WATER UTILITY CASHFLOW

		ENTER GROWTH AND RATE PARAMETERS				ENTER FINANCIAL PARAMETERS				Dry land CEC Rate				Grade A/C CEC Rate												Current as of	October 29, 2007
		2.75%	ANNUAL TAX AND TOLL RATE INCREASE (%)			2.25%	INFLATION RATE (%)			$ 4,500	SF LOT (input on CEC Sched)			$ 3,600	SF LOT												
		1.00%	SYSTEM DEMAND GROWTH RATE (%)			3.00%	RETURN ON RESERVES			$ 3,600	MF LOW DENSITY			$ 2,700	MF LOW DENSITY												
GREEN TEXT Input data cell		1.00%	ANNUAL SF CONN. GROWTH (%)			5.50%	Amortization Rate (%)			$ 2,700	MF MED. DENSITY			$ 2,160	MF MED. DENSITY												
BLACK BOLD TEXT known data cell		1.50%	ANNUAL MF/STRATA GROWTH (%)			20	Amortization Period (Yrs)			$ 1,800	MF HIGH DENSITY			$ 1,440	MF HIGH DENSITY												
BLUE TEXT Calc. cell		0.50%	ANNUAL GRADE A LAND INCREASE (%)			10.00%	Engineering Allowance (%)			$ 5,625	ICI CONNECTIONS			$ 4,500	ICI CONNECTIONS												
BLACK (NOT BOLD) TEXT Estimated raw data entry cell		0.00%	ANNUAL IRR. WATER DEMAND (%)			15.00%	Contingency Allowance (%)			$ 9,000	REGRADE (IRRIG. / ha.)			$ -	REGRADE (IRRIG. Not applicable)												
	YEAR ENDING	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026			
GROWTH FORECASTS, CEC WORKSHEET PAGE 1																											
Unit & Area Count																											
4771	Single Family Residential Lots	4669	4720	4771	4819	4867	4916	4965	5014	5065	5115	5166	5218	5270	5323	5376	5430	5484	5539	5594	5650	5707	5764	5822			
2406	Multi-Family Residential / Bareland Strata	2181	2293	2406	2442	2479	2516	2554	2592	2631	2670	2710	2751	2792	2834	2877	2920	2964	3008	3053	3099	3145	3193	3241			
304	Industrial / Commercial / Institutional	297	300	304	306	307	309	310	312	313	315	316	318	320	321	323	324	326	328	329	331	333	334	336			
1661	Agricultural Irrigation (hectares) Grade A	1665	1659	1661	1669	1678	1686	1694	1703	1711	1720	1729	1737	1746	1755	1763	1772	1781	1790	1799	1808	1817	1826	1835			
493	Agricultural Irrigation (hectares) Grade C	470	481	493	495	498	500	503	505	508	511	513	516	518	521	523	526	529	531	534	537	539	542	545			
POPULATION FORECAST																											
3.20	Single Family Residential Lots			15267	15496	15729	15965	16204	16447	16694	16944	17198	17456	17718	17984	18254	18528	18805	19088	19374	19664	19959	20259	20563			
2.00	MF units			4812	4884	4957	5032	5107	5184	5262	5341	5421	5502	5585	5668	5753	5840	5927	6016	6106	6198	6291	6385	6481			
TOTAL POPULATION				**20079**	**20380**	**20686**	**20996**	**21311**	**21631**	**21955**	**22285**	**22619**	**22958**	**23303**	**23652**	**24007**	**24367**	**24733**	**25104**	**25480**	**25862**	**26250**	**26644**	**27044**			
PROJECTED ADD'L UNITS SF/MF/APT/IRRIG																											
	Single Family Residential Lots			**51**	**47.7**	**48.2**	**48.7**	**49.2**	**49.6**	**50.1**	**50.6**	**51.2**	**51.7**	**52.2**	**52.7**	**53.2**	**53.8**	**54.3**	**54.8**	**55.4**	**55.9**	**56.5**	**57.1**	**57.6**			
	Multi-Family Residential / Bareland Strata			**113**	**36.1**	**36.6**	**37.2**	**37.7**	**38.3**	**38.9**	**39.5**	**40.1**	**40.7**	**41.3**	**41.9**	**42.5**	**43.1**	**43.8**	**44.5**	**45.1**	**45.8**	**46.5**	**47.2**	**47.9**			
	Industrial / Commercial / Institutional			**4**	**1.5**	**1.5**	**1.5**	**1.5**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.7**	**1.7**	**1.7**			
	Irrigation Grade A taxes			**2**	**8.3**	**8.3**	**8.4**	**8.4**	**8.5**	**8.5**	**8.6**	**8.6**	**8.6**	**8.7**	**8.7**	**8.8**	**8.8**	**8.9**	**8.9**	**9.0**	**9.0**	**9.0**	**9.1**	**9.1**			
	Irrigation Grade C taxes			**12**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**			
CEC REVENUE FORECAST				Charge $/SFE	$ 4,500.00					$ 5,000.00					$ 5,600.00					$ 6,300.00							
	Single Family Residential Lots			$ 229,500	$ 214,695	$ 216,842	$ 219,010	$ 221,200	$ 223,412	$ 250,718	$ 253,226	$ 255,758	$ 258,315	$ 260,899	$ 295,129	$ 298,080	$ 301,061	$ 304,071	$ 307,112	$ 348,956	$ 352,445	$ 355,970	$ 359,530	$ 363,125			
	Multi-Family Residential / Bareland Strata			$ 406,800	$ 129,924	$ 131,873	$ 133,851	$ 135,859	$ 137,897	$ 155,517	$ 157,849	$ 160,217	$ 162,620	$ 165,060	$ 259,089	$ 262,975	$ 266,920	$ 270,924	$ 274,988	$ 330,019	$ 334,969	$ 339,994	$ 345,094	$ 350,270			
	Business Accounts Industrial / Commercial / Institutional			$ 22,500	$ 8,550	$ 8,593	$ 8,636	$ 8,679	$ 8,722	$ 9,740	$ 9,789	$ 9,838	$ 9,887	$ 9,936	$ 14,338	$ 14,409	$ 14,481	$ 14,554	$ 14,627	$ 18,724	$ 18,818	$ 18,912	$ 19,006	$ 19,101			
	Land Regrade fees (ha.)			$ 18,000	$ 74,745	$ 75,119	$ 75,494	$ 75,872	$ 76,251	$ 85,147	$ 85,573	$ 86,001	$ 86,431	$ 86,863	$ 65,875	$ 66,205	$ 66,536	$ 66,868	$ 67,203	$ 88,201	$ 88,642	$ 89,085	$ 89,531	$ 89,978			
TOTAL PROJECTED CEC REVENUE				$ 676,800	$ 427,914	$ 432,426	$ 436,991	$ 441,610	$ 446,283	$ 501,122	$ 506,437	$ 511,813	$ 517,253	$ 522,757	$ 634,431	$ 641,669	$ 648,998	$ 656,417	$ 663,929	$ 785,900	$ 794,874	$ 803,960	$ 813,160	$ 822,474			
PROJECT COST ESCALATION TABLE (CEC ATTRIBUTABLE PORTION OF COSTS)																											
	TOTALS	$ -	$ -		$ 34,933,956	$ 33,191,845	$ 31,621,402	$ 29,478,834	$ 23,783,713	$ 24,318,847	$ 24,716,021	$ 24,972,131	$ 23,965,199	$ 24,504,416	$ 23,614,808	$ 24,146,142	$ 22,693,920	$ 23,039,317	$ 23,557,702	$ 24,087,750	$ 24,629,725	$ 25,183,894	$ 25,750,531	$ 26,329,918			
CEC PROJECT IMPLEMENTATION TIMING				2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026			
1	CAPITAL WORKS PLAN / WATER SYSTEM ASSESSMENT	2007		develop plan	$ 28,125																						
2	AGRICULTURAL METERING PROGRAM	2007		frees up existing water	$ -																						
4.1	WEIR MEASUREMENT ON SPILLWAYS	2007		no charge to new devel.	$ -																						
4.2	MISSION CREEK FLOW MONITORING AND CONTROLS	2007		ex. Users	$ -																						
5.1	EXISTING METER CHANGE-OUTS	2007		ex. users	$ -																						
3	SCADA SYSTEM UPGRADE	2008		ex. users		$ -																					
7	DECOMMISSION WELLS 1, 2 AND 3	2008				$ -																					
8	PRV 16 McCURDY ROAD	2008				$ 67,260																					
9	SCOTTY CREEK SYSTEM SEPARATION	2008				$ -																					
10	TRUNK MAIN - RESERVOIR to SWAINSON	2008			$ 700,000	$ 1,200,000	$ 1,007,570																				
5.2	AUTOMATED TRUCK METER READ SYSTEM	2009					$ -																				
6	WELL No. 4 and No. 5 CHLORINATION	2009					$ -																				
11	SEAFORD ROAD AREA RENEWAL	2009					$ -																				
12	BLACK MOUNTAIN SUBDIVISION	2009					$ -																				
13	TOC WATER QUALITY MONITORING STATION	2009					$ -																				
15	BLACK MOUNTAIN RESERVOIR	2009			$ 800,000	$ 550,000	$ 1,000,000	$ 5,436,757																			
16	BLACK MOUNTAIN RESERV. - DRAWDOWN PIPE	2009			$ 1,000,000	$ 500,000	$ 846,479																				
21	WATER TREATMENT SERVICE @ OFFICE	2009					$ -																				
17	BLACK MOUNTAIN RESERVOIR - UV FACILITY	2010						$ 921,638																			
22	BULK FILL WATER STATIONS	2011							$ -																		
23	WELL HEAD PROTECTION (THREE WELLS)	2011							$ -																		
25	PRV 1 REHABILITATION	2011							$ -																		
20	CORNISH ROAD AREA - SYSTEM SEPARATION	2012								$ -																	
26	PRV 2 REHABILITATION	2012								$ -																	
14	LOCH LONG - TRANSFER AND RAISING OF DAM	2013								$ 150,000	$ 300,000	$ 1,302,729															
31	PRV 3 REHABILITATION	2013									$ -																
18.1	RELEASE CONTROLS ON GRAYSTOKE RESERVOIR	2014										$ 88,692															
18.2	RELEASE CONTROLS ON BELGO RESERVOIR	2014										$ 88,692															
18.3	RELEASE CONTROLS ON FISH HAWK RESERVOIR	2014										$ 88,692															
19	WTP - CLARIFIER FLOW CALMING	2015											$ -														
29	DISTRICT OFFICE AT 1200 BELGO ROAD	2015											$ -														
24	MISSION (CRESCENT LAKE) RESERVOIR	2016												$ 1,440,957													
27	EMERGENCY GENERATORS	2016												$ -													
28	DOMESTIC METERING PROGRAM	2017													$ -												
30	ENHANCED WATER TREATMENT	2018														$ 1,995,510											
32	MARION ROAD WELL - REDEVELOPMENT	2019															$ 165,215										
33	BAFFLING OF STEVENS RESERVOIR	2020																$ -									
34	BUILDING OVER FLOCCULATORS	2021																	$ -								
CEC PROJECT EXPENDITURE					$ (2,528,125)	$ (2,317,260)	$ (2,854,050)	$ (6,358,394)	$ -	$ (150,000)	$ (300,000)	$ (1,568,805)	$ -	$ (1,440,957)	$ -	$ (1,995,510)	$ (165,215)	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
CEC RESERVE BALANCE AT START OF YEAR			$ 4,110,676	$ 4,885,321	$ 5,708,525	$ 3,703,726	$ 1,860,486	$ -	$ -	$ 200,699	$ 307,759	$ 268,845	$ -	$ 185,168	$ -	$ 302,345	$ -	$ 151,697	$ 480,580	$ 826,841	$ 1,305,461	$ 1,807,413	$ 2,333,511	$ 2,884,591			
	Transfers in from external funding sources																										
	Interest Earned (excludes present year CECs)		$ 123,320	$ 146,560	$ 95,412	$ 41,594	$ -	$ -	$ -	$ 1,521	$ 233	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,551	$ 14,417	$ 24,805	$ 39,164	$ 54,222	$ 70,005	$ 86,538			
	CEC Revenue from new Development	$ 393,000	$ 591,721	$ 571,744	$ 427,914	$ 432,426	$ 436,991	$ 441,610	$ 446,283	$ 501,122	$ 506,437	$ 511,813	$ 517,253	$ 522,757	$ 634,431	$ 641,669	$ 648,998	$ 656,417	$ 663,929	$ 785,900	$ 794,874	$ 803,960	$ 813,160	$ 822,474			
	Debt Servciing (total of all debt)				$ -	$ -	$ -	$ (46,574)	$ (245,583)	$ (245,583)	$ (245,583)	$ (245,583)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)			
	CEC Reserve Balance at Year End	$ 4,110,676	$ 4,885,321	$ 5,708,525	$ 3,703,726	$ 1,860,486	$ (556,572)	$ (5,963,358)	$ 200,699	$ 307,759	$ 268,845	$ (1,033,730)	$ 185,168	$ (1,065,117)	$ 302,345	$ (1,383,581)	$ 151,697	$ 480,580	$ 826,841	$ 1,305,461	$ 1,807,413	$ 2,333,511	$ 2,884,591	$ 3,461,518			
	CEC Reserve Balance Earning interest	$ -	$ 4,110,676	$ 4,885,321	$ 3,180,400	$ 1,386,466	$ -	$ -	$ -	$ 50,699	$ 7,759	$ -	$ -	$ -	$ -	$ -	$ -	$ 151,697	$ 480,580	$ 826,841	$ 1,305,461	$ 1,807,413	$ 2,333,511	$ 2,884,591			
	Amount to Finance			$ -	$ -	$ -	$ (556,572)	$ (5,963,358)	$ -	$ -	$ -	$ (1,033,730)	$ -	$ (1,065,117)	$ -	$ (1,383,581)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
CEC RESERVE BALANCE AT END OF YEAR		$ 4,110,676	$ 4,885,321	$ 5,708,525	$ 3,703,726	$ 1,860,486	$ -	$ -	$ 200,699	$ 307,759	$ 268,845	$ -	$ 185,168	$ -	$ 302,345	$ -	$ 151,697	$ 480,580	$ 826,841	$ 1,305,461	$ 1,807,413	$ 2,333,511	$ 2,884,591	$ 3,461,518			
	Debt, Project enter here			$ (556,572)				$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)	$ (46,574)			
	Debt, Project enter here			$ (5,963,358)					$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)	$ (499,010)			
	Debt, Project enter here			$ (1,033,730)									$ (86,502)	$ (86,502)	$ (86,502)	$ (86,502)	$ (86,502)	$ (86,502)	$ (86,502)	$ (86,502)	$ (86,502)	$ (86,502)	$ (86,502)	$ (86,502)			
	TOTAL CEC DEBT SERVICING	$ -	$ -	$ (6,519,930)				$ (46,574)	$ (545,583)	$ (545,583)	$ (545,583)	$ (545,583)	$ (632,085)	$ (632,085)	$ (632,085)	$ (632,085)	$ (632,085)	$ (632,085)	$ (632,085)	$ (632,085)	$ (632,085)	$ (632,085)	$ (632,085)	$ (632,085)			
	Amount Financed by BMID ratepayers			$ (300,000)					$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)			
	Amount financed through CEC charges							$ (46,574)	$ (245,583)	$ (245,583)	$ (245,583)	$ (245,583)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)	$ (332,085)			

