher in lower versus medium density scenarios.
- When comparing scenarios of infill versus greenfield, the road layout was 4% to 22% lower for infill development versus greenfield scenarios.
- Initial capital costs to the City is about 1% to 7% lower for infill versus greenfield scenarios.
- There is a slightly lower lifecycle cost for existing neighbourhood scenarios (1 & 2) versus the cost for greenfield scenarios (3 & 4).
- Households also experience other non-tax based savings with the medium density scenarios. Estimated at -$8,278 to -$9,083 per household for low density scenarios 1 & 3 vs -$2,980 to -$2,973 per household for medium density scenarios 2 and 4.

Annual Lifecycle Cost per hh

(Bar chart legend: ■ Potential Community Services ■ Schools)
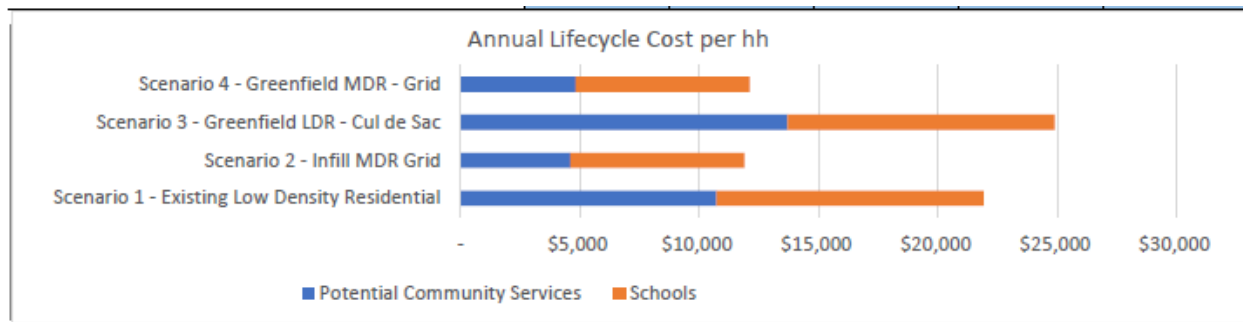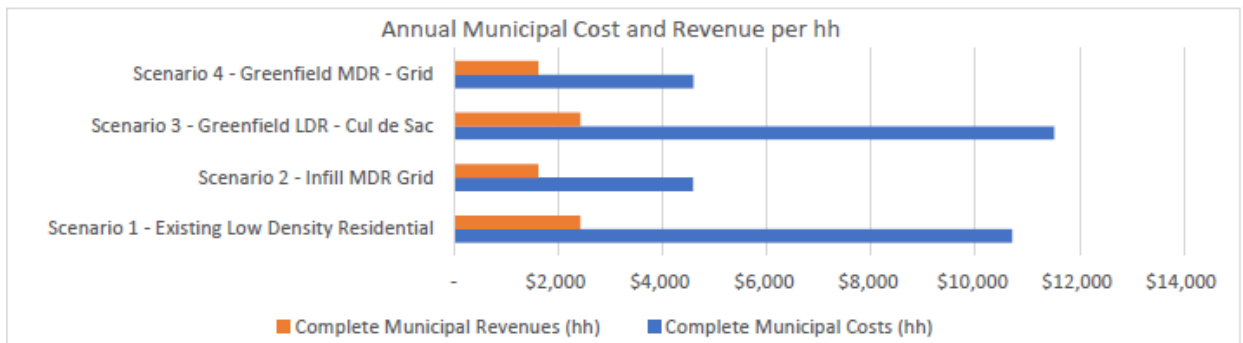
COMPARISON OF MUNICIPAL COSTS AND REVENUES

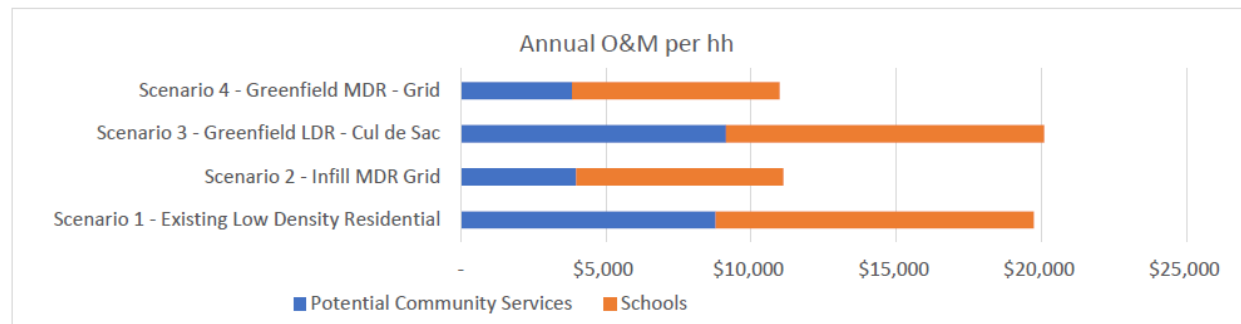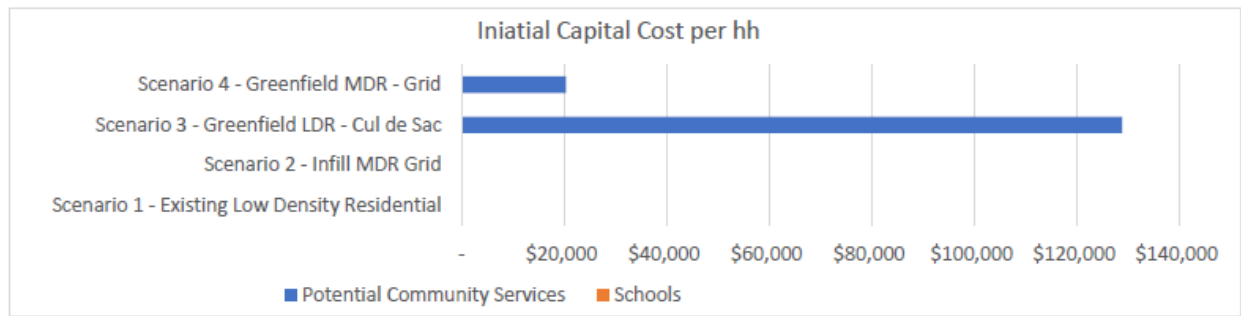*are intended to cover a wide range of services. Note Schools are not included in these costs.*

