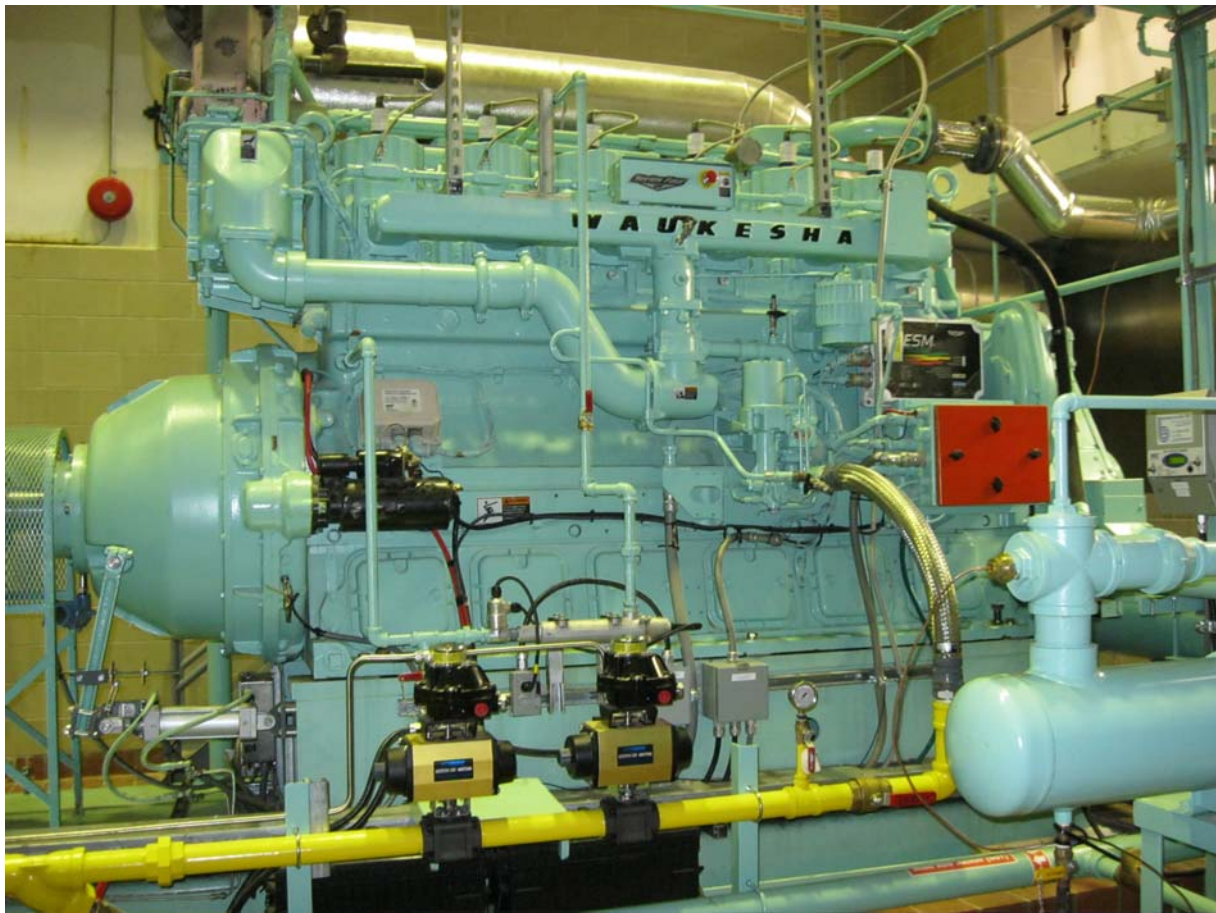
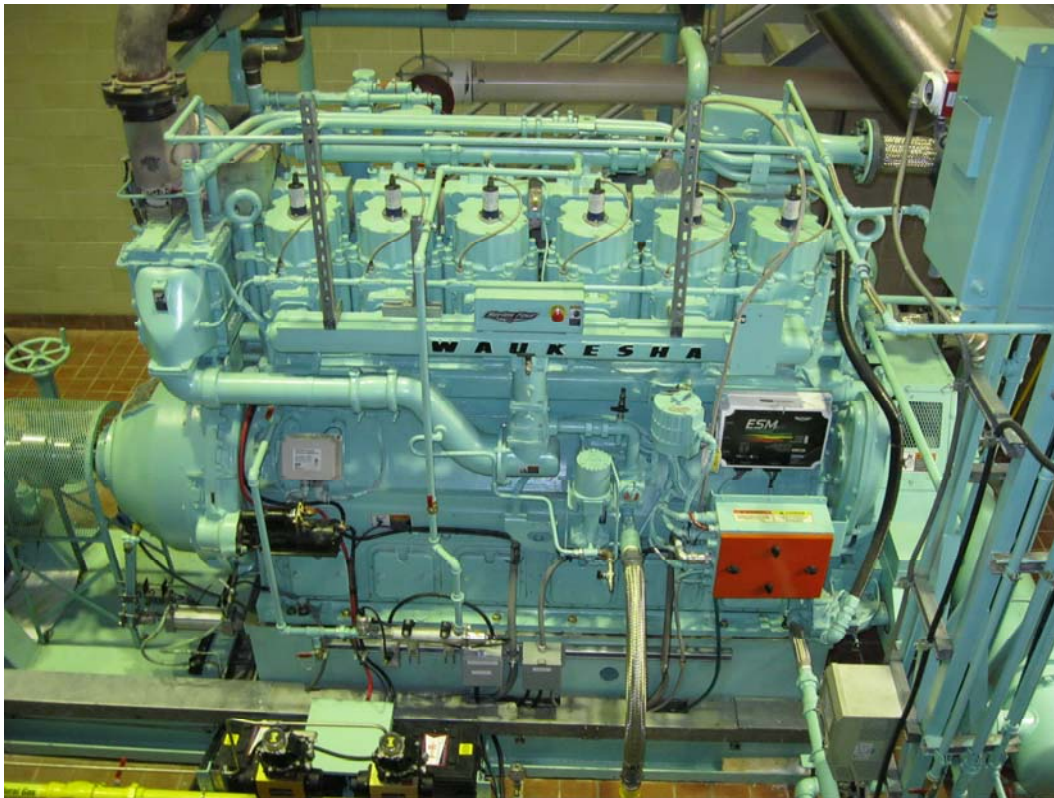


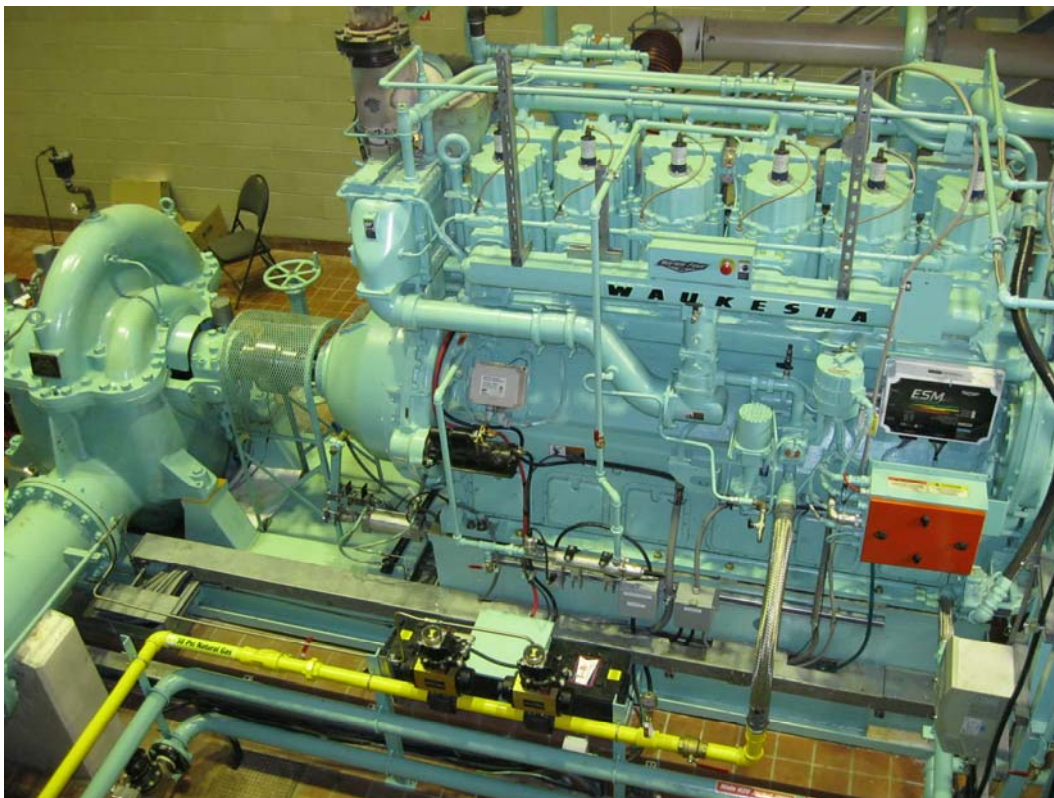
2010 WATER CONSUMPTION SUMMARY REPORT



Cover: This is a photo of a new Waukesha natural gas engine P26 with 840 horse power.



Left: There are two new natural gas engines installed at the MacLean Pumping Station. The new Waukesha engines are 6- cylinder turbo charged engines. They have a smaller footprint and are more fuel efficient than the previous ones.



Left: The Waukesha engines operate as a backup to the electrical driven pumps and maintain reliable water pressure in the distribution system. They also run during periods of inclement weather where there may be a concern with electrical supply to the Pumping Station.



**THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT**

**2010 WATER CONSUMPTION
SUMMARY REPORT**

Prepared by:

Sherisse Podaima, C.E.T.
Water Planning Technologist II
Water Planning and Project Delivery Branch
Engineering Division

Report Production: March 30, 2011

Table of Contents

Section	Description	Page
1.0	SUMMARY	1-0
2.0	INTRODUCTION	2-1
	2.1 General.....	2-1
	2.2 Purpose and Scope.....	2-2
	2.3 Sources of Data.....	2-3
3.0	CONSUMPTION DATA.....	3-1
	3.1 Annual Statistics	3-1
	3.2 Average Day Consumption	3-5
	3.3 Per Capita Consumption.....	3-6
	3.4 Extremes and Load Factors	3-8
4.0	BALANCING STORAGE AND CAPACITY REQUIREMENTS.....	4-1
	4.1 Main Aqueduct	4-1
	4.2 Deacon Reservoir	4-4
	4.3 Regional Supply System.....	4-6
5.0	METERED CONSUMPTION AND REVENUE	5-1

List of Tables

Table 1.1	2010 Water Consumption Data	1-0
Table 3.1	2010 Load Factors	3-11
Table 4.1	Deacon Reservoir Balancing Storage Requirements.....	4-5
Table 4.2	Distribution Pumping Station Capacity	4-12
Table 5.1	2010 Billed Consumption and Revenue by Block.....	5-1
Table 5.2	2010 Water Rates and Quarterly Charges	5-4

List of Figures

Figure 3.1 Total Water Pumped	3-1
Figure 3.2 Annual Unaccounted – For Water.....	3-2
Figure 3.3 2010 Annual Water Main Repairs.....	3-3
Figure 3.4 2010 Average Monthly Temperature	3-4
Figure 3.5 2010 Monthly Precipitation.....	3-4
Figure 3.6 Average Day Consumption	3-5
Figure 3.7 Population.....	3-6
Figure 3.8 Per Capita Consumption.....	3-7
Figure 3.9 Consumption Rates	3-9
Figure 3.10 Minimum Hour Pumping Rates	3-10
Figure 3.11 Load Factors.....	3-12
Figure 3.12 Daily Load Factor Histogram.....	3-12
Figure 4.2 Shoal Lake Low Water Frequency.....	4-1
Figure 4.3 Shoal Lake Levels	4-2
Figure 4.4 Shoal Lake Aqueduct Flow Rate.....	4-3
Figure 4.5 Deacon Reservoir Balancing Storage.....	4-4
Figure 4.6 Branch I Aqueduct Maximum Day Flow	4-6
Figure 4.7 Branch II Aqueduct Maximum Day Flow.....	4-7
Figure 4.8 McPhillips Reservoir Balancing Storage	4-8
Figure 4.9 Wilkes Reservoir Balancing Storage.....	4-8
Figure 4.10 MacLean Reservoir Balancing Storage.....	4-9
Figure 4.11 McPhillips Station Maximum Hour Pumping.....	4-10
Figure 4.12 Hurst Station Maximum Hour Pumping	4-11
Figure 4.13 MacLean Station Maximum Hour Pumping	4-12
Figure 5.1 Billed Consumption by Block.....	5-2
Figure 5.2 Annual Revenue by Block.....	5-2
Figure 5.3 Unit Revenue by Block	5-3

Appendices

Appendix A

Historical Water Consumption Summary
Figure 2.1 Existing Water Supply Systems

Appendix B

Table B.1 Historical Annual Pumping
Table B.2 Historical Monthly Pumping

Appendix C

Table C.1 Weekly Shoal Lake Water Elevations 2010
Table C.2 Water Pumpage Summary Report 2010
Figure 4.1 Aqueduct Flow vs. Shoal Lake Level

Appendix D

Table D.1 Historical Water Rates
Table D.2 Historical Billed Water Consumption
Table D.3 Historical Water Revenue
Table D.4 Historical Unit Water Revenue
Table D.5 Historical Non-Billed Water
Table D.6 Historical Unaccounted - For Water

List of Abbreviations

GL – giga litres or (1,000,000,000)

ML – mega litres or (1,000,000)

L/c/d – litres per capita per day

ML/d – mega litres per day

1.0 SUMMARY

The following information summarizes the water consumption for the year 2010.