WATER UTILITY CASHFLOW

WATER REVENUES AND EXPENDITURES - PAGE 2

$ 36.00 ONE TIME RATE INCREASE

	YEAR ENDING	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	WATER TOLLS	$ 288.00	$ 300.00	$ 306.00	$ 318.00	$ 362.75	$ 372.72	$ 382.97	$ 393.50	$ 404.32	$ 415.44	$ 426.87	$ 438.61	$ 450.67	$ 463.06	$ 475.79	$ 488.88	$ 502.32	$ 516.14	$ 530.33	$ 544.92	$ 559.90	$ 575.30	$ 591.12
	TAX RATE - GRADE A LANDS	$ 57.00	$ 58.50	$ 59.00	$ 60.00	$ 68.00	$ 69.87	$ 71.79	$ 73.77	$ 75.79	$ 77.88	$ 80.02	$ 82.22	$ 84.48	$ 86.81	$ 89.19	$ 91.65	$ 94.17	$ 96.75	$ 99.42	$ 102.15	$ 104.96	$ 107.85	$ 110.81
	TAX RATE - GRADE C LANDS	$ 42.00	$ 43.50	$ 44.00	$ 45.00	$ 51.00	$ 52.40	$ 53.84	$ 55.32	$ 56.85	$ 58.41	$ 60.02	$ 61.67	$ 63.36	$ 65.10	$ 66.89	$ 68.73	$ 70.62	$ 72.57	$ 74.56	$ 76.61	$ 78.72	$ 80.88	$ 83.11
	SFE Units billed at water toll rate	7023	7251	7517	7724	7936	8154	8379	8609	8846	9089	9339	9596	9860	10131	10409	10696	10990	11292	11603	11922	12249	12586	12932
OPERATING REVENUES																								
	TOTAL ANNUAL REVENUE	$ 2,474,609	$ 2,670,770	$ 2,845,157	$ 2,833,876	$ 3,298,602	$ 3,470,366	$ 3,651,448	$ 3,842,357	$ 4,043,632	$ 4,255,844	$ 4,479,592	$ 4,715,510	$ 4,964,266	$ 5,226,567	$ 5,503,156	$ 5,794,818	$ 6,102,385	$ 6,426,729	$ 6,768,776	$ 7,129,498	$ 7,509,926	$ 7,911,143	$ 8,334,296
OPERATING EXPENDITURES (increasing at Residential Water Demand growth rate)																								
Contr. to	Purchase of Capital Assets (WTP debt)	$ 391,089	$ 420,300	$ 295,558	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Funds	Sinking Fund	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ 90,726	$ -	$ -	$ -	$ -	$ -	$ -
	SUBTOTAL - WATER EXPENDITURES	$ 2,417,659	$ 2,560,556	$ 2,594,173	$ 2,332,634	$ 2,367,226	$ 2,402,402	$ 2,438,171	$ 2,474,544	$ 2,511,531	$ 2,549,142	$ 2,587,388	$ 2,626,279	$ 2,665,827	$ 2,706,042	$ 2,746,935	$ 2,788,519	$ 2,830,804	$ 2,591,077	$ 2,634,801	$ 2,679,263	$ 2,724,476	$ 2,770,451	$ 2,817,203
PROJECT ESCALATION TABLE (EXISTING USERS PORTION OF COSTS)																								
	TOTALS	$ -	$ -		$ 18,068,902	$ 19,798,508	$ 19,740,208	$ 20,148,519	$ 13,427,946	$ 12,610,047	$ 11,593,373	$ 11,673,515	$ 11,670,092	$ 10,788,559	$ 10,749,085	$ 8,968,573	$ 1,188,325	$ 1,049,847	$ 735,603	$ 493,054	$ 504,147	$ 515,491	$ 527,089	$ 538,949
PROJECT TIMING, EXISTING USER PROJECTS																								
1	**CAPITAL WORKS PLAN / WATER SYSTEM ASSESSMENT**	2007			$ 9,375																			
2	**AGRICULTURAL METERING PROGRAM**	2007			$ 423,140																			
4.1	**WEIR MEASUREMENT ON SPILLWAYS**	2007			$ 18,975																			
4.2	**MISSION CREEK FLOW MONITORING AND CONTROLS**	2007			$ 12,650																			
5.1	**EXISTING METER CHANGE-OUTS**	2007			$ 62,305																			
3	**SCADA SYSTEM UPGRADE**	2008				$ 117,058																		
7	**DECOMMISSION WELLS 1, 2 AND 3**	2008				$ 29,103																		
8	**PRV 16 McCURDY ROAD**	2008				$ 16,815																		
9	**SCOTTY CREEK SYSTEM SEPARATION**	2008				$ 100,000	$ 200,000	$ 151,184																
10	**TRUNK MAIN - RESERVOIR to SWAINSON**	2008				$ -																		
5.2	**AUTOMATED TRUCK METER READ SYSTEM**	2009			$ 5,000	$ 60,000																		
6	**WELL No. 4 and No. 5 CHLORINATION**	2009				$ 77,608																		
11	**SEAFORD ROAD AREA RENEWAL**	2009				$ 100,000	$ 264,511																	
12	**BLACK MOUNTAIN SUBDIVISION**	2009					$ (6,488,182)																	
13	**TOC WATER QUALITY MONITORING STATION**	2009			$ 25,000	$ 3,183																		
15	**BLACK MOUNTAIN RESERVOIR**	2009					$ 5,000,000	$ 2,835,537																
16	**BLACK MOUNTAIN RESERV. - DRAWDOWN PIPE**	2009					$ 1,000,000	$ 1,422,281																
21	**WATER TREATMENT SERVICE @ OFFICE**	2009					$ 59,515																	
17	**BLACK MOUNTAIN RESERVOIR - UV FACILITY**	2010						$ 2,764,913																
22	**BULK FILL WATER STATIONS**	2011							$ 207,413															
23	**WELL HEAD PROTECTION (THREE WELLS)**	2011							$ 82,965															
25	**PRV 1 REHABILITATION**	2011							$ 829,650															
20	**CORNISH ROAD AREA - SYSTEM SEPARATION**	2012								$ 452,082														
26	**PRV 2 REHABILITATION**	2012								$ 848,317														
14	**LOCH LONG - TRANSFER AND RAISING OF DAM**	2013									$ -													
31	**PRV 3 REHABILITATION**	2013									$ 180,709													
18.1	**RELEASE CONTROLS ON GRAYSTOKE RESERVOIR**	2013										$ 88,692												
18.2	**RELEASE CONTROLS ON BELGO RESERVOIR**	2014										$ 88,692												
18.3	**RELEASE CONTROLS ON FISH HAWK RESERVOIR**	2014										$ 88,692												
19	**WTP - CLARIFIER FLOW CALMING**	2015											$ 141,946											
29	**DISTRICT OFFICE AT 1200 BELGO ROAD**	2015											$ 1,002,165											
24	**MISSION (CRESCENT LAKE) RESERVOIR**	2016												$ -										
27	**EMERGENCY GENERATORS**	2016												$ 282,216										
28	**DOMESTIC METERING PROGRAM**	2017													$ 2,022,367									
30	**ENHANCED WATER TREATMENT**	2018														$ 7,982,041								
32	**MARION ROAD WELL - REDEVELOPMENT**	2019															$ 165,215							
33	**BAFFLING OF STEVENS RESERVOIR**	2020																$ 337,865						
34	**BUILDING OVER FLOCCULATORS**	2021																	$ 259,100					
SUM OF USER FUNDED CAPITAL PROJECTS					$ (556,445)	$ (503,767)	$ (35,844)	$ (7,173,915)	$ (1,120,028)	$ (1,300,400)	$ (180,709)	$ (266,076)	$ (1,144,111)	$ (282,216)	$ (2,022,367)	$ (7,982,041)	$ (165,215)	$ (337,865)	$ (259,100)	$ -	$ -	$ -	$ -	$ -
OPERATING ACCOUNT - BALANCE AT START OF YEAR			$ 1,169,880	$ 1,125,598	$ 1,097,951	$ 2,058,993	$ 2,998,260	$ 7,119,253	$ 1,158,615	$ 1,107,557	$ 1,039,258	$ 2,291,007	$ 3,677,883	$ 4,399,017	$ 6,238,744	$ 6,563,394	$ 1,037,573	$ 3,604,829	$ 6,336,553	$ 9,795,429	$ 13,923,267	$ 18,491,200	$ 23,531,386	$ 29,078,019
	Interest Earned				$ 16,245	$ 46,657	$ 88,872	$ -	$ 1,158	$ -	$ 25,756	$ 60,748	$ 76,013	$ 123,504	$ 126,491	$ -	$ 26,171	$ 98,009	$ 182,324	$ 293,863	$ 417,698	$ 554,736	$ 705,942	$ 872,341
	Annual Revenue Surplus (revenues - expenditures)		$ 110,214	$ 250,984	$ 501,243	$ 931,376	$ 1,067,965	$ 1,213,276	$ 1,367,812	$ 1,532,101	$ 1,706,702	$ 1,892,204	$ 2,089,231	$ 2,298,440	$ 2,520,525	$ 2,756,221	$ 3,006,300	$ 3,271,581	$ 3,835,653	$ 4,133,975	$ 4,450,235	$ 4,785,450	$ 5,140,692	$ 5,517,093
	Debt Servicing (EXISTING USERS PORTION)										$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Debt Servicing (CEC Portion)								$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)	$ (300,000)
	Operating Account Balance Earning interest	$ -	$ 1,169,880	$ 1,125,598	$ 541,506	$ 1,555,227	$ 2,962,416	$ -	$ 38,587	$ -	$ 858,549	$ 2,024,931	$ 2,533,773	$ 4,116,800	$ 4,216,377	$ -	$ 872,358	$ 3,266,963	$ 6,077,453	$ 9,795,429	$ 13,923,267	$ 18,491,200	$ 23,531,386	$ 29,078,019
**	**Cash Adjustments, Transfers, withdrawals, grants, etc.**	$ -	$ -	$ -	$ 1,000,000	$ 465,000	$ 3,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OPERATING ACCOUNT BALANCE AT END OF YEAR		$ 1,169,880	$ 1,125,598	$ 1,097,951	$ 2,058,993	$ 2,998,260	$ 7,119,253	$ 1,158,615	$ 1,107,557	$ 1,039,258	$ 2,291,007	$ 3,677,883	$ 4,399,017	$ 6,238,744	$ 6,563,394	$ 1,037,573	$ 3,604,829	$ 6,336,553	$ 9,795,429	$ 13,923,267	$ 18,491,200	$ 23,531,386	$ 29,078,019	$ 35,167,452
	Amount to Finance							$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Debt, Project enter here			$ -							$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL CEC DEBT SERVICING	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
EQUITY IN PHYSICAL ASSETS		$ 21,017,618	$ 23,047,471	$ 26,283,095	$ 26,545,926	$ 26,811,385	$ 27,079,499	$ 27,350,294	$ 27,623,797	$ 27,900,035	$ 28,179,035	$ 28,460,826	$ 28,745,434	$ 29,032,888	$ 29,323,217	$ 29,616,449	$ 29,912,614	$ 30,211,740	$ 30,513,857	$ 30,818,996	$ 31,127,186	$ 31,438,458	$ 31,752,842	$ 32,070,371
RENEWAL RESERVE FUND (at start of YR)			$ 4,277,864	$ 4,450,022	$ 4,654,437	$ 3,794,070	$ 3,907,892	$ 1,025,129	$ 1,055,883	$ 1,087,559	$ 1,120,186	$ 1,153,792	$ 1,188,405	$ 1,224,058	$ 1,260,779	$ 1,298,603	$ 1,337,561	$ 1,377,688	$ 1,419,018	$ 1,461,589	$ 1,505,436	$ 1,550,600	$ 1,597,118	$ 1,645,031
	INTEREST		$ 172,158	$ 204,415	$ 139,633	$ 113,822	$ 117,237	$ 30,754	$ 31,676	$ 32,627	$ 33,606	$ 34,614	$ 35,652	$ 36,722	$ 37,823	$ 38,958	$ 40,127	$ 41,331	$ 42,571	$ 43,848	$ 45,163	$ 46,518	$ 47,914	$ 49,351
2.50%	**RENEWAL RESERVE CONTRIBUTION / DEDUCTION**	$ -	$ -	$ -	$ (1,000,000)	$ -	$ (3,000,000)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RENEWAL RESERVE FUND BALANCE (at YR end)		$ 4,277,864	$ 4,450,022	$ 4,654,437	$ 3,794,070	$ 3,907,892	$ 1,025,129	$ 1,055,883	$ 1,087,559	$ 1,120,186	$ 1,153,792	$ 1,188,405	$ 1,224,058	$ 1,260,779	$ 1,298,603	$ 1,337,561	$ 1,377,688	$ 1,419,018	$ 1,461,589	$ 1,505,436	$ 1,550,600	$ 1,597,118	$ 1,645,031	$ 1,694,382
TOTAL CAPITAL AVAILABLE FOR EXPENDITURES		$ 9,558,420	$ 10,460,941	$ 11,460,913	$ 9,556,790	$ 8,766,638	$ 8,144,382	$ 2,214,498	$ 2,395,816	$ 2,467,203	$ 3,713,644	$ 4,866,289	$ 5,808,242	$ 7,499,523	$ 8,164,342	$ 2,375,134	$ 5,134,214	$ 8,236,152	$ 12,083,859	$ 16,734,164	$ 21,849,213	$ 27,462,014	$ 33,607,641	$ 40,323,352
SUM OF RENEWAL RESERVE, OPERATING FUND AND CEC RESERVES																								
**	**Cash Adjustments, Transfers, withdrawals, grants, etc.**	2007 - $1,000,000 tx from Renewal Reserve Account, 2008 - $465,000 transferred in from FortisBC sale of land for Transformer Site																						
ANNUAL WATER DEMAND/ CONSUMPTION FORECAST (ML/yr)																								
	TOTAL EST. WATER DEMAND (ML/D)			13513.8	13558.3	13603.2	13648.7	13694.7	13741.2	13788.2	13835.8	13883.8	13932.5	13981.6	14031.4	14081.7	14132.5	14183.9	14235.9	14288.5	14341.7	14395.5	14449.9	14504.9
5.00%	**Reduction due to Ag. Meters (5% through education)**				13138.9	13183.8	13229.3	13275.3	13321.8	13368.8	13416.4	13464.4	13513.1	13562.2	13612.0	13662.2	13713.1	13764.5	13816.5	13869.1	13922.3	13976.1	14030.5	14085.5
20%	**Reduction due to ag. pricing (add'l 15%)**							12017.1	12063.6	12110.6	12158.2	12206.2	12254.9	12304.0	12353.8	12404.0	12454.9	12506.3	12558.3	12610.9	12664.1	12717.9	12772.3	12827.3
15%	**Additional Reduction in use due to domestic metering/pricing**														11688.9	11731.8	11775.3	11819.2	11863.6	11908.5	11953.9	11999.8	12046.2	12093.2
MDD DOMESTIC WATER DEMAND FORECAST (ML/day)																								
30.4	**L/s TOTAL EST. WATER DEMAND (ML/D)**			137.46	138.0	138.5	139.0	139.5	140.1	140.6	141.1	141.7	142.2	142.8	143.4	143.9	144.5	145.1	145.7	146.3	146.9	147.5	148.2	148.8
5.00%	**Reduction due to Ag. Meters (5% through education)**				133.6	134.1	134.6	135.1	135.7	136.2	136.7	137.3	137.8	138.4	139.0	139.5	140.1	140.7	141.3	141.9	142.5	143.1	143.8	144.4
20%	**Reduction due to pricing (add'l 15%)**							121.9	122.5	123.0	123.5	124.1	124.6	125.2	125.8	126.3	126.9	127.5	128.1	128.7	129.3	129.9	130.6	131.2
15%	**Additional Reduction in use due to domestic metering/pricing**														118.3	118.8	119.3	119.8	120.3	120.8	121.3	121.8	122.4	122.9

APPENDIX A - CAPITAL PROJECTS

Prio.	#	Year	PROJECT NAME	Current Users	CEC Project	New Devel.	Renewal	TOTAL
H	1	2007	CAPITAL WORKS PLAN / WATER SYSTEM ASSESSMENT	$ 9,375	$ 28,125	$ -	$ -	**$ 37,500**
H	2	2007	AGRICULTURAL METERING PROGRAM	$ 423,140	$ -	$ -	$ -	**$ 423,140**
H	4.1	2007	WEIR MEASUREMENT ON SPILLWAYS	$ 18,975	$ -	$ -	$ -	**$ 18,975**
H	4.2	2007	MISSION CREEK FLOW MONITORING AND CONTROLS	$ 12,650	$ -	$ -	$ -	**$ 12,650**
H	5.1	2007	EXISTING METER CHANGE-OUTS	$ -	$ -	$ -	$ 62,305	**$ 62,305**
H	3	2008	SCADA SYSTEM UPGRADE	$ -	$ -	$ -	$ 114,483	**$ 114,483**
M	7	2008	DECOMMISSION WELLS 1, 2 AND 3	$ 28,463	$ -	$ -	$ -	**$ 28,463**
H	8	2008	PRV 16 McCURDY ROAD	$ 16,445	$ 65,780	$ -	$ -	**$ 82,225**
H	9	2008	SCOTTY CREEK SYSTEM SEPARATION	$ 424,155	$ -	$ -	$ -	**$ 424,155**
H	10	2008	TRUNK MAIN - RESERVOIR to SWAINSON	$ -	$ 2,796,081	$ -	$ -	**$ 2,796,081**
H	5.2	2009	AUTOMATED TRUCK METER READ SYSTEM	$ 62,305	$ -	$ -	$ -	**$ 62,305**
H	6	2009	WELL No. 4 and No. 5 CHLORINATION	$ 75,900	$ -	$ -	$ -	**$ 75,900**
H	11	2009	SEAFORD ROAD AREA RENEWAL	$ -	$ -	$ -	$ 348,645	**$ 348,645**
H	12	2009	BLACK MOUNTAIN SUBDIVISION	$ (6,205,780)	$ -	$ -	$ -	**$ (6,205,780)**
H	13	2009	TOC WATER QUALITY MONITORING STATION	$ 16,538	$ -	$ -	$ 11,025	**$ 27,563**
M	15	2009	BLACK MOUNTAIN RESERVOIR	$ 7,329,575	$ 7,329,575	$ -	$ -	**$ 14,659,150**
M	16	2009	BLACK MOUNTAIN RESERV. - DRAWDOWN PIPE	$ 2,265,868	$ 2,265,868	$ -	$ -	**$ 4,531,736**
M	21	2009	WATER TREATMENT SERVICE @ OFFICE	$ 56,925	$ -	$ -	$ -	**$ 56,925**
M	17	2010	BLACK MOUNTAIN RESERVOIR - UV FACILITY	$ 2,586,375	$ 862,125	$ -	$ -	**$ 3,448,500**
M	22	2011	BULK FILL WATER STATIONS	$ 189,750	$ -	$ -	$ -	**$ 189,750**
M	23	2011	WELL HEAD PROTECTION (THREE WELLS)	$ 75,900	$ -	$ -	$ -	**$ 75,900**
M	25	2011	PRV 1 REHABILITATION	$ 250,470	$ -	$ -	$ 508,530	**$ 759,000**
M	20	2012	CORNISH ROAD AREA - SYSTEM SEPARATION	$ 404,484	$ -	$ -	$ -	**$ 404,484**
M	26	2012	PRV 2 REHABILITATION	$ 250,470	$ -	$ -	$ 508,530	**$ 759,000**
H	14	2013	LOCH LONG - TRANSFER AND RAISING OF DAM	$ -	$ 1,502,820	$ -	$ -	**$ 1,502,820**
M	31	2013	PRV 3 REHABILITATION	$ -	$ -	$ -	$ 158,125	**$ 158,125**
M	18.1	2014	RELEASE CONTROLS ON GRAYSTOKE RESERVOIR	$ 75,900	$ 75,900	$ -	$ -	**$ 151,800**
M	18.2	2014	RELEASE CONTROLS ON BELGO RESERVOIR	$ 75,900	$ 75,900	$ -	$ -	**$ 151,800**
M	18.3	2014	RELEASE CONTROLS ON FISH HAWK RESERVOIR	$ 75,900	$ 75,900	$ -	$ -	**$ 151,800**
M	19	2015	WTP - CLARIFIER FLOW CALMING	$ 118,800	$ -	$ -	$ -	**$ 118,800**
M	29	2015	DISTRICT OFFICE AT 1200 BELGO ROAD	$ 838,750	$ -	$ -	$ -	**$ 838,750**
M	24	2016	MISSION (CRESCENT LAKE) RESERVOIR	$ -	$ 1,179,454	$ -	$ -	**$ 1,179,454**
M	27	2016	EMERGENCY GENERATORS	$ 231,000	$ -	$ -	$ -	**$ 231,000**
M	28	2017	DOMESTIC METERING PROGRAM	$ 1,618,925	$ -	$ -	$ -	**$ 1,618,925**
M	30	2018	ENHANCED WATER TREATMENT	$ 6,249,100	$ 1,562,275	$ -	$ -	**$ 7,811,375**
M	32	2019	MARION ROAD WELL - REDEVELOPMENT	$ -	$ 126,500	$ -	$ 126,500	**$ 253,000**
M	33	2020	BAFFLING OF STEVENS RESERVOIR	$ 253,000	$ -	$ -	$ -	**$ 253,000**
M	34	2021	BUILDING OVER FLOCCULATORS	$ 189,750	$ -	$ -	$ -	**$ 189,750**
L	36	2027	KELOWNA CREEK CROSSING TO CAMPION	$ -	$ 144,716	$ -	$ -	**$ 144,716**
L	37	2027	RAISING OF FISH HAWK DAM	$ -	$ 4,245,467	$ -	$ -	**$ 4,245,467**
L	38	2027	TEASDALE ROAD WATERMAIN	$ 49,896	$ -	$ -	$ -	**$ 49,896**
L	39	2027	HIGHWAY 97 - WATERMAIN - WEST SIDE	$ -	$ 52,470	$ 157,410	$ -	**$ 209,880**
L	40	2027	MISSION CREEK STORAGE SITES	$ -	$ 12,545,000	$ -	$ -	**$ 12,545,000**
L	41	2027	BELL MOUNTAIN DEVELOPMENT AREA	$ -	$ -	$ -	$ -	**$ -**
L	42	2027	KIRSCHNER MOUNTAIN ESTATES	$ -	$ -	$ -	$ -	**$ -**
L	43	2027	TOWER RANCH DEVELOPMENT	$ -	$ -	$ -	$ -	**$ -**
			TOTALS	$ 18,068,902	$ 34,933,956	$ 157,410	$ 1,838,143	$ 54,998,411

