

**City of Cranbrook
Growth Management Study
Volume 1: Planning & Finance**

May 21, 2010

**Prepared for:
City of Cranbrook**

Prepared by:

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Project No. 1127-20147



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1. Introduction

1.1. Background

In August 2006, the City of Cranbrook adopted the current Official Community Plan (OCP) Bylaw 3550 as a guide to managing growth and development in the community. Particulars regarding amendments to Bylaw 3550 made subsequent to adoption are listed in the front section of the OCP document.

Since the adoption of the OCP, two substantive development projects, Wildstone and Shadow Mountain have been initiated by private landowners. These projects have compelled the City of Cranbrook to consider the infrastructure and financial capacity of the City to provide and maintain services connected with new development areas as well as to existing development and redevelopment within established neighbourhoods. Recognizing that growth presents both opportunities and challenges to the community, it is the City of Cranbrook's goal to meet "level of service" expectations in a manner that is sustainable, affordable, and technically sound.

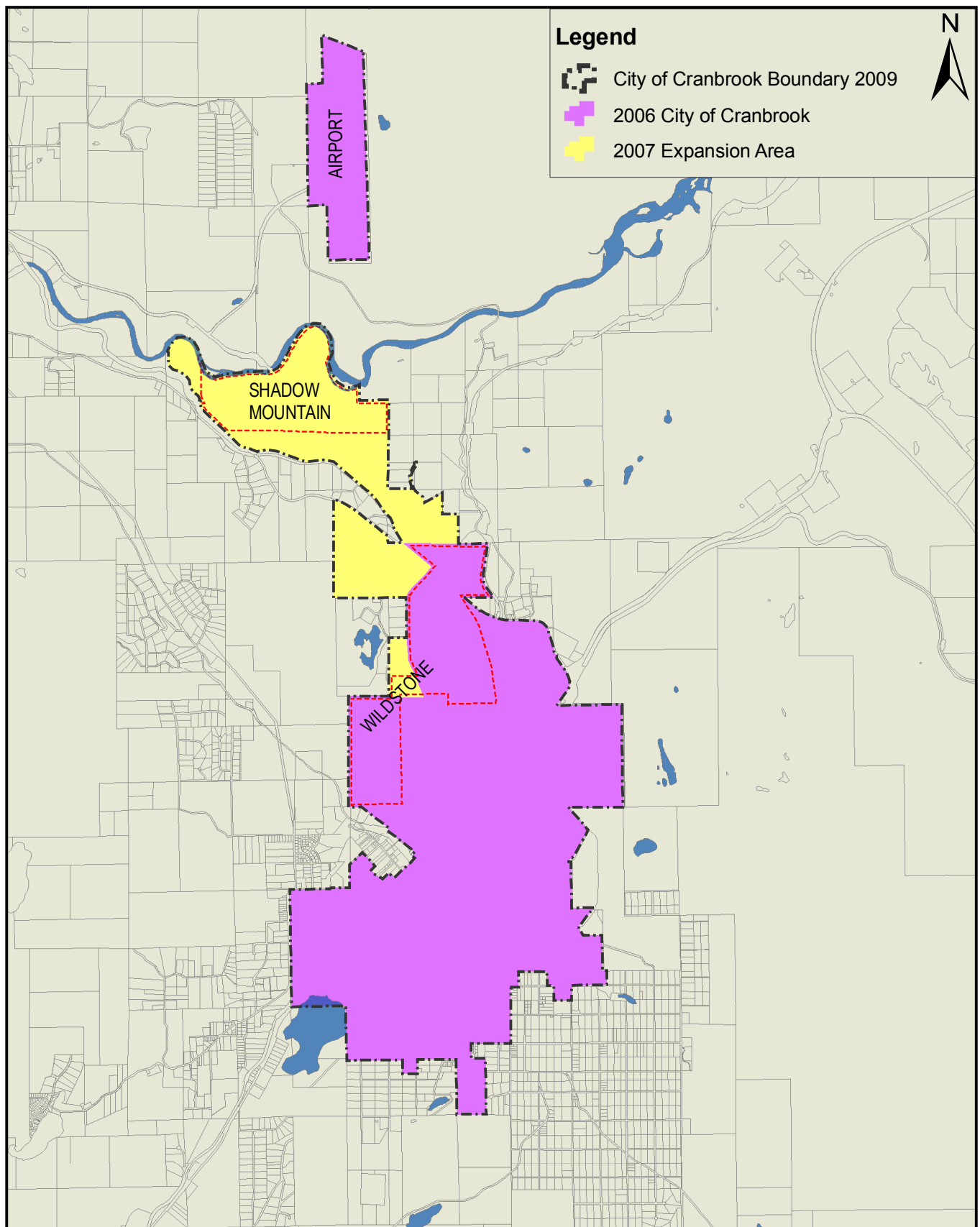
Location of the two development initiatives noted above are shown on **Figure 1** and are described as follows:

1. *Wildstone* is an approximate 391 ha assembly of parcels within the 2006 City boundary proposed for development of two 18-hole golf courses, approximately 3,000 residential dwellings, 6503 sq. m. (70,000 sq. ft.) of commercial development and other associated land uses.
2. *Shadow Mountain* consists of 232 ha of land incorporated into the City as part of the larger "St. Mary Neighbourhood" boundary extension approved in October 2007. The proposed development includes a 19-hole golf course and approximately 1,275 residences.

1.2. Scope

Given the magnitude of potential development represented by the two initiatives noted above, it is intended that this Growth Management Study (GMS) will focus primarily on the following key elements of the City's infrastructure:

- Evaluation of traffic issues and major road network
- Sanitary sewer collection, treatment, and disposal
- Water supply, treatment, and distribution.



Date: January 6, 2010

Client/Project

GROWTH MANAGEMENT STUDY
CRANBROOK, BC

Figure 1

Title
STUDY AREA



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CITY OF CRANBROOK



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Significant capital improvements pertaining to roads, water, and sanitary sewer service recommended to service the growing city are identified and assessed in the context of the current financial plan. A cost recovery strategy, including proposed updates to the Development Cost Charge Bylaw, explores public and private sector funding sources and the policy frameworks needed to obtain and disburse the funds.

In 2007 the City of Cranbrook authorized an application for boundary expansion to the east involving 3,642 ha (9000 ac.) of land. The City of Cranbrook has not advanced this initiative since a municipal referendum was held in November 2009 in which the majority of voters did not endorse the proposed expansion.

1.3. Growth Management Study Format

The 2010 City of Cranbrook Growth Management Study is comprised of four volumes:

- Volume 1: Planning and Finance
- Volume 2: Transportation Planning
- Volume 3: Wastewater Collection & Treatment Planning
- Volume 4: Water Supply & Distribution Planning

1.4. Growth Management Study Overview

Planning and Finance (Volume 1)

The Growth Management Study commenced in March 2008 and one of the first project tasks was to prepare a population and development forecast for all sectors of the City. The forecast provided a framework for development of the infrastructure plans and was used to determine which areas of the City will require new or expanded infrastructure, the required capacity, and the potential timing of capital improvements.

As part of this task, City of Cranbrook Planning staff prepared an inventory of significantly sized, under-developed lands in the City. Underdeveloped lands were mapped and colour coded according to land use (**Figure 2**). The total hectares of each designation were tallied and the City provided an indication of the anticipated number of dwelling units proposed for the developments known as Shadow Mountain, and Wildstone.

Subsequent to preparation of the underdeveloped lands inventory, the St. Mary Neighbourhood Plan was adopted on October 27, 2008. Including both the Shadow Mountain development and additional lands to the south, the St. Mary Neighbourhood Plan provides for approximately 1,570 new dwelling units.

For ease of reference, this Growth Management Study provides separate residential (**Figure 3**), commercial (**Figure 4**), and industrial (**Figure 5**) land use maps, including the St. Mary Neighbourhood area, depicting a comparison of the current Official

Community Plan designations with the City's under-developed land inventory for each respective land use.

There is potential that some under-developed land may have been developed subsequent to the preparation of the under-developed land inventory mapping however any changes are not expected to have significant impact on this report's forecasting.

Forecasts were prepared for residential, commercial, and industrial growth in consideration of many factors such as:

- the under-developed lands inventory
- Official Community Plan
- zoning
- parcel size
- 2006 Census data
- neighbourhood context
- City staff input, and
- local observations.

Insufficient information was available to forecast institutional development such as new or expanded education, recreation, and health care facilities.

Financial Strategies

In consultation with senior City of Cranbrook staff representing Administration, Planning, Engineering, and Finance, the water, wastewater, and transportation plans identified capital requirements needed to maintain, improve, and extend services to meet the needs of both existing taxpayers and new growth. Conceptual level capital cost estimates were prepared and form the basis of an updated Development Cost Charge strategy.

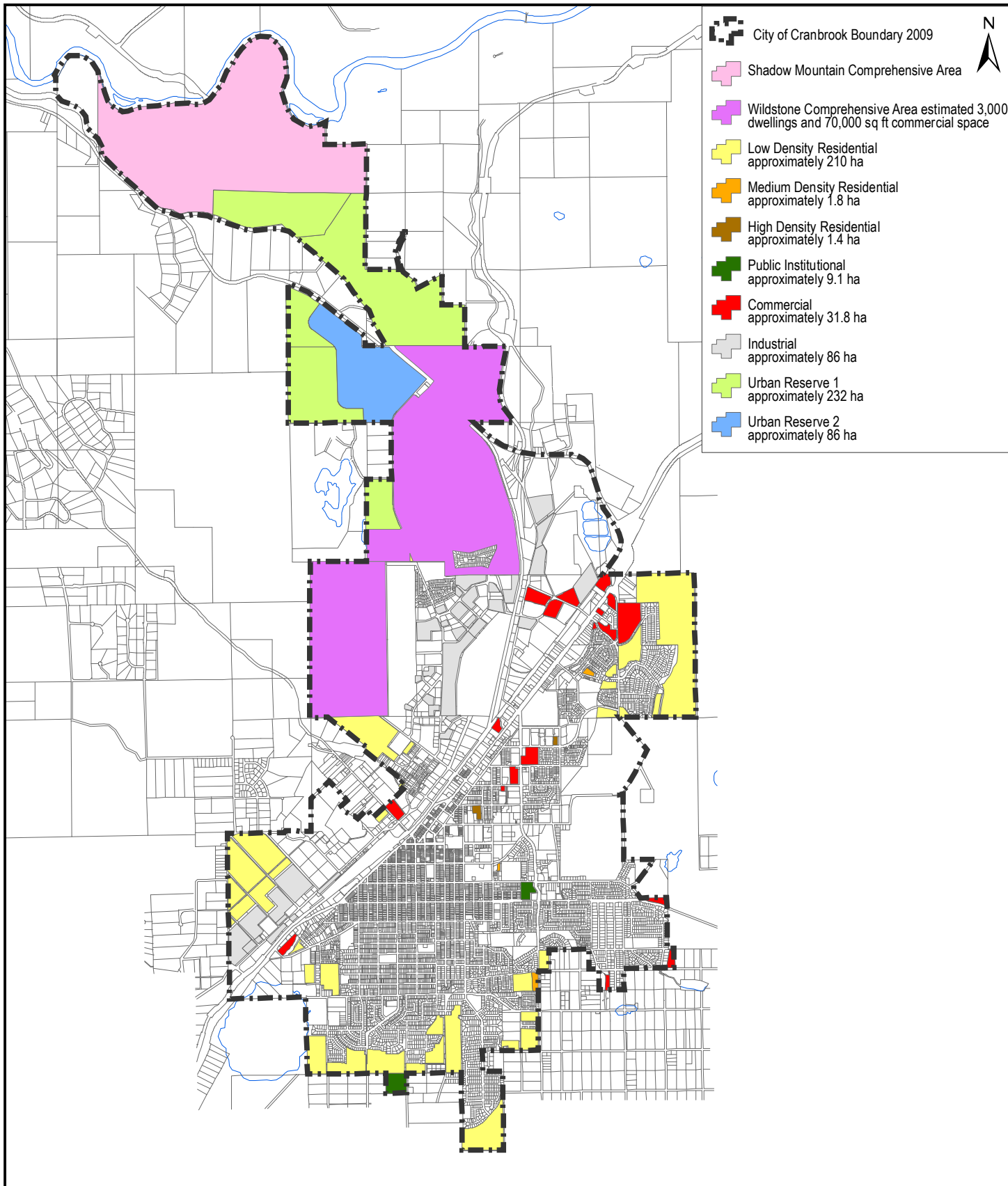
Financing and cost recovery methods were addressed and it was necessary to differentiate between capital improvements that benefit existing taxpayers and projects that are required, primarily, to service new growth. The degree to which there is mutual benefit was also considered.

A preliminary draft for a new Development Cost Charge (DCC) Bylaw was prepared to incorporate the updated infrastructure plans, development forecasts, and Cranbrook's evolving pattern of land use, densities, and growth areas. For the purposes of this Growth Management Study, new residential development is measured in dwelling units, new commercial development is measured by square meters of gross floor area, and new industrial development is measured by hectares of site area.

As a follow-up to this GMS, it is recommended the City of Cranbrook advance the draft DCC bylaw through review by senior City staff, and through public and stakeholder consultations, adjust it as necessary, and undertake the formal bylaw approval process.

Implementation

Concluding the **Planning and Finance** report, recommendations are presented to guide implementation and provide direction on next steps for the City to achieve their growth management objectives.



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CITY OF CRANBROOK



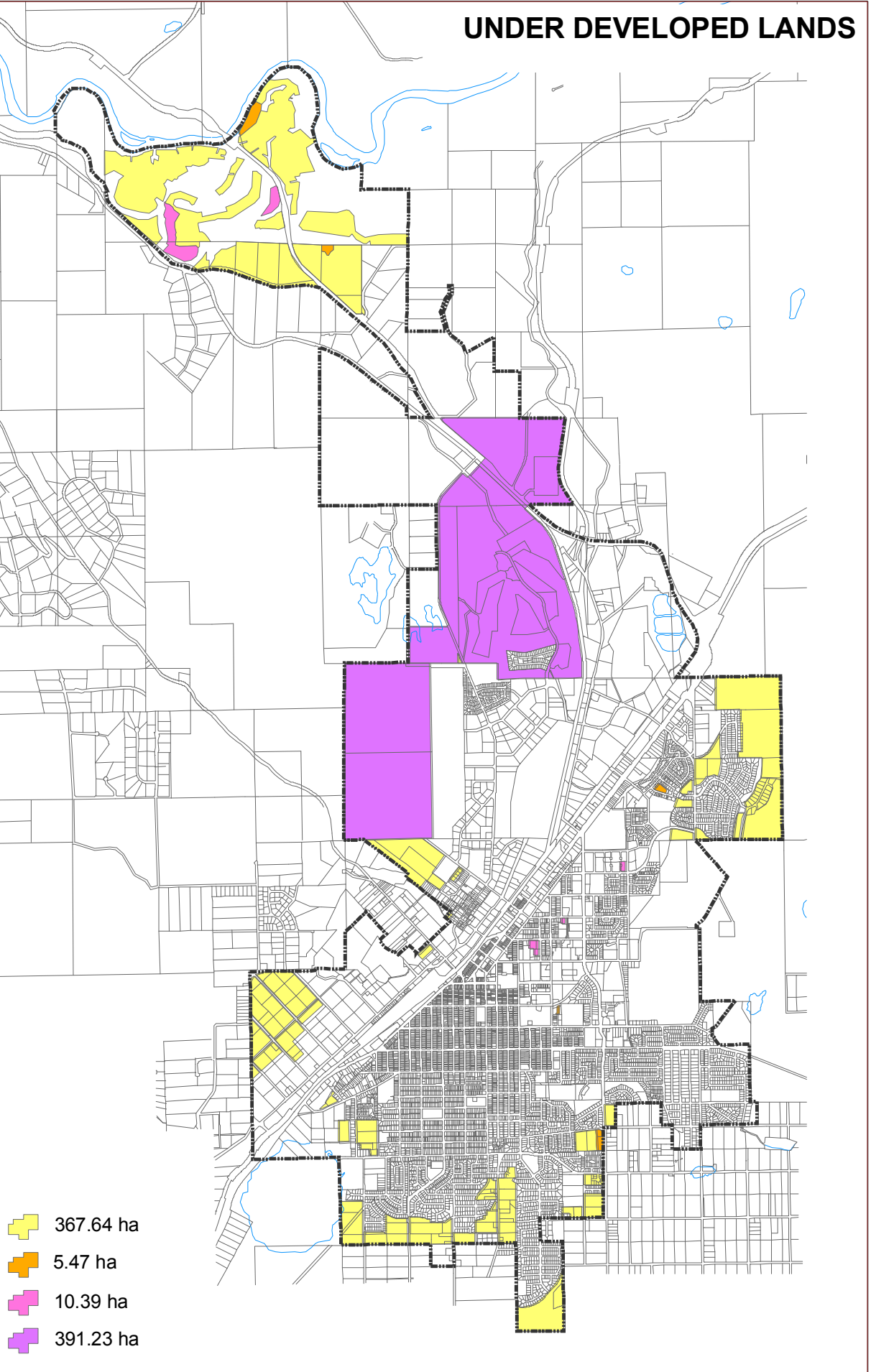
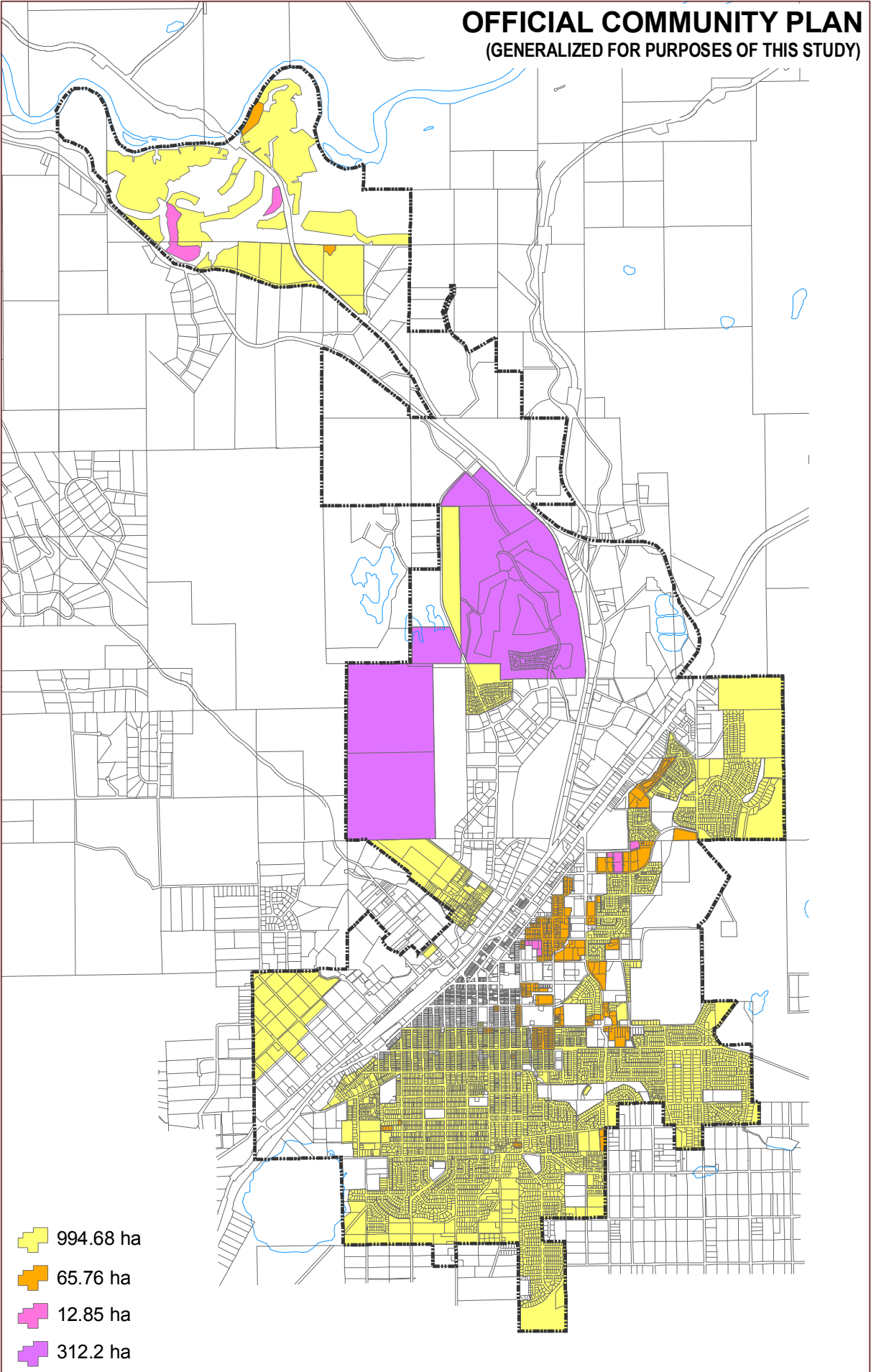
Client/Project