Table 1.1 2010 Water Consumption Data

Statistic	2010 Actual Values	Present Capacity
Total Water Pumped	75.03 GL	130.0 GL
Average Day Consumption	205.6 ML/d	386.0 ML/d
Population ¹	683,200	
Per Capita Consumption	300.9 L/c/d	
Maximum Month Consumption (Load Factor)	221.6 ML/d (1.08)	
Maximum Day Consumption (Load Factor)	247.3 ML/d (1.20)	628.0 ML/d
Maximum Hour Consumption (Load Factor)	361.0 ML/d (1.76)	1,254.0 ML/d
Total Water Metered	63.46 GL	
Unaccounted-for Water	15.42 %	
Total Water Billed	63.14 GL	
Non-billed Water	15.85 %	

A summary of all historical consumption information is tabulated in Appendix A.

¹ City of Winnipeg – CAO Secretariat (Statistics Canada) – January 2011

2.0 INTRODUCTION

2.1 General

Since 1919, residents of the City of Winnipeg have enjoyed virtually unrestricted use of water supplied by a single gravity aqueduct from Shoal Lake. Shoal Lake is located approximately 160 km East of Winnipeg in the Canadian Shield. The lake straddles the Manitoba/Ontario border and is tributary to the Lake of the Woods, which straddles the Canada/United States Border. The existing water supply system is shown in Figure 2.1 (in Appendix A). The total water supply system consists of:

- An intake and low lift pumping station at Shoal Lake built in 1959 and upgraded in 1995. The 1995 upgrade increased the firm pumping capacity of the station to 386 ML/d;
- The main aqueduct with a 386 ML/d capacity completed in 1919;
- Deacon Reservoir consisting of four cells, two built in the 1970's, and two more completed in 1997;
- Deacon Booster Pumping Station built in 1978;
- Deacon Chemical Feed Facility built in 2000. The chemical feed facility adds orthophosphate to the water supply to control lead levels in drinking water and fluoride to the water supply;
- Branch I Aqueduct completed in 1919;
- Branch II Aqueduct built in 1960;
- MacLean Reservoir and Pumping Station built in 1964 and upgraded in 1998. The 1998 upgrade included pump refurbishment and the installation of new isolation valves;
- Tache Booster Pumping Station built in 1950;
- McPhillips Reservoir and Pumping Station built in 1919 and upgraded in 1975 and 1999. The 1999 upgrade included pump refurbishment, installation of new isolation valves, addition of a new pump and natural gas engine;
- Wilkes Reservoir and Hurst Pumping Station built in 1959 and upgraded in 1994 and 1996. The 1994 upgrade included the installation of three new pumps and the 1996 upgrade included the covering of the South Cell of the Reservoir;
- Installation of a UV system at the Deacon Booster Pumping Station in 2004 and placed in service in 2006;
- New valve chamber at Branch II Aqueduct and Aqueduct Interconnector intersection in 2005 was constructed;
- Branch I and II Aqueducts were relocated as part of the floodway expansion in 2006.
- Branch I Aqueduct Surge Tower was constructed as part of the Water Treatment Program in 2007;
- Water Treatment Plant started to deliver treated drinking water on December 9, 2009.

Each decade the Water and Waste Department undertakes a comprehensive planning study of the regional water supply system to define long-term quantity and quality needs.

In 1990, as part of the City of Winnipeg's water supply plan, a water projection was developed to the year 2040. The projection was based on the analysis of actual water consumption data from 1922 to 1989. The study concluded that an increase in per capita water use in the City of Winnipeg was expected to continue into the future.

In June 1992, Council of the City of Winnipeg adopted the recommendation that the City embark on a long-term water conservation program in response to the increasing per capita water use in the City of Winnipeg.

In 1995, the 1990 water projection was reviewed due to a reduction in per capita usage since 1990, and a change in population projections since 1988. The review concluded that in the short term, water use would be lower, but in the long term would be similar to the 1990 projection, due to a higher population projection.

In 1997 it became evident that changes in technology in the water use market warranted a reassessment of the water projections². The reassessment indicated that the prevailing per capita residential water demand growth rate will not be as high as in the past due to demographic and technology changes. The reassessment also concluded that the population is expected to grow at about the same rate as the per capita demand will decline, therefore the total water demand projection will be essentially constant.

In 2009 the water conservation program was expanded to include a residential toilet credit program. This credit will encourage customers to purchase a new dual flush toilet.

The following initiatives were continued:

- Sponsorship of the Fort Whyte Alive in delivering the water conservation education school program;
- Water consumption database updates;
- Public education program; and
- Sale of water conservation kits.

² Rempel, G. et al, City of Winnipeg Water Conservation Program Water Demand Evaluation and Projections Report February 1998

2.2 Purpose and Scope

The purpose of the annual water consumption summary is to maintain a historical record of water consumption data, which provides a basis for the monitoring, planning, and design of the water supply and distribution system. This consumption and population data form a statistical base for the development of analytical parameters, such as per-capita consumption and load factors. These parameters are used in conjunction with population projections to predict future consumption.

2.3 Sources of Data

Production of this report requires the collection of data from within the Department and from outside agencies. The data sources are as follows:

Monthly Water Consumption Pumpage Report

- Generated at the Water Treatment Plant by the Water Services Division, available in Engineering file system (020-01-11-02-19)
- Data available:
 - Monthly Shoal Lake level
 - Total monthly pumpage
 - Monthly pumpage by station
 - Average monthly pumping rate
 - Annual pumpage to date
 - Monthly metered consumption
 - Monthly billed consumption
 - Unaccounted - For water
 - Unbilled consumption

Monthly Pumping Report

- Generated at the Water Treatment Plant by the Water Services Division, available in Engineering file system (020-01-11-02-12)
- Data available:
 - Total daily pumpage
 - Daily pumpage by station
 - Peak daily pumping rate by station
 - Daily aqueduct flow rate
 - Daily pumping station reservoir levels
 - Daily Deacon Reservoir levels
 - Daily pumpage by station
 - Total daily pumpage

Pumping Station SCADA Output

- Generated at the Water Treatment Plant by the Water Services Division
- Data available:
 - Instantaneous discharge rates for each pumping station
 - Instantaneous pressure at each pumping station

Intake Operating Record

- Generated by Water Services Division, available in Engineering file system (020-01-11-02-07)
- Data available:
 - Lake levels at Indian Bay on weekly basis

Consumption & Revenue Statistics

- Generated by Customer Accounts Branch, available from the Financial Analyst
- Data available:
 - Annual billed consumption, by block
 - Annual revenue, by block
 - Annual quarterly charges
 - Annual metered consumption
 - Annual pumpage
 - Unaccounted-for water

Environment Canada

- Data available:
 - Meteorological summary

3.0 CONSUMPTION DATA

3.1 Annual Statistics

The total water pumped for 2010 was 75.03 GL. This value is measured as an indicator of utilized aqueduct capacity. Figure 3.1 shows the trend in the total water pumped since 1955. A breakdown of the historical annual and monthly pumping volumes may be found in Tables B.1 and B.2.

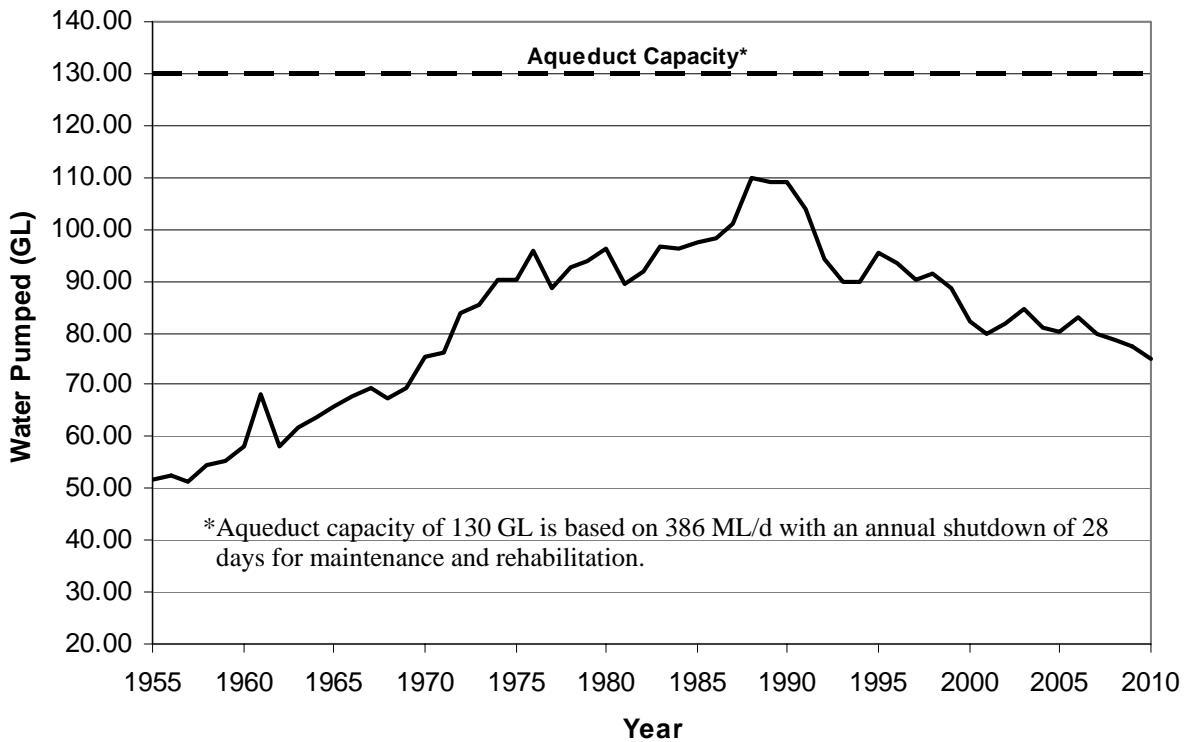


Figure 3.1 Total Water Pumped

The difference between the total water pumped and the total water metered is the unaccounted - for water. The typical causes of unaccounted - for water are leaks in the distribution system, water main flushing, sewer cleaning, water main renewals, meter errors, fire fighting or theft. With 75.03 GL of metered water in 2010, the unaccounted-for water represents 15.4% of the annual pumpage. This is a 0.1% point decrease from 2009. Figure 3.2 illustrates the yearly unaccounted-for water since 1977.

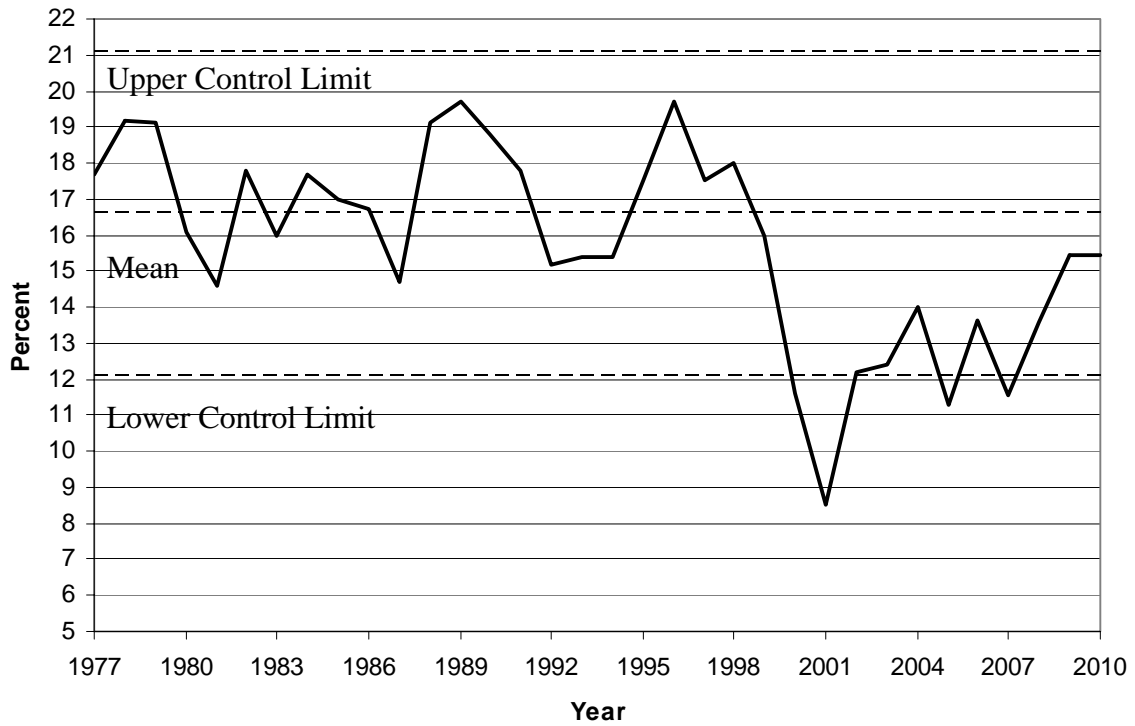


Figure 3.2 Annual Unaccounted – For Water

The number of water main repairs for 2010 totalled 328, a decrease of 24% from 2009. Overall, since the implementation of cathodic protection of metallic water mains in 1990 within the City of Winnipeg, the number of water main breaks has been reduced. Figure 3.3 illustrates the total water main repairs since 1975.

