

Background Paper #2: Population Discussion

The following discussion examines Bowen Island population considerations, including the status of a “population cap”, population growth scenarios, potential build-out scenarios, and associated implications for the OCP Update¹.

It ***must emphasized that this is an Update not a Comprehensive OCP Review***. Therefore, long term population projections beyond ten years are not critical for future Update OCP scenarios. Nevertheless, it is important to develop a ‘sense of the magnitude of potential future growth’, so that the community is able to make informed decisions over the near term (i.e., 5 to 8 years). And, it is important to remember that a future Comprehensive OCP Review will need to explore in detail population forecasting, including age cohorts and related needs, and relationships between population growth, lifestyle expectations, and ecological, economic and social implications of population growth upon the island’s ecological integrity, social character and general well-being: simply, the relationship between growth and OCP Vision, Principles, Objectives and Policies will need to be considered in detail in a future Comprehensive OCP Review.

1. Population Cap

Population caps have been discussed in several regions and communities. Increasingly, as a result of concerns about resource depletion and quality of life, more communities are exploring population caps, such as several regions in Australia, California and some resort mountain communities in the United States. In Canada, the Resort Community of Whistler has adopted an upper limit on the number of beds for a number of years.

The 1996 Official Community Plan (OCP) provides background in relation to the “population cap’ that has been discussed in public meetings. In Section 2.2 Principles, the existing OCP states that “generally there shall be no net increase in overall island lot density from that lot density proposed by policy in the previous Official Community Plan (Bylaw 14)” (p.8). Further, a report from the Official Community Plan Review Steering Committee (1993) entitled Report from the Steering Committee noted that:

Creating the overall vision was surprisingly uncontentious (sic). Participants agreed that they would favor setting a specific population range limitation, and a majority agreed on a 5,000 -7,000 population maximum for Bowen. There was also near unanimous agreement that a conservative annual growth rate of 3-5%, which is consistent with a 5,000-7,000 population target over the next 20-30 years, should also be specified in the final OCP. (p.2)

That report was based upon a report of the Residential Land Use Task Force, Interim Report: Executive Summary, dated May 1993. The Task Force noted that they had been influenced by the work of Christopher Alexander et al, including The Timeless Way of Building and A Pattern Language. Anecdotal information from those who participated on the Residential Task Force

¹ Note: secondary suites are not included in this analysis due to the unreliability of estimates. But, the undercount referenced in Section 3 would include some of those numbers.

indicates that A Pattern Language informed their view that, “long term planning should not assume a population in excess of the current O.C.P. build-out, somewhere in the region of 7,400 people. This is due primarily to the fact that beyond this size communities are said to lose their community character” (p.ii).

The Task Force continued by confirming that, “our Task Force is of the view that it is advisable, as a planning goal, to restrict the total island population to no more than the existing OCP (*i.e.*, 1982) build-out. We understand the existing O.C.P. (sic) build-out to be no greater than 7,400” (p.9).

Recent work by Municipal staff suggests that there could be 1,227 new lots created in the current OCP designation (Fung, C., Build Out Analysis Based Upon On Current OCP Designations, June 2008). Assuming 2.4 people per household, this could translate into an additional 2,945 people for a potential build-out population of (3,624 [British Columbia Ferries Passenger Volume Modeling, November 2008 estimate] + 2,945) 6,569.

Other considerations related to a population cap include the level, type and quality of infrastructure required to support population, amenities commonly ‘expected’ in relation to population, ecological and social carrying capacity, and community vision and development expectations, including form and character. Some of the foregoing have ecological consequences, others economic consequences, others social consequences, and others have physical development consequences.

Based upon the foregoing, the population cap of 7,000+ appears to remain an appropriate management target for the life of this Update (*i.e.*, 5-8 years).

2. Rate of Growth

Both the existing OCP and the aforementioned Task Force addressed rate of growth. The former refers to “an annual rate of development of approximately 55 new units per year at 2.4 people/household” (p.11). The OCP notes that the actual rate of growth between 1966 and 1994 varied between five percent and eight percent per five year cohort, with the period 1981 to 1994 averaging five percent per year. As Bruce Howlett notes, “the fastest growth occurred in the ten year period from 1986 to 1996” (Howlett: 2004, p.1).

A review of the period 1996 to 2008, indicates that the rate of annual growth in percentile terms has decreased from those highs. For instance, between 2001 and 2006, Census Canada reports that the population on Bowen grew by 14 percent or an average of less than 3 percent per year.

Using sophisticated modeling methodologies, Urban Futures, who completed a study entitled, British Columbia Ferries Passenger Volume Modeling, November 2008, has provided “Historical Undercount Adjusted Population” estimates for the period 1998 to 2007. Urban Futures concludes that the population growth for Bowen was: 1998: 3%; 1999: 3.3%; 2000: 3.2%; 2001: 3.3%; 2002: 2.5%; 2003: 2.7%; 2004: 1.9%; 2005: 3.7%; 2006: 2.4%; 2007: 1.6%.