Date: April 7, 2009

GROWTH MANAGEMENT STUDY
CRANBROOK, BC

Figure 2

Title
**UNDER DEVELOPED
LANDS WITHIN THE
CITY OF CRANBROOK**



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Notes

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Legend



- CITY BOUNDARY
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- COMPREHENSIVE DEVELOPMENT



Client/Project
GROWTH MANAGEMENT STUDY
Cranbrook, British Columbia

Title
**Residential & Comprehensive
Development Areas
City of Cranbrook**

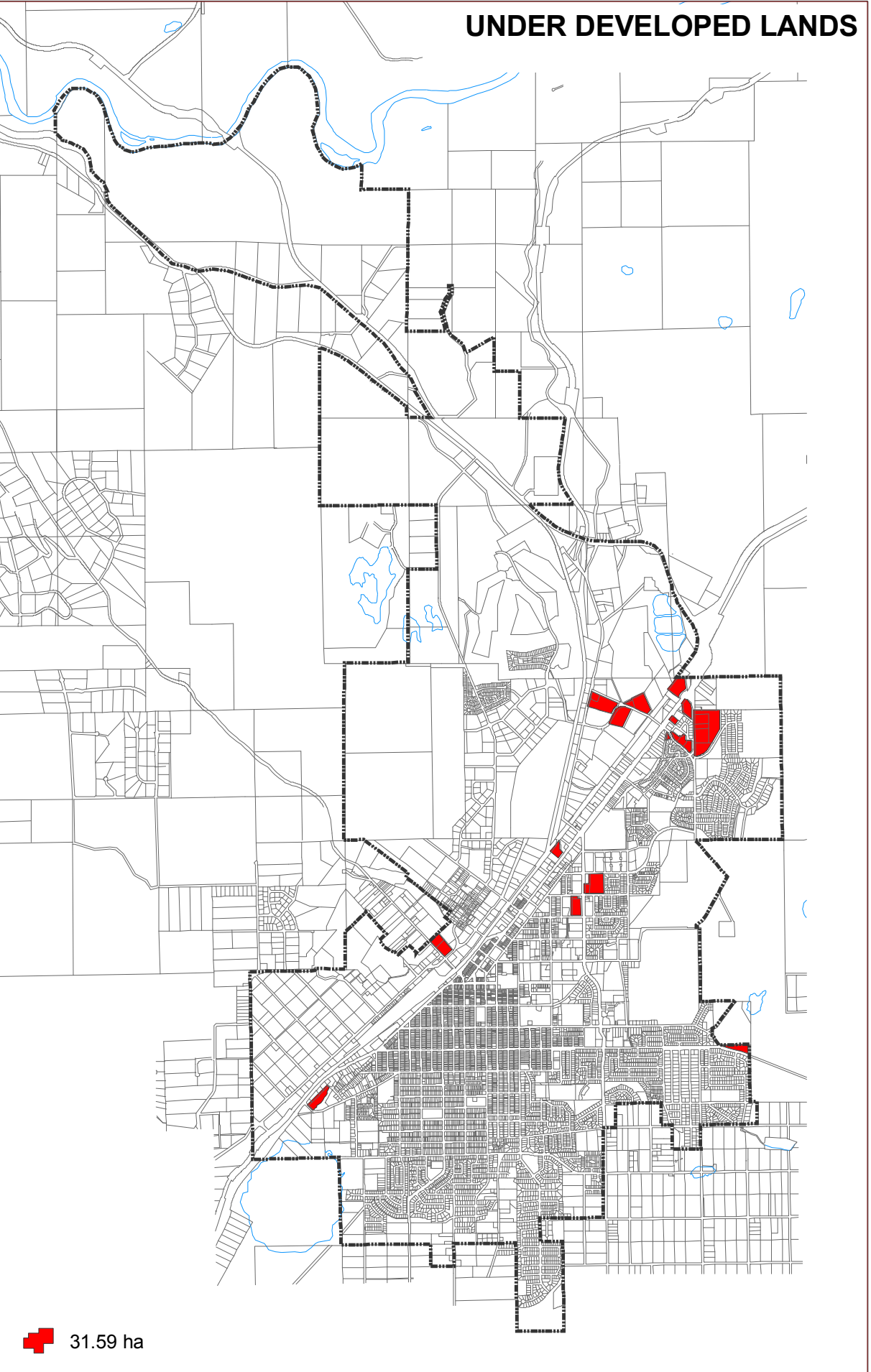
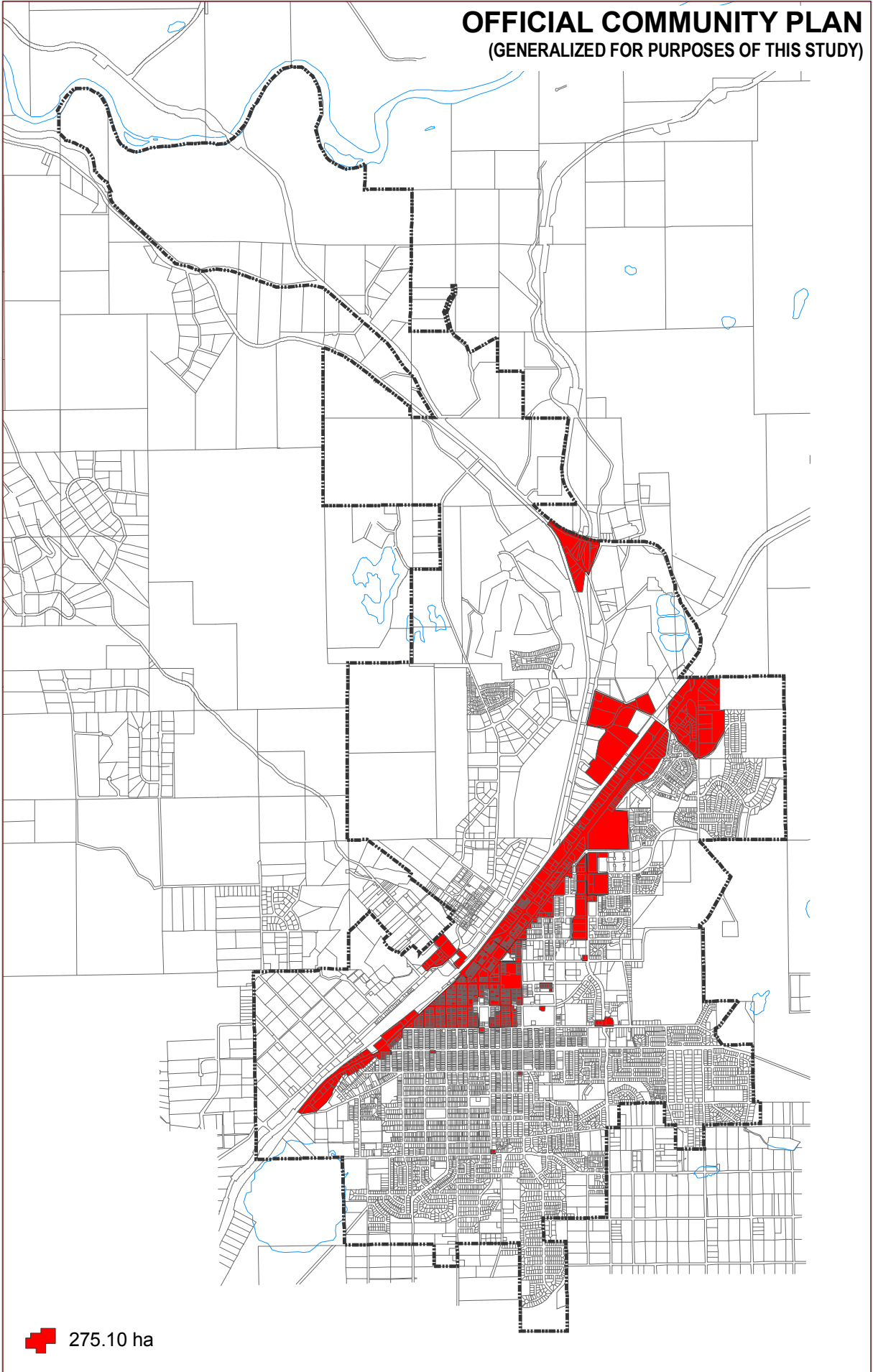
Project No.
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Figure 3

Scale
0 200 400 800 1,200 1,600 2,000
Meters

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April 1, 2009



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----- CITY BOUNDARY



COMMERCIAL



Client/Project

GROWTH MANAGEMENT STUDY
Cranbrook, British Columbia

Title

**Commercial Development Areas
City of Cranbrook**

Project No.

112720147

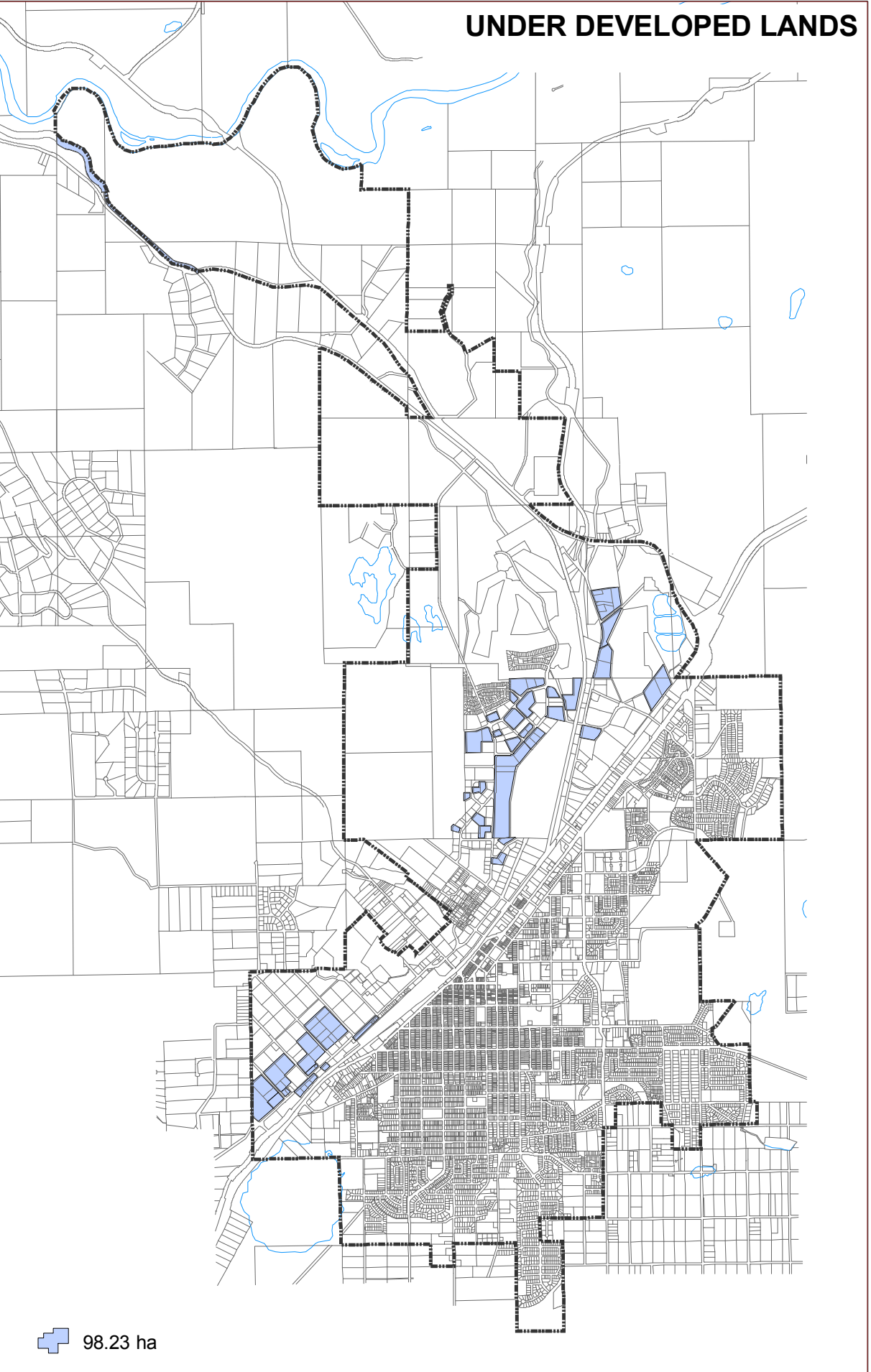
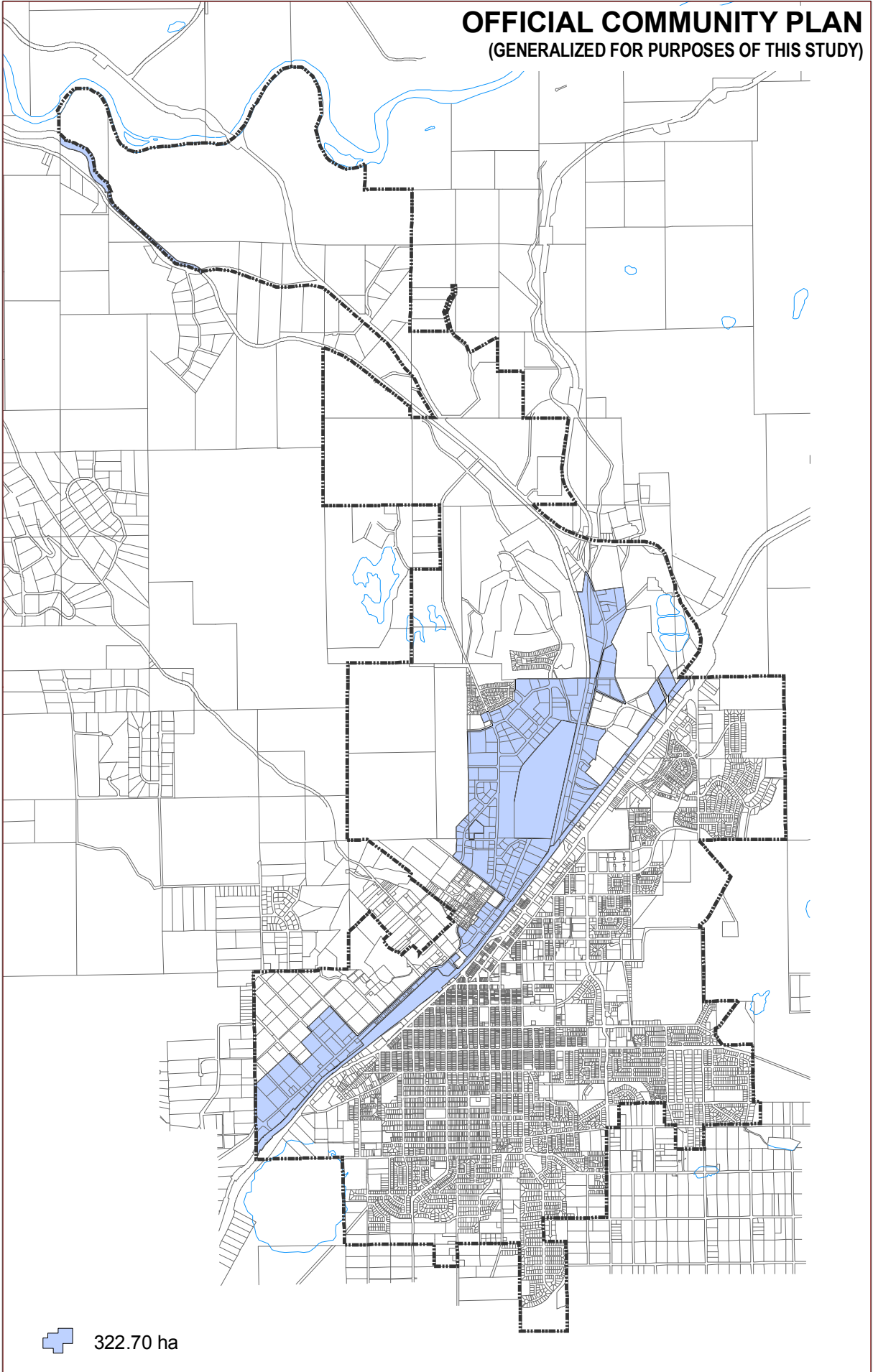
Figure 4

Scale

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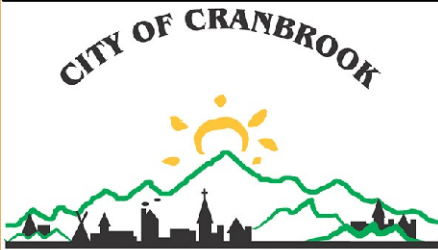
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INDUSTRIAL



Client/Project

GROWTH MANAGEMENT STUDY
Cranbrook, British Columbia

Title

**Industrial Development Areas
City of Cranbrook**

Project No.

112720147

Figure 5

Scale

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Meters

1:50,000

April 1, 2009

Transportation Planning (Volume 2)

At the outset of the project, Stantec's Transportation Planning team commenced the evaluation of traffic and road network issues in the City. Background information, including mapping, road network and future land use plans, and 2006 Statistics Canada Census data, was obtained and reviewed. A traffic counting plan was developed and counts were undertaken at various locations in the City in 2008.

Wastewater Collection & Treatment Planning (Volume 3), and Water Supply & Distribution Planning (Volume 4)

Concurrent with preparation of the growth forecast, the consultant team initiated preparation of the Water and Wastewater Planning reports. These plans required the evaluation of existing systems and consideration of future servicing requirements consistent with City of Cranbrook objectives and the magnitude, locational factors, land use type, and pace of development as indicated in the growth forecast.

