



# REPORT

## City of Dawson Creek

### Water Cost Study

This report is prepared for the sole use of City of Dawson Creek. No representations of any kind are made by Urban Systems Ltd. or its employees to any party with whom Urban Systems Ltd. does not have a contract.

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**URBANSYSTEMS.**

Suite 200 - 286 St. Paul Street  
Kamloops BC V2C 6G4  
Telephone: 250-374-8311  
Fax: 250-374-5334



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## 1.0 INTRODUCTION AND PURPOSE

In order for the City of Dawson Creek to provide water to its customers, the City must collect enough revenue to meet its expenses. To determine whether its current revenues are sufficient, the City has engaged Urban Systems to estimate the actual cost of supplying water to residents and other consumers served by the municipality.

Determining the cost of water is the first step in a rate review, which the City is expected to undertake in the near future. These cost estimates will help the City develop an equitable and sustainable rate structure, and establish an effective water conservation and demand management program.

Given that the purpose of this report is to determine current annual costs, the analysis does not consider long-term future costs. Rather, the report focuses on identifying and assessing costs based on data available today.

The report has been organized into the following sections:

- Section 1.0 – Introduction and Purpose
- Section 2.0 – Guiding Principles
- Section 3.0 – Approaches to Estimating Revenue Requirements
- Section 4.0 – Water Utility Background
- Section 5.0 – Utility Expenses
- Section 6.0 – Cost of Water



## 2.0 GUIDING PRINCIPLES

All financing and cost-recovery strategies are built upon a foundation of guiding principles. These guiding principles act as “touchstones” for decision-makers and help ensure that public policy reflects the community’s values. The costs presented in this report have been developed in accordance with the following guiding principles:

*Transparency and Clarity* – To help ensure public acceptance, it is important that the derivation of water costs is transparent and that all assumptions are clearly stated.

*Sufficiency* – The City should collect revenues to fully meet its costs; therefore, all costs must be accounted for.

*Risk Minimization* – The cost estimates in this report are based on assumptions that yield conservative, yet reasonable estimates (i.e. the assumptions minimize the risk that the City will underestimate its costs).



### 3.0 APPROACHES TO ESTIMATING REVENUE REQUIREMENTS

There are two generally accepted methods used to determine the annual revenue requirements for a utility: the “cash needs” approach and the “utility” approach. Each is described below.

#### 3.1 Cash Approach

Municipal utilities commonly operate on the “cash” method, where revenues are designed to recover the actual cash requirements forecast for a given test year. The “cash” method assumes the utility provides a principal repayment in lieu of a depreciation expense. The City of Dawson Creek currently takes a “cash” approach since they budget to recover their cash expenses on an annual basis.

#### 3.2 Utility Approach

The “utility” method identifies a level of capital investment upon which the utility is allowed to earn a return. The utility’s capital investment is referred to as “rate base,” which consists of the gross capital investment in system assets, less accumulated depreciation, plus an allowance for necessary working capital. The “utility” method also requires utilities to establish rates of depreciation or amortization on assets, based on forecast useful lives of specific classes of assets. Depreciation expense provides recovery of principle component of capital borrowings. The return on rate base is comprised of carrying costs of debt and equity investment deemed necessary to support the utility’s investment in plant required for service, including necessary working capital. The return provides for payment of interest expenses on utility debt, plus an additional return that can be used to provide investors dividends on their investment. Regulated investor-owned utilities are required to use the “utility” method. Most local government owned utilities apply a cash method.

The utility method provides a fair and objective procedure for setting utility rates. Because costs are matched to the utility’s assets over the life of those assets, and thus utility rates will fluctuate less than rates derived by the cash method. In addition the utility approach allows for a return on investment to the utility shareholders (i.e. the tax payers of Dawson Creek). This is particularly important when water is sold to customers outside of the community boundaries. The City of Dawson Creek already price discriminates among its customers and charges a higher rate for those customers outside of its municipal boundaries. Table 3.2.1 summarizes some of the advantages and disadvantages of the two methods.



Table 3.2.1 – Utility Approach vs. Cash Needs Approach

Approach	Advantages	Disadvantages
Utility	-Standard method for regulated utilities -Less rate fluctuation -Will mesh easily with PSAB 3150	-Change from current “cash” approach -Less understood
Cash Needs	-Easy to understand -Is consistent with the current accounting standards	-Greater rate fluctuation -Not as equitable over the long term

For the purposes of this report the “utility” approach will be applied for the following reasons:

- It is the standard method applied by regulated utilities
- It provides a more consistent rate that fluctuates less year to year
- It will mesh easily with the implementation of PSAB 3150 in 2009



## 4.0 WATER UTILITY BACKGROUND

### 4.1 System Overview

The source of Dawson Creek's drinking water is the Kiskatinaw River, which drains from Bearhole Lake and is fed by numerous springs. From the intake at Arras, raw water is pumped through a series of reservoirs that serve a dual purpose of reserving water for drought conditions as well as lowering the turbidity levels of the raw water. As such, raw water is pumped through the Hansen, Hart and Trail reservoirs which collectively provide 200 million gallons of storage capacity. Raw water travels a distance of 16.5 km from the Arras pump house to the Dawson Creek Water Treatment Plant.

The Dawson Creek Water Treatment plant is a Class IV treatment plant which includes coagulation, filtration, chlorine disinfection and granular activated carbon filtration. Current capacity of the plant is 126 L/s (2000 USgpm). Raw water, filtered water and finished water are regularly tested in the treatment plant lab for pH, turbidity, chlorine residual, alkalinity and hardness.