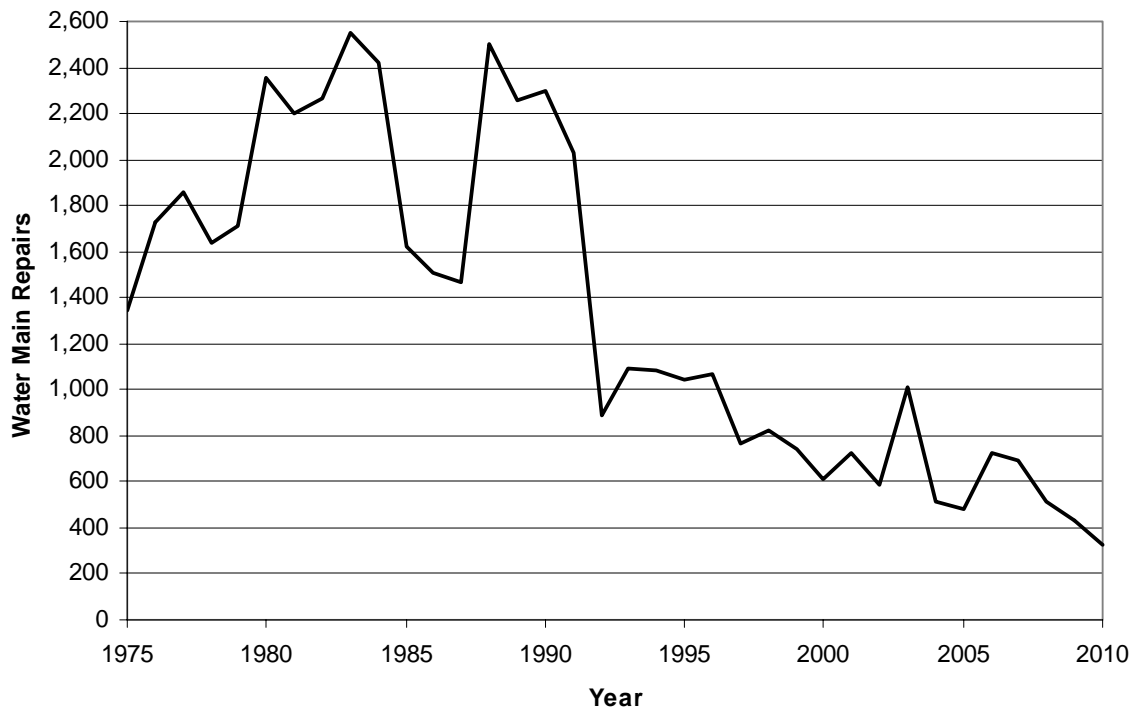


Figure 3.3 Annual Water Main Repairs

The total demand for water is also influenced by weather. In a dry and hot year, the total water demand is higher, largely due to residential outdoor usage (primarily lawn watering). In 2010, the total water pumped was 3% lower than the preceding year. A monthly summary of the temperatures and precipitation experienced during 2010 are included in Figures 3.4 and 3.5.

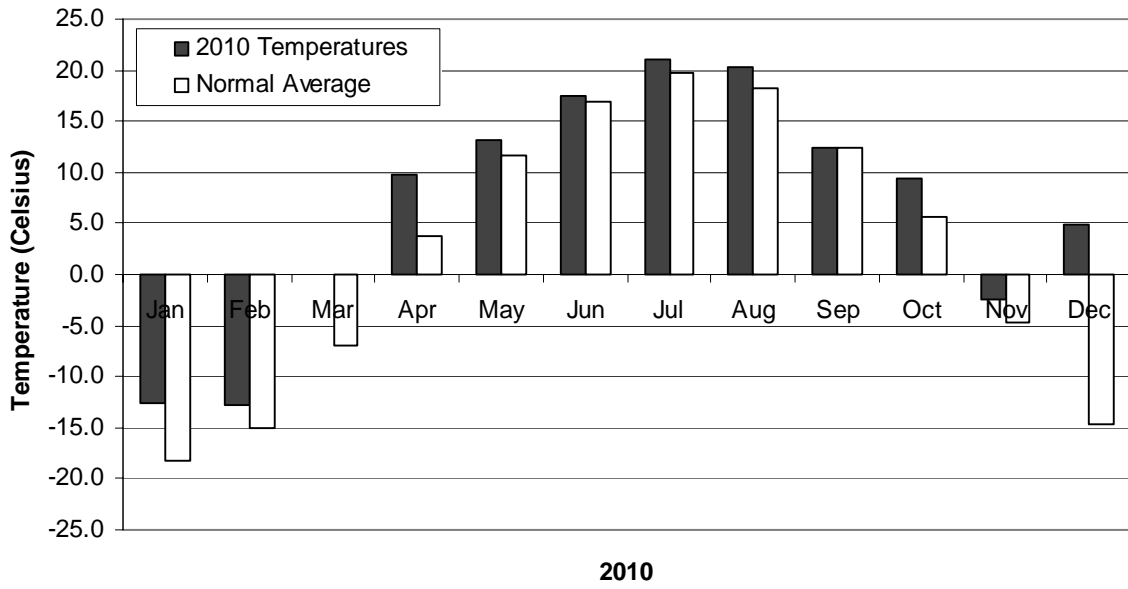


Figure 3.4 2010 Average Monthly Temperature

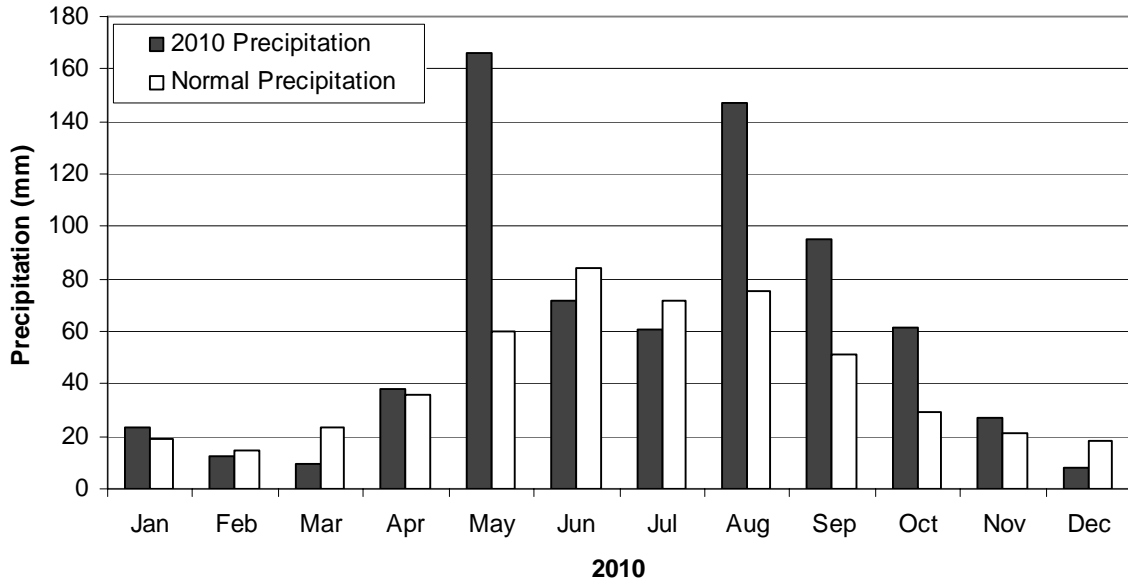


Figure 3.5 2010 Monthly Precipitation

3.2 Average Day Consumption

The average day consumption is used to determine the load factors for maximum hour, maximum day, maximum month; and the storage used in Deacon Reservoir. The average day consumption is calculated by dividing the total water pumped by the total number of days in the year. The calculated average day consumption for 2010 was 205.6 ML/d as indicated in Figure 3.6.

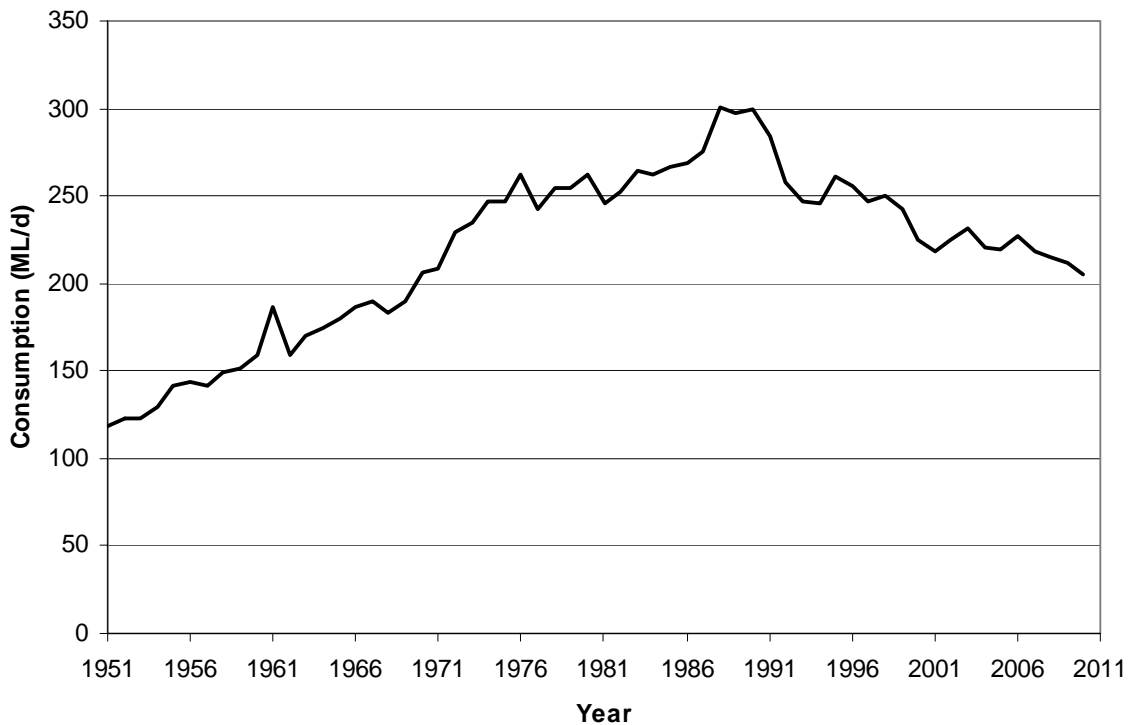


Figure 3.6 Average Day Consumption

3.3 Per Capita Consumption

The 2010 population within the boundaries of the City of Winnipeg is estimated to be 683,200. This estimate was obtained from the City of Winnipeg CAO Secretariat. Figure 3.7 illustrates the historic population of the City of Winnipeg.

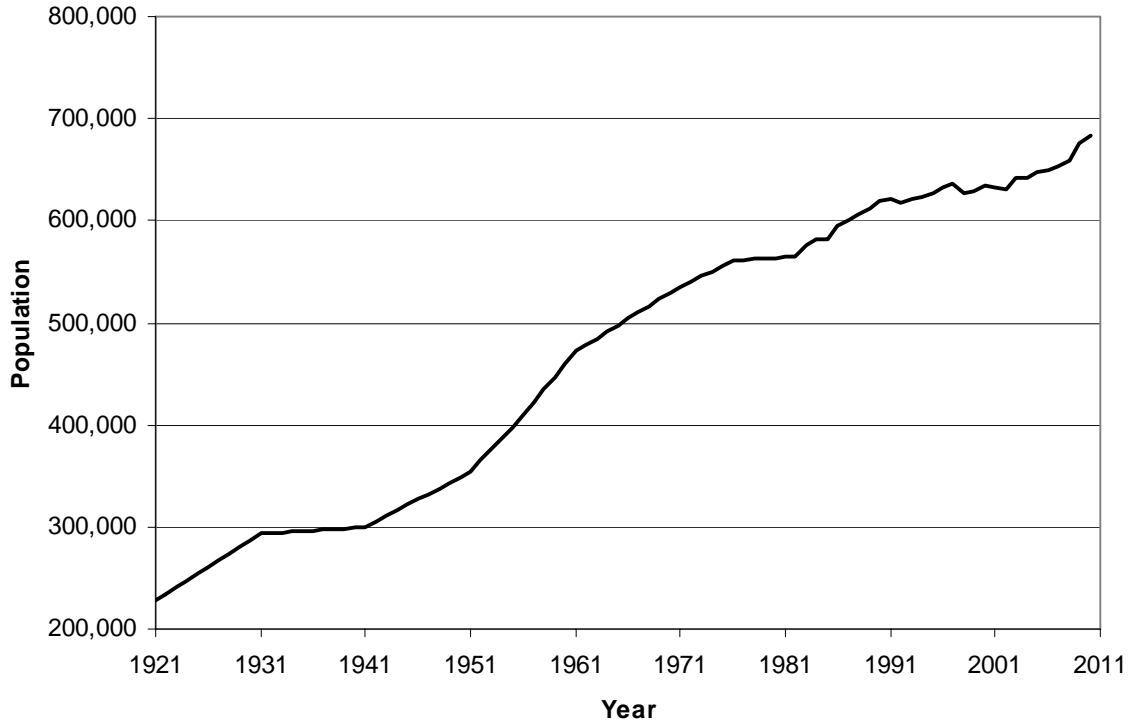


Figure 3.7 Population

Per capita consumption is calculated by dividing the average day consumption by the estimated population for the same year. With an average day consumption for 2010 of 205.6 ML/d, the per capita consumption was calculated to be 300.9 L/c/d, as shown in Figure 3.8.