2. Policy Context

The Official Community Plan (OCP) is the over-arching policy framework that guides growth and change in the City of Cranbrook. The most recent comprehensive review of the OCP was completed in 2006 with the adoption of Bylaw No. 3550. Both text and map amendments have been undertaken since that time and the document is periodically consolidated to include the updates.

The OCP addresses the City as a whole and includes more focused plans for the North Sector, Wattsville, Wildstone, and St. Mary neighbourhoods.

It is a policy of the Official Community Plan to enhance land use efficiency and to extend the lifespan of the City's available land supply by aiming to increase the proportion of multiple unit housing from 30% to 40% of all housing. A related policy promotes efficient use of infrastructure by supporting infill and other new residential development in areas currently serviced with municipal water and sewer systems.¹ Supporting a moderate intensification of development within the current City limits will prepare the City of Cranbrook for long term growth while optimizing use of infrastructure, municipal facilities, schools, parks, and public services.

Commercial development policies in the OCP discourage main branches of financial institutions, government, private and public organizations on sites outside the downtown core and permit only neighbourhood commercial in residential areas.² By inference, this would suggest that commercial development at Wildstone and Shadow Mountain would

¹ City of Cranbrook, Official Community Plan 2005-2020, Bylaw No. 3550, Regional Context Statement, p. 5 and Residential Development policies 6.2 (b) and (c), p. 16.

² *Ibid.*, policies 7.2 (e) and (j), p. 19

be limited to neighbourhood-scale shops and services intended for the convenience of area residents and visitors.

The OCP suggests that a commercial land use strategy be prepared to determine available commercial land and floor space inventory as well as projected needs for commercial land, parcel size and locational characteristics.

True to the Vision of the OCP, the City of Cranbrook has “embraced an expanded interpretation of industry”³ with the advancement of golf resort residential development at Wildstone and Shadow Mountain. The industry of tourism is strong in the East Kootenays and Cranbrook is well-positioned to benefit. Economic diversification and innovation are supported by OCP policy. Fresh perspectives which reinvent the concept of industry will add resiliency to the economy of the City and surrounding region.

3. Current Land Use Pattern & Form

The pattern of development in the City of Cranbrook is influenced by topography and the alignment of the railway and highway corridors which bisect the City diagonally in a southwest/northeast alignment. Early in the City’s history, the main road through the community (now Highway 3/95) was constructed alongside the railway. South of this arterial road, the avenues and streets branch off in a north/south, east/west pattern creating obtuse and acute rather than right angled intersections at the highway interface.

Commercial enterprises serving both local residents and the travelling public have developed along the highway corridor. Downtown Cranbrook is the historic core area of the community and is situated south of the highway corridor in the vicinity of Baker Street. The older part of Cranbrook including downtown and the surrounding residential neighbourhoods are typified by relatively small lots within a grid pattern layout of streets and lanes.

The street network incorporates more cul-de-sacs and curvilinear elements within the newer residential neighbourhoods in the south and east sectors of the City. New residential subdivisions continue to be developed in these areas of the City.

The Cranbrook Golf Club and College of the Rockies anchor the easterly boundary of the City. Elizabeth Lake Park marks the southwest corner of the City while the St. Mary River forms the northernmost boundary.

North of Highway 3/95, industrial development dominates the urban landscape however it is to be noted that the north and west sectors of the City are also subject to significant residential / golf course, recreation and resort development which is anticipated to be ongoing for several years to come as the Wildstone and Shadow Mountain projects continue to build out. The older residential neighbourhood of Slaterville is tucked in between 3rd Street NW and 6th Street NW north of Slater Road.

³ *Ibid.*, p. 7, and policy 8.2 (f)

Parks are interspersed throughout the City and, with the exception of Pinewood Elementary, schools are located south of the highway corridor.

Joseph Creek, often accompanied by the Cycle/Walk Trail, flows generally from south to north as it weaves through a variety of neighbourhoods on its way to meet the St. Mary River.

Canadian Rockies International Airport is part of the City of Cranbrook although it is physically separate from, and approximately 15 km north of, the balance of the City.

The 2007 boundary expansion area, shown on **Figure 1**, remains largely undeveloped however construction at the aforementioned Shadow Mountain site, located within this area, is underway and is anticipated to continue for several years.

4. Population & Demographics

Table 1 POPULATION			
CRANBROOK			
Census Year	Population	% Change Between Census Years	Average Annual % Change Between Census Years
1976	13,510	-	-
1981	15,915	15.1	3.02
1986	15,971	0.4	0.08
1991	16,447	2.9	0.58
1996	18,329	11.4	2.28
2001	*18,517	1.0	0.20
2006	18,267	- 1.4	-0.28
Source: 1976-1986 population figures from OCP Bylaw No. 3250, p.5. 1991-2006 population figures from Statistics Canada (2001 population adjusted to reflect 2001 boundary expansion)			

Cranbrook's average annual rate of population change has ranged from -0.28% (2001 to 2006) to a high of just over 3% (1976 to 1981). Barring a dramatic change affecting Cranbrook's long term economic situation, one may expect growth rates to fluctuate in a similar manner, from 0% to 3%, over the next 10 to 25 years. On average, Cranbrook's population has increased by 1% annually between 1976 and 2006. The City's boundary has expanded during this time period and some growth spikes may be partially attributable to the addition of residents which were previously outside City boundaries suddenly being added to the City population. In general, however, boundary expansions between 1976 and 2006 involved lands which were sparsely populated at the time.

Table 2 AGE DISTRIBUTION

Age Group	1996 % of Total Population		2001 % of Total Population*		2006 % of Total Population	
	CRANBROOK	B.C.	CRANBROOK	B.C.	CRANBROOK	B.C.
0-24	36.9	32.7	33.7	31.2	30.7	29.6
25-64	51.3	54.5	52.5	55.1	52.9	55.8
65+	11.9	12.8	13.9	13.6	16.4	14.6
Total	100 %	100%	100%	100%	100%	100%
* Based on 2001 Census population of 18,476						

Table 2 reveals an increase in the number of people age 65 and over as a percentage of the total population both in B.C. as a whole and, more significantly, in Cranbrook. Correspondingly, between 1996 and 2006, both BC and Cranbrook experienced a reduction in the proportion of the population under age 25.

Growth in the proportion of population over age 65 has occurred faster than anticipated in the 1998 City of Cranbrook - *Growth Management Strategy* which had forecast that by 2006, 12.5% of Cranbrook's population would be age 65 or older. As indicated in **Table 2**, this age group now makes up over 16% of Cranbrook's population.

Cranbrook has both a higher proportion of young people and a higher proportion of seniors than the province as a whole. BC Stats reports that the retirement age population (65+) in BC as a whole will continue to increase significantly from 13.2% in 2001 to 24.4% in 2031. At 16% this share of Cranbrook's population is already significantly higher than the provincial level. Between 2001 and 2006, Cranbrook's share of the 65+ age group increased 2.7% more than the provincial rate of increase. If this trend continues, in 2031 Cranbrook's population aged 65+ could be 27-30% of the total City population.

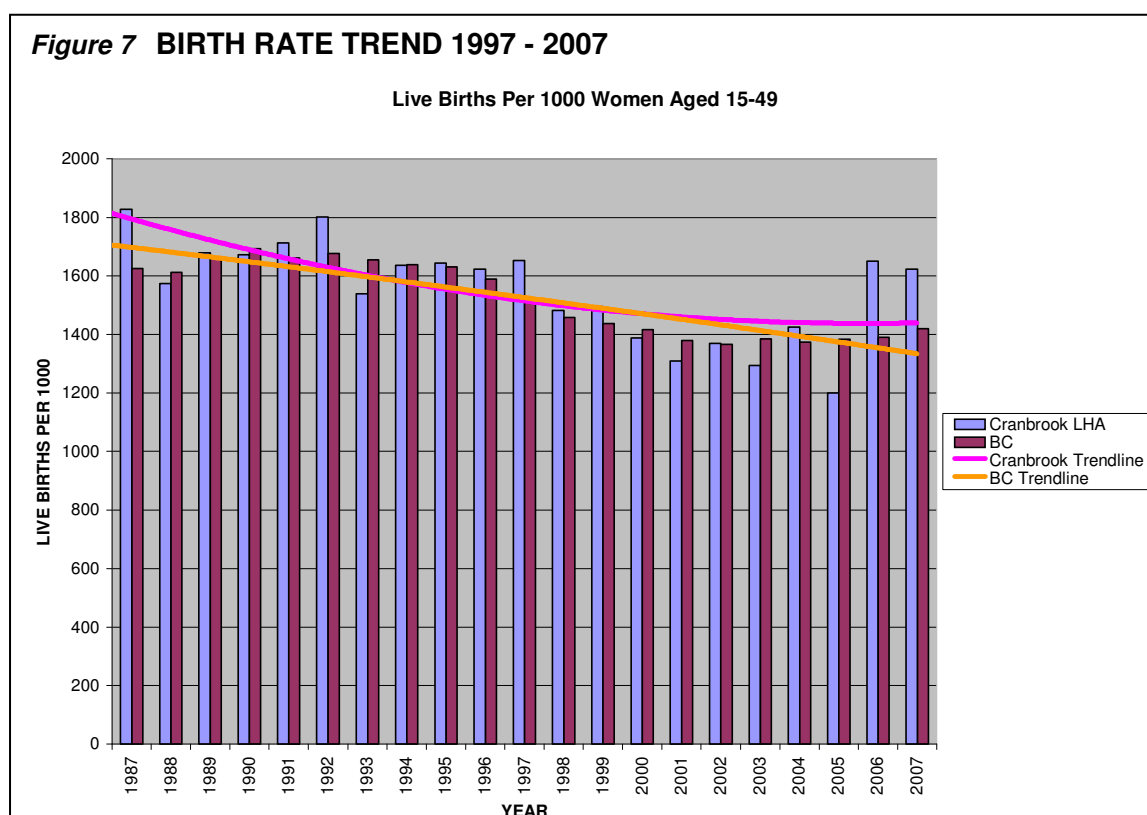
The increasing proportion of older residents has implications for provision of appropriate housing, transit, health care, recreation and other services. The increasing number of seniors in Cranbrook may be an indicator that this segment of the population finds that this community offers the type of housing, lifestyle, services, facilities and amenities they are looking for. As a regional centre for health care, government services and with a wide range of

Figure 6 CRANBROOK LOCAL HEALTH AREA



year round recreational activities, Cranbrook's appeal to retirees is anticipated to remain strong in the years ahead.

Provincial statistics reveal that British Columbia's birth rate reached its lowest level on record in 2002. In 1959, women had an average of four babies each whereas from 1998 to 2007, BC women had an average of 1.4 babies in their lifetime⁴.



Birth rate statistics for the Cranbrook Local Health Area paint a similar picture (see map **Figure 6** and chart **Figure 7**). Generally, since 1998, the birth rate in the Cranbrook area has fluctuated around 1.3 or 1.4 live births per woman aged 15-49. In 2005 however, the rate dipped to a low of 1.2 while in 2006 and 2007 the rate rose slightly to over 1.6. Birth rate trendlines for both BC as a whole and the Cranbrook area in particular indicate a downward trend.

Out migration of young people to other provinces, economic factors, lifestyle choices, career choices, and the trend towards marrying at an older age are all factors influencing the decline in both Cranbrook's and BC's birth rate. These factors also contribute to the reduction in Cranbrook's population under age 25 which declined by over 6% between 1996 and 2006. BC Stats anticipates that the provincial population aged 25-34 will increase between 2006 and 2016 then decline to 2031.

⁴ Harnett, Cindy, Vancouver Sun, *B.C. Birth Rate Plummets, Deaths Rise*, August 31, 2002; and BC Stats, "Live Births Per 1000 Women Aged 15-49" 1987 - 2007

It is to be noted that population growth rates prepared by BC Stats differ substantially between the 28 regional districts in BC. Those that are heavily reliant on resource extraction industries may decline while those that are less reliant on resource industries, such as the Lower Mainland, south Vancouver Island and the Okanagan are anticipated to grow.

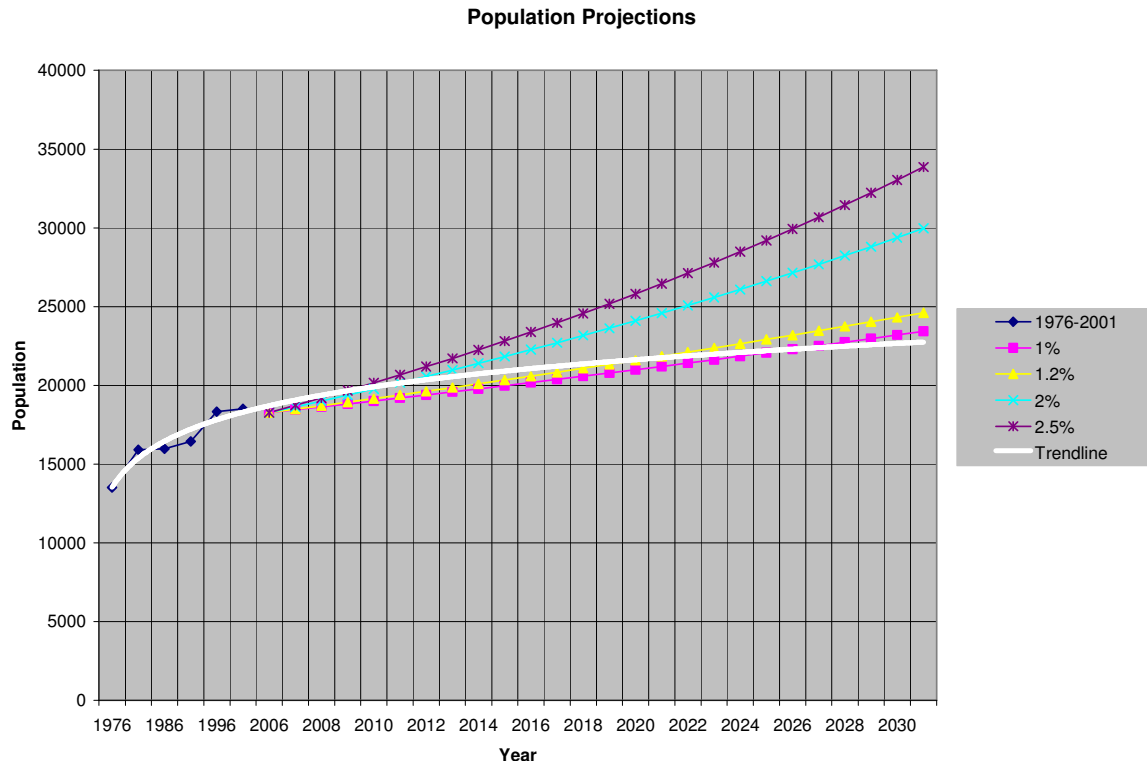
Whereas, BC Stats forecasts that between 2001 and 2031 the provincial population will increase by over 37%, the agency also forecasts that the East Kootenay Regional District will likely increase by only about 10% during the same time period. Anticipated declines in mining and forestry activities may slow growth in the Region as a whole, however strength in the health, government, recreation, construction, tourism and service sectors are expected to sustain the City of Cranbrook's growth at a level similar to the provincial rate.

Emerging from the dramatic economic downturn which struck with considerable force in 2008, BC's resource industries are adapting and taking steps to become more sustainable and resilient. Despite the economic challenges which linger into 2010, the mining sector in BC has performed better than most other industries over the past year and has helped to sustain the provincial economy⁵.

Cranbrook has attributes of both a resource-reliant community and a more diversified community in which to reside or visit. In the City of Cranbrook, fluctuations in the vitality of resource industries may be offset by the desirability of the area as place in which to buy a home or seasonal residence, go to college, raise a family, retire, or vacation.

⁵ *The Renaissance of Mining in British Columbia*, Speech given at Vancouver Board of Trade Luncheon, Pierre Gratton, President & CEO, Mining Association of BC, May 12, 2010

Figure 8 POPULATION PROJECTION



Cranbrook's population has experienced both gains and declines since 1976 however, overall, during this time period the City's population has increased by an average of 1% annually. **Figure 8** presents four projected population growth scenarios for the City of Cranbrook to the year 2031.

Based on the City's rate of population change since 1976, projections have been made assuming average annual increases of 1%, 1.2%, 2% and 2.5%. The trendline uses historic population (1976 – 2006) to project future population change based on a logarithmic curve.

Should Cranbrook experience an average annual population increase of about 1.2%, the City would have a population of approximately 25,000 by 2031. This is in line with the provincial growth rates forecast for the same time period.

Whereas the growth rate averaging 1.2% annually is higher than the historic rate which averaged 1.0% over the past 30 years, it is anticipated that awareness of Cranbrook's desirability as a place of residence will increase as more people learn of the stellar scenic, recreational, and lifestyle amenity-value of the community. Vacationers who return to the community on a regular basis may choose to become permanent residents when circumstances in their personal, family, and professional life permit.

Resource industries working in the East Kootenay region will continue to ride the ups and downs of the global economy. To survive and thrive, astute corporate leaders will pursue technical advances and innovations to build in resiliency to economic fluctuations, to operate more efficiently and sustainably, and to add value to their products.

Additionally, as the regional hub for commerce, health care, government services, and education, Cranbrook is anticipated to remain strong as a desirable place to live.

The recent recession impacted the development and construction industry throughout BC and many projects were put on hold. As of 2010 recovery has begun and the real estate market is showing signs of renewed strength in many areas of the province. As existing “new home” residential product and vacant commercial floor space is taken up by the market, those development projects placed on hold will be re-activated and the industry will be put back to work.

The following section forecasts population growth in five-year increments within various sub-areas of the City from the most recent Census year (2006) to 2036. Whereas some areas of the City will be fully built-out by 2036, growth is expected to continue in certain neighbourhoods for a much more extended period.

5. Growth Forecasts

It is to be noted that a growth “forecast” takes into consideration a number of factors that may influence the amount and rate of population change whereas a “projection” is a simple mathematical extension of past statistics.

5.1. Influencing Factors

A number of factors were considered in the process of preparing the growth forecasts, including:

- Statistics Canada 2006 Census data
- information on under-developed land provided by City of Cranbrook (**Figure 2**)
- inclusion of the St. Mary Neighbourhood (including the *Shadow Mountain* lands) into City of Cranbrook in October 2007
- aerial photography (2007)
- first-hand observation and local knowledge of various neighbourhoods
- City of Cranbrook Official Community Plan and Zoning Bylaw designations
- dwelling unit estimates for ongoing and pending large scale real estate development projects (i.e. *Wildstone* and *Shadow Mountain*)
- history of housing starts in BC urban & rural areas, 1998 to 2007 (from CMHC)
- completions by housing type for City of Cranbrook 2007 and 2008 (from CMHC)

In 2006, Statistics Canada divided the City of Cranbrook into 38 Dissemination Areas (DAs). DAs within the 2006 City boundary ranged in size from 8 to 423 hectares.