### 4.2 Rates and Customers

Water produced by the City of Dawson Creek is sold within the City as well as outside of the City. Inside customers include both residential and commercial. Outside customers include the community of Pouce Coupe as well as many other rural users through three major water dispensing stations.

For customers within the City the bulk rate for treated water is \$1.65 per 100 cu. ft. which equates to approximately \$0.58/m<sup>3</sup>. The rates for water sold outside the City are \$1.13/m<sup>3</sup> for processed water, \$1.00/m<sup>3</sup> for authorized vendors and \$2.83/m<sup>3</sup> for bulk dispenser users.

These rates are published in bylaws 3326 and 3327 which are included in Appendix A.



### 4.3 Current Sales and Revenue

In 2006 the City's water treatment plant produced a total of 2.449 ML of treated water. Revenues from water sales totalled \$3,466,000 broken down as follows in Table 4.3.1.

Table 4.3.1 – Breakdown of Water Revenues

<b>Revenue Source</b>	<b>Amount</b>
Frontage Tax	\$1,280,000
User Fees	\$1,512,000
Smart Card Sales	\$674,000
<b>Total</b>	<b>\$3,466,000</b>

Interestingly, if the total volume of water is divided into the total revenue, an average water rate of \$1.42/m<sup>3</sup> results. This is considerably higher than the residential volumetric rate of \$0.58 stated in the current bylaw.



## 5.0 UTILITY EXPENSES

The unit cost of water is simply the annual revenue required to fund the operations divided by the volume of water sold within the given year. Note that the total volume of water produced in a given year will be somewhat higher than the volume of water sold, since not all water produced is sold. For example there is a certain amount of leakage in the system, in addition to water used for fire protection and other non-revenue uses. Using the utility approach the annual revenue required consists of O&M expenses, depreciation expense, and a return on rate base.

For the purposes of this study the costs have been collected for 2006, which is the latest year where full costs are available. The year 2006 will be referred to as the "test" year for the water cost calculation. The costs for future years will need to be adjusted to account for escalation.

### 5.1 O&M Expenses

Operating and maintenance expenses for 2007 were compiled by City staff and are summarized in Table 5.1.1. The costs have been categorized into the following four activities: administration, supply, treatment and distribution. Understanding how the costs are allocated can be useful when making decisions regarding rates for different classes of customers or products. For example the sale of untreated water should not include the cost of treating the water. A detailed breakdown is included in Appendix B.

Table 5.1.1 – 2007 O&M Expenses

Description	Amount
Administration	\$ 96,871
Supply	\$ 478,290
Treatment	\$ 471,950
Distribution	\$ 976,343
<b>Total O&amp;M Costs</b>	<b>\$ 2,023,454</b>

It is important to note that the above costs do not include debt servicing costs. As stated previously the principle component of the debt servicing is captured in the depreciation expense, and the interest expense is captured from the return on rate base.



## 5.2 Depreciation

Depreciation is an allowance for the decline in value of an asset due to decay, wear and tear or technological obsolescence. For utility assets, the annual expense provision for loss in value of plant in service is based on an estimate of the normal useful life for the type or class of assets being assessed. Recovery of that expense provides the recapture of principal invested in utility assets and is a valid cost of doing business. Standard rate making practice is to assume that equal amounts of depreciation occur each year of an asset's life. This is termed straight-line depreciation, as compared to accelerated forms of depreciation which recover more of an asset's cost in the early part of an asset's life.

Proper depreciation rates are critical to the utility method of rate making. They ensure that the proper amount of capital recovery is embedded in the rates and no less. By the cash method, the debenture financing the asset is usually retired and the capital recovered well before the asset has reached the end of its useful service life. For example, debentures are commonly issued for terms of 10 to 20 years whereas water mains may have a 80 year useful life. In this case, the cash method would not result in even capital recovery and smooth rates to the customer.

In 2007 the City of Dawson Creek recorded the historical cost of their water utility assets as \$33.1 million (excluding land), with an annual depreciation expense of \$813,000 per annum. In order to proportion this amount across supply, treatment and distribution a very high level inventory and valuation was undertaken (Appendix C). The results are summarized in table 5.2.1. Table 5.2.2 distributes the depreciation expense by system.

Table 5.2.1 – Inventory and Replacement Value by System

Description	Value	% of Total
Supply	\$10,000,000	13%
Treatment	\$6,000,000	8%
Distribution	\$61,000,000	79%
<b>Total</b>	<b>\$77,000,000</b>	<b>100%</b>

Table 5.2.2 – Estimated Depreciation Expense by System

Description	Value	% of Total
Supply	\$106,000	13%
Treatment	\$63,000	8%
Distribution	\$644,000	79%
<b>Total</b>	<b>\$813,000</b>	<b>100%</b>



As part of the PSAB 3150 requirements the City will need to undertake a much more accurate and detailed inventory and valuation of their assets. Beginning in 2009 the City will also need to depreciate their assets as per the requirements of PSAB 3150.

### 5.3 Return on Rate Base

Whether a utility is private or publicly owned, a return on investment is reasonable to pay the annual interest cost of debt capital and provide a fair rate of return to the equity capital employed to finance the facilities required to produce water. The book value of the City’s assets less accumulated depreciation (or Net Book Value) plus an allowance for working capital is considered the rate base for the community.

#### 5.3.1 Working Capital

Working capital includes materials and supplies, working cash, pre-payments, and a minimum bank balance. In lieu of a detailed calculation, smaller utilities often use one eighth<sup>1</sup> of O&M expenses as a reasonable estimate. For Dawson Creek this would be approximately \$253,000.

#### 5.3.2 Net Book Value

For Dawson Creek the Net Book Value by system is as shown in table 5.3.2.