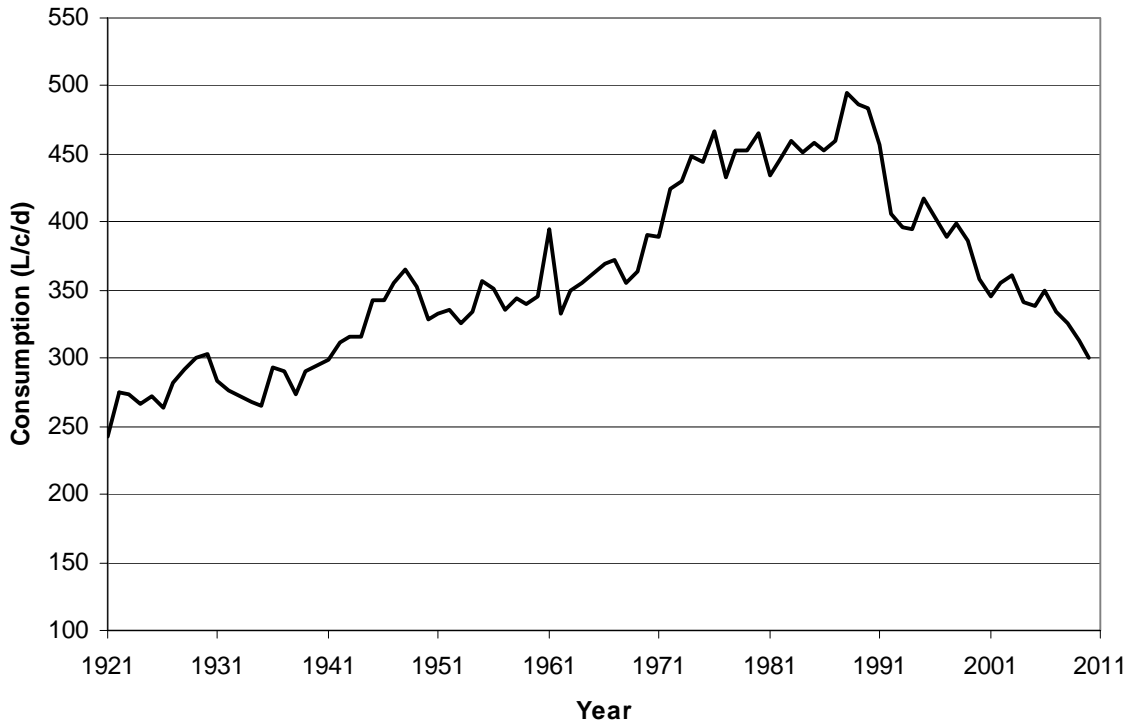


Figure 3.8 Per Capita Consumption

3.4 Extremes and Load Factors

The maximum pumping rates and load factors for various time periods are required to ensure that the supply system components have adequate capacities. Load factors are dimensionless values calculated by dividing various consumption rates by the year's average day consumption. Load factors were calculated for daily consumption, maximum month consumption, maximum day consumption and maximum hour consumption.

Maximum Month Consumption

The experienced maximum month consumption rate for 2010 was 221.6 ML/d for the month of July as shown in Figure 3.9. The maximum month load factor was 1.08.

The 31-day maximum consumption rate for 2010 was 242.1 ML/d for the period of June 30th to July 30th, inclusive. The 31-day maximum load factor was 1.08.

Maximum Week Consumption

The 7-day maximum consumption rate for 2010 was 247.3 ML/d for the period of May 15th to May 21st, inclusive. The maximum week load factor was 1.14.

Maximum and Minimum Day Consumption

The 2010 maximum day consumption of 247.3 ML was recorded on May 19th as shown in Figure 3.9. This is the summation of the individual maximum day pumping volumes of 66.2, 109.1 and 72.0 ML for McPhillips, Hurst and MacLean Stations, respectively. The maximum day load factor was 1.20. The existing record of 543.1 ML was set on June 6th, 1988.

In 2010, the minimum day consumption of 173.7 ML was recorded on December 25th. This total is the summation of the individual minimum day pumping volumes of 38.0, 86.5 and 49.2 ML for McPhillips, Hurst and MacLean Stations, respectively.

Maximum Hour Consumption

The 2010 maximum hour consumption rate of 361 ML/d was recorded at 7:38 a.m. on May 19th, as shown in Figure 3.9. This is the summation of the pumping rates at McPhillips, Hurst and MacLean Stations with values of 114, 147, and 99 ML/d, respectively. The maximum hour load factor was 1.76. The existing record for maximum hour consumption is 954 ML/d and was set on June 6th, 1988.

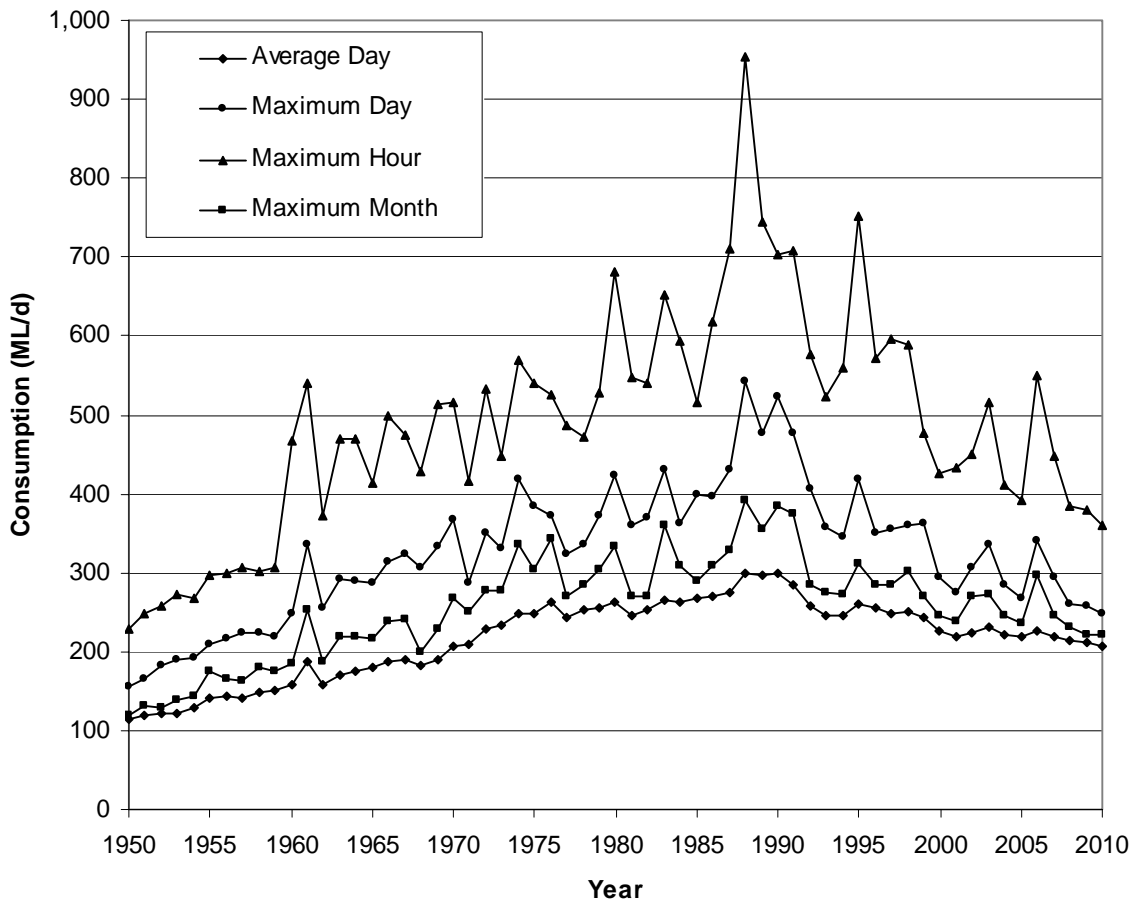


Figure 3.9 Consumption Rates

Minimum Hour Consumption

Typically the minimum hour consumption for the year occurs on December 25th. Reasons for this are that most businesses are closed for Christmas, residential consumption is lower and the demand period is shifted to later in the day. The minimum hour consumption rate on December 25th, 2010 was 76.42 ML/d, recorded at 4:00 am. This is the summation of individual pumping volumes on December 25th of 54.59 and 21.83 ML/d from the Hurst and MacLean Pumping stations, respectively. McPhillips usually does not operate between 12 midnight and 6 a.m. because of low nighttime flows. Figure 3.10 illustrates the minimum hour pumping rates.

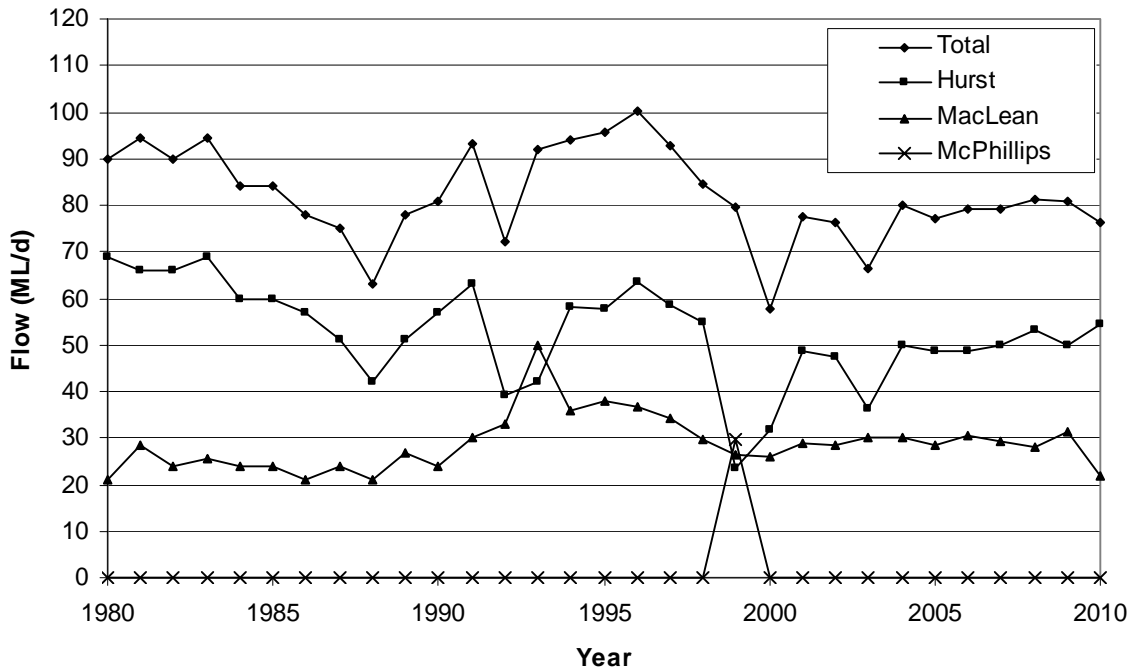


Figure 3.10 Minimum Hour Pumping Rates

Table 3.1 compares the load factors for the extreme 2010 consumption rates to the design load factors for the supply system. The historical load factors are illustrated in Figure 3.11 and the frequency distribution of daily load factors occurring in 2010 are illustrated in Figure 3.12.

Table 3.1 2010 Load Factors

Event	2010 Experienced Values	Design Values³
Maximum Month	1.08	1.20
Maximum Day	1.20	1.60
Maximum Hour	1.76	2.50

³ Rempel, G. et al, Study A: Total Demand for Water to the Year 2030, J.F. MacLaren Ltd. Winnipeg, April 1979.