The St. Mary Neighbourhood, which includes the *Shadow Mountain* development lands in the north Cranbrook area, was not part of the City in 2006. The St. Mary Neighbourhood and other intervening lands were incorporated into the City of Cranbrook in October 2007. The next Census in 2011 will capture population and demographic statistics for this new area of the City.

5.2. Residential Forecast

Table 3 presents a forecast of residential dwelling units for each Statistics Canada DA within the 2006 City boundary and for other non-DA polygons defined as:

- St. Mary Neighbourhood, and
- Urban Reserve areas 1 to 5.

The Dissemination Areas listed in **Table 3** are graphically represented on **Figure 9** which identifies each polygon by its DA number or other identification label and provides a comparison of the estimate of total residential units at build-out with new units (estimated to be built after 2006).

Using the digital Excel spreadsheet and GIS mapping provided as a deliverable for this project, the City will be able to add or change DA and other polygon boundaries, adjust the forecast rate of growth, and make other updates as deemed necessary. It is recommended the City undertake a review and update at each Census year when new statistics are available.

Within the City of Cranbrook, growth rates will vary from one neighbourhood to another. Some areas of the City are currently, or will be in years to come, subject to a greater degree of new development compared to other, more fully developed, mature areas. Depending on the neighbourhood, the annual increase in new dwellings is forecast to vary from 0.2% to 3.0% annually. Overall, for the City as a whole, the average annual growth rate is forecast at 1.2% over the next 30+ years.

Total dwelling units at build-out as represented in **Table 3** are the result of forecasts based on a range of assumptions and influencing factors (see **Section 5.1**). Circumstances facing any given community are however, ever-changing and unpredictable. Over time it is quite likely the forecasts presented in this Growth Management Study will differ from actual development statistics due to:

- uncertainty of residential density that may be developed in a given area with under-developed parcels (i.e. will the area be developed with small or large lot single family?, will there be townhouses or other multi-unit housing?)
- uncertainty as to the amount of redevelopment that may occur in an otherwise developed area, (i.e. the number of suites, conversions of single family units to duplexes, and the amount of new infill development that may occur in a central city, developed neighbourhood)

- uncertainty as to whether areas of older, largely single family development in proximity to commercial and multi-family development may redevelop to higher density residential, i.e. apartments (such as in DAs 189, 188, tip of 190 south of Cranbrook St., and part of DA 186 south of Cranbrook St.)
- uncertainty as to whether or not particular areas will be serviced with sanitary sewer (i.e. DAs 166 & 199)

The residential development forecast presented in **Table 3**, is an informed approximation. Market preferences, local and global economic conditions, and many other factors will influence the actual number of dwellings and timing of build-out.

In the Official Community Plan, Urban Reserve (UR) areas 1 to 4 (shown on **Figure 9**) are not designated for any particular future land use(s) therefore significant growth is not anticipated in these areas. Based on *Wildstone's* marketing information, three future development nodes are indicated in the southern part of UR 5. For the purposes of this Study, it has been assumed approximately 150 dwelling units may be developed within that part of UR 5 situated within the *Wildstone* site.

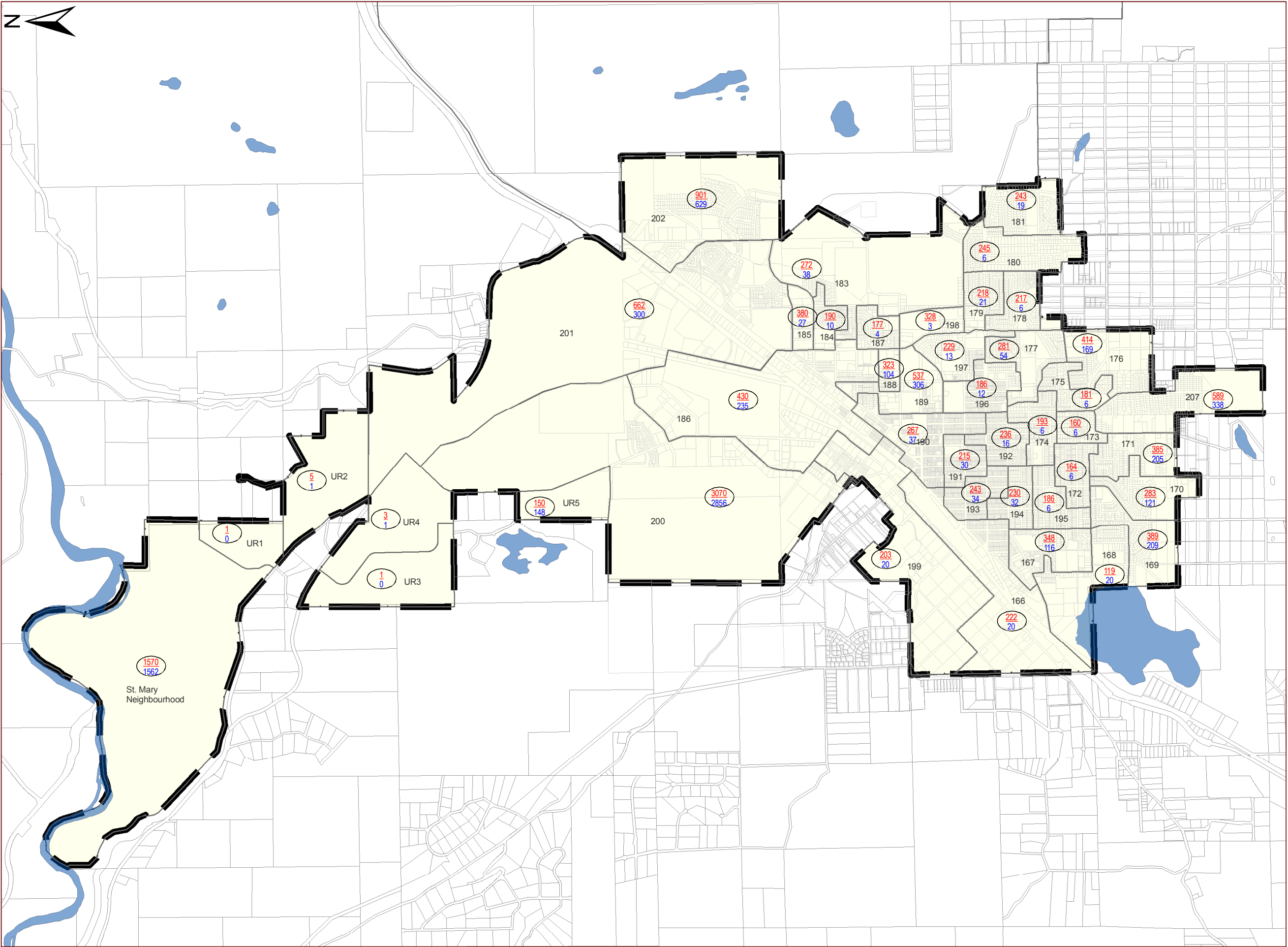
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Table 3 RESIDENTIAL GROWTH FORECAST

DRAFT Updated by: Stantec Consulting Ltd. December 23, 2009

Row #	Area ID	DA Area (Ha)	Pop 2006	# Dwellings 2006	Forecast Number of Dwellings at Census Years						Total # Dwellings @ Build-out	Projected Population @ 2.3 Persons per Dwelling	Density (Units / Ha)	% Annual Increase New Dwellings	Build-out Horizon
Actual timing and pace of development will be dependent on market conditions.															
	Dissemination Area				2011	2016	2021	2026	2031	2036					
1	201	423.11	815	362	420	486	564	654	662		662	1,523	1.6	3.0	2027
2	181	31.13	741	224	230	235	241	243			243	559	7.8	0.5	2022
3	202	124.52	706	272	300	332	366	404	446	493	901	2,072	7.2	2.0	2067
4	207	55.12	696	251	277	306	338	373	412	455	589	1,355	10.7	2.0	2049
5	180	39.13	687	239	245						245	564	6.3	0.5	2011
6	176	44.77	629	245	270	299	330	364	402	414	414	952	9.2	2.0	2033
7	198	15.96	595	325	328						328	754	20.6	0.2	2009
8	167	32.05	576	232	250	269	290	312	337	348	348	800	10.9	1.5	2033
9	177	30.95	549	227	245	263	281				281	646	9.1	1.5	2020
10	185	11.81	540	353	380						380	874	32.2	1.5	2011
11	178	21.39	525	211	216	217					217	499	10.1	0.5	2014
12	171	31.37	507	180	209	242	280	325	377	385	385	886	12.3	3.0	2034
*13	200	378.74	497	214	248	288	333	387	448	519	3,070	7,061	8.1	3.0	2096
14	179	18.54	494	197	207	218					218	501	11.8	1.0	2016
15	183	133.39	481	234	246	258	272				272	626	2.0	1.0	2021
16	193	19.35	481	209	214	220	225	231	237	243	243	559	12.6	0.5	2036
17	175	19.87	479	175	179	181					181	416	9.1	0.5	2013
18	194	17.80	467	198	203	208	213	219	224	230	230	529	12.9	0.5	2036
19	169	33.09	466	180	209	242	280	325	377	389	389	895	11.8	3.0	2032
20	197	24.00	460	216	221	227	229				229	527	9.5	0.5	2019
21	190	44.27	459	230	236	242	248	254	261	267	267	614	6.0	0.5	2036
22	196	26.02	459	174	178	183	186				186	428	7.1	0.5	2019
23	170	30.67	453	162	188	218	252	283			283	651	9.2	3.0	2025
24	187	14.35	442	173	177						177	407	12.3	0.5	2011
25	189	30.02	439	231	268	310	360	417	484	537	537	1,235	17.9	3.0	2035
26	195	21.60	439	180	185	186					186	428	8.6	0.5	2014
27	192	19.68	435	220	226	231	236				236	543	12.0	0.5	2020
** 28	166	111.30	427	202	212	222					222	511	2.0	1.0	2016
29	174	21.37	420	187	192	193					193	444	9.0	0.5	2012
30	184	13.03	408	180	185	189	190				190	437	14.6	0.5	2017
31	173	12.29	389	154	158	160					160	368	13.0	0.5	2014
32	188	8.01	386	219	230	242	254	267	281	295	323	743	40.3	1.0	2045
33	191	16.21	386	185	190	194	199	204	210	215	215	495	13.3	0.5	2036
34	172	18.61	370	158	162	164					164	377	8.8	0.5	2014
35	186	180.37	370	195	205	215	226	238	250	263	430	989	2.4	1.0	2086
** 36	199	134.72	363	183	188	192	197	202	203		203	467	1.5	0.5	2027
37	168	51.36	231	99	104	109	115	119			119	274	2.3	1.0	2025
***38	147	254.43	0	0	0	0	0	0	0	0	0	0	0.0	0.0	2006
	Other Areas														
**** 39	St.Mary Nei.	350.00	18	8	9	11	12	14	17	19	1,570	3,611	4.5	3.0	2185
41	Urban Res 1	28.71	2	1	1	1	1	1	1	1	1	2	0.0	1.0	
42	Urban Res 2	72.33	9	4	4	4	5	5	5	5	5	12	0.1	1.0	
43	Urban Res 3	63.45	2	1	1	1	1	1	1	1	1	2	0.0	1.0	
44	Urban Res 4	67.62	4	2	2	2	2	2	3	3	3	7	0.0	1.0	
*45	Urban Res 5	30.03	4	2	2	3	3	4	4	5	150	345	5.0	3.0	2152
	TOTAL	3126.54	18306	7894							15,646	35,986	AVERAGE ANNUAL %	1.2	

- DA A Dissemination Area (DA) is a small area composed of one or more neighbouring dissemination blocks, with a population of 400 to 700 persons. All of Canada is divided into dissemination areas. (Statistics Canada)
- 2006 Statistics Canada reports 2.3 persons per occupied private dwelling in City of Cranbrook
- * Includes "Wildstone"
- ** Low: no municipal sanitary sewer, High: with municipal sanitary sewer (assuming 50% zoned R1 & 50% zoned R3)
- *** Airport
- **** St. Mary Neighbourhood
- Urban Reserve areas not designated for any particular land use in the OCP



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Notes

FOR PLANNING PURPOSES ONLY

Legend



2006 CITY OF CRANBROOK



← Total Residential Units at Build-Out
← New Units (Built after 2006)
207 Growth Forecast Division ID

CITY OF CRANBROOK



Client/Project

GROWTH MANAGEMENT STUDY
Cranbrook, British Columbia

Title

**RESIDENTIAL GROWTH FORECAST
CITY OF CRANBROOK**

Project No.

112720147

Figure 9

Scale

0 200 400 800 1,200 1,600 2,000
Meters

1:35,000

January 6, 2010

According to the 2006 Census, there were 7,876 private dwellings in the City of Cranbrook at that time. It is estimated there were approximately 19 dwellings within the area added to the City in 2007 bringing the current total to an estimated 7,895.

Based on the density and build-out assumptions applied in **Table 3**, it is forecast that the City of Cranbrook has the potential to accommodate approximately 15,646 residential dwellings, in total, within its current municipal boundary. This represents an increase of 7,751 new dwellings.

At an average of 2.3 persons per dwelling, the forecast new dwellings (7,751) could house an additional 17,827 people.

It is assumed the current (2010) population is approximately 18,306 (2006 Census population of 18,267 + approximately 39 people residing in the St. Mary Neighbourhood and Urban Reserve area added to City in 2007).

Based on the foregoing assumptions, it is surmised that the current City boundary has the capacity to house a population of approximately 36,000 or approximately double the current population. At an average annual growth rate of 1.2%, it would take 57 years for the City to reach a population of 36,000.

5.3. Commercial Forecast

Commercial Floor Area Ratio

In February 2009, the City of Cranbrook researched the floor area and site area of 10 examples of existing commercial development ranging in size from a building area of less than 300m² to greater than 26,000m² in order to gauge what Floor Area Ratio (FAR) is typical of commercial development in the City. For the examples chosen, (see **Table 5**) the FARs ranged from a low of 0.10 to a high of 0.34 working out to an average FAR of 0.22. The examples are typical of highway commercial developments including businesses such as restaurants, retail, a car dealership, and hotel.

Table 5 COMMERCIAL FLOOR AREA EXAMPLES

Commercial FAR Averages for Cranbrook 2009				
Business	Address	Area of Building m2	Area of Lot m2	Percentage
Tamarack Mall	1500 Cranbrook St N	26,485	119,063	22%
McDonalds	1405 Cranbrook St N	508	5059	10%
Mr. Mikes	1028 Cranbrook St N	386	2157	18%
Hyundai Dealership	2032 Cranbrook St N	646	3,953	16%
Superstore	2100 17th St N	13,298	38,800	34%
Starbucks	1325 Cranbrook St N	288	2,030	14%
Tim Hortons	1875 Cranbrook St N	287	2,280	13%
Canadian Tire	1100 Victoria Ave	4,126	13,980	30%
Home Hardware		3,768	31,500	12%
Best Western Hotel	1019 Cranbrook St N	1,528	14,760	10%
Total m2		51,320	233,582	
Average Percentage				22.00%

In Cranbrook's downtown area commercial development has typically been built at a higher density than along the highway corridor. It is assumed an FAR of 0.5 to 1.0 would be fairly typical downtown.

Currently, commercial and mixed-use zoning in Cranbrook allows for a maximum FAR of 1.5 as provided in the Mixed Commercial – Residential: C-4 zone. The Neighbourhood Commercial (Limited): C-3A zone allows for a maximum FAR of 0.75. Other commercial zones, i.e. C-1, C-2, C-3, C-5, and C-6 do not specify an FAR.

To encourage more efficient use of land, infrastructure, and services; facilitate public transit viability; and foster the development of mixed use neighbourhood centres populated day and night, on average, commercial and commercial/residential mixed use development should aim to achieve higher than the current typical commercial FARs.

The City of Cranbrook's Development Cost Charge (DCC) Bylaw assigns commercial DCCs based on square metres of gross floor area of commercial development. To facilitate preparation of the DCC Bylaw update, this Growth Management Study uses the square metre as the unit of measurement for the commercial growth forecasts.

Based on available information, the following sections provide an overview of commercial development potential in the City of Cranbrook.

Cranbrook – General

In 2008, there were approximately 31.8 hectares of under-developed land designated commercial in the Official Community Plan. Of this total, approximately 23.75 ha are designated in the Official Community Plan as Highway Commercial and about 7.62 ha are designated as Core Commercial.

Wildstone

In addition to the underdeveloped commercial land described above under **Cranbrook – General**, according to the City of Cranbrook, approximately 6,500 sq. m. (70,000 sq. ft.) of commercial floor area is proposed for development within the *Wildstone* project. *Wildstone* is designated Comprehensive Development in the Official Community Plan and, as described in the OCP, the central core area is proposed to include boutique retail shops, food and beverage facilities and personal services. A 260-unit lodge/hotel is also proposed for the core area. The OCP states that the amount, size and type of commercial development at *Wildstone* will be subject to further refinement as zoning bylaws are advanced and in conjunction with a market study.

Shadow Mountain

The *Shadow Mountain* development is situated within the St. Mary Neighbourhood Plan area. The OCP states that neighbourhood scale commercial uses will be accommodated within the St. Mary Neighbourhood to serve the daily convenience needs of area residents. The potential land area or floor area of commercial development in this area is, however, uncertain as the mapping in the Official Community Plan does not define a commercially designated area.

For the purposes of this report, it is assumed that the type of commercial development that may occur in the St. Mary Neighbourhood may include a small grocery store, coffee shop, gift shop, professional office, and/or personal service such as a hair salon or laundromat. Total commercial floor area of a small scale neighbourhood commercial node is assumed to be approximately 1,500 sq. m. (16,146 sq. ft.).

In order to estimate how many years it may take to build-out the available supply of under-developed commercial land, the number of square meters of developed commercial floor area per person was estimated. For purposes of this report, the number of square meters of developed commercial floor area per person represents the current demand.

Table 6 presents the process utilized for this calculation. The gross area of all land designated “Highway” and “Core” Commercial in the Official Community Plan was determined using ArcGIS and mapping provided by the City of Cranbrook (**Table 6**, rows 1 to 4).

The gross area of under-developed commercial land (as provided by the City) was deducted from the total area in order to estimate the approximate area of developed commercial land (**Table 6**, rows 5 to 8).

As indicated in **Table 5**, currently the average FAR for highway commercial development is estimated at 0.22. Assuming FARs in the downtown core are somewhat higher, an FAR of 0.3 is considered a reasonable estimate of the average FAR of all types of commercial development in the City of Cranbrook.

Based on these assumptions, total developed commercial floor area is estimated to be approximately 563,000m² (developed commercial land x 0.3 FAR) (**Table 6**, row 9).

Following this rationale, it is estimated there are approximately 31m² of developed commercial floor area per person (commercial floor area demand) (**Table 6**, row 11).

Applying an FAR of 0.3 to the existing 33.4 Ha (or 334,000m²) inventory of under-developed commercial land indicates there is potential to develop 100,200m² of commercial floor area within the 2009 City boundary (**Table 6**, row 12).

If new commercial development were to be constructed at an FAR of 0.5, the same inventory of under-developed commercial land would yield 167,000m² of floor area (**Table 6**, row 13).