Table 5.3.2 – Net Book Value of Assets

Description	Book Value	Accumulated Depreciation	Net Book Value
Supply	\$4,300,000	\$2,100,000	\$2,200,000
Treatment	\$2,650,000	\$1,350,000	\$1,300,000
Distribution	\$26,150,000	\$13,050,000	\$13,100,000
Total	\$33,100,000	\$16,500,000	\$16,600,000

#### 5.3.3 Cost of Capital

For a regulated utility the allowed rate of return on the utilities investment base is calculated on its “cost of capital”. The cost of capital represents the weighted cost of the various classes of capital such as debt, preferred stock and common stock. As a minimum the rate base should reflect the current cost of long

<sup>1</sup> Source: American Water Works Association, *Principles of Water Rates, Fees, and Charges*, 2000.



term borrowing plus some rate of return to acknowledge the investment that the community has made into the water system. At the time of writing this report the MFA 30 year interest rate is 5.1%. This amount does not include a return to investors.

## 6.0 COST OF WATER

Using the data from the 2006 test year we can now calculate the water cost for the City of Dawson Creek using the “utility” approach. Table 6.0.1 summarizes the return on rate base allowed assuming a 5.1% cost of capital. Table 6.0.2 summarizes the total annual costs.

Table 6.0.1 – Return on Rate Base

	Net Book Value	Working Capital	Rate Base	Return on Rate Base
Supply	\$2,200,000	\$33,000	\$2,233,000	<b>\$114,000</b>
Treatment	\$1,300,000	\$20,000	\$1,320,000	<b>\$67,000</b>
Distribution	13,100,000	\$200,000	\$13,300,000	<b>\$678,000</b>
Total	16,600,000	\$253,000	\$16,853,000	<b>\$859,000</b>

Table 6.0.2 – Total Annual Costs

	O&M	Depreciation	Return on Rate Base	Total Cost 2006 \$CDN	Cost/m3
General	\$97,000			\$97,000	\$0.04
Supply	\$478,000	\$106,000	\$114,000	\$698,000	\$0.29
Treatment	\$472,000	\$63,000	\$67,000	\$602,000	\$0.25
Distribution	\$976,000	\$644,000	\$678,000	\$2,298,000	\$0.94
Total	\$2,023,000	\$813,000	\$859,000	\$3,695,000	\$1.51

Based on a total volume of 2.449 ML of water produced this equates to a water cost of \$1.51 per m<sup>3</sup>. Interestingly the total revenue requirement as calculated by the “utility” approach produces a result which fits well with the City’s actual revenues for 2006 of \$3,466,000.



## 6.1 Comparison with Actual Revenues

Actual revenues for 2006 were \$3,466,000 from sources as shown in table 4.3.1. At the time of writing this report actual revenue for 2007 was not available

## 6.2 Observations and Discussion

Even though the current revenues generated by the City recoup the annual cost of water, the rate for tap water derived via the “utility” approach is \$1.51/m<sup>3</sup>, which is over double the current rate of \$0.58/m<sup>3</sup>. A review of how the rates are structured for various customers is recommended as a next step.

The current revenues generated by the City of Dawson Creek appear to be financially sustainable. The City did generate a surplus in 2006 of approximately \$575,000. The fact that the City generates a surplus does not indicate that the revenues are too high. The City should continue to retain any surplus revenues in a reserve account to meet future capital requirements or to assist in meeting future debt payments. Furthermore, the City may also consider levying a specific amount for long-term capital reinvestment to help smooth out future expenditures. The development of any type of “capital reinvestment levy” would necessitate discussions with the City regarding equity across user groups and generations, the role of borrowing, and service level preferences.

The analysis in this report did not include a return to investors on the rate base as is allowed by the “utility” approach. The concept of the City earning a profit on its’ water utility is a topic for internal discussion.



# APPENDIX A

**Bylaw 3326 and 3327**

**THE CORPORATION OF THE CITY OF DAWSON CREEK**

**BYLAW NO. 3326**

**A bylaw of The Corporation of the City of Dawson Creek (hereinafter called "the City") to establish Water Regulations and to fix Water Rates at which treated water may be sold within the City.**

**WHEREAS, the Council of the City deem it necessary from time to time to establish procedures and regulations for the use of water;**

**AND WHEREAS, the Council of the City deem it necessary to provide an increase in water rates charged by the City of Dawson Creek;**

**NOW THEREFORE, the Council of The Corporation of The City of Dawson Creek, in open meeting assembled, hereby enacts as follows:**

- 1. Bylaw No. 2261, 1982, as amended by Bylaw No. 2428, 1984 and Bylaw No. 2867, 1991 and Bylaw No. 2925, 1992 is hereby repealed in its entirety including all schedules and amendments thereto.**
- 2. Bylaw No. 2939, 1992 is hereby repealed in its entirety.**
- 3. All sales of water shall be by meter only, based on consumption.**
- 4. Meter installations shall be in a location approved by the City, readily accessible for inspection, repair, or removal, and a remote totalizer for each meter shall be installed on the outside of the building. The totalizer shall be located at the front of the building in an area readily accessible by the meter reader and not obstructed by fences or other obstructions. Any dogs harboured on the property must be secured in such a fashion that they cannot interfere with the meter reader's access to the remote totalizer.**
- 5. All five-eighths inch (5/8") meters, totalizers and ancillary works will be supplied by the City free of charge. The actual cost of all meters provided in excess of five-eighths inch (5/8") shall be charged to the applicant. This fee will be refundable upon return of the meter in good working order. All five-eighths inch (5/8") meters and totalizers shall remain the property of the City.**
- 6. Meters will be tested by the City Water Department upon request, provided that a twenty-five dollar (\$25.00) deposit is received in advance. If the meter is found to be registering incorrectly, the deposit will be refunded in full. If the meter is found to be in good working order, the applicant shall pay the actual cost of the testing.**
- 7. The City shall maintain and repair all meters, totalizers and ancillary works which are the property of the City. Where replacements or repairs are made necessary by the acts, neglect or carelessness of the owner or occupant of any premises, any expense caused to the City shall be chargeable to and paid by the owner or occupant of such premises. The City shall be responsible for ordinary wear of the City owned meters, totalizers and ancillary works.**
- 8. No person shall connect a building service to a water main, connect a building service to a previously installed service at property line, install a service box at property line, or otherwise excavate to accommodate such works without having first obtained a Service Connection Permit from the City. The fee for such permit shall be twenty-five (\$25.00) dollars payable in advance. The issuance of Service Connection Permits is at the sole discretion of the City. The City Engineering Department shall not issue such permit unless the applicant has demonstrated**