H High Priority
M Moderate Priority
L Low Priority

SCHEDULE 'A' - BYLAW No. 678

LAND USE DESIGNATION	"A" & "C" Grade Rate $/Unit	"D" Grade Rate $/Unit	UNIT	Notes	KELOWNA ZONING	RDCO ZONING
AGRICULTURAL ZONES						
Agricultural (Regrade)	not applic.	$ 9,000	ha.	Allowed one house on a single property	A1	A1
Forest Resource	not applic.	$ 12,000	ha.			F1
Pickers Cabin	$ 1,440	n/a	bldg.	Additional unit within structure - add $ 250 each unit		
RURAL RESIDENTIAL ZONES						
Rural Residential 1 - 3	$ 3,600	$ 4,500	lot	Allows max. outdoor irrigation area of 1000m2 After 1000m2 area exceeded, capital charge applies of $1.20/m2	RR1-RR1s	RU1-RU6
URBAN RESIDENTIAL ZONES						
Large Lot housing	$ 4,500	$ 5,625	lot	> 0.20 ha.	RU1	R1
Medium & Small Lot housing	$ 3,600	$ 4,500	lot	< or = 0.20 ha.	RU2, 2s,2hs, 3, 3hs /	R1
Low Density Cluster Housing	$ 2,700	$ 3,600	lot		RU4	
Bareland Strata / Manufactured Home Subd.	$ 2,700	$ 3,600	lot		RU5	R1M
Multiple Dwelling Housing	$ 2,700	$ 3,600	each unit	Duplex, triplex, rate per unit, Townhouse, row housing	RU6, RM2-4	R2-3A RC1
Mobile Home Park	$ 2,700	$ 3,600	MH pad		RM7	RMP
Carriage House on ex. SF Lot	$ 2,700	n/a	bldg.			
Common building for stratas, hotels, etc.	$ 2,700	$ 3,600	each		COMMON AREAS	
Four-plex housing	$ 2,160	$ 2,700	each unit	Fourplex, fiveplex, housing, rate for each unit	RM1	R2
Medium Density Multiple Housing	$ 2,160	$ 2,700	unit	2, 3 and 4 storey MF units	RM5	R3B
High Rise Apartment Housing	$ 1,440	$ 1,800	unit	Rate for MF 5 stories high and higher	RM6	R3C
Congregate Housing, hotel, tourist comm.	$ 1,440	$ 1,800	unit	Rate for Single person residences such as congregate care		R3D, C7, C8
Secondary suite/bed & breakfast suite	$ 1,080	$ 1,080	unit		SUITES	
COMMERCIAL ZONES						
Commercial Subdivision	$ 3,000	$ 12,000	ha.	Regrade fee for Commercial zoned subdivisions		
All commercial zones	$ 4,500	n/a	150m2	For first 150 m2 of total floor area including mezzaines	C1-10	
Building charge	$ 8.00	n/a	per m2>150m2	For remainder area greater than 150m2.		
Campground, cabin, motel	$ 1,440	n/a	unit			C5
Hotel, tourist commercial	$ 1,440	n/a	unit			C7, C8
Golf Course	$ 6,000	$ 15,000	ha.	Rate for total irrigated area including greens, fairways and tees		
INDUSTRIAL ZONES						
Industrial Subdivision	$ 3,000	$ 12,000	ha.	Regrade fee for Industrial zoned subdivisions		
All industrial lands	$ 4,500	n/a	150m2	For first 150 m2 of total floor area including mezzaines	I1-5	I1 to I5
Building charge	$ 8.00	n/a	per m2>150m2	For remainder area greater than 150m2.		
PUBLIC AND INSTITUTIONAL ZONES						
Institutional Subdivision	$ 3,000	$ 12,000	ha.	Regrade fee for Institutional zoned subdivision		
Major, minor Institutional, Utilities	$ 4,500	n/a	150m2	For first 150 m2 of total floor area including mezzaines	P1,2,4	P2
Recreational, Intensive Water use	$ 4,500	n/a	150m2	For first 150 m2 of total floor area including mezzaines	W1, W2	P3
Building charge	$ 8.00	n/a	per m2>150m2	For remainder area greater than 150m2.	P2	P2
Parks & Open Space, Municipal Dist.Park	$ 3,000	$ 12,000	ha.	Special cases may be assessed on Max.day use	P3	P1

NOTES: Land must be regraded for commercial, industrial and institutional zones prior to building development.
For urban development zones, Grade D unit rate charge includes regrade of D grade land to Grade A

	DRY LAND RATE Grade D lands	GRADED LAND RATE Grade A & C Lands	MULTIPLICATION FACTORS TO EQUIVALENT SINGLE FAMILY LOT IRRIGATED	DRY
SINGLE FAMILY RATE	**$ 4,500**	$ 3,600	0.800	1.000
MULTI-FAMILY (LOW DENSITY, TWNHOMES)	$ 3,600	$ 2,700	0.600	0.800
MULTI-FAMILY (MED. DENSITY)	$ 2,700	$ 2,160	0.480	0.600
MF HIGH DENSITY	$ 1,800	$ 1,440	0.320	0.400
SECONDARY SUITES	$ 1,080	$ 1,080	0.240	0.240
ICI CONNECTIONS	$ 5,625	$ 4,500	1.000	1.250
Agricultural Regrade 2 x SF rate	$ 9,000		n/a	2.000
Urban and ICI Regrade Rate	$ 12,000		n/a	2.667
Value of Irrigated Hectare (fully developed with 10 lots/ha)	$ 45,000			

PROJECT NO. 1

CAPITAL WORKS PLAN / WATER SYSTEM ASSESSMENT

Project Description

Prepare Capital Plan update to assess projects and charges for BMID

Prepare water system assessment as per Drinking Water Protection Act (DWPA)
The purpose of the assessment is to identify inventory and assess
- The drinking water source, including land use and other activities and conditions that may affect the source
- The water supply system, including treatment and operation
- Monitoring requirements for the drinking water source and water supply system
- Threats to drinking water that is provided by the system

In conjunction with the above work, a Capital Works Plan update is provided.
The Capital Works Plan Update forms the basis for CEC charges and water rates for the foreseeable future.

Capital Cost Estimate	**No.**	**Unit**		**Unit Price**		**Extension**
Water System Assmt / Capital Works Plan	1	LS	$	30,000	$	30,000
Subtotal , Construction Cost Estimate					**$**	**30,000**
Engineering Allowance	0%				$	-
Base Capital Cost					$	30,000
Contingency Allowance	25%				$	7,500
TOTAL CAPITAL COST ESTIMATE					**$**	**37,500**

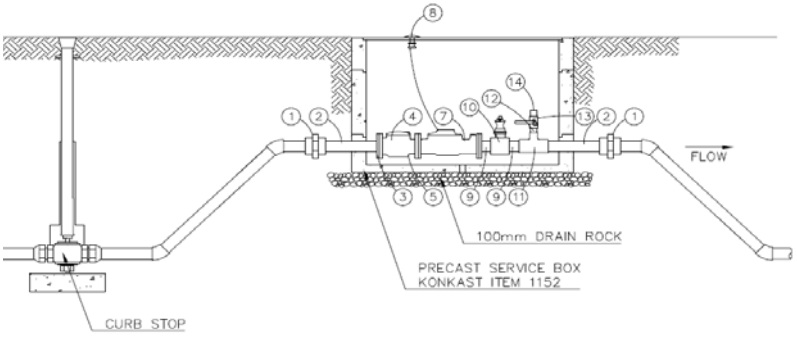
Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Apportionment	25%	75%	0%	0%
Capital Value Apportionment	$ 9,375	$ 28,125	$ -	$ -

Apportionment of costs is split between current users (operating permit requirements) and CEC Funded to cover costs for development of additional water.

PROJECT NO. 02

AGRICULTURAL METERING PROGRAM

Sept. 21, 2007



ITEM No	DESCRIPTION
1	UNION OR COMPRESSION FITTING
2	300mm STEEL GALV. NIPPLE
3	BRONZE FLANGE ASSEMBLY MEFSB20
4	WATER METER STRAINER, SEPARATED OR ATTACHED TO METER
5	PECK COCK FOR DRAIN PLUG
7	SENSUS TURBO METER
8	REMOTE RADIO PIT LID MOUNTED
9	CLOSE NIPPLE
10	GATE VALVE
11	GALVANIZED TEE
12	CLOSE RISER
13	BALL VALVE
14	FITTING FOR BLOW OFF ATTACHMENT

50mm meter assembly with meter, isolation valve, blow-off assembly

In-field installation of completed unit

BMID has received $200,000 in seed money from the Federal Government as part of the National Water Supply Expansion Program.
In addition, BMID received $30,000 in implementation and education monies for the instruction to the irrigation users.
The monies are to be used to install meters for agriculture. Part of the program includes an education component and funding has been received for that component of the work as well.

In an average moisture year, BMID uses 13,600 ML of water. Of this amount, agriculture uses an estimated amount of 8,840 ML or approximately 65% of the total annual volume. Conservatively, it is estimated that approximately 20% of this annual volume can be saved through the installation of meters, edcuation of the growers and through more efficient irrigation water techniques.
The estimated volume of water that would be saved through this program is compared with other water management options in the report.
The estimated volume of water that would be saved annually is 1,760 ML.

CAPITAL COST ITEMS	**No.**	**Unit**		**Unit Price**		**Extension**
Supply and Installation 19 mm diameter meters	0	each	$	1,000.00	$	-
Supply and Installation 25 mm diameter meters	124	each	$	1,000.00	$	124,000
Supply and Installation 38 mm diameter meters	134	each	$	1,800.00	$	241,200
Supply and Installation 50 mm diameter meters	73	each	$	2,100.00	$	153,300
Supply and Installation 75 mm diameter meters	11	each	$	2,694.58	$	29,640
Irrigation Scheduling (2006 - 2008)	1	LS	$	50,000	$	50,000
Data Management and Distribution to Growers	1	LS	$	25,000	$	25,000
Subtotal , Construction Cost Estimate	**342**	**meters**			**$**	**623,140**
Engineering Allowance	0%				$	-
Base Capital Cost					$	623,140
Contingency Allowance	0%				$	-
TOTAL CAPITAL COST ESTIMATE					**$**	**623,140**
Subtract grant monies to be received (maximum amount)	1	LS	$	200,000	$	200,000
NET VALUE					**$**	**423,140**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 423,140	$ -	$ -	$ -

Apportionment based on provision of additional water for new development and agriculture

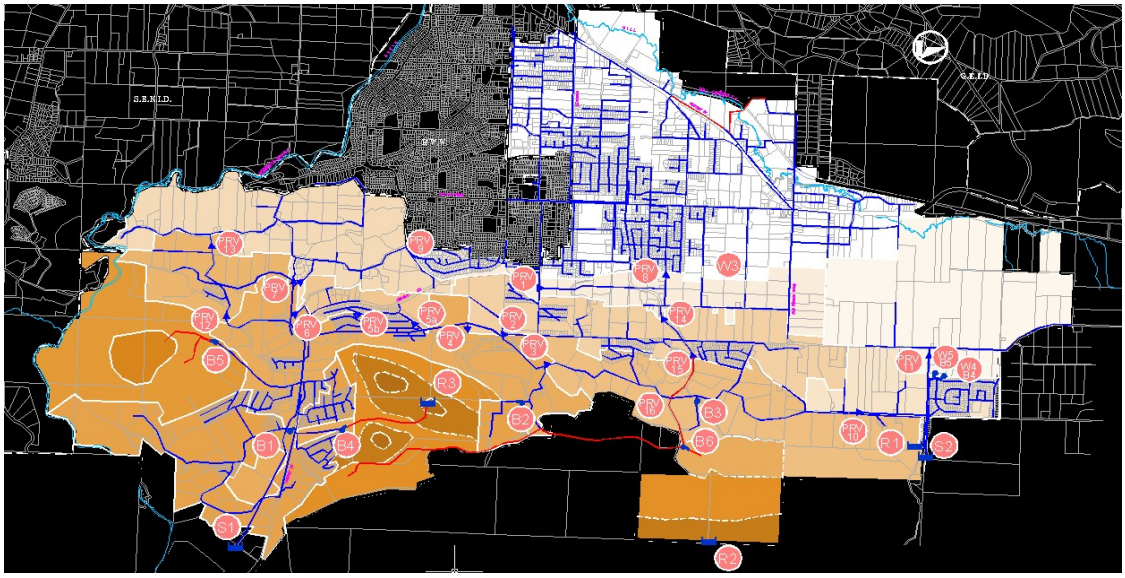
TOTAL ANNUAL WATER USAGE = 8375 ML	Savings = 15%	**1256 ML**	
PROJECT 03 - ($ / ML saved)		**$**	**496**

PROJECT NO. 03

Sept. 21, 2007

SCADA SYSTEM UPGRADE

Project Description



Screen Print for Distribution System SCADA Page

This project involves the installation of new supervisory controls and monitoring software with which to monitor and control the water system. The project includes the purchase of new software and the upgrading of all instrumentation and controls to be able to communicate with the new software. A budget number was received from Interior Instrument Tech Services Ltd. in 2006 and this number is used in this cost estimate.

Work includes integration of controls for stream releases and monitoring and data collection of flows in creeks.

CAPITAL COST ITEMS	**No.**	**Unit**		**Unit Price**		**2006 Ext.**
Purchase software	1	LS	$	35,000	$	35,000
Programming of software and set up	1	LS	$	15,000	$	15,000
Conversion of Existing stations	9	each	$	4,500	$	40,500
Subtotal , Construction Cost Estimate					**$**	**90,500**
Engineering Allowance	10%				$	9,050
Base Capital Cost					$	99,550
Contingency Allowance	15%				$	14,933
TOTAL CAPITAL COST ESTIMATE					**$**	**114,483**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Percentage Apportionment	0%	0%	0%	100%
Capital Value Apportionment	$ -	$ -	$ -	$ 114,483

PROJECT NO. 04

MISSION CREEK FLOW MONITORING AND CONTROLS

Project Description

The project involves the automatic collection of flow data at the point where water passes by the BMID gates. The flow is needed to ensure there is adequate water being released to meet downstream requirements on Mission Creek.

Funding has been received on this project.
A grant from the Okanagan Basin Water Board in the amount of $30k was received in September of 2006. The grant will cover a significant portion of this work.

It is a critical component of monitoring and controlling flow to lower Mission Creek.

Mission Creek in Flood condition, June 18th, 2006

Capital Cost Estimate	No.	Unit		Unit Price		Extension
Radio Repeater, Instrumentation and SCADA set-up	1	LS	$	40,000	$	40,000
Grant monies from OBWB	1	LS	$	(30,000)	$	(30,000)
Subtotal , Construction Cost Estimate					**$**	**10,000**
Engineering Allowance	10%				$	1,000
Base Capital Cost					$	11,000
Contingency Allowance	15%				$	1,650
TOTAL CAPITAL COST ESTIMATE					**$**	**12,650**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 12,650	$ -	$ -	$ -

Apportionment is based on more controlled releases to Mission Creek reducing the volume of water that would flow to Okanagan Lake

PROJECT NO. 05

EXISTING METER CHANGE-OUTS

Project Description

This meter involves the conversion of BMID's existing water meters for commercial and industrial applications to remote radio frequency read technology.

This work is to occur in two phases, the first to convert meters , the second to purchase a truck mounted reading system. Costs are based on a quotation from Corix Utilities.