The British Columbia Ferries Passenger Volume Modeling, November 2008 report proposes a “Projected Undercount Population Projection” that suggests Bowen’s future growth rate will continue to decrease to a median rate of 0.63 per year over the next 20 years. Howlett’s ‘mid’ estimate suggests that the annual growth rate could be 2.2 % per year between 2001 and 2021. His high projection suggests that Bowen could experience “an average annual increase of 31% every five years,” reaching a total of 10,300 in 2021 (2003, p.3). Since 2004, growth has continued to decrease, as noted in British Columbia Ferries Passenger Volume Modeling, November 2008. As well, the number of ‘new’ dwelling units built in 2008 and 2009 fell dramatically to 19 and 14 (as of December 2009), respectively (c.f., 2003: 49; 2004: 40; 2005: 31; 2006: 27; 2007: 29) (Laudrum, S., personal communication, December 08, 2009).

The foregoing suggest that it will be important to monitor population growth over the next five years to determine any emerging trends or changes to growth expectations. Further, it will be important to complete several population forecasts, with varied assumptions, as identified below, prior to the undertaking of a Comprehensive OCP Review. For the near term and life of this Update, however, the rate of growth should not detrimentally affect Bowen’s financial, infrastructure and social capital resources.

3. Setting a base population number

Some, such as Howlett (2003 and 2004) have questioned the accuracy of the Census Canada data, suggesting that there has been a consistent underrepresentation or undercount of actual population numbers (and hence a mis-reading of actual growth). Howlett examined other potential sources for population forecasting, including household data from Canada Post, BC Hydro, Telus and the Goldpages. He concluded that there was an undercount (an opinion shared by Urban Futures who completed a study entitled, British Columbia Ferries Passenger Volume Modeling, November 2008, which identified a slight undercount of 128 people in the 2001 Census and an undercount of 152 people in 2006). Howlett estimated that the undercount could be as high as 1,043 in 2001. That estimate suggests that Census Canada may have erred by as much as 35 percent. Howlett (2004) also identified a ‘mid’ estimate of 3,500 for 2001 (c.f., 3,085 by Urban Futures, (2008) and 2,957 by Census Canada).

It is very likely that there have been undercounts in the Bowen census. Urban Futures suggests an undercount of approximately 5 percent and Howlett suggests a ‘mid’ undercount of approximately 18 percent. Both studies confirm that an undercount is certain for Bowen censuses. The question is: how much is the undercount?

Given the expertise and modeling capability of Urban Futures, their work entitled, British Columbia Ferries Passenger Volume Modeling, November 2008, will be used to determine the actual Bowen Island population of 3,572 in 2007. That number likely represents about 150 people more than would show in Census Canada (if Census Canada had completed a 2007 census).

4. Population Growth Scenarios

Three growth scenarios have been projected, using varying rates of growth and household numbers (see attached). One growth scenario is based upon the Urban Futures British Columbia Ferries Passenger Volume Modeling, November 2008, population estimates (2008-2031). Given the low annual growth forecast in the Urban Futures modeling (as noted elsewhere, a median increase of 0.63% per year), this is considered a low growth forecast (Table 1). It suggests a 2031 population of 4,273. A second scenario is considered to be the median forecast and suggests a population of 5,097 in 2031 (Table 2). A third scenario, based upon historic (varied) annual growth rates, forecasts a population of 5,860 in 2031 (Table 3).

5. Potential Build-out Scenarios

The existing OCP references potential build-out by identifying “generally that there shall be no net increases in overall island lot density from that lot density proposed by policy in the previous Official Community Plan (Bylaw 14)” (p.8). Based upon work by Fung (2008), the current OCP appears to allow for the potential to increase Bowen’s population to approximately 6,600 people as a final build-out. The existing OCP continues by suggesting “an annual growth rate of development of approximately 55 new dwellings per year at 2.4 people/household” (p.11).

An examination of the three population projections indicates that Scenario 3: Historic Forecast suggests that the 55 dwelling units per year target of the existing OCP is a reasonable estimate. Further, it confirms that recent experience with the number of units built over the past ten years approximates the projections of number of residential units needed to address growth (e.g., actual in 1999:17, 2000: 27; 2001: 26; 2002: 24; 2003: 49; 2004: 40; 2005: 31; 2006: 27; 2007: 29; 2008: 19).