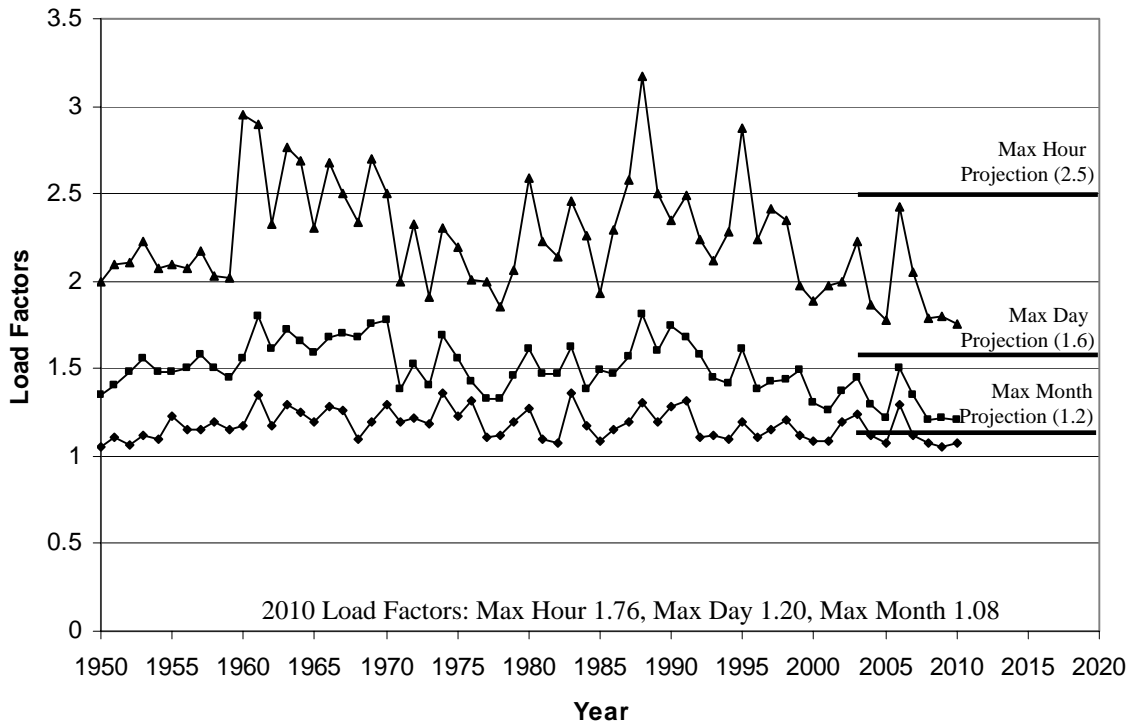


Figure 3.11 Load Factors

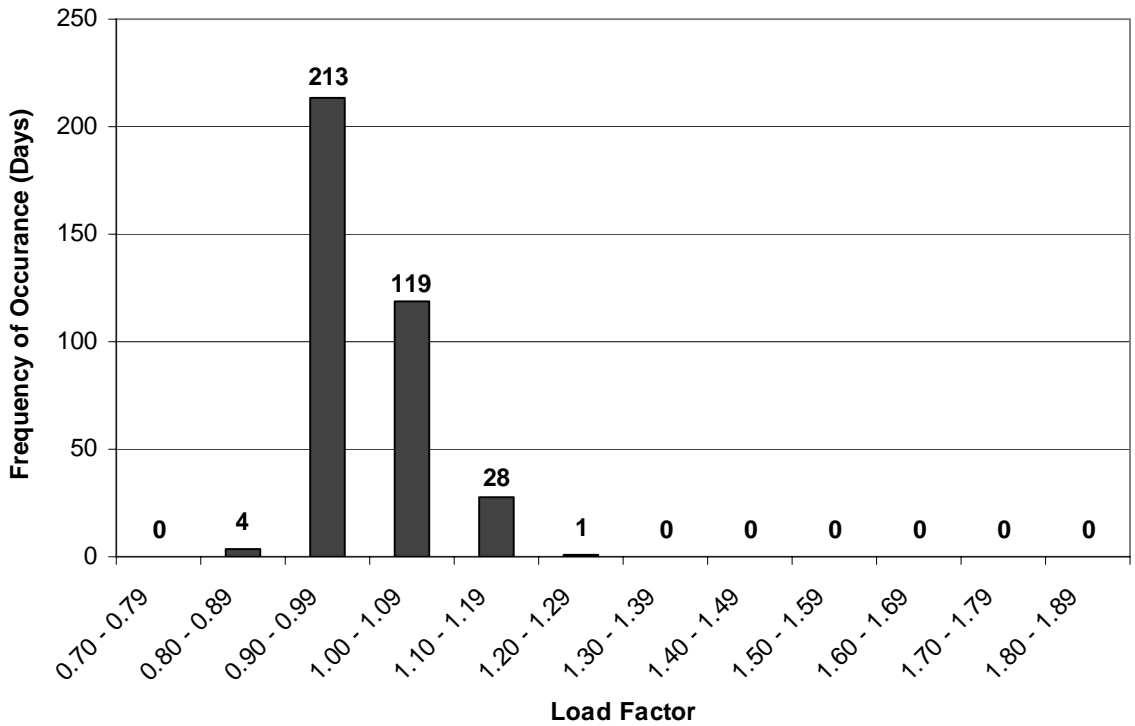


Figure 3.12 2010 Daily Load Factor Histogram

4.0 BALANCING STORAGE AND CAPACITY REQUIREMENTS

4.1 Shoal Lake Aqueduct

The Shoal Lake Aqueduct extends 136 kilometers from the intake at Shoal Lake to the Deacon Reservoir, East of Winnipeg. Water flows by gravity through the aqueduct due to the natural drop in land elevation. The City of Winnipeg is licensed to withdraw 454 ML/d from the lake. The aqueduct has a capacity of 386 ML/d, except the initial 16 kilometers, which were originally designed for a flow of 545 ML/d. The relationship between the lake level and aqueduct flow by gravity is illustrated in Figure 4.1 (Appendix C). An elevation of 322.40 m is required to sustain a flow rate of 386 ML/d. Figure 4.2 shows the frequency distribution of monthly lake levels from 1919 to 2010. Historically, 80 % of the time the lake level has been sufficient to supply 386 ML/d. A summary of the weekly lake levels recorded in 2010 is shown on Figure 4.3 and detailed in Table C.1 (Appendix C).

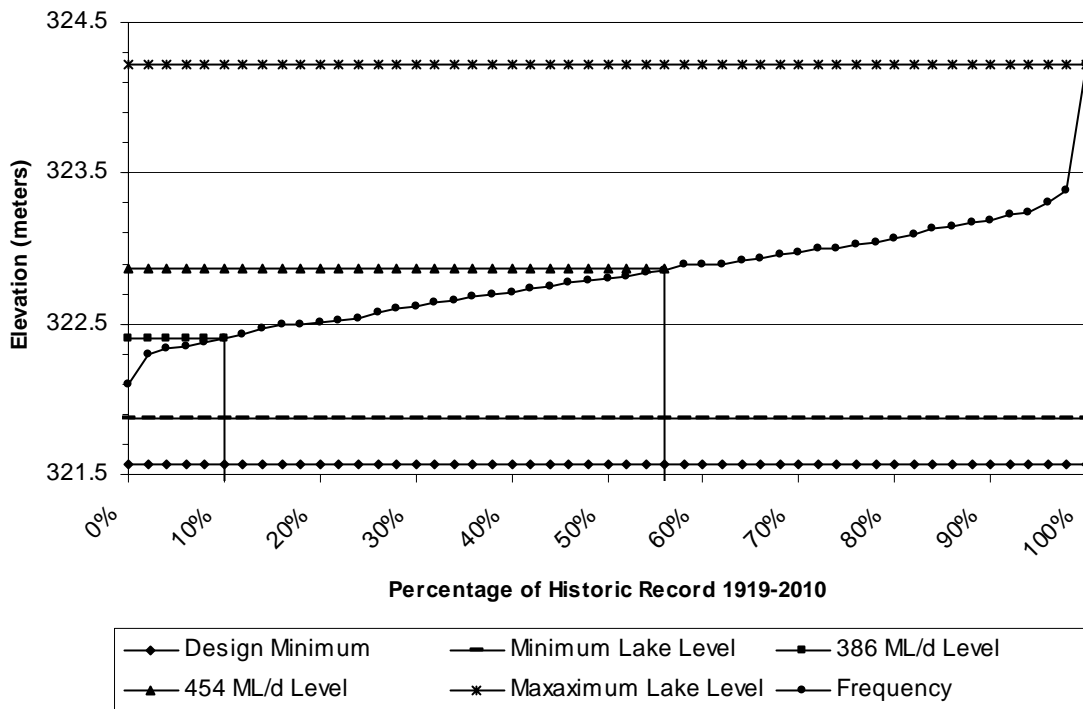


Figure 4.2 Shoal Lake Low Water Frequency

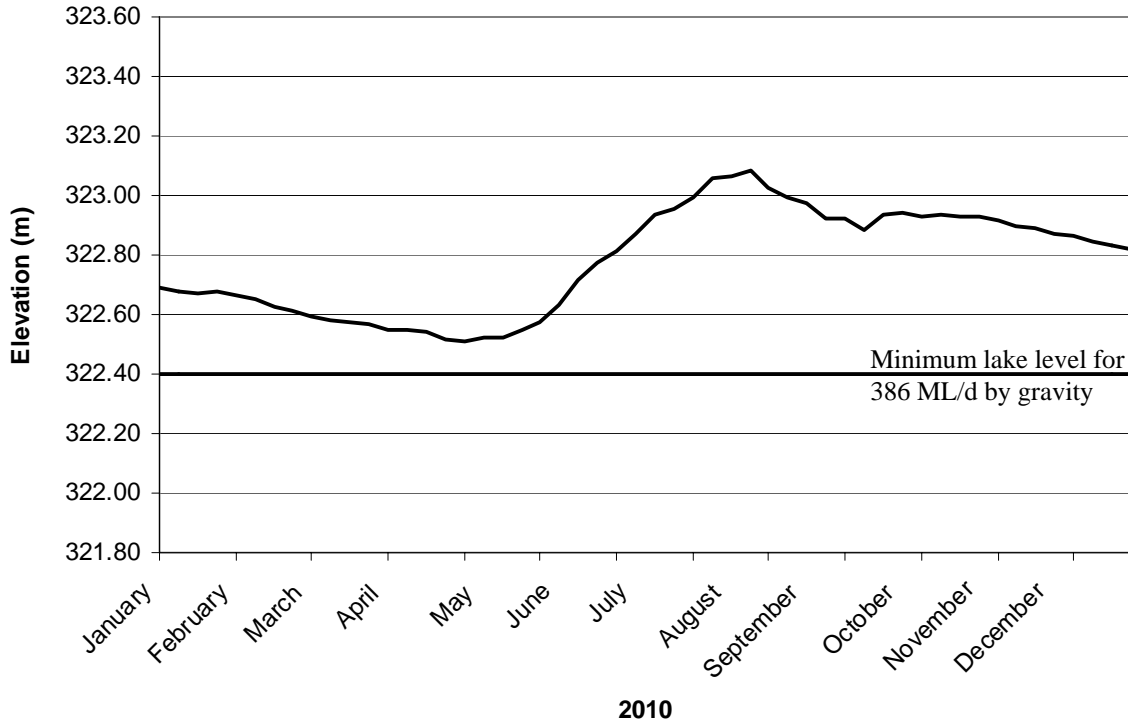


Figure 4.3 2010 Shoal Lake Levels

When the lake level is too low for sufficient flow by gravity, one of two pumps is used to lift the water from the lake into the aqueduct. The pumps are both 386 ML/d capacity, resulting in a present firm pumping capacity of 386 ML/d. Thus, a supply rate equal to the capacity of the aqueduct is available.

The maximum amount of water that can be supplied to the City annually is based on the aqueduct capacity and the number of days per year that it operates. Therefore, the annual delivery capacity is 130 GL based on a flow rate of 386 ML/d and a 28-day shutdown. During the year the flow rate of the aqueduct is varied in response to consumer demand and Deacon Reservoir levels. Figure 4.4 illustrates a summary of the aqueduct flow rates for 2010.

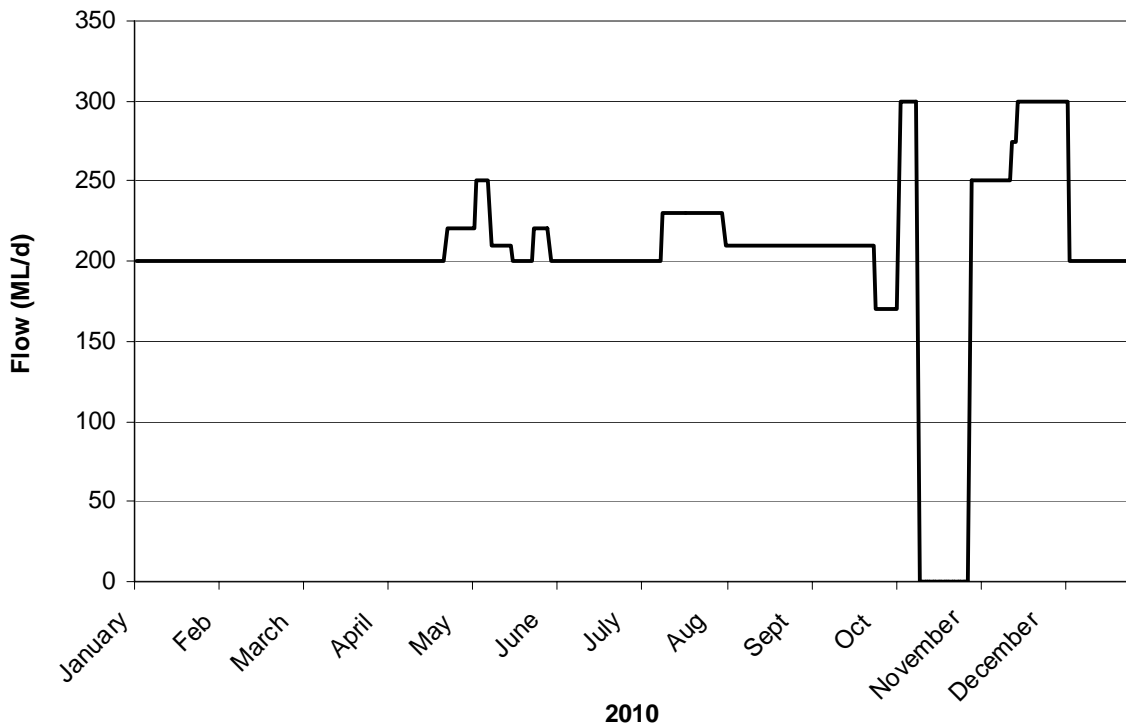


Figure 4.4 Shoal Lake Aqueduct Flow Rate

4.2 Deacon Reservoir

Deacon Reservoir is located at the terminus of the Shoal Lake Aqueduct and has four cells with a usable capacity of 8,400 ML. It is used to supplement the aqueduct flow when daily demand exceeds the aqueduct flow rate, as well as provide water to the City when the aqueduct is shut down for maintenance and rehabilitation.