**Bylaw 3326 - Page Two (2)**

competence to perform such work. The City may inspect any works undertaken under such Permit and may accept or reject the work.

9. No person other than a City employee shall turn on or off any hydrant, valve, stop-cock, water meter or other fixture of the waterworks system without the written authorization of the City Engineering Department. No person shall tamper with any part of the waterworks system or obstruct access to any hydrant, valve, stop-cock, water meter or other fixture of the system. Any person contravening this section shall be assessed the full costs of any repair, replacement or removal required by reason of their actions.
10. No contractor, builder or other person shall use, for building purposes or otherwise, any water from the waterworks system without obtaining a Permit from the City Building Inspector. The fee for such Permit shall be twenty-five (\$25.00) dollars.
11. The fee for turning on or shutting off water services to a property shall be thirty-five (35.00) dollars and in no case shall instructions to perform such work be accepted unless requested by the registered owner of the property or his authorized agent. The work will be performed during the regular work week as soon as scheduling allows.
12. No person shall lay any pipe for the purpose of receiving water from the waterworks system by connecting therewith except that such pipe be at a depth of nine feet under the surface of the ground except where permission has been granted in writing by the City Engineering Department.
13. The City shall not be liable or responsible for damages caused by the freezing of water pipes on the consumer's side of the service valve or for damages caused by the freezing of such pipes on the City's side of the valve if the freezing is caused by prior freezing on the consumer's side of the stop and drain. The costs of any necessary thawing service shall be the responsibility of the consumer and the work shall be performed by a qualified individual approved by the City.
14. Subject to the provisions of Section 13, the City shall be responsible for frozen pipes on the street side of a service valve and will provide thawing service for such pipes without charge to the consumer but the City shall not be liable for any delay in rendering the service provided for in this section.
15. Consumers shall be charged the actual cost of all connections made to the waterworks systems.
16. All rates, fees or charges as set forth in this Bylaw shall be payable at City Hall or to such other persons as may be authorized by the City to act as collection agents for the City.
17. The rates, fees and charges levied or imposed under the provisions of this bylaw are a special charge upon the lands or real property in respect of which the water is supplied or used. All rates, fees and charges under the provisions of this Bylaw, in addition to any other remedies, may be levied, collected and recovered from the owner in the same manner and subject to the same incidents as taxes upon land and improvements.
18. The City may, when it is deemed necessary, shut off any water main without notice to the consumers.
19. In the event of a water supply shortage due to any reason whatsoever, the

Council may issue a notice prohibiting, restricting or limiting the use of water by any or all of the consumers. Such notice shall be sufficiently given if delivered in writing,

Bylaw 3326 - Page Three (3)

broadcast by local radio or television station or advertised in two consecutive issues of a newspaper. Any person who refuses or fails to abide by such a prohibition, restriction or limitation contained in the notice shall be deemed to have contravened this bylaw.

- 20. Any person who contravenes any of the provisions of this Bylaw shall be guilty of an offence and shall be liable on summary conviction to a fine not to exceed the sum of five hundred (\$500.00) dollars together with costs for each offence and each day during which any violation, contravention or breach shall continue, shall be deemed as a separate offence.
- 21. Schedule "A" attached hereto and forming part of this Bylaw shall be the rates for consumption set forth in this Bylaw.
- 22. This Bylaw may be cited for all purposes as "THE DAWSON CREEK WATER RATES AND REGULATIONS BYLAW NO. 3326, 1998".
- 23. This bylaw shall take effect upon adoption by the affirmative vote of a majority of Council present at the meeting at which the vote is taken.

READ a first time this \_\_\_\_\_ day of \_\_\_\_\_, 1998.

READ a second time this \_\_\_\_\_ day of \_\_\_\_\_, 1998.

READ a third time this \_\_\_\_\_ day of \_\_\_\_\_, 1998.

ADOPTED this \_\_\_\_\_ day of \_\_\_\_\_, 1998.

The Corporate Seal of THE CORPORATION OF THE CITY OF DAWSON CREEK was hereunto affixed in the presence of:

\_\_\_\_\_  
Blair Lekstrom - MAYOR

\_\_\_\_\_  
Jim Noble - CITY CLERK

**THE CORPORATION OF THE CITY OF DAWSON CREEK**

**Bylaw No. 3326  
Water Rates & Regulations Bylaw**

**Schedule "A"**

**Water User Rates**

**Rates in Cubic Feet**

**For Consumers inside City Limits:**

**\$1.65 per 100 cu.ft.**

**Minimum Bi-Monthly Charge = \$24.75**

**Note: 1 Cubic Foot of water is equal to 6.24 Imperial Gallons  
1 Cubic Meter of water is equal to 35.313 Cubic Feet**

**THE CORPORATION OF THE CITY OF DAWSON CREEK**

**BYLAW NO. 3327**

**A bylaw of The Corporation of the City of Dawson Creek (hereinafter called "the City") to establish Water Regulations and to fix Water Rates at which water will be sold to consumers located outside the City.**