Capital Cost Estimate - Meter Change-outs	No.	Unit		Unit Price		Extension
Supply and Install MXUs on existing compatible meters for commercial applications	187	each	$	193	$	36,091
19 mm diameter meter change-out with installation of MXU	2	each	$	325	$	650
25 mm diameter meter change-out with installation of MXU	20	each	$	370	$	7,400
38 mm diameter meter change-out with installation of MXU	3	each	$	620	$	1,860
50 mm diameter meter change-out with installation of MXU	14	each	$	760	$	10,640
Subtotal , Construction Cost Estimate	**226**				**$**	**56,641**
Engineering Allowance	0%				$	-
Base Capital Cost					$	56,641
Contingency Allowance	10%				$	5,664
TOTAL CAPITAL COST ESTIMATE					**$**	**62,305**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Apportionment	0%	0%	0%	100%
Capital Value Apportionment	$ -	$ -	$ -	$ 62,305

Capital Cost Estimate - Truck Read System	No.	Unit		Unit Price		Extension
Purchase and train for truck mounted reading system	1	each	$	55,000	$	55,000
Engineering Allowance	0%				$	-
Base Capital Cost					$	55,000
Contingency Allowance	10%				$	5,500
TOTAL CAPITAL COST ESTIMATE					**$**	**60,500**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 62,305	$ -	$ -	$ -

PROJECT NO. 06

WELL No. 4 and No. 5 CHLORINATION

Project Description

Details have not yet been worked out for this project.
An allowance for equipment is provided. BMID staff will carry out these works.

Well 4 Photos

Well 5, Photo

Capital Cost Estimate	No.	Unit		Unit Price		Extension
Flow meter and vault	1	LS	$	7,500	$	7,500
Chlorination equipment purchase, dual sodium hypo.	1	LS	$	20,000	$	20,000
Building enclosure for chlorination	1	LS	$	20,000	$	20,000
Chlorine feed lines into Main	1	LS	$	2,500	$	2,500
Watermain modifications	1	LS	$	2,500	$	2,500
instrumentation and SCADA Connection	1	LS	$	5,000	$	5,000
Subtotal , Construction Cost Estimate					**$**	**57,500**
Engineering Allowance	10%				$	5,750
Base Capital Cost					$	63,250
Contingency Allowance	20%				$	12,650
TOTAL CAPITAL COST ESTIMATE					**$**	**75,900**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 75,900	$ -	$ -	$ -

PROJECT NO. 07

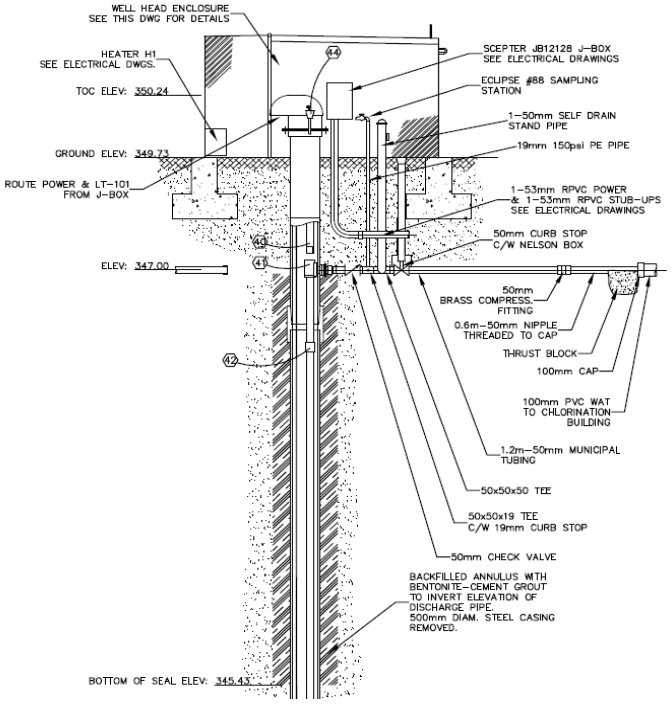
DECOMMISSION WELLS 1, 2 AND 3

Project Description

There are three wells to be decommissioned.
Marion Road well
Well No. 1
Well No. 2

The work would involve the installation of a surface seal around the well casing to depth, capping of the well filling the well hole with bentonite or concrete, and decommissioning of all features so that it poses no risk to the aquifer below.

This project is lower priority in comparison with the issue of geothermal activity and the pincushion effect that the hundreds of holes that geothermal installations are going to have on our drinking water aquifers.



example of sealed well

Capital Cost Estimate	No.	Unit		Unit Price		Extension
Well 1 Decommission	1	each	$	7,500	$	7,500
Well 2 Decommission	1	each	$	7,500	$	7,500
Well 3 Decommission	1	each	$	7,500	$	7,500
Subtotal , Construction Cost Estimate					**$**	**22,500**
Engineering Allowance	10%				$	2,250
Base Capital Cost					$	24,750
Contingency Allowance	15%				$	3,713
TOTAL CAPITAL COST ESTIMATE					**$**	**28,463**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 28,463	$ -	$ -	$ -

Apportionment of costs is assigned to existing users as this is maintenance of abandoned infrastructure and protection of the existing aquifer.

PROJECT NO. 08

PRV 16 McCURDY ROAD

Project Description

Installation of a PRV on Day Rd between PZ 590 and PZ555

The vault for this station is to be installed as part of the roadworks upgrading by Tower Ranch.

The internal process piping is set to accept a flow meter, a 300mm valve and a 150mm bypass valve.

Current users benefit due to improved water system redundancy.

New development benefits due to increased flow capacity to the NE end of the BMID service area

Capital Cost Estimate	No.	Unit	Unit Price	Extension
Process Piping, 300 dia. PRV Valve and bypass valve	1	LS	$ 55,000	$ 55,000
Electrical / Instrumentation	1	LS	$ 7,500	$ 7,500
Mechanical	1	LS	$ 2,500	$ 2,500
Subtotal , Construction Cost Estimate				**$ 65,000**
Engineering Allowance	10%			$ 6,500
Base Capital Cost				$ 71,500
Contingency Allowance	15%			$ 10,725
TOTAL CAPITAL COST ESTIMATE				**$ 82,225**

Cost Benefit Assessment	Current Users	CEC Project	New Devel.	Renewal
Percentage Apportionment	20%	80%	0%	0%
Capital Value Apportionment	$ 16,445	$ 65,780	$ -	$ -

PROJECT NO. 09

SCOTTY CREEK SYSTEM SEPARATION

Project Description

Separation of the water distribution system into two systems; Exisitng watermains will provide irrigations water from Scotty Creek by gravity. New watermains will be installed to supply domestic water from the Mission Creek WTP.
Separation is required to address water quality issues. The domestic flow will originate from the higher quality and more highly disinfected Mission Creek water source. Water treatment upgrades can be deferred through system separation.
A PRV is required to feed the subdivision from the main water system.

Total irrigated area affected is 807.29 acres of Grade A lands, 76.12 acres of Grade C lands.
The water that would not be drawn from the Mission Creek source is 160 L/s during the MDD (13.5 ML/day) and 1700ML annually.

Scotty Creek System Separation	**No.**	**Unit**		**Unit Price**		**Extension**
100 mm PVC main (Includes minor Pavement Restoration)	3025	m	$	70	$	211,750
50 mm PVC main (Includes minor Pavement Restoration)	515	m	$	50	$	25,750
Domestic Service Relocation	45	each	$	300	$	13,500
Irrigation Service Relocation	13	each	$	1,100	$	14,300
Connection through Trailer Parks	1	LS	$	20,000	$	20,000
Hydrant Connections for Residents	2	each	$	5,000	$	10,000
PRV and interconnections	1	each	$	40,000	$	40,000
Subtotal , Construction Cost Estimate					**$**	**335,300**
Engineering Allowance	10%				$	33,530
Base Capital Cost					$	368,830
Contingency Allowance	15%				$	55,325
TOTAL CAPITAL COST ESTIMATE					**$**	**424,155**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 424,155	$ -	$ -	$ -

PROJECT NO. 10

TRUNK MAIN - RESERVOIR to SWAINSON

Project Description

Project involves the installation of watermain from the outlet of Black Mountain Reservoir, back throught the reservoir through the sensitve gulley at the north end of the project and through down along Swainson Road to the existing 600mm watermain to Tower Ranch.

The main is a critical piece of infrastructure that sets up irrigation to 1500 acres of benchlands to the north east of the proposed Black Mountain Reservoir.

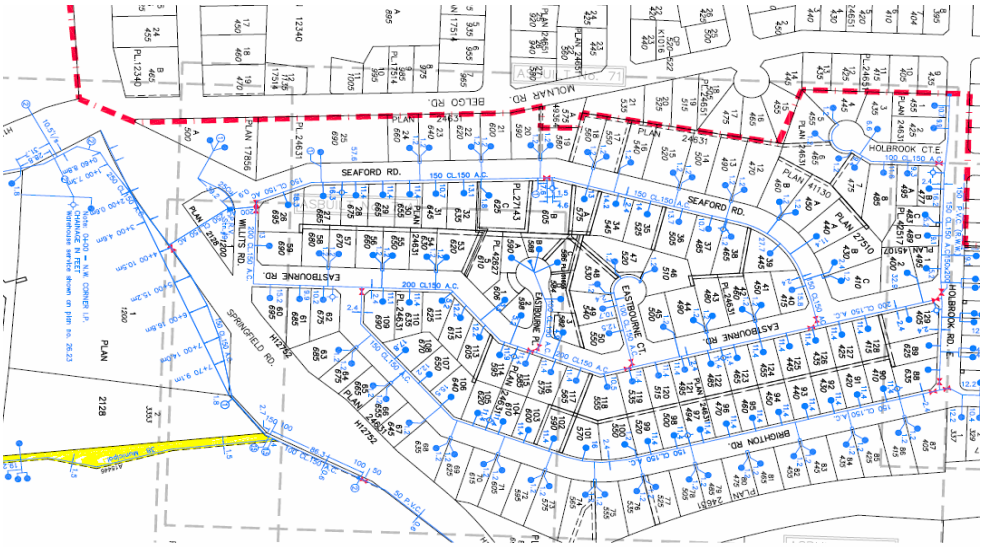
Capital Cost Estimate	No.	Unit		Unit Price		Extension
1050 mm diam. pipe , Supply and coating price	2634	m	$	417	$	1,098,378
1050 mm diam. Pipe. Installation price	2634	m	$	483	$	1,272,222
Pavement restoration	100	m2	$	50	$	5,000
Subtotal , Construction Cost Estimate					**$**	**2,375,600**
Engineering Allowance	7%				$	166,292
Base Capital Cost					$	2,541,892
Contingency Allowance	10%				$	254,189
TOTAL CAPITAL COST ESTIMATE					**$**	**2,796,081**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Apportionment	0%	100%	0%	0%
Capital Value Apportionment	$ -	$ 2,796,081	$ -	$ -

PROJECT NO. 11

SEAFORD ROAD AREA RENEWAL

Project Description



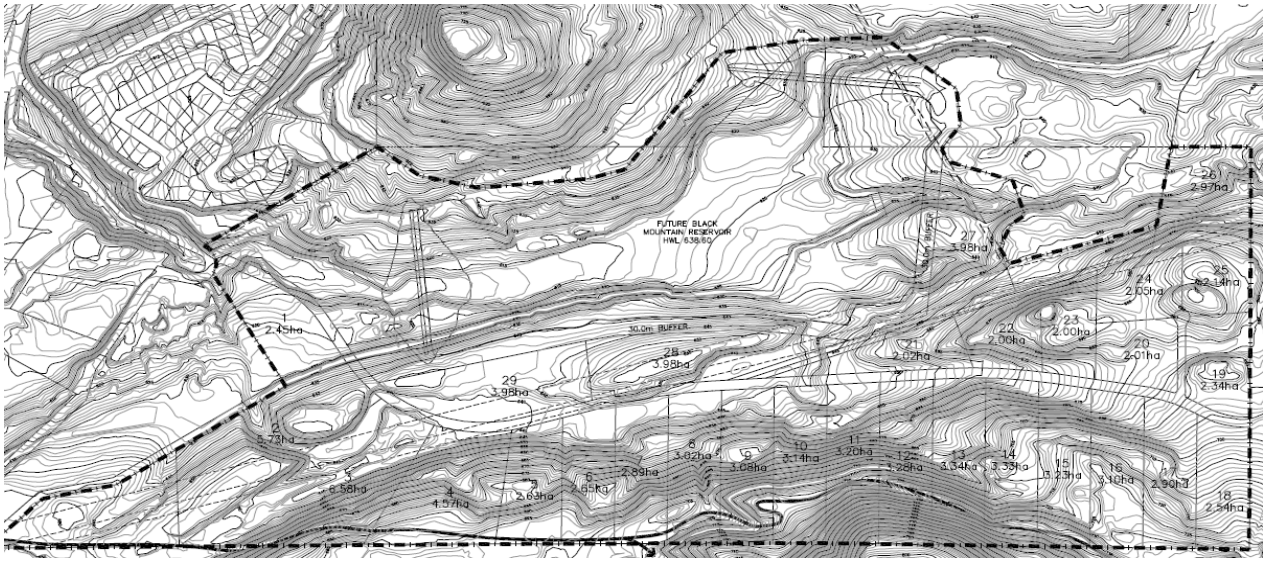
Map of Seaford Road, Eastbourne Road and Brighton Road areas for renewal

Capital Cost Estimate (BMID Staff estimate)	No.	Unit		Unit Price		Extension
Parts						
Short Services 2.4 m to property line	66	each	$	300.00	$	19,800
Long Services, 2.4 m to property line	35	each	$	1,000.00	$	35,000
Extra service pipe	15	each	$	190.00	$	2,850
8" x 12" Stainless steel repair clamps	35	each	$	190.00	$	6,650
6" x 12" Stainless steel repair clamps	59	each	$	180.00	$	10,620
1" main stops	130	each	$	64.50	$	8,385
1" curb stops	130	each	$	41.10	$	5,343
36" long s/s rods	130	each	$	14.10	$	1,833
s/s cot pins	130	each	$	1.10	$	143
s/s 1" inserts	330	each	$	2.30	$	759
6" x 1" bronze body saddles	59	each	$	80.11	$	4,726
8" x 1" bronze body saddles	35	each	$	84.50	$	2,958
brickes	130	each	$	1.50	$	195
curb boxes	130	each	$	21.42	$	2,785
1" couplings	130	each	$	11.33	$	1,473
extra parts 15%	0.15	LS	$	103,519	$	15,528
			subtotal		**$**	**119,047**
Labour and Equipment						
4 person crew x 544 hrs	2067	hours	$	30	$	62,010
Vacuum truck	444	hours	$	150	$	66,600
Service truck and equipment	544	hours	$	50	$	27,200
back hoe	200	hours	$	50	$	10,000
backfill cost	1	LS	$	7,000	$	7,000
Restoration cost	1	LS	$	10,000	$	10,000
Subtotal , Construction Cost Estimate					**$**	**182,810**
Engineering Allowance	5%				$	15,093
Base Capital Cost					$	316,950
Contingency Allowance	10%				$	31,695
TOTAL CAPITAL COST ESTIMATE					**$**	**348,645**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	0%	0%	0%	100%
Capital Value Apportionment	$ -	$ -	$ -	$ 348,645

PROJECT NO. 12

BLACK MOUNTAIN SUBDIVISION



Project Description

To cover a portion of the cost of the Black Mountain Reservoir and UV disinfection system, BMID is proposing to develop lands surrounding the reservoir site. A total of 28 five acre lots are proposed for development within the ALR to pay for the cost of the BMID facilities. The lots are proposed to have sewer service and will be to rural standards to ensure low density and low impact on the environment.

A setback of 30 metres is to be maintained from the high water level. All drainage from around the reservoir is to be graded away from the reservoir

Item	No.	Unit		Unit Price		Extension
Roadways	1	LS	$	1,022,481	$	1,022,481
Sanitary Sewer	1	LS	$	728,811	$	728,811
Watermains	1	LS	$	1,308,544	$	1,308,544
Water Storage Reservoir	1	m3	$	324,000	$	324,000
Shallow Utilities	1				$	-
Subtotal , Construction Cost Estimate					**$**	**3,383,837**
Engineering Allowance	10%				$	338,384
Base Capital Cost					$	3,722,220
Contingency Allowance	15%				$	558,333
TOTAL CAPITAL COST ESTIMATE					**$**	**4,280,553**
add financing charges (two years at 6% per year)					**$**	**513,666**
subtract lot sale value	22	each	$	500,000	$	11,000,000
NET VALUE					**$**	**(6,205,780)**

Project is dependant on approvals by City and Province (ALC)

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ (6,205,780)	$ -	$ -	$ -

Apportionment based on provision of additional water for new development and agriculture

PROJECT NO. 13

TOC WATER QUALITY MONITORING STATION

Project Description

- **Dual input enables two measurements from one instrument, each input can be either high range or low range**
  - cost effective
- **Surrogate color measurement**
  - significant savings on operational costs through lower maintenance requirements
- **Savings on alum or ferric are achieved on potable water treatment plants**
  - coagulation control cost saving
- **Less alum, less sludge**
  - reduced sludge disposal costs
- **THM (trihalomethanes) precursor alert**
  - provides advanced warning of increased risk of THM development
- **Automatic compensation for turbidity**
  - reduces initial capital expenditure, minimizing operational costs

This sensor provides a measurement of organic levels in the water. Water with high organic levels typically have high colour, and result in THM formation with the chlorination process. Having this sensor on-line allows the Utility to let water bypass or for the intake gates to shut when there are water quality deviations in the raw water.
Turbidimeter installation replaces the existing deficient turbidimeter at the intake.

Capital Cost Estimate	**No.**	**Unit**		**Unit Price**		**Extension**
TOC On-line Monitor	1	lump sum	$	20,000	$	20,000
Turbidimeter on Mission Creek intake including programming	1	lump sum	$	5,000	$	5,000
Kiosk	0	lump sum	$	21,000	$	-
Subtotal , Construction Cost Estimate					**$**	**25,000**
Engineering Allowance	5%				$	1,250
Base Capital Cost					$	26,250
Contingency Allowance	5%				$	1,313
TOTAL CAPITAL COST ESTIMATE					**$**	**27,563**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Percentage Apportionment	60%	0%	0%	40%
Capital Value Apportionment	$ 16,538	$ -	$ -	$ 11,025

PROJECT NO. 14

LOCH LONG - TRANSFER AND RAISING OF DAM

Project Description

Loch Long Dam is owned and operated by the Ministry of Environment Fisheries Department. The dam holds back 500 ML of water. It is located at a relatively high elevation in the Graystoke area of the Mission Creek watershed.
The water within Loch Long was tested for full drinking water parameters and was found to be of very high raw water quality. Organic and nutrient loading within the lake is low. Fish size is also noted to be low.
BMID assists the Ministry of Environment in the operation of the dam and the water is used to support fish habitat in Mission Creek during times of Kokanee spawning in the early and mid fall seasons. BMID is in the process of trading licensing and storage capacity with the Ministry of Environment for the water in Loch Long in exchange for water from Belgo Reservoir which is of lower drinking water quality.