6. Analysis within the analysis

A review of both British Columbia Ferries Passenger Volume Modeling, November 2008 and Howlett (2004) indicates that there is agreement that the make-up of Bowen’s population is changing. For instance, the BC Ferries study suggests that, “the aging of the island’s current residents and changes in its historical share of working aged population would see the 20 to 54 population grow more modestly” (p.3). As Howlett (2003) notes, “changes (to population cohorts) has been striking” (p.14), especially in the 25-39 age category where percentage of total population has dropped and where the proportion of those between 50 and 59 has risen appreciably. His work confirms the BC Ferries findings. Howlett (2003) also confirms that Bowen has a higher percentage of population in the 5-14 age cohort and the 40-54 cohort compared to the rest of British Columbia. In contrast Bowen has fewer residents in the 20-34 cohort and 60-+85 cohort compared to British Columbia.

Census Canada reports that Bowen Island had a relatively high employment rate (76% compared to 66% for BC). Also, 21% reported working at home on Bowen compared to 9% who work at home in the rest of BC. Bowen Islanders are more likely to travel by transit (13%) compared to 10% for BC. Bowen islanders earn a much higher income (median household income of \$72,990) than other BC residents (\$52,709). Further, 27% of islanders earn more than \$100,000/year, compared to 19% of other BC residents. But, 15% of islanders earn \$20,000-\$29,999/year compared to 10.5% of BC residents. Overall, however, when compared

to other British Columbians, islanders appear to earn higher income. For instance, 20.2% of islanders earn \$29,999 or less per year compared to 26.6% of BC residents.

The 2006 Census indicates that, of the 1,339 occupied dwellings on Bowen, 19% are rented. Bowen Islanders are less likely to have moved in the past five years compared to other BC residents (64% vs. 53%). The 2006 Census indicates that roughly one quarter of residential properties are owned by non-residents. Further, 13% of properties are seasonal.

7. Implications

Several implications become apparent from the foregoing discussion:

- a. The population cap was developed from the work of the Task Forces who completed the 1996 OCP. As defined by those Task Forces, the population cap derives from two key considerations: (1) the work of Christopher Alexander *et al*, pre-eminent urbanists and architects, and their associated writing, particularly their book entitled, Pattern Language, and notions of organic growth and ideal community size for community with Bowen's character; and (2) the land use designations in the OCP that appear to place an upper limit on the number of dwelling units permitted by referencing the 1982 OCP and by setting OCP designations for individual parcels of land (i.e., potential number of buildable units).
- b. The rate of growth on Bowen has varied considerably over the years with a noticeable decreasing trend in the annual rate of growth, particularly since 1998. Some, such as Urban Futures and BC Ferries (2008), suggest that the annual rate will continue to fall and stabilize around 0.50% per year. In contrast, Howlett (2004) believes that growth will increase significantly over the next 20 years. It is likely safe to state that future growth will vary depending upon economic climate, housing costs, access to employment, available amenities and degree to which Bowen retains a special character. It will likely grow at levels between the two extremes; perhaps following historic variations that more closely approximate Scenario 2 (Table 2). But, for purposes of this OCP Update, the rate of growth will very likely not change appreciably over the life of the Update.
- c. Bowen's aging population shows two trends: one, Bowen has a high percentage of +50 age group; and two, Bowen's older population moves off-island as it ages beyond 65 years of age. The former likely relates to lifestyle choices and ability to afford housing costs, and the latter likely relates to lack of alternative housing (i.e., inability to age in place) and need to access specialized medical care.
- d. By reviewing the population growth scenarios for the life of the OCP Update, it appears that the 1996 OCP annual rate of development needs remains appropriate (i.e., up to approximately 55 units per year) and likely will not be approached for the foreseeable future.

DRW. January 2010

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Table 1: OCP Update Population Projection

Scenario 1: BC Ferries Forecast

(as per BC Ferries Passenger Volume Modeling Base Data, November 2008)

YEAR	TOTAL POPULATION	INCREASE IN POPULATION PER YEAR	NUMBER OF RESIDENTIAL UNITS NEEDED TO ADDRESS GROWTH	NOTES
2007	3572	52	29*	
2008	3624	51	19*	
2009	3675	51	14**	
2010 (1.40 ↑)	3726	51	20	Assume 2.6/household
2011 (1.36 ↑)	3777	34	13	Assume 2.6/household
2012 (0.90 ↑)	3811	33	13	Assume 2.5/household
2013 (0.86 ↑)	3844	32	13	Assume 2.5/household
2014 (0.83 ↑)	3876	32	13	Assume 2.5/household
2015 (0.82 ↑)	3908	31	12	Assume 2.5/household
2016 (0.79 ↑)	3939	21	8	Assume 2.5/household
2017 (0.55 ↑)	3960	25	10	Assume 2.4/household
2018 (0.62 ↑)	3985	25	10	Assume 2.4/household
2019 (0.64 ↑)	4010	26	11	Assume 2.4/household
2020 (0.65 ↑)	4036	29	12	Assume 2.4/household
2021 (0.71 ↑)	4065	24	10	Assume 2.4/household
2022 (0.59 ↑)	4089	23	10	Assume 2.3/household
2023 (0.57 ↑)	4112	23	10	Assume 2.3/household
2024 (0.56 ↑)	4135	23	10	Assume 2.3/household
2025 (0.56 ↑)	4158	23	10	Assume 2.3/household
2026 (0.55 ↑)	4181	20	9	Assume 2.3/household
2027 (0.47 ↑)	4201	19	7	Assume 2.2/household
2028 (0.46 ↑)	4220	19	7	Assume 2.2/household
2029 (0.44 ↑)	4239	17	8	Assume 2.2/household
2030 (0.41 ↑)	4256	17	8	Assume 2.2/household
2031	4273			
TOTAL		701 increase/19% ↑	224 new units (post 2009)	