**WHEREAS, the Council of the City deem it necessary from time to time to establish conditions for the use of water by consumers not located within the City limits;**

**AND WHEREAS, the Council of the City deem it necessary to provide an increase in water rates charged by the City of Dawson Creek;**

**NOW THEREFORE, the Council of The Corporation of The City of Dawson Creek, in open meeting assembled, hereby enacts as follows:**

- 1. No person may resell water obtained from the City except as may be expressly permitted by way of an authorized Water Vendor Contract between the City and the Vendor.**
- 2. All water offered for resale must be obtained from the City through special meters provided for that purpose.**
- 3. The City may from time to time establish outlets where water may be purchased in bulk. Any water so purchased shall be for the consumption of the purchaser only, and may not be resold.**
- 4. No person shall connect to the portion of the waterworks system located outside the City limits without the express written permission of the Council of the City. The Council may set forth what conditions it deems necessary for such a connection and the consumer must agree to abide by those terms as may be provided in writing by the Council.**
- 5. Any person who contravenes any of the provisions of this Bylaw shall be guilty of an offence and shall be liable on summary conviction to a fine not to exceed the sum of five hundred (\$500.00) dollars together with costs for each offence and each day during which any violations, contravention or breach shall continue, shall be deemed as a separate offence.**
- 6. In case of nonpayment of rates or rents within thirty (30) days after they become due and payable, the City may, on giving seven (7) days notice in writing mailed to the last known address of the owner or occupant, shut off, without further notice, the service in respect of which such rates or rents are due.**
- 7. Schedule "A" attached hereto and forming part of this Bylaw shall be the rates for consumption set forth in this Bylaw.**
- 8. This Bylaw contains a complete and accurate statement of all rates, fees and charges to be charged on and after approval has been received from the Ministry of Municipal Affairs of the Province of British Columbia.**
- 9. This Bylaw may be cited for all purposes as "THE DAWSON CREEK OUTSIDE USERS WATER RATES AND REGULATIONS BYLAW NO. 3327, 1998".**
- 10. This bylaw shall take effect upon adoption by the affirmative vote of the Council of the City of Dawson Creek.**

**READ a first time this \_\_\_\_\_ day of \_\_\_\_\_,**

1998.

**Bylaw 3327 - Page Two (2)**

READ a second time this \_\_\_\_\_ day of \_\_\_\_\_, 1998.

READ a third time this \_\_\_\_\_ day of \_\_\_\_\_, 1998.

I hereby certify that this Bylaw of the Corporation of the City of Dawson Creek, British Columbia, cited as "The Dawson Creek Outside Users Water Rates and Regulations Bylaw No. 3327, 1998" was read a third time and passed by an affirmative vote of at least two-thirds of all members of Council.

Dated at the City of Dawson Creek, B.C. this \_\_\_\_\_ day of \_\_\_\_\_, 1998.

\_\_\_\_\_  
Jim Noble - City Clerk

Received the Approval of the Minister of Municipal Affairs this \_\_\_\_\_ day of \_\_\_\_\_, 1998.

ADOPTED this \_\_\_\_\_ day of \_\_\_\_\_, 1998.

The Corporate Seal of THE CORPORATION OF THE CITY OF DAWSON CREEK was hereunto affixed in the presence of:

\_\_\_\_\_  
Blair Lekstrom - MAYOR

\_\_\_\_\_  
Jim Noble - CITY CLERK

**THE CORPORATION OF THE CITY OF DAWSON CREEK**

**Bylaw No. 3327  
Outside Users Water Rates & Regulations Bylaw**

**Schedule "A"**

	<b>Water User Rates</b>	<b>Rates in Cubic Feet</b>
1.	<b>Raw unprocessed water (Bi-monthly)</b> \$1.50 per 100 cu. ft. Minimum bi-monthly charge = \$45.00	
2.	<b>Processed water (Bi-monthly)</b> \$3.20 per 100 cu. ft. Minimum bi-monthly charge = \$48.00	
3.	<b>Authorized Vendors (Monthly)</b> \$0.0285 per cu. ft. Minimum monthly charge = \$100.00	
4.	<b>Bulk Dispenser Users</b> \$0.080 per cu. ft. Cardholder's Minimum Monthly Charge = \$25.00	

**Note: 1 Cubic Foot of water is equal to 6.24 Imperial Gallons  
1 Cubic Meter of water is equal to 35.313 Cubic Feet**



# APPENDIX B

## Operating and Maintenance Expenses



**City of Dawson Creek  
Water Cost Study  
Annual Budget 2006**

**Administration**

Water Admim	\$ 15,610.00
Billing & Collection	\$ 70,890.00
Turn On/Off	\$ 3,570.00
Contingency	\$ 113,940.00
	<b>\$ 204,010.00</b>

**Supply**

Watershed	\$ 49,000.00
Weir	\$ 1,500.00
Power & Pumping	\$ 71,500.00
Arras Pumphouse	\$ 94,200.00
Devereaux Booster	\$ 39,000.00
Hansen Pumphouse	\$ 67,500.00
Supply Line	\$ 26,740.00
Hart Reservoir	\$ 8,950.00
Trail Reservoir	\$ 38,500.00
Hart Metering	\$ 4,700.00
Trail Metering	\$ 6,000.00
Harald Hansen Reservoir	\$ 5,000.00
	<b>\$ 412,590.00</b>