Table 6 ESTIMATE OF DEVELOPABLE COMMERCIAL FLOOR AREA			
			Notes
1	Gross Ha. Land Designated "Highway" & "Core" Commercial in OCP	219.45 Ha	Within 2006 City Limits
2	Approx. Ha. Commercial Land @ "Wildstone"	1.3 Ha	Undeveloped as of March 2009
3	Approx. Ha. Commercial Land @ "Shadow Mountain"	0.3 Ha	Undeveloped as of March 2009
4	Total Gross Ha. Commercial Land Within March 2009 City Limits	221.05 Ha	Add Lines 1 to 3
5	Gross Ha Under-Developed Land Designated "Highway" & "Core" Commercial in OCP	31.8 Ha	Within 2006 City Limits
6	Approx. Ha Under-Developed Commercial Land @ "Wildstone" & "Shadow Mountain"	1.6 Ha	Add Lines 2 and 3
7	Total Gross Ha. Under Developed Land	33.4 Ha	Add Lines 5 and 6
8	Developed Land Designated Commercial (Gross Ha.)	187.65 Ha	Total Commercial Designated Land - Total Under-Developed
9	Developed Commercial Floor Area (@ 0.3 FAR)	56.3 ha (or 563,000m²)	187.65 ha x 0.3 = 56.3 ha
10	Population (2006)	18,267	From Canada Census 2006
11	Square Meters of Developed Commercial Floor Area Per Person	31m ²	563,000m ² ÷ 18,267 = 31m ²
12	Potential Developable Commercial Floor Area @ 0.3 FAR	100,200m²	334,000m ² Under-Developed Land x 0.3 FAR
13	Potential Developable Commercial Floor Area @ 0.5 FAR	167,000m²	334,000m ² Under-Developed Land x 0.5 FAR

The following assumptions were applied in **Table 7** and **Table 8** to project how long it may take to build-out the existing inventory of 33.4 ha of under-developed commercial land at FARs of 0.3 and 0.5:

1. Demand = 31.0m² of developed commercial floor area per Cranbrook resident
2. At an FAR of 0.3, approximately 100,200m² of potential commercial floor space is available to be developed within the current City boundary. At an FAR of 0.5 approximately 167,000m² of potential commercial floor space is available for development.
3. average annual growth rate: 1.2%.

The scenarios presented in **Table 7** and **Table 8** link the rate of build-out of commercial floor area to the rate of population increase and to two Floor Area Ratio options: **0.3** and **0.5**. This simplified projection reveals that if commercial FARs remain, on average, at 0.3, within about 10 years (by the year 2019), the City's inventory of designated commercial land will be built out.

If new commercial development is built at an FAR averaging 0.5, the same inventory of commercially designated land will not be built out until 2027.

(Table 7 and Table 8 on next page)

CITY OF CRANBROOK - GROWTH MANAGEMENT STUDY
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Table 7 PROJECTED BUILD-OUT OF UN-DEVELOPED COMMERCIAL FLOOR AREA @ 0.3 FAR
(WITHIN 2009 CITY BOUNDARY)

Year	Projected Population	% Average Annual Pop. Increase	Population Increase	Un-Developed Commercial Floor Area (m ²)	Projected Annual Build-Out (m ²) @ 0.3 FAR
2006	18,267	1.2%	219	100,200	6,795
2007	18,486	1.2%	222	93,405	6,877
2008	18,708	1.2%	224	86,528	6,959
2009	18,933	1.2%	227	79,568	7,043
2010	19,160	1.2%	230	72,526	7,127
2011	19,390	1.2%	233	65,398	7,213
2012	19,622	1.2%	235	58,185	7,300
2013	19,858	1.2%	238	50,886	7,387
2014	20,096	1.2%	241	43,499	7,476
2015	20,337	1.2%	244	36,023	7,565
2016	20,581	1.2%	247	28,457	7,656
2017	20,828	1.2%	250	20,801	7,748
2018	21,078	1.2%	253	13,053	7,841
2019	21,331	1.2%	256	5,212	7,935
2020	21,587	1.2%	259	-2,723	

Assumes market demand is approximately 31m² of developed commercial floor area per person.

Table 8 PROJECTED BUILD-OUT OF UN-DEVELOPED COMMERCIAL FLOOR AREA @ 0.5 FAR
(WITHIN 2009 CITY BOUNDARY)

Year	Projected Population	% Average Annual Pop. Increase	Population Increase	Un-Developed Commercial Floor Area (m ²)	Projected Annual Build-Out (m ²) @ 0.5 FAR
2006	18,267	1.2%	219	167,000	6,795
2007	18,486	1.2%	222	160,205	6,877
2008	18,708	1.2%	224	153,328	6,959
2009	18,933	1.2%	227	146,368	7,043
2010	19,160	1.2%	230	139,326	7,127
2011	19,390	1.2%	233	132,198	7,213
2012	19,622	1.2%	235	124,985	7,300
2013	19,858	1.2%	238	117,686	7,387
2014	20,096	1.2%	241	110,299	7,476
2015	20,337	1.2%	244	102,823	7,565
2016	20,581	1.2%	247	95,257	7,656
2017	20,828	1.2%	250	87,601	7,748
2018	21,078	1.2%	253	79,853	7,841
2019	21,331	1.2%	256	72,012	7,935
2020	21,587	1.2%	259	64,077	8,030
2021	21,846	1.2%	262	56,046	8,127
2022	22,108	1.2%	265	47,920	8,224
2023	22,374	1.2%	268	39,695	8,323
2024	22,642	1.2%	272	31,372	8,423
2025	22,914	1.2%	275	22,949	8,524
2026	23,189	1.2%	278	14,426	8,626
2027	23,467	1.2%	282	5,799	8,730
2028	23,749	1.2%	285	-2,930	

Assumes market demand is approximately 31m² of developed commercial floor area per person.

More detailed, in-depth, analysis of Cranbrook's commercial land supply and demand should be undertaken to determine how much land should be designated for commercial development purposes in conjunction with population growth anticipated to occur within the current City limits.

5.4. Industrial Forecast

The City of Cranbrook levies industrial Development Cost Charges based on hectares of industrial site area. To facilitate preparation of the DCC Bylaw update, this Growth Management Study uses hectares as the unit of measurement for the industrial growth forecasts.

According to the City of Cranbrook's 2008 summary of underdeveloped land, there are approximately 86.0 ha of under-developed industrial land within the City limits.

Projected Industrial Land Supply

In the absence of more accurate, detailed data regarding industrial land supply and market demand in the City of Cranbrook, **Table 10** presents a simplified estimate of the area of developed industrial land per person calculated using available information.

Table 10 Industrial Land Supply			
			Notes
1	Total Gross Ha.* Industrial Land Within Current City Limits	398.0 Ha.	Per OCP current as of March 2009
2	Gross Ha Under-Developed Land Designated Industrial** in OCP	86.0 Ha.	Source: City of Cranbrook
3	Developed Land Designated Industrial (Gross Ha.)	312.0 Ha.	Line 1 - Line 2
4	Population (2006)	18,267	
5	Ha. of developed industrial land per person	0.017 Ha.	312 Ha ÷ 18,267
* Gross Ha includes area of roads & railway			
** Industrial includes both "Light" and "Heavy" Industrial as designated in the OCP			

As noted previously in **Section 5.2** (Residential Forecast), based on the stated assumptions, it is anticipated the current City boundary could house a population of approximately 36,000. Recognizing there are currently estimated to be 0.017 ha of developed industrial land per person in the City of Cranbrook, it is projected that the City would require an additional 214 hectares of industrial designated land to maintain the present ratio of population to industrial land (see **Table 11**).

Table 11 PROJECTED INDUSTRIAL LAND REQUIREMENTS – CURRENT CITY BOUNDARY (2009)	
Projected Population within Current City Boundary	36,000
Ha. Of Developed Industrial Land Per Person	0.017
Industrial Land Required in Relation to Projected Population	$36,000 \times 0.017 = 612 \text{ Ha}$
Current Area of Land Designated Industrial within Current City Boundary	398 Ha
Additional Industrial Land Required in Relation to Projected Population	$612 - 398 = \mathbf{214 \text{ Ha}}$

It is to be emphasized that these projections are based on broad, general assumptions as stated and further, more focussed study on industrial supply and demand may yield different results.

More detailed, in depth, analysis of Cranbrook's industrial land supply and demand should be undertaken to determine how much land should be designated for industrial development purposes in conjunction with population growth anticipated to occur within the current City limits.

6. Financial Strategies

6.1. Purpose

It is generally recognized that the responsibility for funding the infrastructure required for new growth should be borne by those who benefit from the new infrastructure, a "user pay" approach. However, in many instances the users who may benefit from the new infrastructure can be spread across the community. Infrastructure expansion or upgrading is often required to service new development, however existing users may also benefit from the improvements.

Add to this the fact that different types of land use place different levels of demand on infrastructure and designing a cost-sharing methodology to allocate costs fairly and equitably becomes a complex exercise.

The purpose of the **Financial Strategies** section is to provide an overview of the financing options available to the City of Cranbrook ("the City") to support the growth forecasts and projections in the GMS, with primary focus on the capital expenditures for which the City can assess a Development Cost Charge (DCC).

Note: The GMS infrastructure projections and cost estimates are based on the best information available at the time of preparation of the plan. It is critical to recognize that the GMS is a dynamic plan that is subject to ongoing change. The GMS should be reviewed annually, and certainly at each Census year, to determine if, and by how much, actual growth levels differ from projections in the GMS. Accordingly, infrastructure requirements and corresponding DCCs will also need to be re-examined and the DCC rates adjusted if necessary.

6.2. Capital Funding Sources

A variety of sources are available to the City to fund future infrastructure growth. The B.C. *Local Government Act* (“the Act”) provides guidance in regard to sources of capital funding acceptable in certain circumstances. The main capital funding sources provided for in the Act include the following:

- Debt financing
- Government grants
- Reserves
- User levies/service agreements
- Public-Private Partnership (P3) arrangements
- Development Cost Charges

Where the funding mechanisms above do not recover the entire infrastructure costs, the balance would be recovered via general revenues (property taxes or utility rates) from property owners in existence at the time the expenditure is incurred. A summary of each of the above funding sources follows.

Debt Financing

Debt financing is a common method for funding for major infrastructure projects that are too large to be funded solely via DCCs and other sources. Three types of debt financing are available to municipalities as follows:

(i) Long Term Debenture Borrowing

Long term debt is debt borrowing of greater than five years and can be for any purpose of a capital nature. A loan authorization bylaw is required.

(ii) Short Term Borrowing

Short term borrowing can be used to fund most types of expenditures, including capital, but cannot exceed a term of five years. Municipalities are limited to a maximum of \$50 per capita gross borrowing. Short term borrowing is commonly used for interim financing of large projects.

(iii) Capital Leases and Special Agreements

Capital leases and other special agreements are not debentures but are treated as long term liabilities similar to debt. Special agreements could take many forms, such as developer loans and should be reviewed on an individual basis to ensure they are in compliance with the Act.

Government Grants

Governments grants are funds received from senior governments (provincial or federal) for both operating and capital purposes. Some grants are transferred to municipalities based on pre-defined parameters (i.e. gas tax) while others require that a municipality apply for grant funding for specific capital projects.

Grant funding for capital projects generally takes the form of a cost-sharing arrangement between the municipality and senior government with a cap placed on the maximum grant allowable. Although historically the amount of capital grants available to municipalities has been declining, recent economic stimulus efforts by both provincial and federal governments have created new financing possibilities for capital infrastructure projects.

Reserves

A municipality may set aside funds over a period of time for general or specific purposes. These funds are collected in reserves and are available to use for the stated purpose at some time in the future. The City had 27 reserve funds totaling \$11.7 Million in 2008. All but three of these reserves had balances under \$1 Million.

User Levies / Service Agreements

It is possible for some capital expenditures to be funded by special user levies added to property taxes. Generally these levies are for smaller capital projects such as improvements to local streets, alleyways, sidewalks, curbs etc. that have been specifically requested by property owners. The affected property owners then pay an annual levy charge over a period of time that often matches the repayment term on debt that the municipality borrows to pay for the improvements.

The costs of infrastructure required for specific new developments are paid by developers as part of the cost of developing the property for sale. This includes above ground services such as roads and sidewalks as well as underground services such as water and sewer. It is not uncommon that new infrastructure on or below city lands bordering the new development is required and must be tied into the city's existing infrastructure. These costs must also be borne by the development. Where these extended services provide benefit to other property owners, a recovery must be provided to the developer extending the services.

Public-Private Partnerships (P3s)

Public-Private Partnerships are an increasingly popular method to provide alternative financing for major capital projects in B.C. An excellent local example of a P3 is the Cranbrook recreation complex. Other than the capital funding, P3s can also transfer project risk from the municipality to a third party and may result in more efficient and effective infrastructure solutions.

Development Cost Charges (DCCs)

Development Cost Charges are a form of levy which developers pay to a municipality to help fund major infrastructure projects which will provide benefit to the new development. The types of infrastructure for which DCCs can be collected, as well as guidance on how DCCs should be calculated, are largely prescribed by the Provincial government.

A more detailed discussion of DCC processes and methodologies follows in **Section 7**.

7. Development Cost Charges

7.1. Background

The City of Cranbrook's current DCC bylaw (Bylaw No. 3483) was adopted in 2004. Since that time, the City's boundary was expanded northward to include lands associated with the "Shadow Mountain" development. Furthermore, global exposure proliferated via the internet and Cranbrook's international visitors, is fostering a growing recognition that Cranbrook is a community which offers a broad range of services and desirable amenities for all ages, lifestyles, and interests. Sustaining this reputation will help Cranbrook to weather periodic economic downturns and foster positive growth over the long term. It is, therefore, timely for the City to prepare a new DCC bylaw in order to better reflect current circumstances and the outcome of the water, sanitary sewer, and roads infrastructure plans undertaken as part of this GMS.

A municipality's ability to finance new infrastructure is governed by the B.C. *Local Government Act* sections 932-937. Through this legislation, the Provincial Government has empowered municipalities with the right to impose a Development Cost Charge (DCC) for major new infrastructure for providing, constructing, altering, or expanding facilities related to the following services:

- Roads, other than off street parking;
- Sewage systems;
- Water systems;
- Drainage systems; and
- Park land acquisition and improvement.

It is important to note that DCCs must be used only for the infrastructure for which they were collected and must not be used for any other infrastructure or purpose. However, temporary loans (with interest) are permitted between DCC reserves.

The Provincial government has produced a **Development Cost Charge Best Practices Guide** (DCC Guide) that sets out guidelines and recommended best practices for establishing DCCs. The guide is based on six principles, cited in **Table 12**, which should be followed in the development of a DCC bylaw.

<p>Table 12</p> <p>SIX GUIDING PRINCIPLES FOR DCC DEVELOPMENT</p>	
Integration	DCCs must be consistent with community plans, land use plans, corporate financial and capital infrastructure strategies.
Benefiter Pays	Costs should be borne by those who will use and benefit from the infrastructure.
Fairness & Equity	DCCs should distribute costs fairly between existing users and future development, and equitably between different land uses.
Accountability	Development of DCCs should be a transparent process, accessible and understandable by stakeholders.
Certainty	Certainty should be built into the DCC process in terms of stable charges and orderly construction of infrastructure.
Consultative Input	The DCC process must provide adequate opportunity for meaningful and informed input from stakeholders.

Further to these six guiding principles, the DCC Guide also states that municipalities must consider their responsibilities as outlined in the *Local Government Act* and determine if DCCs will:

- be excessive in relation to the capital cost of prevailing standards of service;
- deter development; or,
- discourage the development of reasonably priced housing or serviced land.

7.2. Development Cost Charge Bylaw

To establish DCCs, a special bylaw must be created and approved by the municipal Council and receive statutory approval from the Inspector of Municipalities.

The DCC bylaw outlines the conditions where DCCs will be levied as well as the particular rates in effect. A DCC Bylaw should contain, at a minimum, the following information:

- Municipal Council's obligations when adopting the DCC Bylaw
- The types of capital costs to which DCC levies will apply
- When DCC levies will (or will not) be payable
- When DCC levies will be collected
- The specific DCC to be levied, detailed (with maps and rate schedules) as applicable by:
 - Municipal zoning (area of city)

- Type of service (water, roads, etc.)
- Type of land use (residential, commercial etc.)
- Provisions and conditions for grace periods, installment payments, credits/rebates, penalties, interest, etc.
- Handling of DCC reserves established by Council

7.3. Municipal Assist Factor

The *Local Government Act* neither contains explicit reference to a “municipal assist factor” nor does it specify the magnitude of this assistance. As a matter of Provincial policy, a requirement exists for a local government to provide some level of financial assistance to these capital costs in terms of the portion eligible for DCCs.

The generally accepted minimum municipal assist factor for a DCC service category is 1%. While a higher assist factor may reflect a desire to promote new development, a higher percentage means that a greater proportion of the financing of new growth would be subsidized by the existing tax base. Alternately, a low assist factor may indicate that a municipality has chosen not to provide as much financial assistance towards new growth.

7.4. DCC Exemptions

Municipalities may collect DCC levies on all applicable developments with the following exceptions as outlined in **Table 13**.

<p style="text-align: center;">Table 13 EXEMPTIONS TO DCC</p>	
<i>Religious Use</i>	Any construction, alteration or addition to a building which is solely used as a place of worship.
<i>Building Size</i> <small>(See Note)</small>	Any building with less than 4 dwelling units used solely for residential use.
<i>Project Value</i> <small>(See Note)</small>	Any construction project where the total value of work does not exceed \$50,000
<i>Non-Benefit</i>	If it can be proven that the development does not impose a new capital cost burden on the municipality
<i>Prior Payment</i>	Where a DCC was previously paid for the same development via DCC, service fees, latecomer agreement etc.

Note: Municipalities may amend their Bylaws to make DCCs applicable to buildings with less than four dwelling units and may increase the \$50,000 threshold value to reflect higher regional construction costs.

At their discretion, municipalities may also provide exemption, in full or in part, to non-profit rental housing projects.

7.5. DCC Integration with Municipal Planning

DCCs must integrate with the other planning of a municipality, specifically the Official Community Plan (OCP) and the Financial Plan. This ensures that future land use patterns and development have been considered as part of the overall DCC calculation. Failure to integrate the DCC can result in the DCC Bylaw being rejected by the Provincial government. For example, section 937 of the Act allows that if the Inspector of Municipalities determines that the capital projects included in a DCC are not included in the municipality's Financial Plan, the approval of the DCC Bylaw may be denied.

7.6. DCC Collection

There are two critical aspects pertaining to the collection of DCC levies that must be considered when developing the DCC Bylaw. These are; when will the DCC levy be collected and, how will the DCC levy be applied.

When to Collect

Per section 933 of the *Local Government Act*, collection of DCCs is to occur at either the approval stage of a new subdivision or at the issuance of a building permit, as the case may be. The advantage of collecting DCCs at the subdivision stage is advantageous to the municipality as they can collect payment prior to the installation of the required infrastructure. Alternatively, DCC collection at the building permit stage is advantageous to the developer as they will not have to front-end the costs.