BMID is also interested in raising Loch Long with higher berms and spillway for the dam. The cost for raising the dam is included as part of this project sheet. The proposed capacity expansion consists of a new dam below the existing dam for a total capacity of 1850 ML (1,500 acre-feet).

Note: Cost Estimate is based on 1979 Thurber Mission Creek Storage Report, 2005 Instrumentation Report by IITS

Capital Cost Estimate	No.	Unit		Unit Price		Extension
Improvements to Access Road	200	metres	$	100	$	20,000
Clearing and Grubbing	15	ha.	$	3,100	$	46,500
Stripping of topsoil / organic materials (push to 0.3m depth to new shoreline)	45,000	m3	$	5.00	$	225,000
Dam Foundation Excavation	3,050	m3	$	10.00	$	30,500
Dam Embankment (includes raising saddle dam)	30,500	m3	$	18.00	$	549,000
Spillway	125	m3	$	1,000	$	125,000
Drain Gate and Pipe	30	m	$	2,500	$	75,000
Site Power (Solar)	1	LS	$	15,000	$	15,000
Gate Control System	1	LS	$	25,000	$	25,000
Lake discharge and flow monitoring control system	1	LS	$	25,000	$	25,000
Remote Communications including radios, path test, repeater stn.	1	LS	$	37,000	$	37,000
Control Building vault	1	LS	$	20,000	$	15,000
Subtotal , Construction Cost Estimate					**$**	**1,188,000**
Engineering Allowance	10%				$	118,800
Base Capital Cost					$	1,306,800
Contingency Allowance	15%				$	196,020
TOTAL CAPITAL COST ESTIMATE					**$**	**1,502,820**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Apportionment	0%	100%	0%	0%
Capital Value Apportionment	$ -	$ 1,502,820	$ -	$ -

Costs are apportioned to new development in the form of Capital Expenditure Charges as the project cannot be asked of 1 developer.

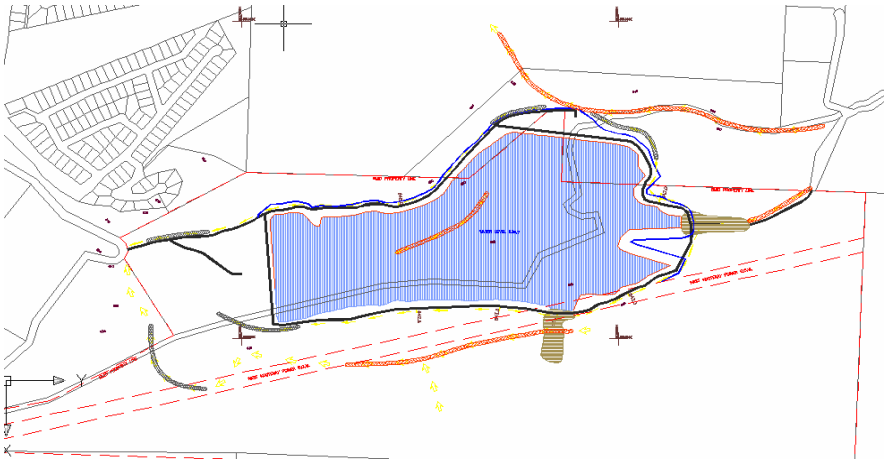
TOTAL ANNUAL VOLUME DEVELOPED	**1850 ML**	
PROJECT - ($ / ML)	**COST PER ML**	**$ 812**

PROJECT NO. 15

BLACK MOUNTAIN RESERVOIR

Project Description

Construction of a new 4,600 ML reservoir in the Gopher flats area. Reservoir will have a TWL of 638.6m and will be fed by gravity from the WTP. The reservoir will reduce the drought potential for BMID during dry years and will provide a safety buffer for the primary supply conduit which is precariously set above Gallaghers Canyon above Mission Creek.
The conduit supply above Mission Creek has failed before and BMID is very aware of the exposure that this creates.
Primary disinfection for water leaving the Reservoir will be with UV light, secondary disinfection will be by chlorination.
UV disinfection will be used to inactivate *Giardia* and *Cryptosporidium*. A UV facility has been identified as a separate project.
Reservoir operation would involve filling of the reservoir from high elevation, low organic loaded water from the Graystoke area of the Mission Creek watershed and during times when Mission Creek is fed through groundwater discharge to the creek.
Projected achievable turbidity levels are in the range of 0.35 NTU. UV transmissivity is expected to be in the range of 82%.
Aeration system and circulation controls are included in the pricing. Aeration will be used for both cooling and mixing of the reservoir



Capital Cost Estimate	No.	Unit		Unit Price		Extension
Site Preparation, Stripping and relocation of organic materials	100000	m3	$	6.00	$	600,000
Dam No. 1 Earthworks Construction	1	LS	$	4,000,000	$	4,000,000
Dam No. 2 Earthworks Construction	1	LS	$	2,507,000	$	2,507,000
Concrete pipe chase through Dam 1 including pipe						
concrete works @ $833/m3 in place	200	m	$	5,000	$	1,000,000
1500mm steel main	200	m	$	1,500	$	300,000
2 - 1050mm steel mains	200	m	$	750	$	150,000
South Inlet and Outlet Conduits	2480	m	$	850	$	2,108,000
Diffuser pipe to north end of reservoir - 1500 CSP culvert	800	m	$	400	$	320,000
Draw off structure and slide gates	3	LS	$	75,000	$	225,000
drainage and perimeter roadway	3000	m	$	50	$	150,000
Chain link fencing, 1800mm high	3500	m	$	30	$	105,000
Site Restoration and Finish grading (two sites)	2	LS	$	200,000	$	400,000
Aeration and circulation system	1	LS	$	250,000	$	250,000
Subtotal , Construction Cost Estimate					**$**	**12,115,000**
Engineering Allowance (Incl. BCEEA process for $150 k)	10%				$	1,211,500
Base Capital Cost					$	13,326,500
Contingency Allowance	10%				$	1,332,650
TOTAL CAPITAL COST ESTIMATE					**$**	**14,659,150**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	50%	50%	0%	0%
Capital Value Apportionment	$ 7,329,575	$ 7,329,575	$ -	$ -

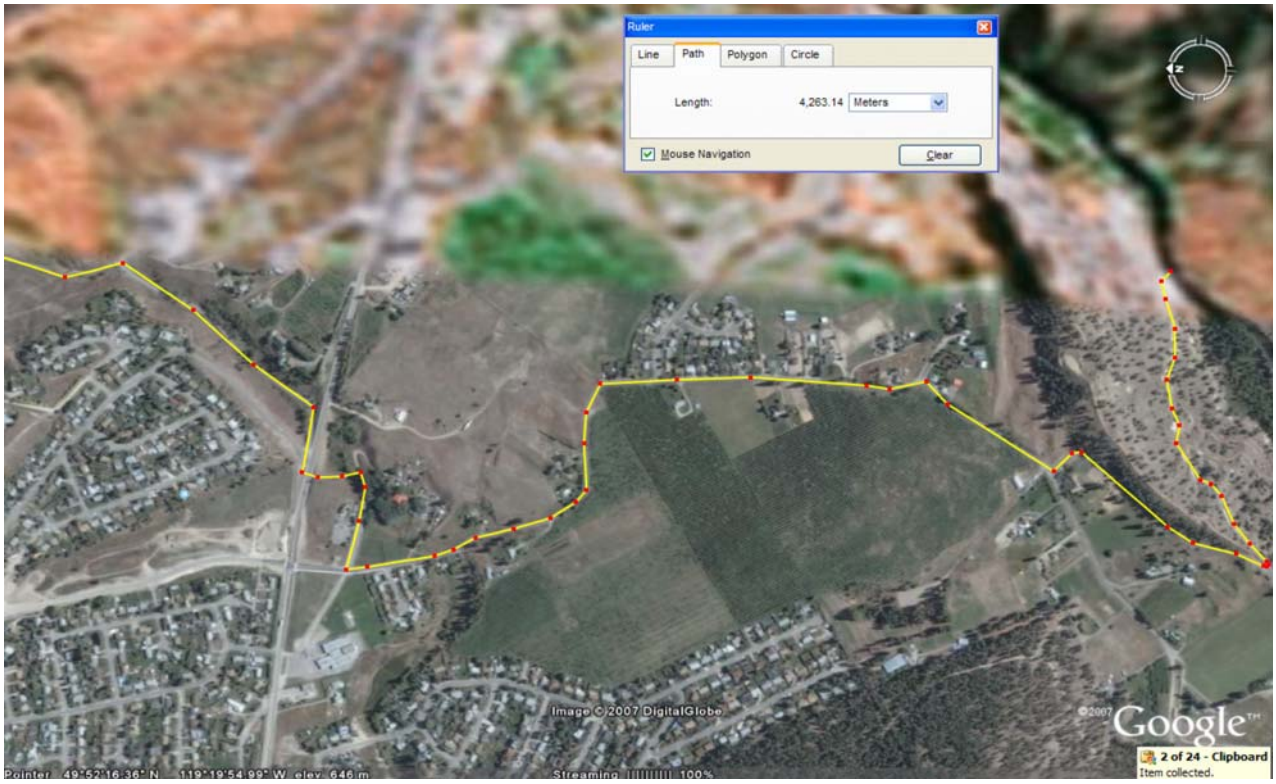
Apportionment based on provision of additional water for new development and agriculture	$	12,904,650
TOTAL ANNUAL VOLUME DEVELOPED		**4600 ML**
PROJECT 16 - ($ / ML)	**COST PER ML**	**$ 2,805**

PROJECT NO. 16

BLACK MOUNTAIN RESERV. - DRAWDOWN PIPE

Project Description

This pipeline is required so that Black Mountain Reservoir can be drawn down in a relatively short period of time in the event of an emergency. The pipeline would be 1,050mm in diameter and welded steel pipe. The flow capacity of the pipeline would be in the range of 5.0 m per second and the modelled flow from the reservoir to the outlet is 5.2 m3/s.



Total drawdodwn from the reservoir would be in the range of 7.5 m3/s which would allow the entire reservoir to be drawn down in a period of 7.0 days

Capital Cost Estimate	**No.**	**Unit**		**Unit Price**		**Extension**
Drawdown pipe, supply and coat 1050mm diameter	3386	m	$	417	$	1,411,962
Drawdown pipe, supply and coat 1050mm diameter	3386	m	$	483	$	1,635,438
Pavement restoration	19000	m2	$	15	$	285,000
Outlet structure	1	LS	$	250,000	$	250,000
Subtotal , Construction Cost Estimate					**$**	**3,582,400**
Engineering Allowance	10%				$	358,240
Base Capital Cost					$	3,940,640
Contingency Allowance	15%				$	591,096
TOTAL CAPITAL COST ESTIMATE					**$**	**4,531,736**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Percentage Apportionment	50%	50%	0%	0%
Capital Value Apportionment	$ 2,265,868	$ 2,265,868	$ -	$ -

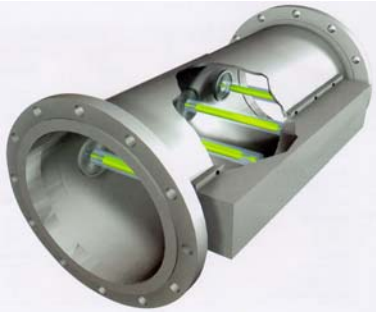
Apportionment based on same rating as Black Mountain Reservoir

PROJECT NO. 17

BLACK MOUNTAIN RESERVOIR - UV FACILITY

Project Description

Disinfection of water leaving the Black Mountain reservoir will be treated initially with Cl2 and with UV light. UV light will be used to inactivate *Giardia* and *Cryptosporidium* . UV facility has been identified as a separate project.



cross section of a UV reactor

cryptosporidium oocysts
size 3 to 5 microns
resistant to Chlorine

The base of Black Mountain Reservoir is a key site location for BMID and for future facilities of the BMID. The site is central to the existing and long term future service area and the siting and use of the lands considers a more detailed review than what is presented here.

Discussions with the Interior Health Authority have confirmed that all surface water sources are to be filtered. For this reason, an estimated cost for a WTP at this site is set out as project No. 13.

The projects are proposed in order of highest benefit to the users of the GEID and the works being completed as GEID can afford the works. UV light is proposed at an earlier stage as it is the most beneficial current technology to inactivate *Giardia* and *Cryptosporidium* . UV light is proposed for both the McKinley WW utility area and for the waters leaving McKinley Reservoir.

An additional project listed is the probable future pump station that will be sited at the downstream end of a WTP. The siting of this facility would be part of a comprehensive plan for development of the McKinley Reservoir site.

UV Disinfection	**No.**	**Unit**		**Unit Price**		**Extension**
Disinfection Building 15m x 25m	375	m2	$	1,000	$	375,000
UV reactors, to treat 125 ML/day	125	ML/day	$	15,000	$	1,875,000
Chlorination - on-site Sodium Hypochlorite generator	1	LS	$	600,000	$	600,000
Subtotal , Construction Cost Estimate					**$**	**2,850,000**
Engineering Allowance	10%				$	285,000
Base Capital Cost					$	3,135,000
Contingency Allowance	10%				$	313,500
TOTAL CAPITAL COST ESTIMATE					**$**	**3,448,500**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Percentage Apportionment	75%	25%	0%	0%
Capital Value Apportionment	$ 2,586,375	$ 862,125	$ -	$ -

Apportionment based on provision of additional water for new development and agriculture

PROJECT NO. 18

SCADA/CONTROLS TO UPPER WATERSHED RESERVOIRS

Project Description

Project involves the installation of remote monitoring and control equipment for releases from the existing upper watershed reservoirs. These include, in order of implementation, Graystoke Reservoir, Belgo Reservoir and then Fishhawk Reservoir.

The specific components include:

- a flow measurement device on the weir (ultrasonic c/w secure enclosure)
- A motorized electric actuator on the reservoir gate to open and close the sluice gate releasing water
- Power supply to drive the actuator
- radio feed to send signal to radio repeater station
- power source, either genset in enclosure, or solar
- security software and camera devices to check on location
- programming into BMID SCADA program for monitoring and controls
- reservoir level indicators, one for reservoir level and one accurate one for reservoir spillways to know spare cap.

Capital Cost Estimate	**No.**	**Unit**	**Unit Price**	**Extension**
Data Loggers for spillways				
James Lake	1	each	$ 3,000	$ 3,000
Belgo Reservoir	1	each	$ 3,000	$ 3,000
Graystoke Reservoir	1	each	$ 3,000	$ 3,000
Fish Hawk Reservoir	1	each	$ 3,000	$ 3,000
Loch Long	1	each	$ 3,000	$ 3,000
Subtotal , Construction Cost Estimate				**$ 15,000**
Engineering Allowance	10%			$ 1,500
Base Capital Cost				$ 16,500
Contingency Allowance	15%			$ 2,475
TOTAL CAPITAL COST ESTIMATE				**$ 18,975**
Instrumentation and controls for Automated Releases	1	LS	$ 120,000	$ 120,000
Subtotal , Construction Cost Estimate				**$ 120,000**
Engineering Allowance	10%			$ 12,000
Base Capital Cost				$ 132,000
Contingency Allowance	15%			$ 19,800
TOTAL CAPITAL COST ESTIMATE				**$ 151,800**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Apportionment Lake Pump Station	50%	50%	0%	0%
15.1 Reservoir Spillways Monitoring	$ 18,975	$ -	$ -	$ -
15.2 Graystoke Monitoring and controls	$ 75,900	$ 75,900	$ -	$ -
15.3 Belgo Monitoring and controls	$ 75,900	$ 75,900	$ -	$ -
15.4 Fishhawk Monitoring and Controls	$ 75,900	$ 75,900	$ -	$ -
	$ 246,675	$ 227,700		

Apportionment based on providing more reliable and accurate releases of water to creeks

These control features are assessed similar to Blk Mtn Reservoir. There will be substantial control ability on creek flows.

TOTAL ANNUAL VOLUME OF WATER SAVED 5% of 8000 ML **400 ML**

PROJECT - ($ / ML) **COST PER ML $ 569**

PROJECT NO. 19

WTP - CLARIFIER FLOW CALMING

Project Description

Particulate levels increase when water leaves the clarifiers and enters Stevens Reservoir.
Water overflows from the clarifier outlet into a channel where the water is subjected to significant turbulence.
The objective of this project would be to reduce the energy that is required to move water from the clarifiers to Stevens Reservoir. The work will involve reduction of turbulence over the weirs through installation of a new channel or some other means

Capital Cost Estimate	No.	Unit	Unit Price	Extension
Site Preparation	1	LS	$ 10,000	$ 10,000
Concrete channel or steel pipe half shell for conveyance	80	m	$ 1,000	$ 80,000
Subtotal , Construction Cost Estimate				**$ 90,000**
Engineering Allowance	10%			$ 9,000
Base Capital Cost				$ 99,000
Contingency Allowance	20%			$ 19,800
TOTAL CAPITAL COST ESTIMATE				**$ 118,800**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 118,800	$ -	$ -	$ -

PROJECT NO. 20

CORNISH ROAD AREA - SYSTEM SEPARATION

Project Description

This project involves utilization of the Cornish Road well to irrigate properties in the Cornish Road, Old Vernon Road, and Morrison Road areas. The areas are largely agricultural and the existing watermains would remain in place for the purposes of irrigation.
New watermains would be installed to service the domestic connections with the highest possible quality drinking water.