**Treatment**

Purification & Treatment	\$ 144,000.00
Water Treatment Plant	\$ 234,450.00
Sludge Pond	\$ 8,490.00
WTP Valve Chambers	\$ 3,500.00
	<b>\$ 390,440.00</b>

**Distribution**

Operations	\$ 688,129.00
Scada	\$ 33,200.00
Watersales	\$ 36,120.00
WTP-House	\$ 15,400.00
Parkhill Pumphouse	\$ 40,690.00
Alaska Booster	\$ 21,870.00
Pouce Coupe Booster	\$ 18,120.00
Parkhill Reservoir	\$ 6,500.00
Parkhill Metering	\$ 3,500.00
	<b>\$ 863,529.00</b>

<b>Total</b>	<b>\$1,870,569.00</b>
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# APPENDIX C

## Inventory and Valuation



<b>Distribution</b>	<b>Value</b>
Alaska Booster	\$300,000
Devereaux Booster	\$800,000
Lungal Reservoir & Pump	\$700,000
Parkhill Booster	\$500,000
Parkhill Reservoir	\$3,000,000
Parkhill Valve House	\$100,000
Pouce Coupe Metering /Pumphouse	\$150,000
Watersales Station 1	\$100,000
Watersales Station 2	\$100,000
Watersales Station 3	\$100,000
Treated Water Supply Line	\$1,925,000
Distribution Piping	\$40,000,000
Hydrants	\$2,200,000
Services	\$11,250,000
<b>Total</b>	<b>\$61,000,000</b>

<b>Supply</b>	
Arras Pumphouse	\$200,000
Hansen Pumphouse	\$500,000
Hansen Reservoir	\$1,000,000
Hart reservoir	\$300,000
Hart Valve House	\$100,000
Trail Aeration Building	\$100,000
Trail Reservoir	\$1,000,000
Trail Valve House	\$100,000
Weir on Kiskatinaw	\$50,000
Raw Water Supply Line	\$6,600,000
<b>Total</b>	<b>\$10,000,000</b>

<b>Treatment</b>	
Water Treatment Plant	\$5,000,000
WTP House	\$300,000
WTP Storage Building	\$255,000
<b>Total</b>	<b>\$6,000,000</b>



# APPENDIX D

## Capital Debt Schedule

City of Dawson Creek  
 Long Term Debt - Water Capital Fund  
 5-1600-0000-2510  
 December 31, 2006

	Issue	O/B	New	Principal	Actuarial	C/Balance	Interest	Interest	Total interest
2540	Water June 30, 2007	41	6.90%	4,326.76	-	2,110.70	2,216.06	-	-
2590	Water May 11, 2008	44	6.90%	-	-	-	-	-	-
2662	Water May 9, 2009	46	10.90%	102,646.87	10,910.01	91,736.86	-	11,724.38	11,724.38
2750	Water May 15, 2010	48	11.63%	85,931.51	7,480.50	8,070.93	70,380.08	7,111.31	14,222.62
2750	Water May 15, 2010	48	11.63%	30,224.40	2,631.11	2,838.78	24,754.51	2,501.25	5,002.50
2817	Water May 8, 2011	50	10.25%	30,139.23	2,237.95	2,193.04	25,708.24	3,792.50	2,271.80
2817	Water May 8, 2011	50	10.25%	407,286.61	30,242.59	29,635.67	347,408.35	51,250.00	30,700.00
2930	Water January 12, 2013	54	8.30%	124,469.99	7,258.22	5,776.50	111,435.27	7,500.00	7,500.00
2930	Water January 12, 2013	54	8.30%	12,965.69	756.06	601.72	11,607.91	781.25	781.25
2952	Water May 12, 2013	55	8.50%	285,243.75	16,633.42	13,237.81	255,372.52	23,375.00	23,375.00
3007	Water November 10, 2014	59	9.52%	213,880.75	11,340.97	8,055.94	194,483.84	9,375.00	9,375.00
3089	Water April 12, 2015	60	8.80%	30,980.19	1,512.13	950.97	28,517.09	1,187.50	1,187.50
3154	Water June 1, 2016	63	7.75%	251,614.51	11,416.58	6,294.28	233,903.65	10,787.06	10,787.06
3231	Water November 5, 2017	66	5.85%	233,276.95	9,919.57	4,736.15	218,621.23	9,594.00	9,594.00
3297	Water March 24, 2018	68	5.50%	282,661.73	11,340.97	4,616.91	266,703.85	10,406.25	10,406.25
3298	Water March 24, 2018	68	5.49%	414,570.63	16,633.42	6,771.47	391,165.74	15,262.50	15,262.50
3347	Water June 1, 2019	70	5.49%	492,461.41	18,750.40	6,376.93	467,334.08	17,019.00	17,019.00
3378	Water June 1, 2019	70	5.49%	1,787,158.37	68,045.82	23,142.09	1,695,970.46	61,762.50	61,762.50
3421	Water December 2, 2019	71	5.84%	397,145.98	15,121.29	5,142.68	376,882.01	14,975.00	14,975.00
3498	Water December 1, 2020	73	6.36%	162,413.79	5,897.30	1,629.32	154,887.17	6,201.00	6,201.00
3544	Water June 1, 2022	77	5.10%	678,495.18	22,681.94	3,575.24	652,238.00	22,725.00	22,725.00
3646	Water October 3, 2023	80	4.78%	164,463.77	5,302.55	543.51	158,617.71	4,186.10	4,186.10
3646	Water October 3, 2023	80	4.78%	187,600.53	6,048.52	619.97	180,932.04	4,775.00	4,775.00
3619	Water April 22, 2024	81	4.86%	1,163,708.90	36,291.10	1,814.56	1,125,603.24	29,160.00	29,160.00
3527	Water December 12, 2024	85	4.98%	678,830.19	21,169.81	1,058.49	656,601.89	17,412.50	17,412.50
3619	Water December 12, 2024	85	4.98%	1,911,391.86	59,608.14	2,980.41	1,848,803.31	49,028.63	49,028.63
				-	-	-	-	-	-
				10,133,890.60	399,230.37	234,510.93	9,500,148.25	391,892.73	358,097.65
									749,990.38