Consideration for collection must also take into account the unit basis upon which the DCC will be collected. For example, for single family residential, DCC are normally based on the number of lots or lot size, which can generally be determined at the subdivision approval stage. However, with multi-family residential or non-residential land uses, the common DCC collection basis follows the 'Recommended Best Practice' for DCC collection, as provided in the DCC Guide, and as summarized in **Table 14**:

Table 14 DCC COLLECTION – RECOMMENDED BEST PRACTICE		
Residential – single family	Number of lots, or lot area	At time of subdivision approval
Residential – multi family	Number of units	At time of building permit issuance
Non-Residential *	Total building or site area	At time of building permit issuance

* Non-residential includes commercial, industrial and institutional land use.

Grace Period

A grace period is often included with a new or amended DCC which provides a time buffer between DCC approval and when DCC collection will begin. Because development financing is generally arranged well in advance of a project, a grace period can be included to provide developers time to adjust their project planning as required.

7.7. DCC Application

There are two over-arching considerations that will have significant influence on how to apply (calculate) DCC levies. A decision must be made whether to apply the DCC across the entire municipality (municipal-wide) or individually to different areas of the municipality (area-specific). These two considerations are discussed further below.

Municipal-Wide Method

The municipal-wide DCC is a levy that is applied to a particular land use regardless of where the development is located. In this type of application it is deemed that the type of land use will have a similar capital cost burden regardless of its location in the municipality. The advantages to a municipal-wide application include:

- Simplicity and reduced administration
- Usually the fairest and most equitable application
- Helps encourage new development in areas where an area-specific DCC would result in prohibitive rates
- Quicker collection of capital requirements (larger base)

The municipal-wide application is generally thought of to be the fairest and most equitable type of DCC application except in unique circumstances.

Area-Specific Method

The area-specific DCC divides a municipality into different areas based on some criteria such as geography or special infrastructure requirements. A distinct DCC levy may then be charged based on the specific area where the development is occurring. An area-specific application is generally used only where it is obvious that users in a specific area will receive significantly more benefit from the new asset than does the community as a whole.

DCC Application – Recommended Best Practice

For all assets types, the Development Cost Charges Best Practices Guide recommends that DCCs be applied on a municipal-wide basis, unless there is a significant disparity between those who pay the DCC and those who use the applicable assets.

8. City of Cranbrook Preliminary Draft DCC

8.1. Preliminary Draft Status

Through the studies undertaken as part of this Growth Management Study pertaining to the City's road, water, and sanitary sewer infrastructure (GMS Volumes 2, 3, and 4) significant capital projects deemed necessary to offer continued service to the existing population and required to service new growth were identified. High level costs were estimated for each of the capital projects and assumptions were specified regarding the proportion of these costs attributable to new development, and therefore eligible to be paid by DCCs.

This initial draft of the DCC bylaw is considered preliminary as particular information gaps remain to be completed out in order to complete the Development Cost Charge bylaw.

To complete a comprehensive update of the DCC bylaw, consideration should be given to updating the City's plans for parkland acquisition and improvement, as well as management of storm drainage. Capital projects and cost estimates should be prepared for these components in order that the full spectrum of DCC categories is considered in the new DCC bylaw.

Other revenue sources may include senior government grants and developer contributions. The value of revenue from these sources is difficult to forecast and subject to change at any time. Best practices suggest only approved grants and other confirmed contributions be included in the calculation of net costs. The availability of grant programs and approval status of grant applications changes frequently which is a good reason to undertake an annual, or as needed, review of the DCC bylaw. If a grant is approved or a significant contribution from other sources is confirmed, the DCC bylaw should be amended accordingly.

The concept of a municipal "assist factor" arises from the *Local Government Act* provision in section 933 which states that the purpose of DCCs is to assist local government to pay for infrastructure and parks, thereby implying that 100% of the cost should not be charged to new development. The "assist factor" represents the level of financial assistance provided by the local government.

Updating the municipal assist factor for the City of Cranbrook's new DCC bylaw requires deliberations amongst the City's leadership, senior staff and should form part of the consultation process involving stakeholders such as development industry representatives, and City taxpayers.

8.2. Calculation Methodology

Table 15 outlines the components of DCC calculation.

Table 15 DCC CALCULATION
TOTAL CAPITAL COSTS FOR EACH SERVICE CATEGORY (roads, water, sanitary sewer, storm drainage, parks) <i>minus</i> OTHER REVENUE SOURCES (i.e. government grants and developer contributions) <i>minus</i> BENEFIT TO EXISTING DEVELOPMENT <i>minus</i> MUNICIPAL ASSIST FACTOR <i>minus</i> CURRENT DCC RESERVE FUNDS <i>equal</i> DCCs RECOVERABLE FOR EACH SERVICE CATEGORY

Table 16 indicates the status of each DCC calculation step achieved within the mandate of this Growth Management Study and provides direction on steps that should be undertaken as part of a comprehensive update of the DCC bylaw.

<p>Table 16</p> <p>STATUS OF DCC CALCULATION</p>	
<p>TOTAL CAPITAL COSTS FOR EACH SERVICE CATEGORY (roads, water, sanitary sewer, storm drainage, parks)</p> <p><i>minus</i></p> <p>OTHER REVENUE SOURCES (i.e. government grants and developer contributions)</p> <p><i>minus</i></p> <p>BENEFIT TO EXISTING DEVELOPMENT</p> <p><i>minus</i></p> <p>MUNICIPAL ASSIST FACTOR</p> <p><i>minus</i></p> <p>CURRENT DCC RESERVE FUNDS</p> <p><i>equal</i></p> <p>DCCs RECOVERABLE FOR EACH SERVICE CATEGORY</p>	<p>Roads, water, and sanitary sewer capital projects and costs addressed in Growth Management Study Volumes 2, 3, and 4.</p> <p>Recommendation: Review and update parks and storm drainage plans including capital cost estimates.</p> <p>Few confirmed grants or other sources of revenue were known at time of writing.</p> <p>Recommendation: Update DCC calculation model with current information regarding approved government grants and other confirmed contributions applicable to cost of capital projects.</p> <p>Assumptions re. benefits to new and existing users are specified for roads, water, and sanitary sewer capital projects but require further consideration.</p> <p>Recommendation: Evaluate assumptions, address in consultation process, adjust as deemed appropriate.</p> <p>Municipal Assist Factor assumptions specified in preliminary draft DCC bylaw and are based on current DCC bylaw assist factors.</p> <p>Recommendation: Evaluate assumptions, address in consultation process, adjust as deemed appropriate.</p> <p>Data for 2009 used in current DCC calculation model.</p> <p>Recommendation: Update data when available.</p> <p>Recalculation of draft DCCs using Excel model will automatically update as data is added or changed.</p> <p>Recommendation: Use the DCC model to evaluate the outcome of applying alternate assumptions.</p> <p>For example, add, omit, or change the magnitude of capital projects; adjust the municipal assist factor or adjust any other component in the "Calculation" column to the left.</p>

8.3. Standard Assumptions

Preparation of the preliminary draft DCC required the definition of a series of assumptions presented below in **Table 17**. These assumptions were formulated to be in accordance with the Official Community Plan, and utilize base population data from the most recent Census year (2006). Forecasts of new residential, commercial, industrial, and institutional space is based on development information provided by City of Cranbrook and density objectives expressed in the Official Community Plan reflecting a move towards more sustainable development targets such as infill and multiple family residential close to downtown, and a higher Floor Area Ratio (FAR) achieved by new commercial development. These parameters are explained in **Section 5.3 Commercial Forecast**.

<i>Table 17</i>		
PRELIMINARY DCC BYLAW - STANDARD ASSUMPTIONS		
Growth Assumptions		Value
1.	Average # Persons per Dwelling Unit	2.3
	○ Average # Persons per Low Density Dwelling Unit (<i>11 units per Ha</i>)	3.0
	○ Average # Persons per Medium Density Dwelling Unit (<i>30 units per Ha</i>)	2.3
	○ Average # Persons per High Density Dwelling Unit (<i>40 units per Ha</i>)	1.6
2.	Base Population for City of Cranbrook (from 2006 Census)	18,267
3.	Estimated Population at Build-Out within Current City Boundary	36,000
4.	Population Increase	17,733
5.	Average Annual Rate of Population Growth	1.2%
6.	Total New Commercial Floor Area (sq. meters)	100,200
7.	Total New Industrial Development (hectares)	86.0
8.	Total New Institutional Floor Area (sq. meters)	78,329
Municipal Assist Factors		
1.	Municipal Assist: Road System	51%
2.	Municipal Assist: Water System	11%
3.	Municipal Assist: Storm Drainage System	51%
4.	Municipal Assist: Sewage System	11%

8.4. Capital Funding Summary

Detailed lists of capital projects for each service category are in **Appendix – Section 1**, and include:

- project names and capital cost estimates,
- benefit allocation (% attributable to new development, and % benefiting existing development),
- non-DCC funding,
- Municipal Assist Factor, and
- calculation of DCC recoverable amounts and costs to the municipality

It is recommended the City of Cranbrook review the capital projects listed in **Appendix – Section 1** and through their internal discussions, public, and stakeholder consultations, identify priority projects for inclusion within the DCC program.

Table 18 presents a Capital Funding Summary for each service category.

<p>Table 18 CAPITAL FUNDING SUMMARY</p>							
<i>Service Category</i>	<i>a</i> Total Capital Cost (20 year horizon)	<i>b</i> Non-DCC Funding (grants etc.)	<i>c</i> Net Capital Cost	<i>d</i> Benefit to New Development	<i>e</i> Less Municipal Assist	<i>f</i> Net DCC Recoverable Amount⁶	<i>g</i> Cost to City (a-d)+e
	MILLIONS \$						
Roads	\$ 37.45	\$ 8.73	\$ 28.72	\$ 15.07	\$ 7.68	\$ 7.38	\$ 30.46
Water	\$ 45.35	1.30	\$ 44.05	\$ 23.37	\$ 2.57	\$ 20.80	\$ 24.55
Sewer	\$ 58.50	\$ 4.02	\$ 54.48	\$ 31.11	\$ 3.42	\$ 27.69	\$ 30.80
Drainage	\$ 4.98	0	\$ 4.98	0	0	\$ 4.49	\$4.49
TOTAL	\$ 146.28	\$ 14.05	\$ 132.23	\$ 69.55	\$ 13.67	\$ 60.36	\$ 90.30

The Net DCC Recoverable amounts presented in **Table 18** are fundamental to the determination of DCCs chargeable to each unit of development for each service category. This is explained in more detail in the following section.

⁶ DCC Recoverable Amount is Net of DCC Reserve Funds

8.5. Equivalent Units and Preliminary Draft DCC

DCCs for residential development are more easily calculated than for the other land use categories. One low density, single family residential dwelling is considered the base unit of measure for DCCs and therefore has an “equivalent unit” factor of 1.0. Multiple family residential is assigned unit equivalents less than 1.0 based on the assumption that, on average, smaller households reside in multiple family dwellings and therefore place less demand on City roads, water, and sanitary sewer infrastructure. Furthermore, per unit, multiple family development typically generates less run-off than a single family home and therefore has less impact on the storm drainage system.

For non-residential development an equivalent unit must be determined. For example, an equivalent unit for commercial and institutional development is expressed in square metres of building floor area, while site area is used as the basis of determining an equivalent unit for industrial development because both indoor and outdoor areas are often part of the industrial operation.

In simple terms, an equivalent unit is a specified amount of commercial, industrial or institutional development that is estimated to place a demand on infrastructure similar to that of one low density residential dwelling unit.

Road System

The proposed calculations for Road System DCCs are based on an estimate of how many “new” vehicle trips are generated by projected new development during the peak hour of a typical weekday afternoon (“Average PM Peak Hour Trip Rate”). This approach, also utilized in the City’s 2004 DCC bylaw, was reviewed and found to be comparable to trip rates which Stantec has recently used in transportation studies in several other communities.

Table 19 presents Average PM Peak Hour Trip Rates for each land use category. For purposes of DCC calculation, the Residential - Low Density rate of 1.2 is re-stated as 1.0 Equivalent Unit. The other land use trip rates are also restated to an equivalency.

<p align="center">Table 19 ROAD SYSTEM DCC EQUIVALENT UNITS</p>					
Land Use Category	Unit of Development	Average PM Peak Hour Trip Rate	Equivalent Unit Conversion Factors	Estimated New Development	Equivalent Units
	Column 1	Column 2	Column 3	Column 4	Column 5 Col. 3 x Col. 4
Residential – Low Density	Per Dwelling Unit	1.2 (a)	1.0	4,651 units	4,651
Residential – Med. Density	Per Dwelling Unit	0.68 (b)	0.5667 (b)/(a)	2,326 units	1,318
Residential – High Density	Per Dwelling Unit	0.63 (c)	0.525 (c)/(a)	775 units	407
Commercial	Per m ² Gross Floor Area	0.063 (d)	0.0525 (d)/(a)	100,200 m ²	5,261
Industrial	Per Hectare of Developed Site Area	22.4 (e)	18.6667 (e)/(a)	86.0 ha	1,605
Institutional	Per m ² Gross Floor Area	0.036 (f)	0.03 (f)/(a)	78,329 m ²	2,350

Table 20 presents the calculations used to determine the Road System DCC per unit of development for each land use category.

The road system capital projects list in **Appendix – Section 1**, includes a “high level” total capital cost of \$37,840,000 for all identified road system projects to City build-out (approximately 55 years hence).

Using a linear interpolation to estimate how much the road system improvements would cost in the 20 year horizon, the total capital cost is reduced to a Net DCC Recoverable Amount of \$7,381,895. This is only one option to reduce the road system DCC.

A second option for the City to reduce road system DCCs would be to postpone particular projects to beyond the 20 year horizon.

Thirdly, the City may opt to combine both strategies by postponing certain projects while also seeking to recover only a 20 year share of the cost of other projects.

The Net DCC Recoverable Amount for road system capital projects: \$7,381,895 is divided by the total number of road system DCC equivalent units: 15,592 to determine the DCC per unit of development in each land use category.

One low density residential dwelling unit is considered the base unit of measure for calculating DCCs and thereby is assigned the conversion factor of 1.0. Each other land use has an equivalent unit conversion factor which is either less than, or greater than, 1.0. The DCC for each of the other land uses is determined by multiplying their conversion factor by the DCC for one low density residential unit.

<p align="center">Table 20 CALCULATION OF ROAD SYSTEM PRELIMINARY DRAFT DCC PER UNIT OF DEVELOPMENT</p>				
Net DCC Recoverable Amount		\$ 7,381,895 (a)		
Land Use Category	Unit of Development	Equivalent Units	Equivalent Unit Conversion Factors	DCC / Unit of Dev.
Residential – Low	Dwelling Unit	4,651	1.0	\$ 473 (c) (a)/(b)=(c)
Residential – Medium	Dwelling Unit	1,318	0.5667(d)	\$ 268 (c)x(d)
Residential – High	Dwelling Unit	407	0.525 (e)	\$ 248 (c)x(e)
Commercial	m ² gross floor area	5,261	0.0525 (f)	\$ 24.83 (c)x(f)
Industrial	Hectares of developed site area	1,605	18.6667 (g)	\$ 8,829 (c)x(g)
Institutional	m ² gross floor area	2,350	0.03 (h)	\$ 14.19 (c)x(h)
Total		15,592 (b)		

Water System

Residential and non-residential land uses have differing impacts on the municipal water system. The proposed calculations for Water System DCCs are based on typical rates of consumption for residential and non-residential land uses.

The GMS **Volume 4 - Water Supply and Distribution Planning** is modeled on the assumption that future residential growth will typically consume 550 litres per capita per day (Typical Day Demand or "TDD"). This represents an assumed 25% reduction from the current TDD of 724 litres per capita per day to be achieved through conservation measures and system improvements.

For purposes of this GMS, low density residential development is assumed to have, on average, 3.0 persons per dwelling unit. Therefore, one low density dwelling is estimated to consume 550 litres x 3.0 persons, or, 1,650 litres per typical day. Higher density residential development is assumed to have slightly fewer persons per dwelling unit therefore their water demand is proportionately less.

Commercial and industrial development are each estimated to consume 20,000 litres (20m³) of water per day per hectare of land. Each hectare of commercial and industrial development therefore consumes as much water as 12.12 low density residential units (20,000/1,650=12.12).

DCCs from commercial development are assessed per square metre of floor area therefore the per hectare calculation must be converted to square metres of building floor area. At 10,000 m² per hectare, commercial development consumes 2.0 litres of water per day per square metre of commercial land. Currently, on average, the floor area of a commercial building in Cranbrook may be 20% to 30% of its overall site area. This equates to a Floor Area Ratio (FAR) of 0.2 to 0.3.

As addressed in Section 5.3 of this GMS, it is suggested the City aim to increase commercial FARs to an average of 0.5. At an FAR of 0.5, one hectare of commercial land would net 5,000m² of commercial floor area.

If one hectare of commercial land consumes 20,000 litres of water per day, a commercial building on that land, with an FAR of 0.5, may be anticipated to consume 4.0 litres of water per day, per square metre of floor area (5,000m² floor area x 4.0 litres = 20,000 litres).

Institutional land use includes development such as schools, the college, and the hospital. Typically, these types of uses have a higher concentration of people on site, and therefore place greater demand on water, than a commercial use would have. GMS **Volume 4: Water Supply and Distribution Planning**, allocates water demand of 30,000 litres (30m³) per day per hectare of institutional land.

Equivalent Units determined for the levying of water DCCs are presented in **Table 21**.

<p>Table 21</p> <p>WATER SYSTEM DCC EQUIVALENT UNITS</p>					
Land Use Category	Unit of Development	Typical Day Demand (Litres)	Equivalent Unit Conversion Factors	Estimated New Development	Equivalent Units
	Column 1	Column 2	Column 3	Column 4	Column 5 Col. 3 x Col. 4
Residential – Low Density	Per Dwelling Unit	1,650 (a)	1.0	4,651 units	4,651
Residential – Med. Density	Per Dwelling Unit	1,254 (b)	0.76 (b)/(a)	2,326 units	1,768
Residential – High Density	Per Dwelling Unit	874.5 (c)	0.53 (c)/(a)	775 units	411
Commercial	Per m ² Gross Floor Area	4.0 (d)	0.0024 (d)/(a)	100,200 m ²	240
Industrial	Per Hectare of Developed Site Area	20,000 (e)	12.12 (e)/(a)	86.0 ha	1,042
Institutional	Per m ² Gross Floor Area	5.0 (f)	0.003 (f)/(a)	78,329 m ²	235

Table 22 presents the calculations used to determine the Water System DCC per unit of development for each land use category.

The Net DCC Recoverable Amount for water system capital projects: \$20,799,300 is divided by the total number of water system DCC equivalent units: 8,347 to determine the DCC per unit of development in each land use category.

One low density residential dwelling unit is considered the base unit of measure for calculating DCCs and thereby is assigned the conversion factor of 1.0. Each other land use has an equivalent unit conversion factor which is either less than, or greater than, 1.0. The DCC for each of the other land uses is determined by multiplying their conversion factor by the DCC for one low density residential unit.