ANNUAL MUNICIPAL LIFECYCLE COSTS AND REVENUES

Lifecycle Costs and Revenues (hh)	Scenario 1 - Existing Low Density Residential	Scenario 2 - Infill MDR Grid	Scenario 3 - Greenfield LDR Cul de Sac	Scenario 4 - Greenfield MDR - Grid	
Municipal Portion of Residential Costs (hh)	$10,705	$4,589	$11,508	$4,596	
Municipal Portion of Non-Residential Costs (hh)	-	-	-		
Complete Municipal Costs (hh)	**$10,705**	**$4,589**	**$11,508**	**$4,596**	
Municipal Portion of Residential Revenues (hh)	$2,427	$1,616	$2,426	$1,616	
Municipal Portion of Non-Res. Revenues (hh)	-	-	-		
Complete Municipal Revenues (hh)	**$2,427**	**$1,616**	**$2,426**	**$1,616**	
Net Revenue (Residential Only) (hh)	($8,278)	($2,973)	($9,083)	($2,980)	
Net Revenue (Non-Residential Only) (hh)	-	-	-		
Net Revenue (Complete Developm.) (hh)	**($8,278)**	**($2,973)**	**($9,083)**	**($2,980)**	

1Total Municipal Costs = municipal service and infrastructure costs from residential component of community

2Municipal Revenues = municipal revenue related to residential component of community, including taxes, development

Annual Municipal Cost and Revenue per hh

(Bar chart legend: ■ Complete Municipal Revenues (hh) ■ Complete Municipal Costs (hh))

Iniatial Capital Cost per hh

Scenario	
Scenario 4 - Greenfield MDR - Grid	(blue bar to ~$20,000)
Scenario 3 - Greenfield LDR - Cul de Sac	(blue bar to ~$130,000)
Scenario 2 - Infill MDR Grid	
Scenario 1 - Existing Low Density Residential	

Legend: ■ Potential Community Services ■ Schools

Axis: - $20,000 $40,000 $60,000 $80,000 $100,000 $120,000 $140,000

Annual O&M per hh

Scenario	
Scenario 4 - Greenfield MDR - Grid	(stacked bar to ~$11,000)
Scenario 3 - Greenfield LDR - Cul de Sac	(stacked bar to ~$20,000)
Scenario 2 - Infill MDR Grid	(stacked bar to ~$11,000)
Scenario 1 - Existing Low Density Residential	(stacked bar to ~$20,000)

Legend: ■ Potential Community Services ■ Schools

Axis: - $5,000 $10,000 $15,000 $20,000 $25,000

Figure 3: Snapshot of Community's CLIC Results

THE VALUE OF USING CLIC

The CLIC Tool provides 'order of magnitude' results from development scenarios to inform land use decisions.

Application of the CLIC Tool highlighted the importance of asset data approaches, and how data is created, managed, updated, and used by a variety of departments. The CLIC Tool brought departments together to collect and examine the data facilitating an integrated approach to understanding different scenarios.

The presentation of the results and comparative data raised keen interest from the City's Executive Leadership Team (ELT). This provided the opportunity to apply the tool to more scenarios in the future and a starting point for understanding asset management and the relationship between infrastructure costs and land use. In addition to supporting internal decision making, CLIC is also an effective way to introduce to the community the lifecycle costs of development.

LESSONS LEARNED

Fort St. John identified several lessons to share with other communities interested in using CLIC:

- **Plan for time to gather data.** Data collection took a long time. Most of the time was spent looking for data and understanding if it was the kind or state of data needed. Previous to the use of the CLIC Tool, it wasn't fully understood how data was being collected or where it could be found. In addition, the data collection occurred over the construction season which made coordinating and gathering data from those key departments (engineering, public works) challenging.
- **Plan for time to meet with Champion Team**. This may require more time than originally anticipated.
- **Understand terminology and technical information**. Don't assume that all the project team members understand things in the same way! It was a learning curve for most project members. The team came away with a much better understanding of how each department gathers and uses data.
- **The CLIC Tool helps support the organization's vision.** City departments are all on the same page and want to initiate and elevate the city asset management process in a positive way, improve the quality of data and how it is managed and use the data to inform key decisions that impact all areas.
- **Decisions related to land use/development impact departments in different ways**. Departments realized how land use decisions impact their operations and maintenance and the importance of long term thinking to help the city to be more sustainable and resilient over time.

NEXT STEPS FOR FORT ST. JOHN

Continue building on existing CLIC tool scenarios, verifying information and developing more scenarios moving forward.

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