Interconnection between the two systems would be in place, however cross connection control devices of suitable ratings must be installed.

The source of water to the area would be the Cornish well which has the capacity to provide 2500 Usgpm. Bench scale testing would be necessary to determine if there will be a deposition issue with minerals from the well coating the insides of the waterpipes.
Bench scale testing necessary would determine if a sequestering agent would be effective in controlling the mineral depositions.

Total irrigated area affected is 352.49 acres of Grade A lands, 63.17 acres of Grade C lands.

Estimated annual flow that can be diverted off of the domestic system is 755 ML.
The MDD is estimated to be able to be reduced by 100 L/s. (8.64 ML/day)

Item	No.	Unit	Unit Price	Extension
100mm PVC main (Includes Pavement restoration)	3450	m	$ 75	$ 258,750
50mm PVC watermain (includes pavement restoration)	650	m	$ 60	$ 39,000
modifications to existing house services	44	each	$ 500	$ 22,000
Subtotal , Construction Cost Estimate				**$ 319,750**
Engineering Allowance	10%			$ 31,975
Base Capital Cost				$ 351,725
Contingency Allowance	15%			$ 52,759
TOTAL CAPITAL COST ESTIMATE				**$ 404,484**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 404,484	$ -	$ -	$ -

PROJECT NO. 21

WATER TREATMENT SERVICE @ OFFICE

Project Description

A package water treatment system is proposed to be located at the 285 Gray Road office to allow critical customers and those wanting the highest possible quality drinking water to access it via a swipe card.

Dispensing sizes would be 2, 4, 8 and 18 litres.
The water can be accessed via a swipe card that could be purchased from the BMID office or on-line on the internet.

The water would be tested regularly for contamination and the results for water quality supplied would be posted on our web page.

Security cameras would be in-place as the facility would be accessible 24 hours a day.

A secure system for water treatment would be water obtained from the municipal source (Rutland Waterworks) which is groundwater. The water would be filtered through particulate 5 micron filters and then through larger carbon filter. The water would then be disinfected either through a UV disifnection system or ozonation.

the water would be stored in a large pressure tank. The system would be in duplex formation so that it can be serviced and maintained regularly.

Cost Estimate	**No.**	**Unit**	**Unit Price**	**Extension**
Roof Replacement on Main Chlorine Building	1	LS	$ 45,000	$ 45,000
Subtotal , Construction Cost Estimate				**$ 45,000**
Engineering Allowance	10%			$ 4,500
Base Capital Cost				$ 49,500
Contingency Allowance	15%			$ 7,425
TOTAL CAPITAL COST ESTIMATE				**$ 56,925**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 56,925	$ -	$ -	$ -

PROJECT NO. 22

BULK FILL WATER STATIONS

Project Description

Water filling station is required for development construction and persons requiring water within the current District boundaries. Cost for this service is to be set up with full cost pricing principles. i.e. users must pay full cost for access and use over time including renewal.

Station is necessary to reduce potential for contamination through illegal use of water. Station also reduces the risk with less private operators accessing water through hydrants.

Three sites should be considered for installations

1. BMID Works Yard, 1200 Belgo Road
2. Cornish Road Well or Adams Road
3. Dease Road Industrial area

Photo (inset) truck fill station as manufacturered by Birks

Capital Cost Estimate	**No.**	**Unit**		**Unit Price**		**Extension**
Site preparation	3	lump sum	$	3,000	$	9,000
Truck Fill station with card lock for year round use	3	lump sum	$	45,000	$	135,000
Software for administrative function	1	lump sum	$	6,000	$	6,000
Subtotal , Construction Cost Estimate					**$**	**150,000**
Engineering Allowance	10%				$	15,000
Base Capital Cost					$	165,000
Contingency Allowance	15%				$	24,750
TOTAL CAPITAL COST ESTIMATE					**$**	**189,750**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 189,750	$ -	$ -	$ -

PROJECT NO. 23

WELL HEAD PROTECTION (THREE WELLS)

Project Description

In accordance with BMID's Permit to Operate from the IHA, this project requires that BMID provide a plan of action to protect the operating wells. BMID operates three wells.

Two wells are located on Weston Road in the Scotty Creek Subdivision. These are referred to as Wells 4 & 5.
One larger well is located on Cornish Road approximately 800 m east of Rutland Road.

Wells 4 & 5 provide drinking water to the 275 homes in the Scotty Creek subdivision
Cornish well is artesian and provides an emergency water supply for residents in the Rutland flats area.
Water quality of Wells 4 & 5 are moderately hard. The water from Cornish well has deposition issues with materials being deposited and coating the internal workings of the watermains.

An allowance is provided for each of the three projects for engineering and support work by a qualified hydrogeologist. In addition, another allowance is provided for the implementation of upgrade works around the wellhead.

BMID is working with the Kelowna Joint Water Committee on development of a larger regional groundwater protection plan. There are also several studies underway focussing on the protection of Groundwater.

Capital Cost Estimate	**No.**	**Unit**		**Unit Price**		**Extension**
Well Head Protection plan and report	3	LS	$	10,000	$	30,000
Well Head Protection upgrades	3	LS	$	10,000	$	30,000
Subtotal , Construction Cost Estimate					**$**	**60,000**
Engineering Allowance	10%				$	6,000
Base Capital Cost					$	66,000
Contingency Allowance	15%				$	9,900
TOTAL CAPITAL COST ESTIMATE					**$**	**75,900**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 75,900	$ -	$ -	$ -

Apportionment of costs is assigned to existing users as the project is for the protection of existing infrastructure

PROJECT NO. 24

MISSION (CRESCENT LAKE) RESERVOIR

Project Description

Project is being considered by BMID for upper reservoir storage due to high quality water at this high elevation(1,920 metres) and the reliability of the watershed at this elevation.
Dam was constructed at this site and operated by Rutland Waterworks District. When dam was breached, the license was turned over to the BMID.

Historic Storage Volume	563 ML (457 ac-ft)
Maximum Height	2.2 metres
Crest Length of Main Dam	35 metres
Average area runoff	1,850 ML (1500 ac-ft)
Drought Runoff	860 ML (690 ac-ft)
High Water Level	1920 metres
Freeboard	3.0 metres
Contributing Watershed Area	4.2 km2
Present lake area	35 ha.

Raise lake elevation by 4.0 m to withdraw maximum capacity from this high elevation area of the upper watershed.

Site of Breached Dam at Mission Lake

Instrumentation control costs provided by Interior Instrument Tech as part of their Instrumentation plan for BMID.

Note: Cost Estimate is based on 1979 Thurber Mission Creek Storage Report, 2005 Instrumentation Report by IITS 2006

Capital Cost Estimate	No.	Unit		Unit Price		Extension
Improvements to Access Road	3300	metres	$	25	$	82,500
Mission Creek Crossing on Access (small culvert)	1	L.S.	$	5,000	$	5,000
Clearing and Grubbing	25	ha.	$	3,500	$	87,500
Stripping of topsoil / organic materials (push to 0.3m depth to new shoreline)	75000	m3	$	1.50	$	112,500
Dam Foundation Excavation	3,050	m3	$	7.50	$	22,875
Dam Embankment	23,000	m3	$	15.00	$	345,000
Spillway	100	m3	$	1,000	$	100,000
Drain Gate and Pipe	40	m	$	1,500	$	60,000
Site Power (Solar)	1	LS	$	15,000	$	15,000
Gate Control System	1	LS	$	25,000	$	25,000
Lake discharge and flow monitoring control system	1	LS	$	25,000	$	25,000
Remote Communications incl. radios, path test, repeater stn.	1	LS	$	37,000	$	37,000
Control Building vault	1	LS	$	20,000	$	15,000
Subtotal , Construction Cost Estimate					**$**	**932,375**
Engineering Allowance	10%				$	93,238
Base Capital Cost					$	1,025,613
Contingency Allowance	15%				$	153,842
TOTAL CAPITAL COST ESTIMATE					**$**	**1,179,454**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Apportionment	0%	100%	0%	0%
Capital Value Apportionment	$ -	$ 1,179,454	$ -	$ -

Apportionment of costs is set against the CEC Fund. Source capacity expansion is paid by CEC Fund.

TOTAL ANNUAL VOLUME DEVELOPED	**2280 ML**	
PROJECT - ($ / ML)	**COST PER ML**	**$ 517**

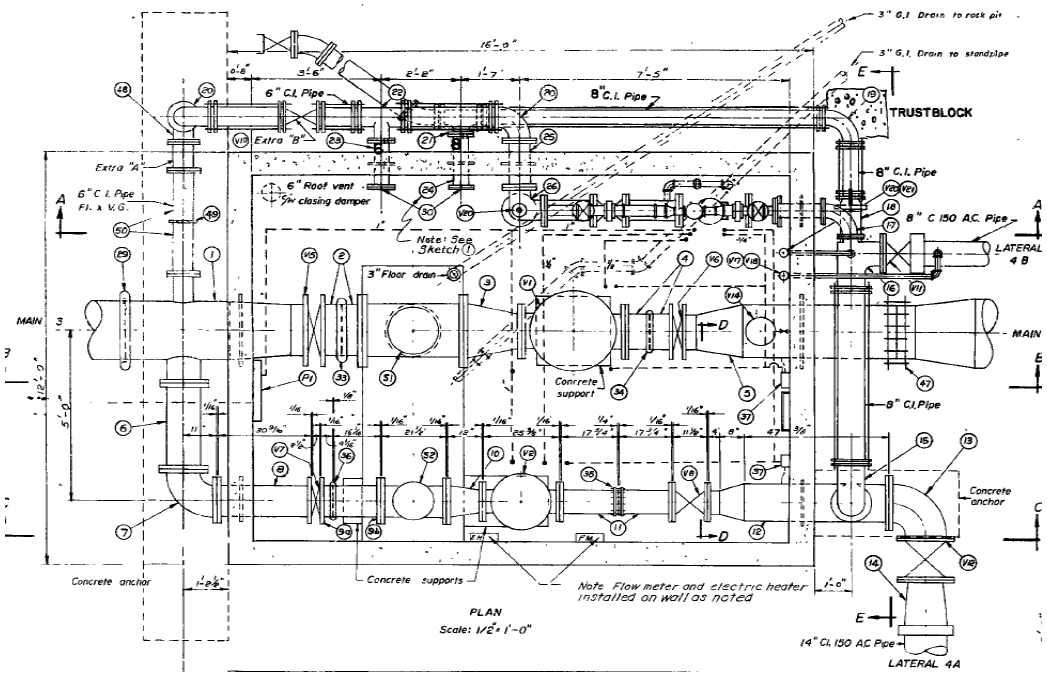
PROJECT NO. 25

PRV 1 REHABILITATION

Project Description

PRV 1 station was buit during the early 1970s. A complete rebuild of process components within the station is proposed.

The generation of power is being considered for this station as it is the second largest station in the BMID water system. During the time of complete retrofitting, power generation will be considered at this site.



Cost Estimate	No.	Unit		Unit Price		Extension
PRV 1 process components rebuild	1	LS	$	200,000	$	200,000
Power Generation Equipment	1	allowance	$	400,000	$	400,000
Subtotal , Construction Cost Estimate					**$**	**600,000**
Engineering Allowance	10%				$	60,000
Base Capital Cost					$	660,000
Contingency Allowance	15%				$	99,000
TOTAL CAPITAL COST ESTIMATE					**$**	**759,000**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	33%	0%	0%	67%
Capital Value Apportionment	$ 250,470	$ -	$ -	$ 508,530

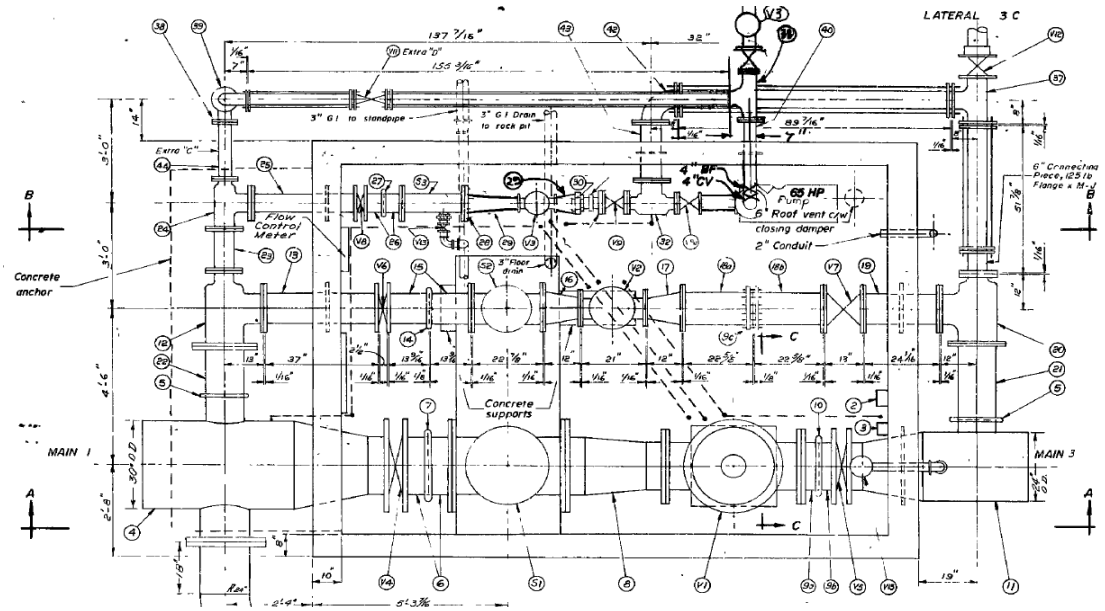
PROJECT NO. 26

PRV 2 REHABILITATION

Project Description

PRV 2 station was buit during the early 1970s. A complete rebuild of process components within the station is proposed.

The generation of power is being considered for this station as it is the largest station in the BMID water system.
During the time of complete retrofitting, power generation will be considered at this site.



Cost Estimate	No.	Unit	Unit Price	Extension
PRV 2 process components rebuild	1	LS	$ 200,000	$ 200,000
Power Generation Equipment	1	LS	$ 400,000	$ 400,000
Subtotal , Construction Cost Estimate				**$ 600,000**
Engineering Allowance	10%			$ 60,000
Base Capital Cost				$ 660,000
Contingency Allowance	15%			$ 99,000
TOTAL CAPITAL COST ESTIMATE				**$ 759,000**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	33%	0%	0%	67%
Capital Value Apportionment	$ 250,470	$ -	$ -	$ 508,530

PROJECT NO. 27

EMERGENCY GENERATORS

Project Description

Locations for generators are at

- Booster 1 and at Booster No. 4.

Capital Cost Estimate	No.	Unit	Unit Price	Extension
Gensets - purchase and install	2	LS	$ 80,000	$ 160,000
Electrical transfer switches	2	LS	$ 7,500	$ 15,000
Subtotal , Construction Cost Estimate				**$ 175,000**
Engineering Allowance	10%			$ 17,500
Base Capital Cost				$ 192,500
Contingency Allowance	20%			$ 38,500
TOTAL CAPITAL COST ESTIMATE				**$ 231,000**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 231,000	$ -	$ -	$ -

PROJECT NO. 28

DOMESTIC METERING PROGRAM

Project Description

As of January 1, 2005, BMID has required that all new residential single family units be installed with meters.
The system utilized is a Sensus Style meter with Radio Frequency Read Technology

The metering program will include an education component
All MF and ICI units are currently metered. Program includes metering of irrigation and individual domestic connections
Included in the pricing below is the cost to retro-fit the existing and commerical meters so that all meters within the District have RFR technology.

CAPITAL COST ITEMS	No.	Unit		Unit Price		Extension
Mail out information program education	2	LS	$	5,000	$	10,000
Literature preparation, for mail out, advertising	2	LS	$	2,500	$	5,000
Supply and Installation 19 mm diameter meters incl. RFR technology	4800	each	$	285.00	$	1,368,000
Supply and Installation 25 mm diameter meters incl. RFR technology	225	each	$	350.00	$	78,750
Supply and Installation 38 mm diameter meters incl. RFR technology		each	$	600.00	$	-
Supply and Installation 50 mm diameter meters incl. RFR technology		each	$	750.00	$	-
Purchase truck read unit (covered elsewhere)	0	each	$	55,000.00	$	-
upgrade BMID Billing software	1	LS	$	10,000	$	10,000
Subtotal , Construction Cost Estimate					**$**	**1,471,750**
Engineering Allowance	0%				$	-
Base Capital Cost					$	1,471,750
Contingency Allowance	10%				$	147,175
TOTAL CAPITAL COST ESTIMATE					**$**	**1,618,925**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 1,618,925	$ -	$ -	$ -

Apportionment based on provision of additional water for new development and agriculture

TOTAL ANNUAL WATER USAGE = 5000 ML	Savings = 15%	**750 ML**	
PROJECT 15 - ($ / ML)		**$**	**2,159**

PROJECT NO. 29

ENHANCED WATER TREATMENT

Project Description

There are two philisophical approaches towards WT improvements. One is to mitigate risk and make the water as safe as possible through natural means and methods and to protect and sustain the existing environment for future generations. The second is a more industrialized approach towards constructing more infrastructure and building Water Treatment plants BMID has a chemical addition system that they prefer not to use when creek quality is high.
The district objective is to provide the purest natural water without chemical conditioning.

Options and costs are presented here for future reference and referral. A range of costs from enhanced disinfection to full filtration are presented in this section, for both a split system and the full flows.

The proposed additional water treatment process considered is ozonation prior to the UV disinfection system.
The benefits in ozonating prior to the UV is that the clarity of the water will improve with the oxidation of some of the colour.