Table 22				
CALCULATION OF WATER SYSTEM DCC PER UNIT OF DEVELOPMENT				
Net DCC Recoverable Amount		\$ 20,799,300 (a)		
Land Use Category	Unit of Development	Equivalent Units	Conversion Factor	DCC / Unit of Dev.
Residential – Low	Dwelling Unit	4,651	1.0	\$ 2,492(c) (a)/(b)=(c)
Residential – Medium	Dwelling Unit	1,768	0.76 (d)	\$ 1,894 (c)x(d)
Residential – High	Dwelling Unit	411	0.53 (e)	\$ 1,321 (c)x(e)
Commercial	m ² gross floor area	240	0.0024 (f)	\$ 5.98 (c)x(f)
Industrial	Hectares of developed site area	1,042	12.12 (g)	\$ 30,203 (c)x(g)
Institutional	m ² gross floor area	235	0.003 (h)	\$ 7.48 (c)x(h)
Total		8,347 (b)		

Sanitary Sewer System

The proposed calculations for Sanitary Sewer System DCCs are based on typical volumes of wastewater generated by residential and non-residential land uses.

GMS Volume 3 - Wastewater Collection & Treatment Planning is modeled on the assumption that future residential growth will typically generate 400 litres of wastewater per capita per day (400 L/c/day).

At an average of 3.0 persons per dwelling unit, one low density residential dwelling unit is therefore estimated to generate 1,200 litres of wastewater per typical day. Higher density residential development is assumed to have, on average, fewer persons per dwelling unit therefore their wastewater generation will be proportionately less.

Commercial, industrial, and institutional land uses are estimated to generate 20,000 litres per day per hectare (20,000 L/day/ha), which is equivalent to 20 cubic metres per day per hectare (20m³/day/ha).

Each hectare of commercial, industrial, and institutional development therefore generates as much wastewater as 16.67 low density residential units (20,000/1,200=16.67).

DCCs from commercial and institutional development are assessed per square metre of floor area therefore the per hectare calculation must be converted to square metres of building floor area. Assuming future commercial and institutional FARs average 0.5, one hectare of land would net 5,000m² of commercial or institutional floor area.

If one hectare of commercial land generates 20,000 litres of wastewater per day, a commercial building on that land, with an FAR of 0.5, may be anticipated to generate 4.0 litres of wastewater per day, per square metre of floor area (5,000m² floor area x 4.0 litres = 20,000 litres).

Equivalent Units determined for the levying of sanitary sewer DCCs are presented in **Table 23**.

(Table 23 on next page)

<p>Table 23</p> <p>SANITARY SEWER SYSTEM DCC EQUIVALENT UNITS</p>					
Land Use Category	Unit of Development	Wastewater Generation per Day (Litres)	Equivalent Unit Conversion Factors	Estimated New Development	Equivalent Units
	Column 1	Column 2	Column 3	Column 4	Column 5 Col. 3 x Col. 4
Residential – Low Density	Per Dwelling Unit	1,200 (a)	1.0	4,651 units	4,651
Residential – Med. Density	Per Dwelling Unit	912 (b)	0.76 (b)/(a)	2,326 units	1,768
Residential – High Density	Per Dwelling Unit	636 (c)	0.53 (c)/(a)	775 units	411
Commercial	Per m ² Gross Floor Area	4.0 (d)	0.0033 (d)/(a)	100,200 m ²	331
Industrial	Per Hectare of developed Site Area	20,000 (e)	16.67 (e)/(a)	86.0 ha	1,434
Institutional	Per m ² Gross Floor Area	4.0 (f)	0.0033 (f)/(a)	78,329 m ²	258

Table 24 presents the calculations used to determine the Sanitary Sewer System DCC per unit of development for each land use category.

The Net DCC Recoverable Amount for sanitary sewer system capital projects: \$27,690,125 is divided by the total number of sanitary sewer system DCC equivalent units: 8,853 to determine the DCC per unit of development in each land use category.

One low density residential dwelling unit is considered the base unit of measure for calculating DCCs and thereby is assigned the conversion factor of 1.0. Each other land use has an equivalent unit conversion factor which is either less than, or greater than, 1.0. The DCC for each of the other land uses is determined by multiplying their conversion factor by the DCC for one low density residential unit.

Table 24				
CALCULATION OF SANITARY SEWER SYSTEM DCC PER UNIT OF DEVELOPMENT				
Net DCC Recoverable Amount		\$ 27,690,125 (a)		
Land Use Category	Unit of Development	Equivalent Units	Conversion Factor	DCC / Unit of Dev.
Residential – Low	Dwelling Unit	4,651	1.0	\$ 3,127(c) (a)/(b)=(c)
Residential – Medium	Dwelling Unit	1,768	0.76 (d)	\$ 2,376 (c)x(d)
Residential – High	Dwelling Unit	411	0.53 (e)	\$ 1,657 (c)x(e)
Commercial	m ² gross floor area	331	0.0033 (f)	\$ 10.32 (c)x(f)
Industrial	Hectares of developed site area	1,434	16.67 (g)	\$ 52,127 (c)x(g)
Institutional	m ² gross floor area	258	0.0033 (h)	\$ 10.32 (c)x(h)
Total		8,853 (b)		

Storm Drainage System

A review and update of the City's storm drainage plans was beyond the scope of this Growth Management Study therefore the storm drainage provisions of the current DCC bylaw have been integrated into this preliminary draft. This includes the Net DCC Recoverable Amount of \$4,488,392 used in the City's 2004 DCC bylaw.

Current information on the storm drainage system, including capital projects required to serve both new and existing development, is important to creation of a new DCC program. Without it, there may be an imbalance in the share of costs covered by new development and the existing tax base. This component of the DCC program warrants review and updating to reflect current needs and priorities.

Table 25 presents the methodology for determining Storm Drainage DCC Equivalent Units and is based on the typical Runoff Coefficients provided in the province's DCC Best Practices Guide.

<p>Table 25 STORM DRAINAGE SYSTEM DCC EQUIVALENT UNITS</p>							
Land Use Category	Unit of Development	Density/Site Coverage	Runoff Coefficient	Impervious Area Per Unit of Development	Equivalent Unit Conversion Factor	Estimated New Development	Equivalent Units
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7 (Col. 5 x Col. 6)
Residential – Low Density	1 Dwelling Unit	11 units/ha or 909m ² /unit (a)	0.40 (b)	364 m ² (c) (a)x(b)=(c)	1.0	4,651 units	4,651
Residential – Med. Density	1 Dwelling Unit	30 units/ha or 333m ² /unit (d)	0.65 (e)	217 m ² (f) (d)x(e)=(f)	0.6 (f)/(c)	2,326 units	1,396
Residential – High Density	1 Dwelling Unit	40 units/ha or 250m ² /unit (g)	0.75 (h)	188 m ² (i) (g)x(h)=(i)	0.52 (i)/(c)	775 units	403
Commercial	1 m ² Gross Floor Area (j)	30% impervious site coverage (k)	0.80 (l)	2.7 m ² (m) [(j)/(k)]x(l)=(m)	0.0074 (m)/(c)	100,200 m ²	741
Industrial	1 Hectare of Developed Site Area or 10,000m ² (n)		0.90 (o)	9000 m ² (p) (n)x(o)=(p)	24.7 (p)/(c)	86.0 ha	2,124
Institutional	1 m ² Gross Floor Area (q)	20% impervious site coverage (r)	0.85 (s)	4.25 m ² (t) [(q)/(r)]x(s)=(t)	0.0117 (t)/(c)	78,329 m ²	916

Table 26 presents the calculations used to determine the Storm Drainage System DCC per unit of development for each land use category. The Net DCC Recoverable Amount for storm drainage system capital projects: \$4,488,392 is divided by the total number of storm drainage system DCC equivalent units: 10,231 to determine the DCC per unit of development in each land use category.

One low density residential dwelling unit is considered the base unit of measure for calculating DCCs and thereby is assigned the conversion factor of 1.0. Each other land use has an equivalent unit conversion factor which is either less than, or greater than, 1.0. The DCC for each of the other land uses is determined by multiplying their conversion factor by the DCC for one low density residential unit.

Table 26				
CALCULATION OF STORM DRAINAGE SYSTEM DCC PER UNIT OF DEVELOPMENT				
Net DCC Recoverable Amount		\$ 4,488,392 (a)		
Land Use Category	DCC Collection Basis	Equivalent Units	Conversion Factor	DCC / Unit of Dev.
Residential – Low	Dwelling Unit	4,651	1.0	\$ 439 (c) (a)/(b)=(c)
Residential – Medium	Dwelling Unit	1,396	0.6 (d)	\$ 263 (c)x(d)
Residential – High	Dwelling Unit	403	0.52 (e)	\$ 228 (c)x(e)
Commercial	m ² gross floor area	741	0.0074 (f)	\$ 3.25 (c)x(f)
Industrial	Hectares of developed site area	2,124	24.7 (g)	\$ 10,843 (c)x(g)
Institutional	m ² gross floor area	916	0.0117 (h)	\$ 5.14 (c)x(h)
Total		10,231 (b)		

8.6. Comparison to Current DCC Bylaw

Table 27 presents a summary of the preliminary draft Development Cost Charges for each type of infrastructure and each category of land use. This is the type of summary table of interest to developers who will want to know how much the total DCCs are for each type of development. For example, as presented in **Table 27**, the DCC for each low density residential lot in a new subdivision would be \$6,531.

Table 27 SUMMARY OF <u>PRELIMINARY DRAFT</u> DEVELOPMENT COST CHARGES						
		Roads	Water	Storm Drainage	Sanitary Sewer	Total
Land Use Category	Unit of Development	DCC per Unit of Development				
Residential – Low	Dwelling Unit	\$ 473	\$ 2,492	\$ 439	\$ 3,127	\$ 6,531
Residential – Medium	Dwelling Unit	\$ 268	\$ 1,894	\$ 263	\$ 2,376	\$ 4,801
Residential – High	Dwelling Unit	\$ 248	\$ 1,321	\$ 228	\$ 1,657	\$ 3,454
Commercial	m ² gross floor area	\$ 24.83	\$ 5.98	\$ 3.25	\$ 10.32	\$ 44.38
Industrial	Hectares of developed site area	\$ 8,829	\$ 30,203	\$ 10,843	\$ 52,127	\$ 102,002
Institutional	m ² gross floor area	\$ 14.19	\$ 7.48	\$ 5.14	\$ 10.32	\$ 37.13

Table 28 presents Cranbrook's current DCCs per Bylaw No. 3483, 2004.

Table 28 <u>CURRENT</u> CITY OF CRANBROOK DEVELOPMENT COST CHARGES (BYLAW NO. 3483, 2004)						
		Roads	Water	Storm Drainage	Sanitary Sewer	Total
Land Use Category	Unit of Development	DCC per Unit of Development				
Residential – Low	Dwelling Unit	\$ 407	\$ 699	\$ 385	\$ 541	\$ 2,032
Residential – Medium	Dwelling Unit	\$ 231	\$ 546	\$ 231	\$ 422	\$ 1,430
Residential – High	Dwelling Unit	\$ 214	\$ 372	\$ 212	\$ 287	\$ 1,085
Commercial	m ² gross floor area	\$21.38	\$ 3.50	\$ 3.81	\$ 2.70	\$ 31.39
Industrial	Hectares of site area	\$7,602	\$ 8,481	\$ 9,547	\$ 6,556	\$ 32,186
Institutional	m ² gross floor area	\$12.22	\$ 4.59	\$ 6.16	\$ 3.55	\$ 26.52

8.7. Comparison to Other Communities

No two communities are directly comparable. Amongst British Columbia communities with similar population levels, each one is characterized by differing geographic and socio-economic circumstances.

While it is inherently problematic to draw parallels between one BC community and another, **Table 29** presents a summary of DCCs from four British Columbia communities with populations within a range of approximately 60% either higher or lower than that of the City of Cranbrook. The four example communities: Salmon Arm, Campbell River, Squamish and Merritt were selected to illustrate that there are other small to mid-sized communities in BC with DCC bylaws which are, in part, comparable to the Preliminary Draft DCCs calculated for Cranbrook.

In addition, the format of the DCC bylaws for the four example communities also had similarities to the proposed format of the Cranbrook bylaw thereby facilitating comparison. Each example community uses total floor area as the unit of measure for commercial and institutional DCCs and site area for industrial DCCs. With the exception of Campbell River, each example community uses the residential dwelling unit as the unit of measure for residential DCCs. Whereas the Campbell River DCC bylaw uses square metres of total floor area as the unit of measure for medium and high density residential development, it is possible to approximate the DCC for a dwelling unit of typical size. Recognizing that many people use square feet as the 'unofficial' unit of measure for a residential dwelling, **Table 29** includes a note on the conversion of square metres to square feet.

Both the current DCC bylaw (No. 3483, 2004) and Preliminary Draft DCCs for City of Cranbrook do not include charges for parks. Therefore, in order to present comparable information in **Table 29**, where applicable, park DCCs have been deducted from the example community's DCCs. These instances are marked with asterisks (*).

As in Cranbrook, the City of Merritt does not collect park DCCs for any type of development. Squamish does not collect park DCCs for commercial, industrial or institutional development, while Salmon Arm does not collect park DCCs for industrial and institutional development.

<p>Table 29</p> <p>SUMMARY OF DEVELOPMENT COST CHARGES IN OTHER BC MUNICIPALITIES</p>					
	Campbell River	Salmon Arm	Squamish	Merritt	Cranbrook PRELIM. DRAFT
Pop. 2006	29,572	16,205	14,949	7,170	18,267
Land Use Category					
Residential – Low	\$11,146.68 per lot*	\$8,472.96 per parcel or dwelling*	\$9,102 per unit*	\$8,085 per dwelling	\$ 6,531 per dwelling
Residential – Medium	\$61.79/m ² total floor area*	\$6,162.15 per parcel or dwelling*	\$6,564 per unit*	\$6,611 per dwelling	\$ 4,801 per dwelling
Residential – High	\$62.97/m ² total floor area*	\$5,391.89 per parcel or dwelling*	\$4,266 per unit*	\$4,564 per dwelling	\$ 3,454 per dwelling
Commercial	\$58.49/m ² total floor area*	\$30.81/m ² gross floor area*	\$44.46 per m ² of building	\$42,24 per m ²	\$ 44.38 per m ² of gross floor area
Industrial	\$15.75/m ² site area*	\$15.40/m ² gross floor area + \$15,405.39 per ha developable land	\$106,000 per ha. of lot	\$30,570 per ha. or \$8.99 per m ² at time of BP	\$ 102,002 per ha. of developed site area
Institutional	\$54.01/m ² total floor* area	\$46.21/m ² gross floor area	\$44.46 per m ² of building	\$38.58 per m ²	\$ 37.13 per m ² of gross floor area
<p>Notes:</p> <p>* Not including park DCCs</p> <p>100 m² = 1,076 sq. ft.</p>					

The City of Cranbrook Preliminary Draft DCCs are within range of DCCs in the other four example communities. It can be argued of course that there are also many communities with DCCs lower than the draft calculations prepared for the City of Cranbrook, and that the draft rates are significantly higher than the charges in the current DCC bylaw.

9. Implementation

9.1. Adjusting the Preliminary Draft Development Cost Charges

Should it be the desire of the City of Cranbrook to reduce the draft development cost charges, the following options may be considered.

1. Reduce the Net DCC Recoverable amount by:
 - a. reducing the value of capital works projects by:
 - i. eliminating specific projects
 - ii. reducing the scale of particular projects
 - iii. maximizing cost effective methods to accomplish necessary projects
 - b. deferring particular projects to beyond the 20 year horizon
 - c. obtaining additional grants and/or other contributions towards capital project costs
 - d. redefining the degree to which capital projects are attributable to new development as compared to what is required by, or beneficial to, existing users. In other words, decreasing the share payable by new development via DCCs and increasing the share payable by existing users.

Increasing the municipal assist factor would be one way to accomplish this objective however the contribution must be made up by the existing tax base through property taxes, long term debt, utility rates, etc. Other methods are described in **Section 1.2 Capital Funding Sources**.
2. assume a higher rate of population growth (the same cost shared between more new units reduces the cost per unit)
3. redefine how “equivalent units” are determined.

Should there be agreement to adjust the proposed DCC charges upwards, tactics essentially opposite to the above would be employed. This may be considered appropriate if, for example, proposed municipal assist factors applied in this report, are considered too high.

9.2. Recommendations

1. Using the digital Excel spreadsheet and GIS mapping provided as a deliverable for this project, the City will be able to add or change Dissemination Area and other polygon boundaries, adjust the forecast rate of population growth, and make other updates as deemed necessary. It is recommended the City undertake a review and update at each Census year when new statistics are available.
2. Track the number, type, and location of new development including number of new residential units created by building permit, new lots created by subdivision, square meters of new commercial floor area and square meters of new industrial building floor area and hectares of developed industrial land.
3. Prepare a commercial land supply and demand analysis to determine available commercial land and floor space inventory as well as projected needs for commercial land, parcel size and locational characteristics.
4. Prepare an industrial land supply and demand analysis to guide decision-making regarding the designation of sufficient and appropriate industrial land to serve the growing population within the current City limits.
5. Support a moderate intensification of development within the current City limits to prepare the City of Cranbrook for long term growth while optimizing use of infrastructure, municipal facilities, schools, parks, and public services.
6. The City's plans for parkland acquisition and improvement, as well as management of storm drainage should be reviewed and updated as part of a comprehensive update of the DCC bylaw.
7. Research and compile information on new construction and expansions planned for institutional development such as education, recreation, and health care facilities.
8. It is recommended the City of Cranbrook review the capital projects listed in **Appendix – Section 1** and through their internal discussions, public, and stakeholder consultations, identify priority projects for inclusion within the DCC program.
9. Update DCC calculation model with latest available information regarding reserve funds, approved government grants and other confirmed contributions applicable to capital projects.
10. Utilize the Development Cost Charges Best Practices Guide, prepared by Province of BC as refinements to the preliminary draft DCCs are considered and the bylaw advances through the consultation, review and approval process.
11. It is recommended the City of Cranbrook advance the preliminary draft DCC bylaw through review by senior City staff, and through public and stakeholder consultations, adjust it as necessary, and undertake the formal bylaw approval process.