Budget Information	2006	2007	2008	2009	2010
Principal	399,230.37	481,414.83	470,232.63	459,322.62	449,211.01
Interest	816,502.55	916,932.33	906,764.20	906,764.20	883,315.44
Actuarial	223,279.96	223,279.96	223,279.96	223,279.96	223,279.96
Outstanding balance	11,834,203.92	11,129,509.13	10,435,996.54	9,753,393.96	9,080,902.99

	2005	2006	2007	2008	2009	2010
New debt	1,111,666	1,844,900				2,956,566
20 year/ 4.75 %						
Principal	37,332	61,955				61,955
Interest	55,584	92,246				92,246
	92,916	154,201.00				154,201.00



# APPENDIX E

## Water Capital Assets NBV

The City of Dawson Creek  
 Water Capital Assets  
 December 31, 2008

	2007		
	Cost	AD	NBV
Land	176,332.77		176,332.77
Buildings	6,070,811.00	2,409,989.93	3,660,821.08
Equipment	1,588,702.46	1,162,402.20	426,300.26
Transmission & Distribution	25,467,498.02	13,113,996.40	12,353,501.62
<b>Total</b>	<b>33,303,344.25</b>	<b>16,686,388.53</b>	<b>16,616,955.73</b>

	2006		
	Cost	AD	NBV
Land	176,332.77		176,332.77
Buildings	4,883,150.00	2,287,911.18	2,595,238.83
Equipment	1,538,491.00	1,097,213.30	441,277.70
Transmission & Distribution	24,988,812.00	12,489,276.10	12,499,535.90
<b>Total</b>	<b>31,586,785.77</b>	<b>15,874,400.58</b>	<b>15,712,385.20</b>

Annual Charge for 2006

Buildings	122,078.75
Equipment	66,384.90
Transmission & Distribution	624,720.30
	<u>813,183.95</u>

The City of Dawson Creek  
Water Capital Assets-Buildings  
December 31, 2008

	Cost	Yrs Rate	Annual Depreciation	2007 A/Depreciation	2007 NBV
1992	2,552,335.00	40	63,808.38	957,125.63	1,595,209.38
1993	-	40	-	-	-
1994	-	40	-	-	-
1995	-	40	-	-	-
1996	152.00	40	3.80	41.80	110.20
1997	32,152.00	40	803.80	8,038.00	24,114.00
1998	211,046.00	40	5,276.15	47,485.35	163,560.65
1999	-	40	-	-	-
2000	180,288.00	40	4,507.20	31,550.40	148,737.60
2001	-	40	-	-	-
2002	256,272.00	40	6,406.80	32,034.00	224,238.00
2003	-	40	-	-	-
2004	-	40	-	-	-
2005	650,985.00	40	16,274.63	32,549.25	618,435.75
2006	999,920.00	40	24,998.00	24,998.00	974,922.00
2007	1,187,661.00	40	29,691.53	-	1,187,661.00
	6,070,811.00		151,770.28	1,133,822.43	4,936,988.58
Pre 1992 adjustment				1,276,167.50	(1,276,167.50)
	<u>6,070,811.00</u>		<u>151,770.28</u>	<u>2,409,989.93</u>	<u>3,660,821.08</u>

N1: Adjustment for 1992 assets - estimated 50 % depreciated 1,276,167.50

	Cost	Yrs Rate	Annual Depreciation	2006 A/Depreciation	2006 NBV
1992	2,552,335.00	40	63,808.38	893,317.25	1,659,017.75
1993	-	40	-	-	-
1994	-	40	-	-	-
1995	-	40	-	-	-
1996	152.00	40	3.80	38.00	114.00
1997	32,152.00	40	803.80	7,234.20	24,917.80
1998	211,046.00	40	5,276.15	42,209.20	168,836.80
1999	-	40	-	-	-
2000	180,288.00	40	4,507.20	27,043.20	153,244.80
2001	-	40	-	-	-
2002	256,272.00	40	6,406.80	25,627.20	230,644.80
2003	-	40	-	-	-
2004	-	40	-	-	-
2005	650,985.00	40	16,274.63	16,274.63	634,710.38
2006	999,920.00	40	24,998.00	-	999,920.00
2007		40	-	-	-
	4,883,150.00		122,078.75	1,011,743.68	3,871,406.33
Pre 1992 adjustment				1,276,167.50	(1,276,167.50)
	<u>4,883,150.00</u>		<u>122,078.75</u>	<u>2,287,911.18</u>	<u>2,595,238.83</u>

N1: Adjustment for 1992 assets - estimated 50 % depreciated 1,276,167.50

The City of Dawson Creek  
Water Capital Assets-Equipment  
December 31, 2008

	Cost	Yrs Rate	Annual Depreciation	2007 A/Depreciation	2007 NBV
1992	867,201.00	10	86,720.10	867,201.00	-
1993	-	10	-	-	-
1994	-	10	-	-	-
1995	7,441.00	10	744.10	7,441.00	-
1996	11,960.00	10	1,196.00	11,960.00	-
1997	9,461.00	10	946.10	9,461.00	-
1998	12,630.00	10	1,263.00	11,367.00	1,263.00
1999	95,943.00	10	9,594.30	76,754.40	19,188.60
2000	110,877.00	10	11,087.70	77,613.90	33,263.10
2001	8,750.00	10	875.00	5,250.00	3,500.00
2002	16,540.00	10	1,654.00	8,270.00	8,270.00
2003	47,757.00	10	4,775.70	19,102.80	28,654.20
2004	43,605.00	10	4,360.50	13,081.50	30,523.50
2005	242,670.00	10	24,267.00	48,534.00	194,136.00
2006	63,656.00	10	6,365.60	6,365.60	57,290.40
2007	50,211.46	10	5,021.15	-	50,211.46
<hr/>					
<b>1,588,702.46</b>					
<hr/>					
			<b>158,870.25</b>	<b>1,162,402.20</b>	<b>426,300.26</b>
<hr/>					