The balancing storage requirement for Deacon Reservoir may be calculated based on an aqueduct capacity of 386 ML/d. The storage is calculated over a period where the daily consumption exceeds the aqueduct capacity. The maximum drawdown volume of the reservoir during such a time period is the balancing storage requirement.

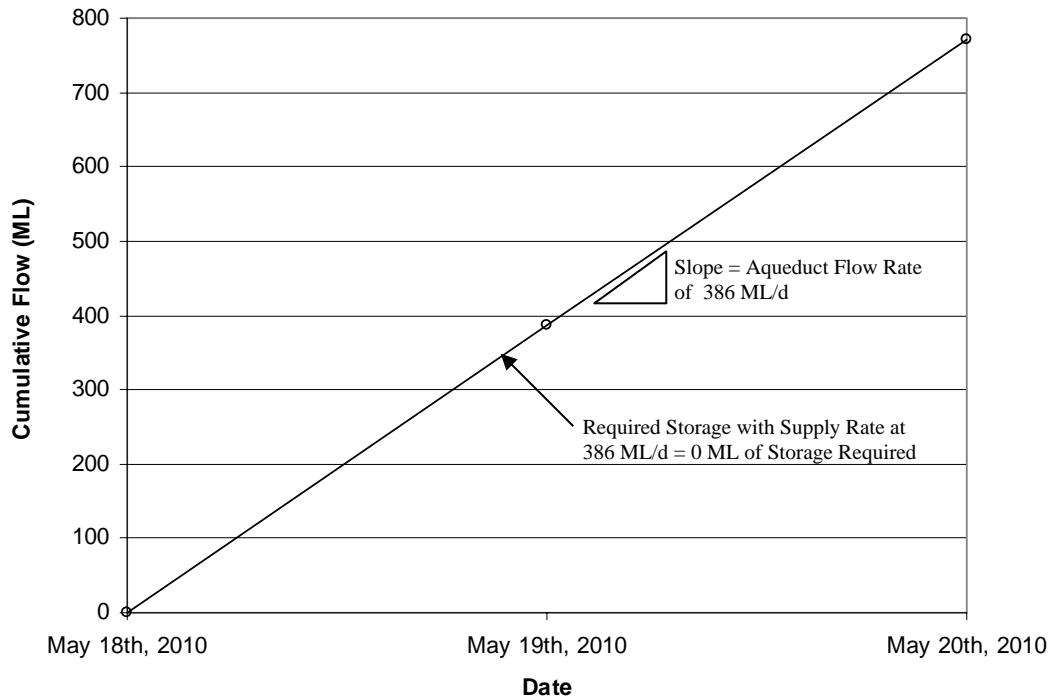


Figure 4.5 Deacon Reservoir Balancing Storage

An analysis of the balancing storage required during the 2010 critical demand period indicates that if the aqueduct were supplying Deacon at 386 ML/d, there was no additional storage requirement necessary. This balancing storage requirement is illustrated in Figure 4.5. Table 4.1 lists the Deacon balancing storage requirements since 1980.

Table 4.1 Deacon Reservoir Balancing Storage Requirements

Year	Aqueduct Flow Rate - 386 ML/d	
	Period	Storage Required (ML)
1980	May 21 – 23	86
1981	None	0
1982	None	0
1983	July 25 – 29	75
1984	None	0
1985	August 1	14
1986	May 28 – 29	19
1987	June 15 – 16	91
1988	May 29 – June 10	1110
1989	July 18 – August 2	347
1990	August 5 – 8	305
1991	August 10 – 29	301
1992	May 30 – June 1	39
1993	None	0
1994	None	0
1995	June 18 – 20	33
1996	None	0
1997	None	0
1998	None	0
1999	None	0
2000	None	0
2001	None	0
2002	None	0
2003	None	0
2004	None	0
2005	None	0
2006	None	0
2007	None	0
2008	None	0
2009	None	0
2010	None	0

4.3 Regional Supply System

The regional supply system consists of the Branch Aqueducts, Deacon Booster Pumping Station, Tache Booster Pumping Station, three regional reservoirs and three regional pumping stations. Table C.2 (Appendix C) is a daily record of the total water pumped by each of the regional pumping stations in 2010.

The maximum firm capacity of Deacon Booster Pumping Station to supply the Branch Aqueduct network is 480 MLD. The capacity is increased to 500 MLD with the Tache Booster Pumping Station in operation. The Branch I Aqueduct had a flow rate of 66.2 ML/d on the maximum day of 2010, as shown in Figure 4.6. Branch I was shut down during the maximum day in 2000 to accommodate the draining of Deacon Reservoir Cells 1 & 2 for maintenance and cleaning.

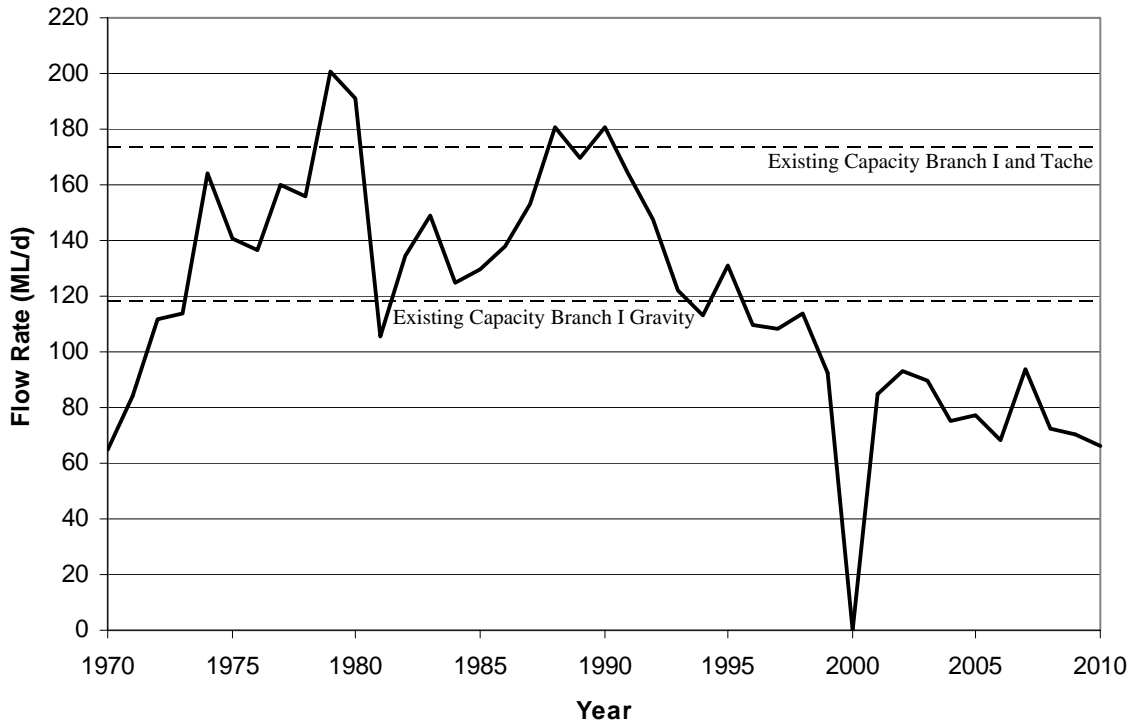


Figure 4.6 Branch I Aqueduct Maximum Day Flow

The Branch II Aqueduct had a flow rate of 181.1 ML/d on the maximum day of 2010, as shown on Figure 4.7.

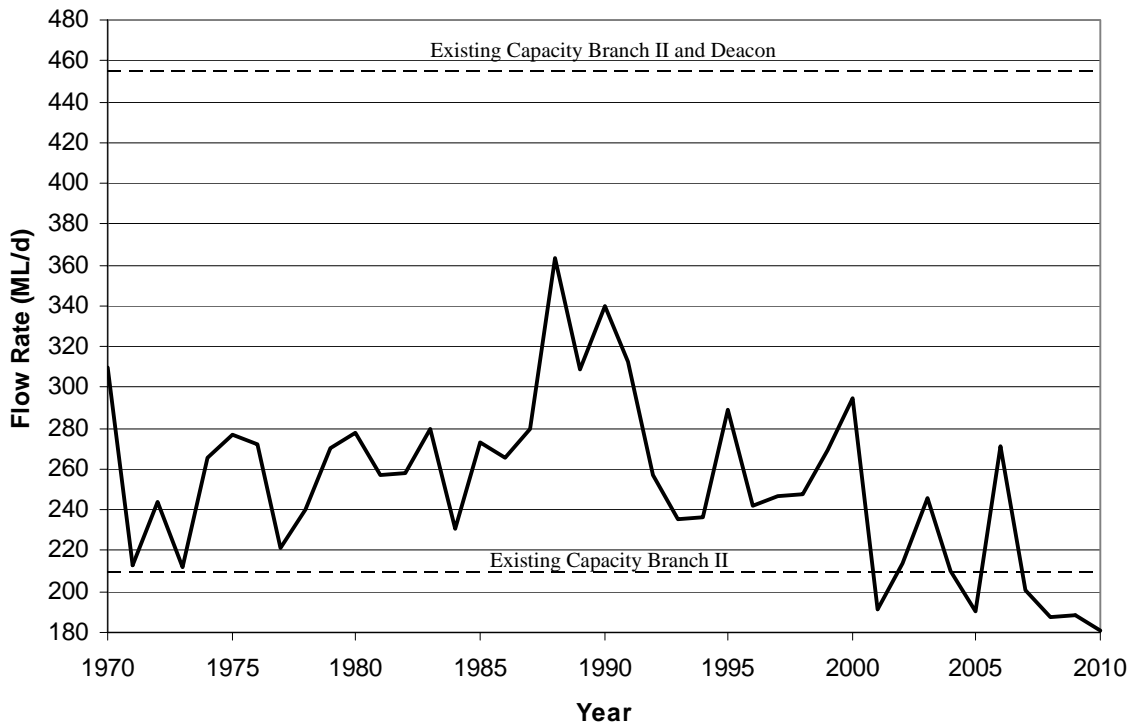


Figure 4.7 Branch II Aqueduct Maximum Day Flow

Assuming that the Branch Aqueducts were supplying the pumping station reservoirs at the maximum day flow rates, mass curves were drawn for each pumping station to determine the balancing storage required for each pumping station reservoir. The balancing storage required at each pumping station is shown in Figures 4.8, 4.9 and 4.10.