Where: * represents actual; ** represents actual as of Dec9, 2009; median range of forecast for population was .63 increase per year

Table 2: OCP Update Population Projection

Scenario 2: Median Forecast

(median between BC Ferries Forecast and historic forecast)

YEAR	TOTAL POPULATION	INCREASE IN POPULATION PER YEAR	NUMBER OF RESIDENTIAL UNITS NEEDED TO ADDRESS GROWTH	NOTES
Note: ↑ indicates percent increase each year for the five year period				2007-11: increase 1.405 2012-16: increase 1.67 2017-21: increase 1.75 2022-26: increase 1.53 2027-31: increase 0.92
2007 (1.405↑)	3572	64	29*	
2008	3636	51	19*	
2009	3687	52	14**	
2010	3739	53	20	Assume 2.6/household
2011	3792	53	20	Assume 2.6/household
2012 (1.67↑)	3845	64	26	Assume 2.5/household
2013	3909	65	26	Assume 2.5/household
2014	3974	66	26	Assume 2.5/household
2015	4040	67	27	Assume 2.5/household
2016	4107	69	28	Assume 2.5/household
2017 (1.75 ↑)	4176	73	30	Assume 2.4/household
2018	4249	74	31	Assume 2.4/household
2019	4323	76	32	Assume 2.4/household
2020	4399	77	32	Assume 2.4/household
2021	4476	78	33	Assume 2.4/household
2022 (1.53 ↑)	4554	70	30	Assume 2.3/household
2023	4624	71	31	Assume 2.3/household
2024	4695	72	31	Assume 2.3/household
2025	4767	73	32	Assume 2.3/household
2026	4840	74	32	Assume 2.3/household
2027 (0.92 ↑)	4914	45	20	Assume 2.2/household
2028	4959	46	21	Assume 2.2/household
2029	5005	46	21	Assume 2.2/household
2030	5051	46	21	Assume 2.2/household
2031	5097			
TOTAL		1525 43%↑	570 new units (post 2009)	

Where: * represents actual; ** represents actual as of Dec9, 2009;

Table 3: OCP Update Population Projection

Scenario 3: Historic Forecast

(similar to growth between 1980's to 2010¹)

YEAR Note: ↑ indicates percent increase each year for each five year period	TOTAL POPULATION	INCREASE IN POPULATION PER YEAR	NUMBER OF RESIDENTIAL UNITS NEEDED TO ADDRESS GROWTH	NOTES 2007-11: increase 1.5 2012-16: increase 2.5 2017-21: increase 2.85 2022-26: increase 2.5 2027-31: increase 1.4
2007 (1.5 ↑)	3572	64	29*	
2008	3636	51	19*	
2009	3687	52	14**	
2010	3739	56	22	Assume 2.6/household
2011	3795	57	22	Assume 2.6/household
2012 (2.5 ↑)	3852	96	38	Assume 2.5/household
2013	3948	99	40	Assume 2.5/household
2014	4047	101	40	Assume 2.5/household
2015	4148	104	42	Assume 2.5/household
2016	4152	104	42	Assume 2.5/household
2017 (2.85 ↑)	4256	121	50	Assume 2.4/household
2018	4377	125	52	Assume 2.4/household
2019	4502	128	53	Assume 2.4/household
2020	4630	132	55	Assume 2.4/household
2021	4762	136	57	Assume 2.4/household
2022 (2.5 ↑)	4898	122	53	Assume 2.3/household
2023	5020	126	55	Assume 2.3/household
2024	5146	129	56	Assume 2.3/household
2025	5275	132	57	Assume 2.3/household
2026	5407	135	59	Assume 2.3/household
2027 (1.4 ↑)	5542	78	35	Assume 2.2/household
2028	5620	79	35	Assume 2.2/household
2029	5699	80	36	Assume 2.2/household
2030	5779	81	36	Assume 2.2/household
2031	5860			
TOTAL		2288 64% ↑	935 new units (post 2009)	

Where: * represents actual; ** represents actual as of Dec9, 2009

¹ See Table ? for historic projections.