Unit Rate Comparison Table	Design Flow	Unit Cost	Extension
WTP, Split system Conventional Filtration	15	**$ 375,000**	**$ 5,625,000**
WTP, Split System, Membrane Filtration	15	**$ 450,000**	**$ 6,750,000**
WTP, Full System, Conventional or DAF	125	**$ 300,000**	**$ 37,500,000**
WTP, Full System, Membrane Filtration	125	**$ 400,000**	**$ 50,000,000**
WTP, Split System, Enhanced disinfection, Ozone	15	**$ 75,000**	**$ 1,125,000**
WTP, Full System, Enhanced disinfection, Ozone	125	**$ 62,491**	**$ 7,811,375**

Capital Cost Estimate	No.	Unit	Unit Price	Extension
WTP, Direct filtration (gross capacity)	125	ML/day		see below
Construction Estimate				
General Project Requirements	1	lump sum	$ 100,000	$ 100,000
Civil and Site Works	1	lump sum	$ 350,000	$ 350,000
Clearwell	2500	m3	$ 350.00	$ 875,000
Structural	1	lump sum	$ 1,700,000	$ 1,700,000
Process Mechanical	1	lump sum	$ 1,500,000	$ 1,500,000
Building Mechanical	1	lump sum	$ 200,000	$ 200,000
Electrical	1	lump sum	$ 850,000	$ 850,000
Instrumentation and Controls	1	lump sum	$ 600,000	$ 600,000
Subtotal , Construction Cost Estimate				**$ 6,175,000**
Engineering Allowance	10%			$ 617,500
Base Capital Cost				$ 6,792,500
Contingency Allowance	15%			$ 1,018,875
TOTAL CAPITAL COST ESTIMATE				**$ 7,811,375**

Cost Benefit Assessment	Current Users	Oversize CEC Funded	New Devel.	Renewal
Percentage Apportionment	80%	20%	0%	0%
Capital Value Apportionment	$ 6,249,100	$ 1,562,275	$ -	$ -

PROJECT No. 30

DISTRICT OFFICE AT 1200 BELGO ROAD

Project Description

Funding for this project must not impact on existing users in any way. The funding must be generated from assets or rental property that BMID currently has in place. The primary benefit of constructing a new office is to have the staff located in one location. The synergy and communication would improve as would coordination of works.

Areas where revenue might be generated would be through the sale of the lot where PRV 6 is located across Springfield Road. This could be sold for two lots.

BMID forces would carry out the building preparation and site grading right up to where the road and access is ready for pavement.

Rental of the 285 Gray Road site would also generate revenue to pay for any borrowed money needed to construct the office.

Capital Cost Estimate	No.	Unit		Unit Price		Extension
Building Construction and finishes	7200	ft2	$	125	$	900,000
Site Works around Building, fencing, planting	1	LS	$	25,000	$	25,000
Parking Lots and Asphalt Pavement	500	m2	$	50	$	25,000
Subtotal , Construction Cost Estimate					**$**	**950,000**
Engineering Allowance	10%				$	95,000
Base Capital Cost					$	1,045,000
Contingency Allowance	15%				$	156,750
TOTAL CAPITAL COST ESTIMATE					**$**	**1,201,750**
Finance ability through rental of 285 Gray Road property $2500/mo rental, 5.50% interest over 20 years					$	(363,000)
					$	**838,750**

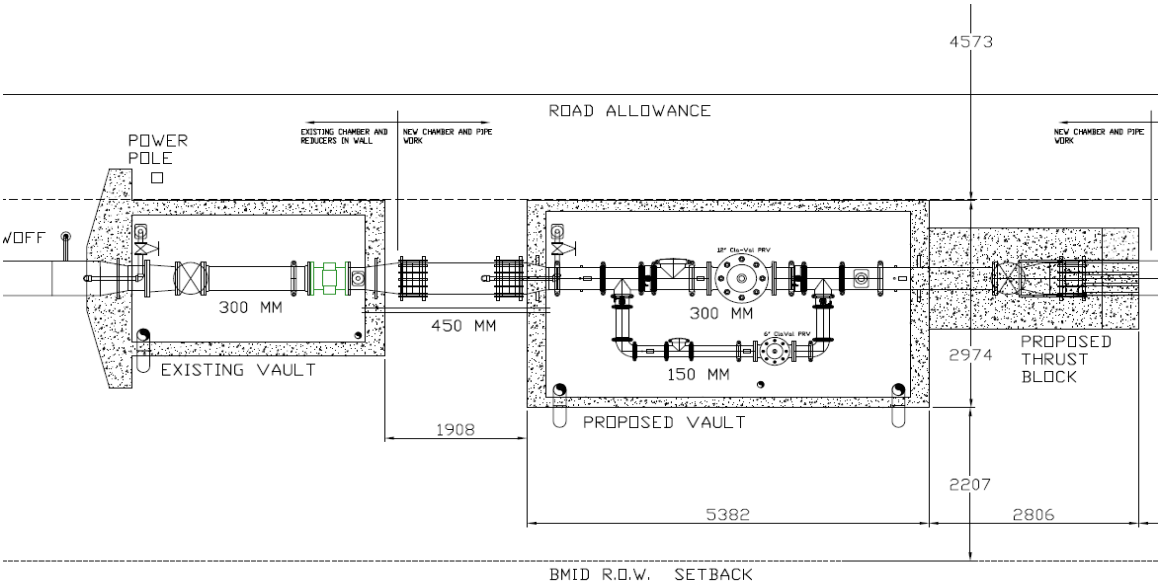
Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 838,750	$ -	$ -	$ -

PROJECT NO. 31

PRV 3 REHABILITATION

Project Description

PRV 3 station rebuild of process components within the station.



Cost Estimate	No.	Unit	Unit Price	Extension
PRV 3 process components rebuild	1	LS	$ 125,000	$ 125,000
Subtotal , Construction Cost Estimate				**$ 125,000**
Engineering Allowance	10%			$ 12,500
Base Capital Cost				$ 137,500
Contingency Allowance	15%			$ 20,625
TOTAL CAPITAL COST ESTIMATE				**$ 158,125**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	0%	0%	0%	100%
Capital Value Apportionment	$ -	$ -	$ -	$ 158,125

PROJECT NO. 32

MARION ROAD WELL - REDEVELOPMENT

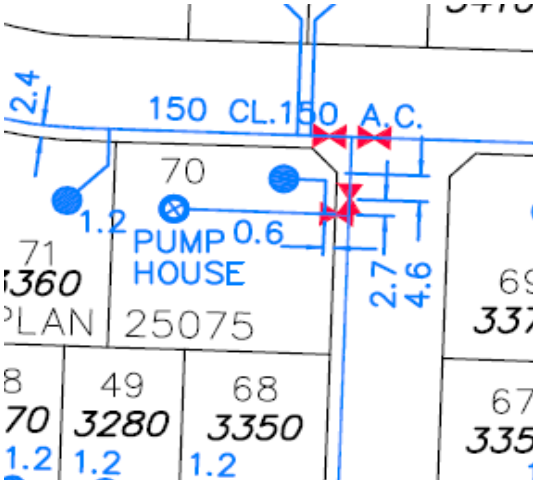
Project Description

This project consists of redevelopment of a new well at the Marion Road site. The development of additional groundwater capacity at this location will result in more secure supply for the north end of the water system. The cost per ML of water is low. Viability of this project is dependant on water quality obtained by predrilling and sampling of the groundwater. If the water is found to be of good quality and not too hard, then this project should proceed as water demands increase.

It is desired that a well can be developed similar to Well 5.
The flow capacity would be in the range of 70 L/s.
The well would be utilized year round (if required).
The projected annual flow capacity would be in the range of 700 Megalitres.

On a cost per megalitre basis, the well is considered cost effective.

Water quality issues from the first well must be first investigated as the first step of the work.



Capital Cost Estimate	No.	Unit		Unit Price		Extension
Drill Well	1	LS	$	50,000	$	50,000
Supply, Install Motor and pump (est. 100 hp)	1	LS	$	45,000	$	45,000
Building Structure 4m x 4m	16	m2	$	1,500	$	24,000
Mechanical Works	1	LS	$	20,000	$	20,000
Electrical and Instrumentation/controls upgrade	1	LS	$	35,000	$	35,000
Flow measurement and controls	1	LS	$	10,000	$	10,000
Siteworks	1	LS	$	6,000	$	6,000
Watermain connections & Process Pipeworks	1	LS	$	10,000	$	10,000
Subtotal , Construction Cost Estimate					**$**	**200,000**
Engineering Allowance	10%				$	20,000
Base Capital Cost					$	220,000
Contingency Allowance	15%				$	33,000
TOTAL CAPITAL COST ESTIMATE					**$**	**253,000**

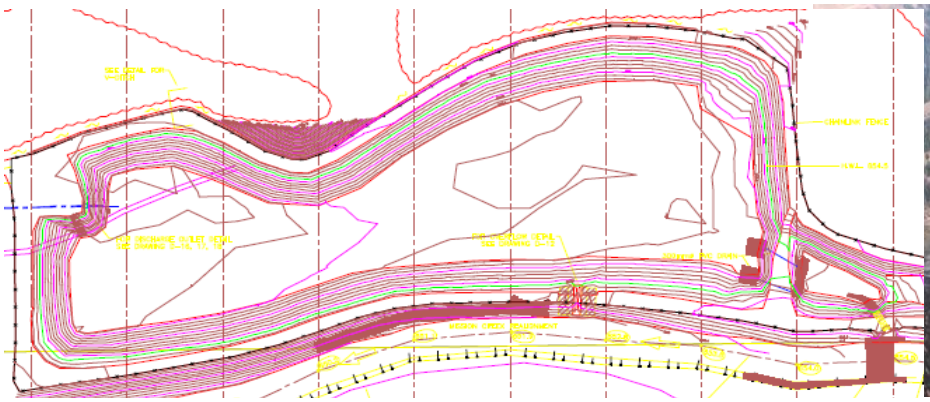
Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Apportionment	0%	50%	0%	50%
Capital Value Apportionment	$ -	$ 126,500	$ -	$ 126,500

Apportionment of costs is assigned to CEC rates as system provides additional capacity.
Some of the costing is assigned to renewal as the well will replace Wells 4 and 5 as they reach their lifespan.

TOTAL ANNUAL VOLUME DEVELOPED		**700 ML**
PROJECT - ($ / ML)	**COST PER ML**	**$ 361**

PROJECT NO. 33

BAFFLING OF STEVENS RESERVOIR



Project Description

Installation of Baffling system in Stevens Reservoir.
The baffling system will improve settling capacity of the resevoir. The system will consist of floating HDPE curtains that are anchored to the reservoir floor by lock-blocks. The objective is to reduce the amount of dead space within the reservoir and to stop short circuiting of the water from the inlet to the outlet.

Capital Cost Estimate	**No.**	**Unit**		**Unit Price**		**Extension**
Baffling Wall Installation, supply and install price includes HDPE curtain, anchor posts, weights and cables.	5	each	$	40,000	$	200,000
Subtotal , Construction Cost Estimate					**$**	**200,000**
Engineering Allowance	10%				$	20,000
Base Capital Cost					$	220,000
Contingency Allowance	15%				$	33,000
TOTAL CAPITAL COST ESTIMATE					**$**	**253,000**

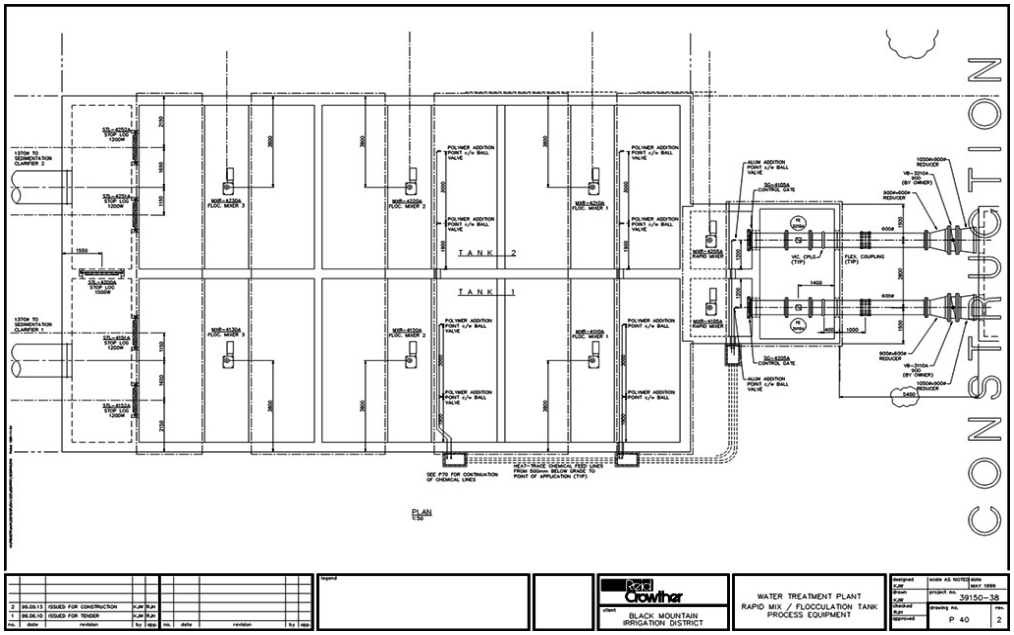
Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 253,000	$ -	$ -	$ -

PROJECT NO. 34

BUILDING OVER FLOCCULATORS

Project Description

Flocculators at BMID WTP are currently open. Installation of a roof on top of flocculaators is part of the WTP winterize plan. The objective is to be able to run the WTP all year round. The roof will reduce the impact of snowmelt



It is proposed that a 120 foot by 60 foot coverall building be placed above the WTP building. A coverall building is being utilized for the pipe painting and coating process at BMID for the steel pipe that is to arrive.

Capital Cost Estimate	**No.**	**Unit**	**Unit Price**	**Extension**
Building roof on top flocculator c/w heating system based on Quotation received from Structural Eng. (4-D Engineering)	1	LS	$ 150,000	$ 150,000
Subtotal , Construction Cost Estimate				**$ 150,000**
Engineering Allowance	10%			$ 15,000
Base Capital Cost				$ 165,000
Contingency Allowance	15%			$ 24,750
TOTAL CAPITAL COST ESTIMATE				**$ 189,750**

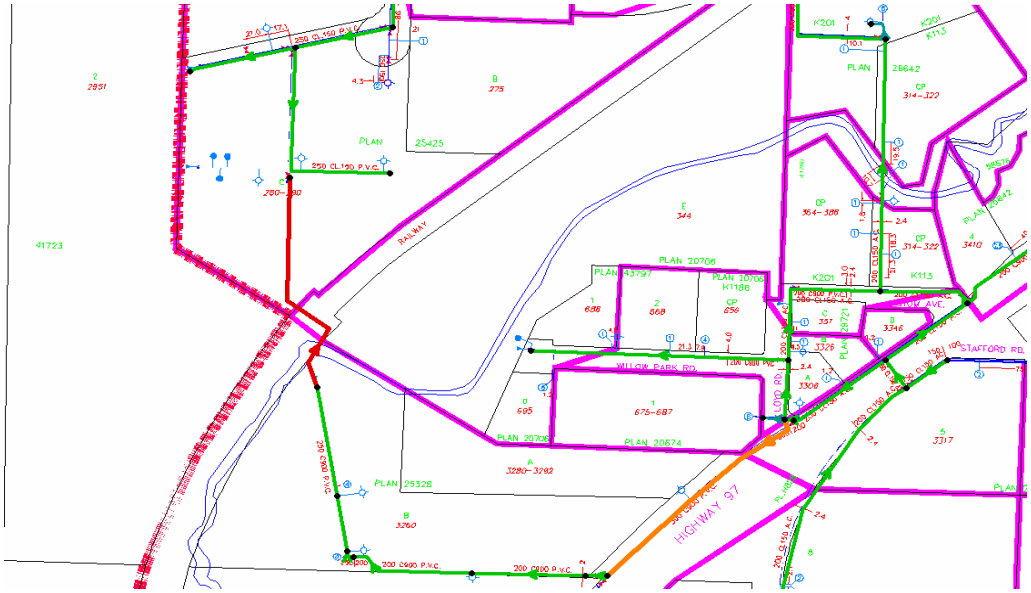
Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 189,750	$ -	$ -	$ -

PROJECT NO. 35

KELOWNA CREEK CROSSING TO CAMPION

Project Description

This watermain connection completes a second interconnection of fireflow to the NW corner of the distribution system
The project consists fo augered crossing below both Kelowna Creek and Rail tracks.
The project benefits a broader area of industrial customers in the Adams Road, Campion Road, Cambro Road areas of the district



Capital Cost Estimate	No.	Unit	Unit Price	Extension
Two auger shots, one across Kelowna Creek, one across Rail	80	m	$ 1,200	$ 96,000
watermain connections at each end	2	each	$ 5,000	$ 10,000
250mm watermain across Campion Road Property	70	m	$ 120	$ 8,400
Subtotal , Construction Cost Estimate				**$ 114,400**
Engineering Allowance	10%			$ 11,440
Base Capital Cost				$ 125,840
Contingency Allowance	15%			$ 18,876
TOTAL CAPITAL COST ESTIMATE				**$ 144,716**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	0%	100%	0%	0%
Capital Value Apportionment	$ -	$ 144,716	$ -	$ -

PROJECT NO. 36

RAISING OF FISH HAWK DAM

Project Description

This project has two components. The first is to raise Fish Hawk Dam. The dam was reconstructed in 1974.
The second part of the project is to construct a diversion ditch to add additional catchment area to be collected behind the raised dam.
The information and route originated within the 1979 Thurber report on Mission Creek storage development.

The costs have been updated to current year dollars.
Improvements will be gained in downstream flood control, better water quality and appropriate quality water for drinking and to support fish habitat in lower Mission Creek

Capital Cost Estimate	No.	Unit	Unit Price	Extension
Clearing and Grubbing	36	ha.	$ 3,100	$ 111,600
Stripping of topsoil / organic materials (push to 0.3m depth to new shoreline)	110,000	m3	$ 3.50	$ 385,000
Dam Foundation Excavation	5,500	m3	$ 9.00	$ 49,500
Dam Embankment	175,000	m3	$ 14.00	$ 2,450,000
Spillway	125	m3	$ 1,000	$ 125,000
Drain Gate and Pipe	30	m	$ 2,500	$ 75,000
Diversion Ditch construction	3,200	m	$ 50.00	$ 160,000
Subtotal , Construction Cost Estimate				**$ 3,356,100**
Engineering Allowance	10%			$ 335,610
Base Capital Cost				$ 3,691,710
Contingency Allowance	15%			$ 553,757
TOTAL CAPITAL COST ESTIMATE				**$ 4,245,467**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Apportionment	0%	100%	0%	0%
Capital Value Apportionment	$ -	$ 4,245,467	$ -	$ -

Apportionment of costs is set against the CEC Fund. Source capacity expansion is paid by CEC Fund.