	Cost	Yrs Rate	Annual Depreciation	2006 A/Depreciation	2006 NBV
1992	867,201.00	10	86,720.10	867,201.00	-
1993	-	10	-	-	-
1994	-	10	-	-	-
1995	7,441.00	10	744.10	7,441.00	-
1996	11,960.00	10	1,196.00	11,960.00	-
1997	9,461.00	10	946.10	8,514.90	946.10
1998	12,630.00	10	1,263.00	10,104.00	2,526.00
1999	95,943.00	10	9,594.30	67,160.10	28,782.90
2000	110,877.00	10	11,087.70	66,526.20	44,350.80
2001	8,750.00	10	875.00	4,375.00	4,375.00
2002	16,540.00	10	1,654.00	6,616.00	9,924.00
2003	47,757.00	10	4,775.70	14,327.10	33,429.90
2004	43,605.00	10	4,360.50	8,721.00	34,884.00
2005	242,670.00	10	24,267.00	24,267.00	218,403.00
2006	63,656.00	10	6,365.60	-	63,656.00
2007		10	-	-	-
<hr/>					
<b>1,538,491.00</b>					
<hr/>					
			<b>153,849.10</b>	<b>1,097,213.30</b>	<b>441,277.70</b>
<hr/>					

1992-1995 fully depreciated therefore removed from annual depreciation on summary

The City of Dawson Creek  
Water Capital Assets-Transmission and Distribution  
December 31, 2008

	Cost	Yrs Rate	Annual Depreciation	2007 A/Depreciation	2007 NBV
1992	12,705,297.00	40	317,632.43	4,764,486.38	7,940,810.63
1993	530,271.00	40	13,256.78	185,594.85	344,676.15
1994	58,217.00	40	1,455.43	18,920.53	39,296.48
1995	209,786.00	40	5,244.65	62,935.80	146,850.20
1996	437,136.00	40	10,928.40	120,212.40	316,923.60
1997	1,516,532.00	40	37,913.30	379,133.00	1,137,399.00
1998	1,790,358.00	40	44,758.95	402,830.55	1,387,527.45
1999	1,152,469.00	40	28,811.73	230,493.80	921,975.20
2000	383,731.00	40	9,593.28	67,152.93	316,578.08
2001	282,553.00	40	7,063.83	42,382.95	240,170.05
2002	441,718.00	40	11,042.95	55,214.75	386,503.25
2003	1,430,479.00	40	35,761.98	143,047.90	1,287,431.10
2004	3,603,885.00	40	90,097.13	270,291.38	3,333,593.63
2005	299,648.00	40	7,491.20	14,982.40	284,665.60
2006	146,732.00	40	3,668.30	3,668.30	143,063.70
2007	478,686.02	40	11,967.15	-	478,686.02
<b>25,467,498.02</b>			<b>636,687.45</b>	<b>6,761,347.90</b>	<b>18,706,150.12</b>
<b>Pre 1992 adjustment</b>				<b>6,352,648.50</b>	<b>(6,352,648.50)</b>
<b>25,467,498.02</b>			<b>636,687.45</b>	<b>13,113,996.40</b>	<b>12,353,501.62</b>

N1: Adjustment for 1992 assets - estimated 50 % depreciated 6,352,648.50

	Cost	Yrs Rate	Annual Depreciation	2006 A/Depreciation	2006 NBV
1992	12,705,297.00	40	317,632.43	4,446,853.95	8,258,443.05
1993	530,271.00	40	13,256.78	172,338.08	357,932.93
1994	58,217.00	40	1,455.43	17,465.10	40,751.90
1995	209,786.00	40	5,244.65	57,691.15	152,094.85
1996	437,136.00	40	10,928.40	109,284.00	327,852.00
1997	1,516,532.00	40	37,913.30	341,219.70	1,175,312.30
1998	1,790,358.00	40	44,758.95	358,071.60	1,432,286.40
1999	1,152,469.00	40	28,811.73	201,682.08	950,786.93
2000	383,731.00	40	9,593.28	57,559.65	326,171.35
2001	282,553.00	40	7,063.83	35,319.13	247,233.88
2002	441,718.00	40	11,042.95	44,171.80	397,546.20
2003	1,430,479.00	40	35,761.98	107,285.93	1,323,193.08
2004	3,603,885.00	40	90,097.13	180,194.25	3,423,690.75
2005	299,648.00	40	7,491.20	7,491.20	292,156.80
2006	146,732.00	40	3,668.30	-	146,732.00
2007		40	-	-	-
<b>24,988,812.00</b>			<b>624,720.30</b>	<b>6,136,627.60</b>	<b>18,852,184.40</b>
<b>Pre 1992 adjustment</b>				<b>6,352,648.50</b>	<b>(6,352,648.50)</b>
<b>24,988,812.00</b>			<b>624,720.30</b>	<b>12,489,276.10</b>	<b>12,499,535.90</b>

N1: Adjustment for 1992 assets - estimated 50 % depreciated 6,352,648.50