APPENDIX – SECTION 1

CAPITAL PROJECTS LIST UTILIZED IN PRELIMINARY DRAFT DEVELOPMENT COST CHARGE CALCULATIONS

CITY OF CRANBROOK - 2009 DCC CALCULATION ROAD SYSTEM CAPITAL COSTS				a		b	c		d			e	f	g	h	i	j	k
				Benefit Allocation		Total Capital Cost (Build Out Horizon, ~55 yrs)	TOTAL CAPITAL COST (20 Year)	Less: Non-DCC Funding			Net Capital Cost (for DCC calculations)	Benefit to New Development	51% Municipal Assist	Total Recoverable From DCC	Total Municipal Responsibility			
#	Project Name	Description	Target Year	% to New Dev.	% to City-Wide			Developer Contrib.	Provincial Grants	Other								
1	Highway 3/95	Twinning from north of Fort Steel Interchange to south of Jim Smith Lake Road within the City Install 4 new signals between Theatre Road/Mission Road and Mountain View Road/Parnoby Road		50%	50%	\$29,070,000	\$10,570,909		\$8,456,727		\$2,114,182	\$1,057,091	\$539,116	\$517,975	\$10,052,935			
				50%	50%	\$800,000	\$290,909		\$232,727		\$58,182	\$29,091	\$14,836	\$14,255	\$276,655			
2	Theatre Road	Upgrade to be 4-lane undivided roadway from Cranbrook Street to Highway 3/95 Install a traffic signal at MCPhee Road		50%	50%	\$7,700,000	\$2,800,000				\$2,800,000	\$1,400,000	\$714,000	\$686,000	\$2,114,000			
				50%	50%	\$200,000	\$72,727				\$72,727	\$36,364	\$18,545	\$17,818	\$54,909			
3	Ridgeview Road	Upgrade 4-lane undivided roadway from 12 Street N to north of Willowbrook Drive Construct 4-lane undivided roadway from north of Willowbrook Drive to 22 Street N, and from 6 Street NW to 22 Street N Construct 2-lane undivided roadway for Van Horn Street from 22 Street N to Highway 3/95 Ramp, and from 3 Street S to 6 Street NW		25%	75%	\$2,270,000	\$825,455				\$825,455	\$206,364	\$105,245	\$101,118	\$724,336			
				25%	75%	\$3,740,000	\$1,360,000				\$1,360,000	\$340,000	\$173,400	\$166,600	\$1,193,400			
				25%	75%	\$2,280,000	\$829,091				\$829,091	\$207,273	\$105,709	\$101,564	\$727,527			
4	6 Street NW	Upgrade to be 4-lane undivided roadway from Kootenay Street N to north of Industrial Road No.3 Construct 4-lane undivided roadway north of Industrial Road No.3 Install traffic signals at Industrial Road No.1 and Kootenay Street N with 6 Street NW		10%	90%	\$2,270,000	\$825,455				\$825,455	\$82,545	\$42,098	\$40,447	\$785,007			
				60%	40%	\$3,740,000	\$1,360,000				\$1,360,000	\$816,000	\$416,160	\$399,840	\$960,160			
				10%	90%	\$400,000	\$145,455				\$145,455	\$14,545	\$7,418	\$7,127	\$138,327			
5	14 Avenue South	Upgrade 14 Avenue S. to be 4-lane undivided roadway from 2 nd Street N. to 1 Street S		0%	100%	\$1,080,000	\$392,727				\$392,727	\$0	\$0	\$0	\$392,727			
6	New Road North of Ind Rd 3 and 6 St NW	Construct a new 2-lane undivided roadway from King Street W. to Highway 3/95		50%	50%	\$9,540,000	\$3,469,091				\$3,469,091	\$1,734,545	\$884,618	\$849,927	\$2,619,164			
7	Mountain View/Parnoby Road	Construct/extend the existing 2-lane undivided roadway from King Street W to Mission Road		90%	10%	\$13,570,000	\$4,934,545				\$4,934,545	\$4,441,091	\$2,264,956	\$2,176,135	\$2,758,411			
8	Echo Field Road	Construct/extend the existing 2-lane undivided roadway to connect Mountain View Road and Kennedy Road at Highway 3/95		90%	10%	\$5,050,000	\$1,836,364				\$1,836,364	\$1,652,727	\$842,891	\$809,836	\$1,026,527			
9	3 Avenue NW	Construct/extend existing 2-lane undivided roadway of 3 Street NW to connect Cross Road NW		15%	85%	\$2,790,000	\$1,014,545				\$1,014,545	\$152,182	\$77,613	\$74,569	\$939,976			
10	Industrial Road No.1	Construct/extend existing 2-lane undivided roadway to connect Theatre Road		10%	90%	\$890,000	\$323,636				\$323,636	\$32,364	\$16,505	\$15,858	\$307,778			
11	22 Street North	Construct/extend existing 2-lane undivided roadway to connect 30 Avenue N		25%	75%	\$800,000	\$290,909				\$290,909	\$72,727	\$37,091	\$35,636	\$255,273			
12	34 Avenue South	Construct/extend existing 2-lane undivided roadway to connect 30 Avenue N		40%	60%	\$6,080,000	\$2,210,909				\$2,210,909	\$884,364	\$451,025	\$433,338	\$1,777,571			
13	College Way	Construct/extend existing 2-lane undivided roadway to connect 30 Avenue N		40%	60%	\$1,220,000	\$443,636				\$443,636	\$177,455	\$90,502	\$86,953	\$356,684			
14	13 Street S outh	Construct/extend existing 2-lane undivided roadwaybetween 24 Avenue S and 34 Avenue S		40%	60%	\$860,000	\$312,727				\$312,727	\$125,091	\$63,796	\$61,295	\$251,433			
15	Victoria Avenue South	Construct/extend existing 2-lane undivided roadway to connect to 17 Street S		25%	75%	\$820,000	\$298,182				\$298,182	\$74,545	\$38,018	\$36,527	\$261,655			
16	11 Street South	Construct/extend existing 2-lane undivided roadway between 14 Avenue S and 16 Avenue S		10%	90%	\$400,000	\$145,455				\$145,455	\$14,545	\$7,418	\$7,127	\$138,327			
17	17 Street South	Construct/extend existing 2-lane undivided roadway east of 4 Avenue S and west of 14 Avenue S		60%	40%	\$990,000	\$360,000				\$360,000	\$216,000	\$110,160	\$105,840	\$254,160			
18	Industrial Road No.2	Upgrade to be 4-lane undivided roadway from 6 St north to a new road (Item #6)		50%	50%	\$6,210,000	\$2,258,182				\$2,258,182	\$1,129,091	\$575,836	\$553,255	\$1,704,927			
19	Victoria Avenue South	Upgrade to be 4-lane divided roadway north of 3 Street S		10%	90%	\$330,000	\$120,000				\$120,000	\$12,000	\$6,120	\$5,880	\$114,120			
20	2 Street North	Upgrade to be 4-lane undivided roadway from Victoria Avenue N to 17 Avenue N		50%	50%	\$810,000	\$294,545				\$294,545	\$147,273	\$75,109	\$72,164	\$222,382			
21	Echo Field Road	Remove the connection with Highway 3/95		90%	10%	\$30,000	\$10,909		\$8,727		\$2,182	\$1,964	\$1,001	\$962	\$9,947			
22	Mycliffe Park Road	Remove the connection with Highway 3/95		90%	10%	\$120,000	\$43,636		\$34,909		\$8,727	\$7,855	\$4,006	\$3,849	\$39,788			
					100%						\$0	\$0	\$0	\$0	\$0			
Sub-Total					100%		\$37,840,000		\$0	\$8,733,091	\$0	\$29,106,909	\$15,065,091	\$7,683,196	\$7,381,895	\$30,458,105		
LESS: ROAD DCC RESERVE FUNDS							\$386,312		\$0	\$8,733,091	\$0	\$386,312	0	0	\$0	\$386,312		
TOTAL							\$37,453,688		\$0	\$8,733,091	\$0	\$28,720,597	\$15,065,091	\$7,683,196	\$7,381,895	\$30,458,105		

CITY OF CRANBROOK - 2009 DCC CALCULATION WATER SYSTEM CAPITAL COSTS				a	b	c	d	e	f	g	h	i	j	k	
				Benefit Allocation		TOTAL CAPITAL COST	Less: Non-DCC Funding			Net Capital Cost (for DCC calculations)	Benefit to New Development	11% Municipal Assist	Total Recoverable From DCC	Total Municipal Responsibility	
#	Project Name	Description	Target Year	% to New Dev.	% to City-Wide		Developer Contrib.	Provincial Grants	Other						
	Supply Main Twinning	Twin existing 750mm supply main from reservoir to PRV's	2011	50%	50%	\$ 8,300,000									
1	Treatment System Upgrades	Upgrade Treatment Facility for UV disinfection, filtration	2025	50%	50%	\$ 10,000,000				\$8,300,000	\$4,150,000	\$456,500	\$3,693,500	\$4,606,500	
2	Wildstone / St. Mary Waterline (Hwy 95A)	Install 5.1km 300mm watermain from North Reservoir along 95A to Wildstone North and St. Mary Growth Areas. Includes PRV Station.	2016	100%	0%	\$ 5,400,000				\$10,000,000	\$5,000,000	\$550,000	\$4,450,000	\$5,550,000	
3	North Reservoir & PRV Improvements	Construct 7.5ML Reservoir & PRV Associated Improvements	2013	50%	50%	\$ 9,300,000				\$5,400,000	\$5,400,000	\$594,000	\$4,806,000	\$594,000	
4	West Trunk Watermain	300mm Diameter West Trunk Watermain and PRV Improvements	2020	75%	25%	\$ 2,420,000				\$9,300,000	\$4,650,000	\$511,500	\$4,138,500	\$5,161,500	
5	South Reservoir	Construct 7.5ML Reservoir & PRV Associated Improvements	2020	50%	50%	\$ 4,500,000				\$2,420,000	\$1,815,000	\$199,650	\$1,615,350	\$804,650	
6	South Booster Station	Required to boost pressures for growth in the south part of the City near future South Reservoir	2020	100%	0%	\$ 1,000,000				\$4,500,000	\$2,250,000	\$247,500	\$2,002,500	\$2,497,500	
7	St. Mary Growth Area PRV's	2 PRV Stations in St. Mary Growth Area	2020	100%	0%	\$ 300,000	1000000			\$0	\$0	\$0	\$0	\$1,000,000	
8	Wildstone Pressure Zone Improvement	Install PRV #14 off North Trunk, controls pressure to Wildstone Development	2013	70%	30%	\$ 150,000	300000			\$0	\$0	\$0	\$0	\$300,000	
9	Kootenay Street Improvements	Improve fire flow availability and provide redundancy for Willow Brook Dr, Kootenay St N and 2nd St S, and the College	2014	0%	100%	\$ 80,000				\$150,000	\$105,000	\$11,550	\$93,450	\$56,550	
10	3rd & 4th Street Pressure Zone Improvement	Relocation of Pressure Zone Boundary. Watermain installation and boundary valve adjustments	2015	0%	100%	\$ 1,220,000				\$90,000	\$0	\$0	\$0	\$90,000	
11	Mount Royal Drive Fireflow Improvement	Improves Fireflow to area	2018	0%	100%	\$ 210,000				\$1,220,000	\$0	\$0	\$0	\$1,220,000	
12	10th St S Fireflow Improvement	Install pipe to connect existing watermain on 10th St S and 9th St S (west of 3rd Ave S)	2019	0%	100%	\$ 210,000				\$210,000	\$0	\$0	\$0	\$210,000	
13	1st Ave S Fireflow Improvement	Install pipe to connect existing watermain on 11th St S and 1st Ave S	2021	0%	100%	\$ 300,000				\$210,000	\$0	\$0	\$0	\$210,000	
14	13th St S Fireflow Improvement	Install pipe to connect existing watermain on 13th St S between 12th Ave S and 14th Ave S	2022	0%	100%	\$ 80,000				\$300,000	\$0	\$0	\$0	\$300,000	
15	17th St S Fireflow Improvement	Install pipe to connect existing watermain on 17th St S and 12th Ave S	2023	0%	100%	\$ 260,000				\$80,000	\$0	\$0	\$0	\$80,000	
16	22nd St S & 23rd St S Fireflow Improvement	Install pipe to connect existing watermain on Southview Crt and 23rd St S. Install pipe to connect existing watermain on 22nd St S and 23rd St S	2024	0%	100%	\$ 465,000				\$260,000	\$0	\$0	\$0	\$260,000	
17	10th St S and Victoria Ave S Fireflow Improvement	Install pipe to connect existing watermain on 10th St S (east of Victoria Ave S) and 9th St S	2025	0%	100%	\$ 135,000.00				\$465,000	\$0	\$0	\$0	\$465,000	
18	6th St S Fireflow Improvement	Replace 50mm watermain on 6th St S between 14th Ave S and 11th Ave S	2026	0%	100%	\$ 305,000.00				\$135,000	\$0	\$0	\$0	\$135,000	
19	4th St S and 17th Ave S Fireflow Improvement	Replace 100mm watermain on 17th Ave S (south of 4th St S). Replace 100mm watermain on 4th St S (between 18th Ave S and lane between 17th Ave S and 16th Ave S)	2027	0%	100%	\$ 185,000.00				\$305,000	\$0	\$0	\$0	\$305,000	
20	15th Ave S Fireflow Improvement	Replace 50mm watermain on 15th Ave S (between 2nd St S and 3rd St S). Replace 50mm watermain on 3rd St S (between 15th Ave S and lane between 16th Ave S and 15th Ave S)	2028	0%	100%	\$ 255,000.00				\$185,000	\$0	\$0	\$0	\$185,000	
21	2A Ave S Fireflow Improvement	Replace 50mm watermain on 2A Ave S at 3rd Ave S	2029	0%	100%	\$ 260,000.00				\$255,000	\$0	\$0	\$0	\$255,000	
22										\$260,000	\$0	\$0	\$0	\$260,000	
LESS: WATER DCC RESERVE FUNDS														\$0	\$0
TOTAL						\$45,345,000	\$1,300,000	\$0	\$0	\$44,045,000	\$23,370,000	\$2,570,700	\$20,799,300	\$24,545,700	

CITY OF CRANBROOK - 2009 DCC CALCULATION SEWAGE SYSTEM CAPITAL COSTS				a	b	c	d	e	f	(c-d-e-f) g	(g + d) h	(h + %) i	(h + i) j	(c-h+i) k
#	Project Name	Description	Target Year	Benefit Allocation		TOTAL CAPITAL COST	Less: Non-DCC Funding			Net Capital Cost (for DCC calculations)	Benefit to New Development	11% Municipal Assist	Total Recoverable From DCC	Total Municipal Responsibility
				% to New Dev.	% to City-Wide		Developer Contrib.	Provincial Grants	Other					
1	Transfer Pipeline Upgrade & Lift Station	Twin / Replace existing Transfer Pipeline & New Lift Station	2011	50%	50%	\$11,000,000				\$11,000,000	\$5,500,000	\$605,000	\$4,895,000	\$6,105,000
2	Victoria Avenue Trunk Upgrades	Twinning or replacement of 980 metres of existing sewers along 17th Avenue N from Baker to 2nd Street to Victoria Avenue as well as 120 metres of sewer along Victoria Avenue north of Kootenay Street. The improvement also requires a diversion interconnection from the Victoria Avenue Trunk to the East Trunk at Victoria Avenue and 6th Street N	2013	50%	50%	\$3,000,000				\$3,000,000	\$1,500,000	\$165,000	\$1,335,000	\$1,665,000
3	Outfall Trunk Upgrades	Twinning of 700 metres of existing sewers with 600mm diameter sewer from 22nd Street N and Cranbrook Street to the influent screening chamber	2017	50%	50%	\$2,500,000				\$2,500,000	\$1,250,000	\$137,500	\$1,112,500	\$1,387,500
4	Cranbrook Street Trunk Upgrades	Twinning of 450 metres of existing sewers with 450mm diameter sewer along Cranbrook Street near Willowbrook Drive	2015	50%	50%	\$2,000,000				\$2,000,000	\$1,000,000	\$110,000	\$890,000	\$1,110,000
5	Wastewater Lagoon Improvements	New Aeration System	2020	0%	100%	\$400,000				\$400,000	\$0	\$0	\$0	\$400,000
6	Effluent Disposal Upgrades	Upgrades to Aeration System at Existing Lagoons Upgrades to Storage Ponds and Irrigation Pumping System Extension to Spray Irrigation Pipeline New Outfall Discharge to Kootenay River	2025	50%	50%	\$14,445,000				\$14,445,000	\$7,222,500	\$794,475	\$6,428,025	\$8,016,975
7	Cranbrook Street Trunk Upgrades (Phase 2)	Replace 1200m of 375mm Pipe	2020	100%	0%	\$ 4,200,000				\$4,200,000	\$4,200,000	\$462,000	\$3,738,000	\$462,000
8	1st & 2nd Street South Trunk Upgrade	Replace 710m of 375mm Pipe	2020	100%	0%	\$ 2,200,000				\$2,200,000	\$2,200,000	\$242,000	\$1,958,000	\$242,000
9	4th Street NW Trunk Upgrade	Replace 700m of 200mm and 250mm Pipe	2016	100%	0%	\$ 1,750,000				\$1,750,000	\$1,750,000	\$192,500	\$1,557,500	\$192,500
10	Lagoon Relocation	Relocation of Lagoons (as per FOCUS recommendations)	2016	50%	50%	\$ 17,000,000	\$ 4,020,000			\$12,980,000	\$6,490,000	\$713,900	\$5,776,100	\$11,223,900
LESS: SEWAGE DCC RESERVE FUNDS													\$0	\$0
TOTAL						\$58,495,000	\$4,020,000	\$0	\$0	\$54,475,000	\$31,112,500	\$3,422,375	\$27,690,125	\$30,804,875

CITY OF CRANBROOK - 2009 DCC CALCULATION				a		b	c	d	e	f	g	h	i	i	k
STORM SEWER SYSTEM CAPITAL COSTS				Benefit Allocation		TOTAL CAPITAL COST	Less: Non-DCC Funding			Net Capital Cost (for DCC calculations)	Benefit to New Development	51% Municipal Assist	Total Recoverable From DCC	Total Municipal Responsibility	
#	Project Name	Description	Target Year	% to New Dev.	% to Existing		Developer Contrib.	Provincial Grants	Other						
1	Project #1	2004 Net Storm Drainage DCC			100%	\$4,980,185				\$4,980,185	\$0	\$0	\$4,980,185	\$4,980,185	
2	Project #2				100%					\$0	\$0	\$0	\$0	\$0	
3	Project #3				100%					\$0	\$0	\$0	\$0	\$0	
4	Project #4				100%					\$0	\$0	\$0	\$0	\$0	
5	Project #5				100%					\$0	\$0	\$0	\$0	\$0	
6	Project #6				100%					\$0	\$0	\$0	\$0	\$0	
7	Project #7				100%					\$0	\$0	\$0	\$0	\$0	
8	Project #8				100%					\$0	\$0	\$0	\$0	\$0	
9	Project #9				100%					\$0	\$0	\$0	\$0	\$0	
10	Project #10				100%					\$0	\$0	\$0	\$0	\$0	
11	Project #11				100%					\$0	\$0	\$0	\$0	\$0	
12	Project #12				100%					\$0	\$0	\$0	\$0	\$0	
13	Project #13				100%					\$0	\$0	\$0	\$0	\$0	
14	Project #14				100%					\$0	\$0	\$0	\$0	\$0	
15	Project #15				100%					\$0	\$0	\$0	\$0	\$0	
16	Project #16				100%					\$0	\$0	\$0	\$0	\$0	
17	Project #17				100%					\$0	\$0	\$0	\$0	\$0	
18	Project #18				100%					\$0	\$0	\$0	\$0	\$0	
19	Project #19				100%					\$0	\$0	\$0	\$0	\$0	
20	Project #20				100%					\$0	\$0	\$0	\$0	\$0	
21	Project #21				100%					\$0	\$0	\$0	\$0	\$0	
22	Project #22				100%					\$0	\$0	\$0	\$0	\$0	
23	Project #23				100%					\$0	\$0	\$0	\$0	\$0	
24	Project #24				100%					\$0	\$0	\$0	\$0	\$0	
LESS: STORM DCC RESERVE FUNDS														(\$491,793)	\$0
TOTAL						\$4,980,185	\$0	\$0	\$0	\$4,980,185	\$0	\$0	\$4,488,392	\$4,980,185	