TOTAL ADDITIONAL ANNUAL VOLUME DEVELOPED	**4680 ML**
PROJECT - ($ / ML)	**COST PER ML $ 907**

PROJECT NO. 37

TEASDALE ROAD WATERMAIN

Project Description

This project is required to eliminate two dead ends of watermain that existing in the Belgo area in BMID. The interconnection will also strengthen the distribution grid in this area of the Belgo water distribution system.

Capital Cost Estimate	No.	Unit	Unit Price	Extension
Tie-in to Existing Watermain	2	each	$ 3,000	$ 6,000
Road Crossing	1	LS	$ 3,000	$ 3,000
150mm Watermain	320	metres	$ 90	$ 28,800
Subtotal , Construction Cost Estimate				**$ 37,800**
Engineering Allowance	10%			$ 3,780
Base Capital Cost				$ 41,580
Contingency Allowance	20%			$ 8,316
TOTAL CAPITAL COST ESTIMATE				**$ 49,896**

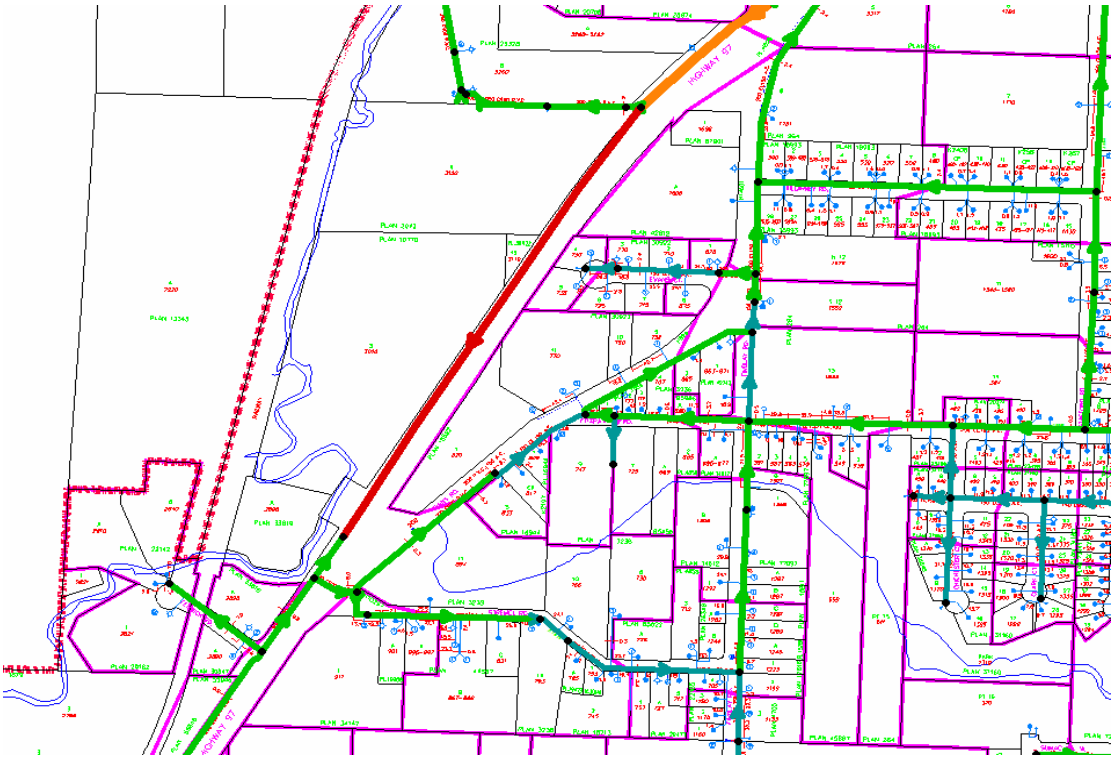
Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	100%	0%	0%	0%
Capital Value Apportionment	$ 49,896	$ -	$ -	$ -

PROJECT NO. 38

HIGHWAY 97 - WATERMAIN - WEST SIDE

Project Description

Project interconnects the watermain grid on the west side of Highway 97 north of Finns Road.



watermain is showns in Red

Capital Cost Estimate	No.	Unit		Unit Price		Extension
Connections to existing watermain	2	each	$	3,000	$	6,000
300 mm watermain	665	m	$	200	$	133,000
Hydrants	4	LS	$	5,000	$	20,000
Subtotal , Construction Cost Estimate					**$**	**159,000**
Engineering Allowance	10%				$	15,900
Base Capital Cost					$	174,900
Contingency Allowance	20%				$	34,980
TOTAL CAPITAL COST ESTIMATE					**$**	**209,880**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	0%	25%	75%	0%
Capital Value Apportionment	$ -	$ 52,470	$ 157,410	$ -

PROJECT NO. 39

MISSION CREEK STORAGE SITES

Project Description

A number of projects are considered in the high elevation watershed. The area is somewhat protected and inaccessible.
The areas named are not licensed or only licensed to BMID.
Area has high quality water due to high elevation and low organic content.
Watershed reliability is very high in this area as the elevation is above 1,600 metres elevation

Long Term Storage Projects are summarized on this sheet along with costs and cost per ML of storage developed.

Capital Cost Estimate	Add'l Storage	Mean Annual Runoff (ML)	Cost Est.	Cost per ML
Fishhawk Reservoir (raising plus diversion)	named as separate project			
Loch Oiche (raise dam along site existing road)	1110	1110	$ 1,135,000	$ 1,023
Murray Meadows Dam (on Murray Creek)	2880	3697	$ 4,325,000	$ 1,502
Site 3 (in meadow on unnamed creek west of Lees Lake creek)	2712	2869	$ 5,660,000	$ 2,087
Loch Lost	435	1225	$ 1,425,000	$ 3,276
TOTALS				
TOTAL CAPITAL COST ESTIMATE	7137	8901	$ 12,545,000	$ 1,758

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Apportionment	0%	100%	0%	0%
Capital Value Apportionment	$ -	$ 12,545,000	$ -	$ -

Apportionment of costs is set against the CEC Fund. Source capacity expansion is paid by CEC Fund.

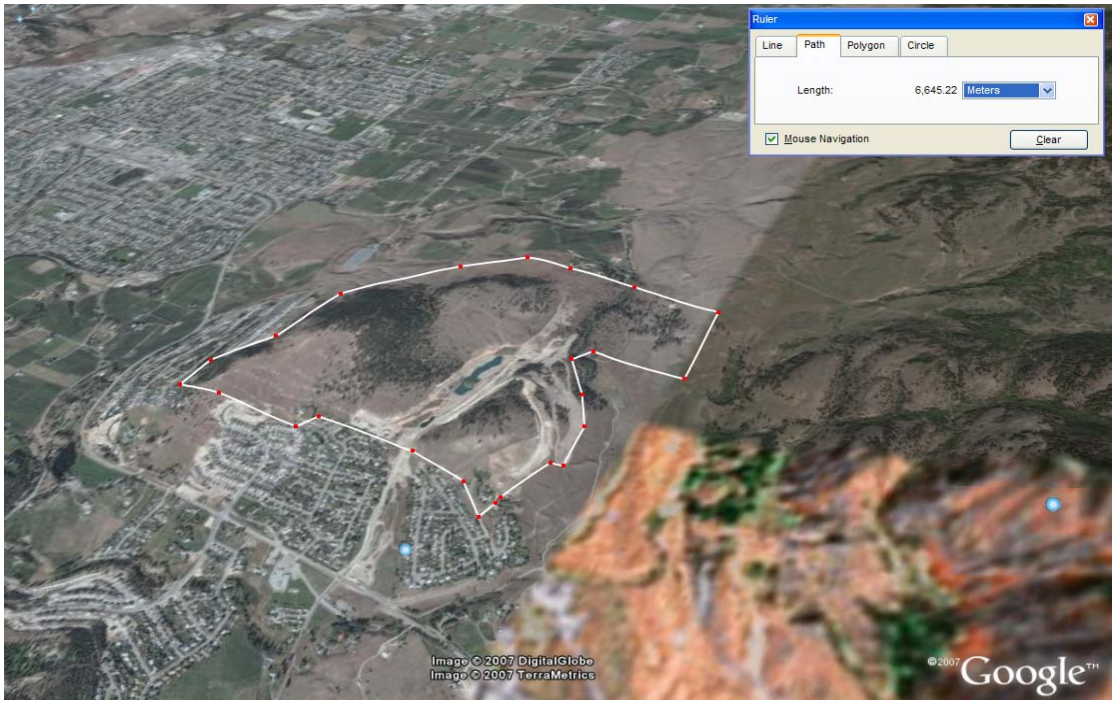
TOTAL ANNUAL VOLUME DEVELOPED	**7137 ML**	
PROJECT - ($ / ML)	**COST PER ML**	**$ 1,758**

PROJECT NO. 40

BELL MOUNTAIN DEVELOPMENT AREA

Project Description

Three larger developers own the majority of lands within this area.
The lands will be serviced by Booster Station No. 4 and a reservoir to be situated on the rock bluff at elevation 735 metres
The reservoir is planned for construction in early 2008.



Capital Cost Estimate	No.	Unit		Unit Price		Extension
Mob/Demob		LS	$	15,000	$	-
Watermain		LS	$	25,000	$	-
Reservoir		LS	$	3,000	$	-
Local Pump Station		LS	$	400,000	$	-
Power		LS	$	15,000	$	-
COSTS TO BE COVERED BY NEW DEVELOPMENT						
Subtotal , Construction Cost Estimate					**$**	**-**
Engineering Allowance	10%				$	-
Base Capital Cost					$	-
Contingency Allowance	20%				$	-
TOTAL CAPITAL COST ESTIMATE					**$**	**-**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	0%	0%	100%	0%
Capital Value Apportionment	$ -	$ -	$ -	$ -

PROJECT NO. 41

KIRSCHNER MOUNTAIN ESTATES

Project Description

A pre-plan has been completed for the entire water system for this block of property by Agua Consulting Inc.
MF and SF lots are to be developed and a booster station has been constructed and is to be commissioned in the fall of 2007.
The property may eventually house over 1000 development units.

Capital Cost Estimate	No.	Unit		Unit Price		Extension
		LS	$	-	$	-
		LS	$	-	$	-
		LS	$	-	$	-
All costs are to be covered by the developer.		LS	$	-	$	-
		LS	$	-	$	-
Subtotal , Construction Cost Estimate					**$**	**-**
Engineering Allowance	10%				$	-
Base Capital Cost					$	-
Contingency Allowance	20%				$	-
TOTAL CAPITAL COST ESTIMATE					**$**	**-**

Cost Benefit Assessment	**Current Users**	**CEC Funded**	**New Devel.**	**Renewal**
Percentage Apportionment	0%	0%	100%	0%
Capital Value Apportionment	$ -	$ -	$ -	$ -

PROJECT NO. 42

TOWER RANCH DEVELOPMENT

Project Description

Project involves the development of a golf course and approximately 800 single family and multi-family units above Day Road.
The lands were excluded from the ALR and development has proceeded with the first phase of subdivision being completed in 2007.
A pre-plan of the entire water system development was delivered to BMID by CTQ Consultants Ltd.

Capital Cost Estimate	No.	Unit	Unit Price	Extension
Mob/Demob		LS	$ -	$ -
Watermain		LS	$ -	$ -
Reservoir		LS	$ -	$ -
Local Pump Station		LS	$ -	$ -
Power		LS	$ -	$ -
COSTS COVERED BY DEVELOPER				
Subtotal , Construction Cost Estimate				**$ -**
Engineering Allowance	10%			$ -
Base Capital Cost				$ -
Contingency Allowance	20%			$ -
TOTAL CAPITAL COST ESTIMATE				**$ -**

Cost Benefit Assessment	Current Users	CEC Funded	New Devel.	Renewal
Percentage Apportionment	0%	0%	100%	0%
Capital Value Apportionment	$ -	$ -	$ -	$ -

Source Development Cost Analysis

Project Description

	PROJECT	ML / Diverted	Project Cost	$ / ML
n/a	Groundwater Development **	1200	$ 275,000	$ 229
9	Scotty Creek System Separation	1730	$ 424,155	$ 245
2	Agricultural Meters	1256	$ 423,140	$ 337
24	Mission Lake Reservoir	2280	$ 1,179,454	$ 517
20	Cornish / Morrison Road Separation	750	$ 404,484	$ 539
14	Loch Long Reservoir	1850	$ 1,502,820	$ 812
36	Fish Hawk Reservoir - Raising	4680	$ 4,245,467	$ 907
39	Loch Oiche	1110	$ 1,135,000	$ 1,023
18	SCADA	400	$ 227,700	$ 569
39	Murray Meadows Reservoir	2880	$ 4,325,000	$ 1,502
39	Site 3 Reservoir	2712	$ 5,660,000	$ 2,087
28	Domestic Metering	750	$ 1,618,925	$ 2,159
15	Black Mountain Reservoir	4600	$ 12,904,650	$ 2,805
39	Loch Lost Reservoir	435	$ 1,425,000	$ 3,276

** (reference GEID New Airport Well 2)

Construction Cost Indicies Estimate - Worksheet

Year	CPI	Calc. %	CPI	CCI	CCI Est. %
1990	92.4		1.000	**1.000**	
1991	97.4	5.13%	1.027	**1.025**	2.50%
1992	100	2.60%	1.082	**1.051**	2.50%
1993	103.5	3.38%	1.120	**1.077**	2.50%
1994	105.5	1.90%	1.142	**1.104**	2.50%
1995	107.9	2.22%	1.168	**1.131**	2.50%
1996	108.9	0.92%	1.179	**1.160**	2.50%
1997	109.7	0.73%	1.187	**1.189**	2.50%
1998	110	0.27%	1.190	**1.218**	2.50%
1999	111.2	1.08%	1.203	**1.249**	2.50%
2000	113.3	1.85%	1.226	**1.280**	2.50%
2001	115.2	1.65%	1.247	**1.312**	2.50%
2002	*117.5*	*2.00%*	1.272	**1.351**	3.00%
2003	*119.9*	*2.00%*	1.297	**1.419**	5.00%
2004	*122.3*	*2.00%*	1.323	**1.561**	10.00%
2005	*124.6*	*2.00%*	1.348	**1.748**	12.00%
2006	*127.1*	*2.00%*	1.375	**1.836**	5.00%
2007	*129.6*	*2.00%*	1.403	**1.872**	2.00%

CPI **CCI**
$ 3,250 **$ 3,250**

CEC ESTIMATE
1997 = $3250

CPI **Ave.** **CCI**
$ 3,841 **$ 4,480** **$ 5,119**

CONSUMER PRICE INDEX (1992 = 100) - ANNUAL

	CANADA		B.C.		VANCOUVER		VICTORIA	
Year	All Items Index	Annual Percent	All Items Index	Annual Percent	All Items Index	Annual Percent	All Items Index	Annual Percent
1960	18.5	1.1						
1961	18.7	1.1						
1962	18.9	1.1						
1963	19.2	1.6						
1964	19.6	2.1						
1965	20.0	2.0						
1966	20.8	4.0						
1967	21.5	3.4						
1968	22.4	4.2						
1969	23.4	4.5						
1970	24.2	3.4						
1971	24.9	2.9			25.4			
1972	26.1	4.8			26.8	5.5		
1973	28.1	7.7			28.7	7.1		
1974	31.1	10.7			32.1	11.8		
1975	34.5	10.9			35.6	10.9		
1976	37.1	7.5			39.0	9.6		
1977	40.0	7.8			41.8	7.2		
1978	43.6	9.0			45.1	7.9		
1979	47.6	9.2	48.9		48.6	7.8		
1980	52.4	10.1	53.5	9.4	53.1	9.3		
1981	58.9	12.4	61.1	14.2	60.7	14.3		
1982	65.3	10.9	67.5	10.5	67.1	10.5		
1983	69.1	5.8	71.2	5.5	70.8	5.5		
1984	72.1	4.3	74.0	3.9	73.7	4.1		
1985	75.0	4.0	76.4	3.2	76.0	3.1	77.7	
1986	78.1	4.1	78.6	2.9	78.5	3.3	79.1	1.8
1987	81.5	4.4	81.0	3.1	80.9	3.1	81.1	2.5
1988	84.8	4.0	83.9	3.6	83.8	3.6	84.2	3.8
1989	89.0	5.0	87.7	4.5	87.5	4.4	88.0	4.5
1990	93.3	4.8	92.4	5.4	92.3	5.5	92.7	5.3
1991	98.5	5.6	97.4	5.4	97.1	5.2	98.0	5.7
1992	100.0	1.5	100.0	2.7	100.0	3.0	100.0	2.0
1993	101.8	1.8	103.5	3.5	103.6	3.6	103.0	3.0
1994	102.0	0.2	105.5	1.9	105.7	2.0	105.1	2.0
1995	104.2	2.2	107.9	2.3	108.4	2.6	107.7	2.5
1996	105.9	1.6	108.9	0.9	109.2	0.7	108.7	0.9
1997	107.6	1.6	109.7	0.7	109.8	0.5	109.7	0.9
1998	108.6	0.9	110.0	0.3	110.4	0.5	110.0	0.3
1999	110.5	1.7	111.2	1.1	111.4	0.9	111.1	1.0
2000	113.5	2.7	113.3	1.9	113.9	2.2	113.0	1.7
2001	116.4	2.6	115.2	1.7	116.0	1.8	114.3	1.2

Prepared by: BCSTATS
Source: Statistics Canada