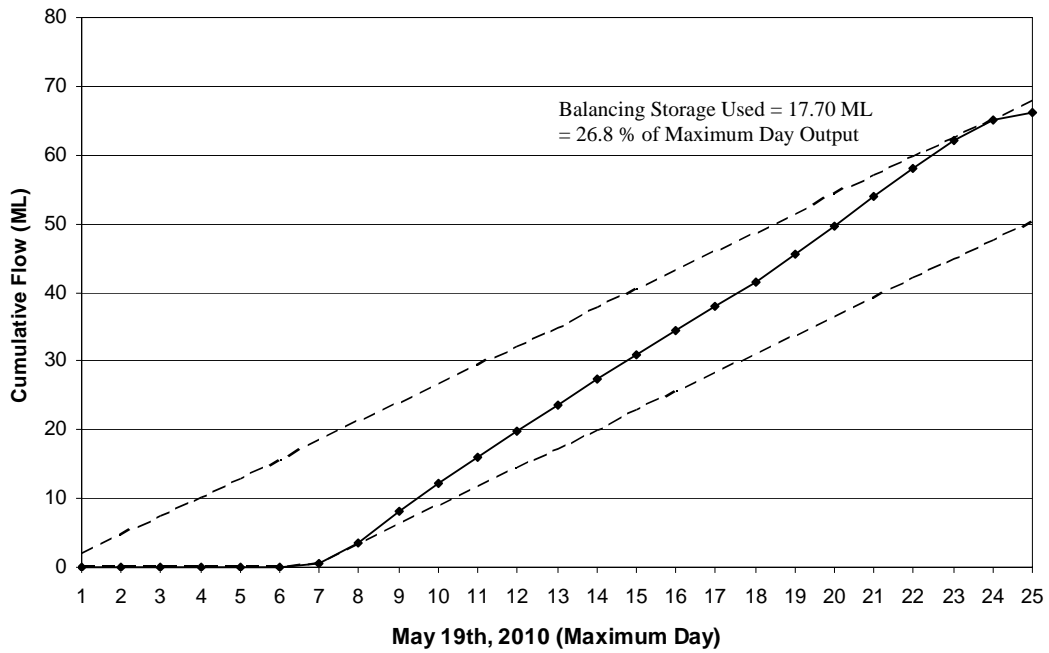


Figure 4.8 McPhillips Reservoir Balancing Storage

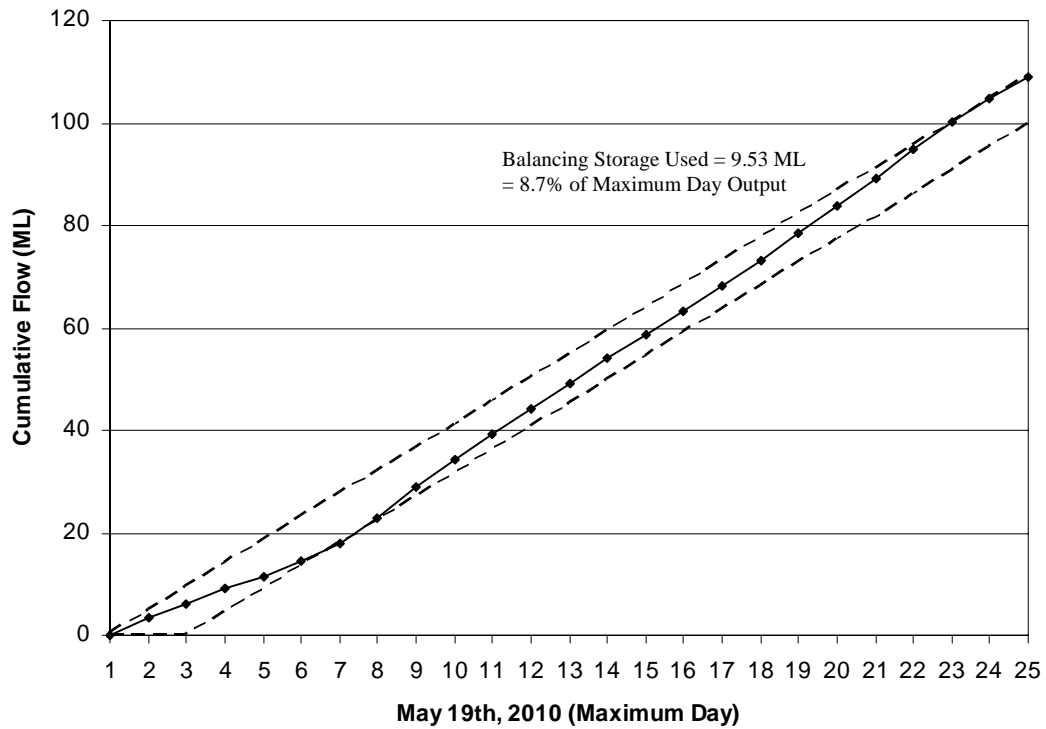


Figure 4.9 Wilkes Reservoir Balancing Storage

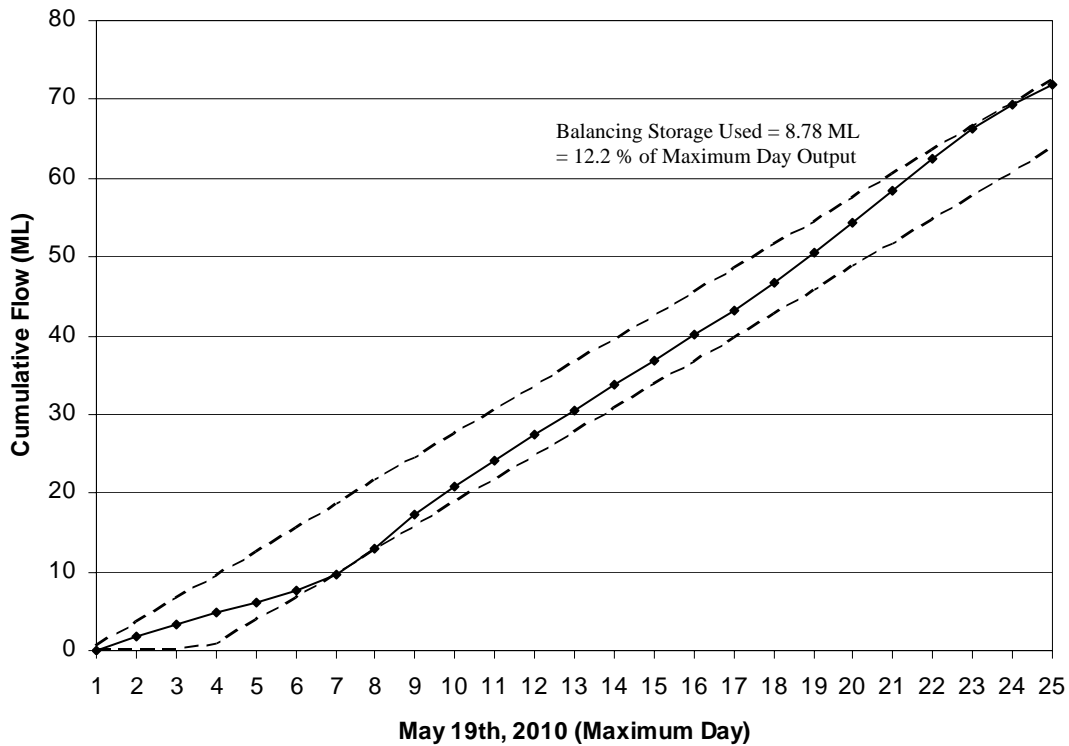


Figure 4.10 MacLean Reservoir Balancing Storage

The balancing storage at a distribution reservoir is the maximum amount of storage used on the maximum day. The balancing storage is the total drawdown volume of the reservoir during the time period where the hourly pumpage is greater than the average hourly pumpage for that day.

The design criterion put forth by the 1967 Water Supply Study was that the balancing storage required at a pumping station reservoir to provide for a maximum hour demand is approximately 18% of the volume of water pumped from that station during a maximum day. The balancing storage requirements at the McPhillips, Wilkes and MacLean Reservoirs in 2010 were approximately 26.8%, 8.7% and 12.2% of their maximum day outputs respectively.

To determine if the three existing pumping stations have the necessary capacity to supply sufficient water to the distribution system under maximum hour demands, graphs were drawn illustrating recorded maximum hour pumping rates and existing firm pumping capacities for the stations. Figures 4.11, 4.12 and 4.13 indicate the McPhillips, Hurst and MacLean Pumping Stations all had adequate capacity to provide for the 2010 maximum hour demand.

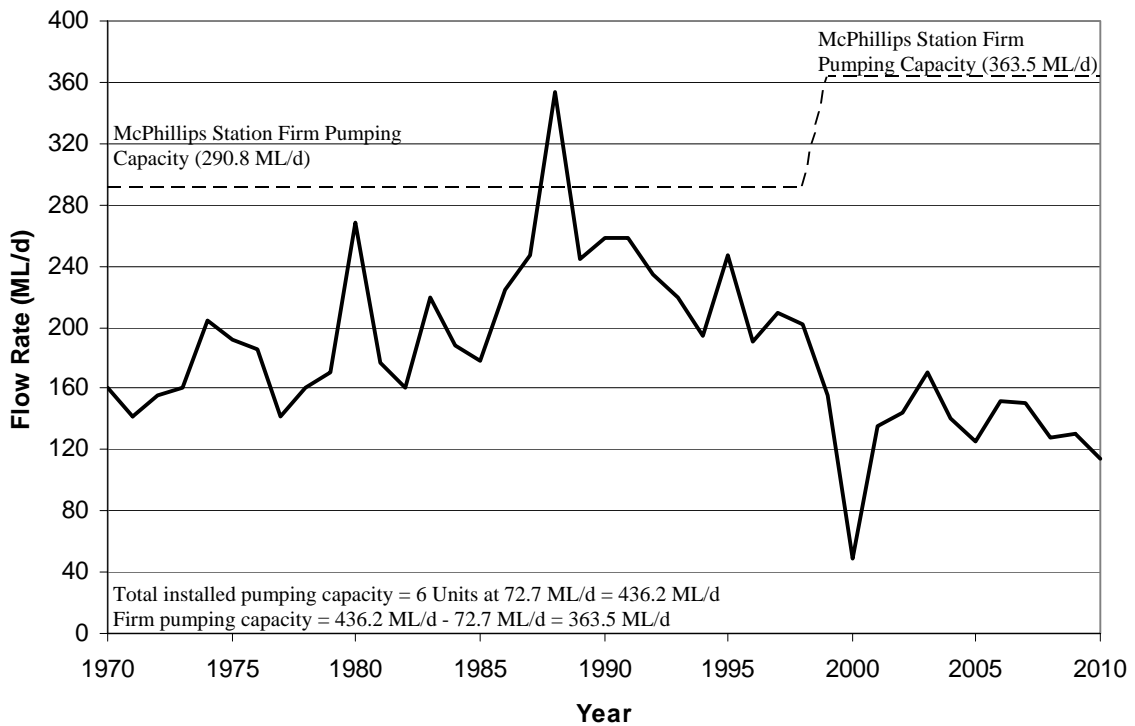


Figure 4.11 McPhillips Station Maximum Hour Pumping

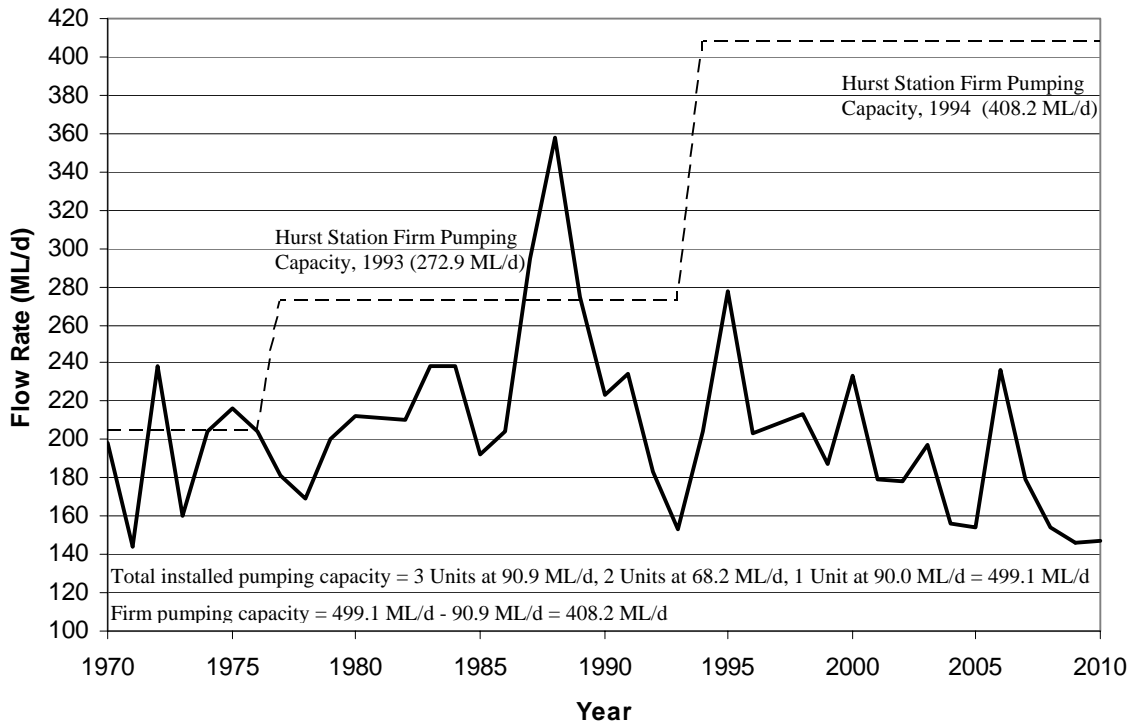


Figure 4.12 Hurst Station Maximum Hour Pumping

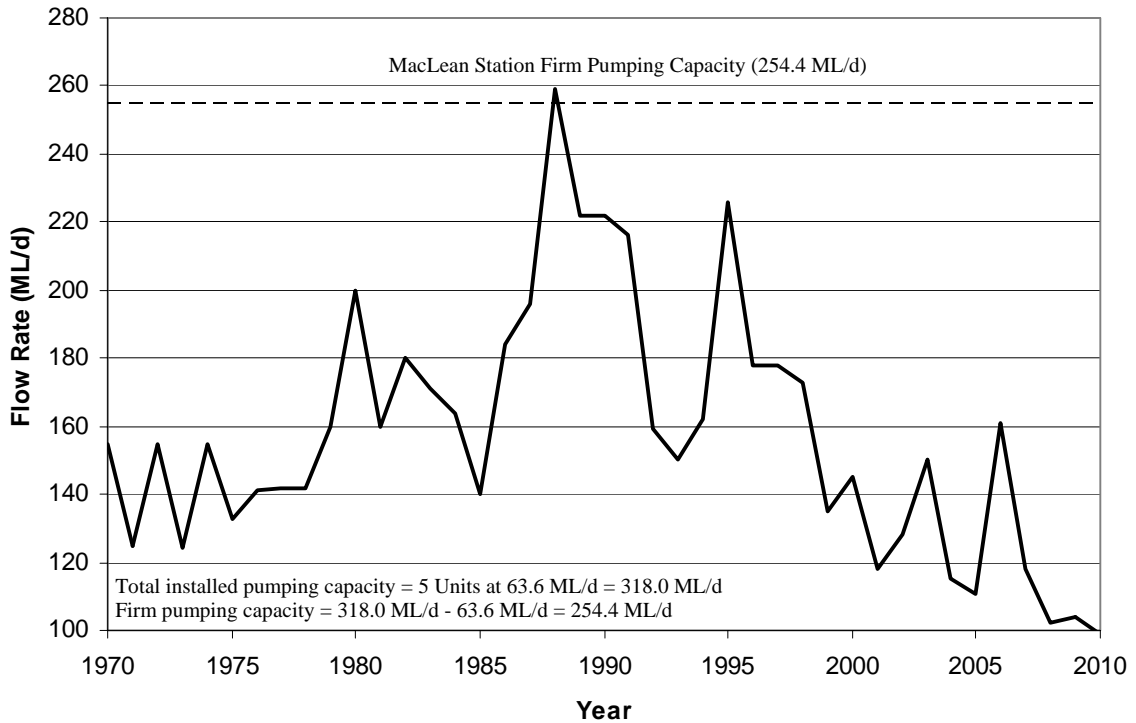


Figure 4.13 MacLean Station Maximum Hour Pumping

Neither the present combined firm pumping capacity for the three distribution pumping stations of 1,026.1 ML/d, nor the total installed capacity of 1,253.3 ML/d were exceeded during the 2010 peak demand period. The firm and installed capacities of the individual pumping stations are as follows:

Table 4.2 Distribution Pumping Station Capacity

Pumping Station	Firm Capacity (ML/d)	Installed Capacity (ML/d)
McPhillips	363.5	436.2
Hurst	408.2	499.1
MacLean	254.4	318.0
Total	1,026.1	1,253.3

5.0 METERED CONSUMPTION AND REVENUE

The water rate structure currently used is the Base Extra Capacity Method employing a three-block rate structure. The Block 1 rate is applied to consumption for 0 to 272 cubic meters; the Block 2 rate is applied to all consumption from 272 to 2718 cubic meters; and the Block 3 rate is applied to all consumption in excess of 2718 cubic meters.

The total water billed in 2010 was 63.14 GL. This value is used primarily in the determination of water rates. The total water pumped into the regional supply system was 75.03 GL, yielding a revenue loss factor of 15.85% for 2010. The revenue loss factor consists of unaccounted-for water (15.42%) and metered but non-billed water (0.2% for sewer chlorination and usage at the three Water Pollution Control Centers). A summary of the billed consumption's and generated revenues for each block is as follows:

Table 5.1 2010 Billed Consumption and Revenue by Block

Block	Billed Consumption		Water Revenue	
	GL	%	(Million \$)	%
1	37.19	58.9	47.79	56.9
2	15.72	24.9	17.51	20.8
3	10.12	16.0	9.55	11.4
Public Water Outlets	0.11	0.2	0.25	0.3
Quarterly Charge	-	-	8.92	10.6
Total	63.14	100.0	84.02	100.0

Figures 5.1 and 5.2 illustrate the history of water consumption and revenue by block since 1977.

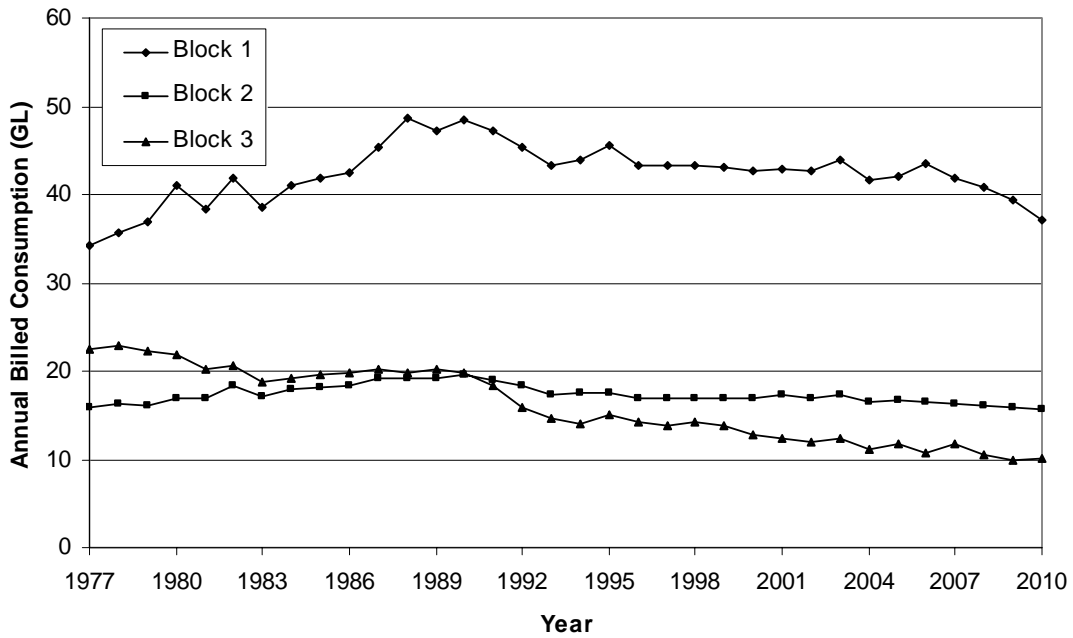


Figure 5.1 Billed Consumption by Block

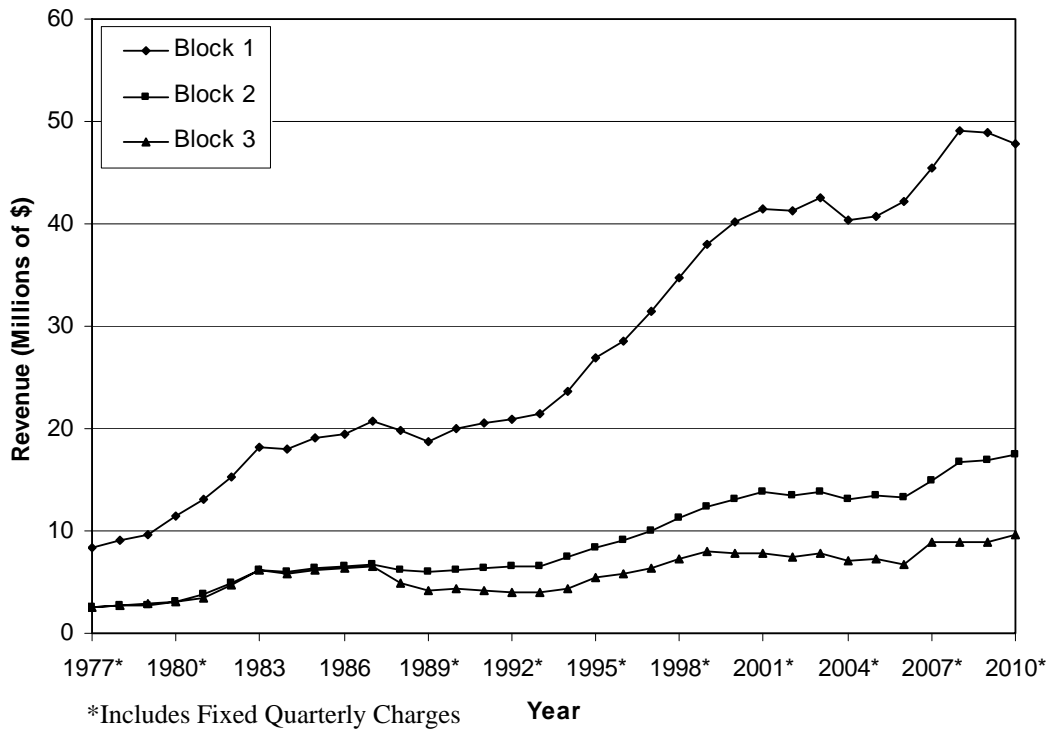


Figure 5.2 Annual Revenue by Block

Figure 5.3 illustrates the history of unit revenue by block since 1977. Unit revenue represents revenue divided by billed consumption. In order to estimate unit revenue by block, it was assumed that the revenue generated from fixed quarterly charges (implemented in 1988) could be proportioned among the blocks according to meter size.

For example, the fixed quarterly charges collected from accounts with 5/8" meters were assigned to Block 1 revenue, 3/4" to 1 1/2" to Block 2 revenue, and 2" to 10" to Block 3 revenue.

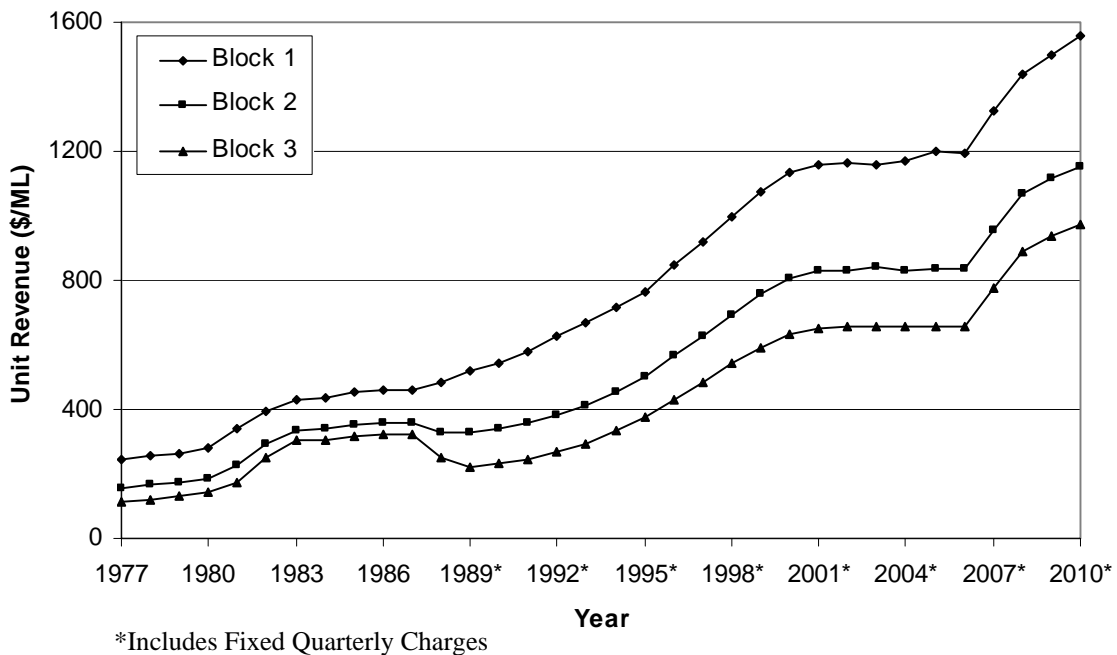


Figure 5.3 Unit Revenue by Block

The summaries of billed water consumption, revenue and unit revenue by blocks, non-billed water and unaccounted-for water for the years 1977 to 2010 are tabulated in Tables D.2, D.3, D.4, D.5 and D.6, respectively. (See Appendix D)

The new water rates, which took effect on January 1, 2010, are as follows:

Table 5.2 2010 Water Rates and Quarterly Charges

Block	Water Rate (per cu m per quarter)	Meters in Service	% Consumption
1	\$ 1.29	184,159	58.9
2	\$ 1.12	9,022	24.9
3	\$ 0.95	1,413	16.0
Meter Size	Quarterly Charge	Meters in Service	
5/8" (residential)	\$ 13.75	184,159	
3/4"	\$ 14.80	3,998	
1"	\$ 17.70	3,374	
1 1/2"	\$ 21.45	1,650	
2"	\$ 31.80	1,103	
3"	\$ 109.45	183	
4"	\$ 139.25	78	
6"	\$ 207.60	41	
8"	\$ 285.70	7	
10"	\$363.80	1	

A history of the block rates since 1974 is included in Table D.1.

Appendix A

Historical Water Consumption Summary

Year	Total Water Pumped (Litres) x 1000	Population	Avg Day (ML/d)	Per Capita (L/c/d)	Max Day (ML/d)	Max Day Load Factor	Max Hour (ML/d)	Max Hour Load Factor	Max Month (ML/d)	Max Month Load Factor
1921 *	20,200,000	228,035	55.3	242.7						
1922 *	23,500,000	234,561	64.4	274.5						
1923 *	24,100,000	241,087	66.0	273.9						
1924 *	24,200,000	247,613	66.1	267.0		10.0				
1925 *	25,300,000	254,139	69.3	272.7						
1926 *	25,100,000	260,665	68.8	263.8						
1927 *	27,500,000	267,191	75.3	282.0						
1928 *	29,300,000	273,717	80.1	292.5						
1929 *	30,700,000	280,243	84.1	300.1						
1930 *	31,800,000	286,769	87.1	303.8						
1931 *	30,300,000	293,300	83.0	283.0						
1932 *	29,800,000	293,964	81.4	277.0						
1933 *	29,300,000	294,628	80.3	272.5						
1934 *	28,900,000	295,292	79.2	268.1						
1935 *	28,700,000	295,956	78.6	265.7						
1936 *	31,800,000	296,620	86.9	292.9						
1937 *	31,500,000	297,284	86.3	290.3						
1938 *	29,700,000	297,948	81.4	273.1						
1939 *	31,600,000	298,612	86.6	289.9						
1940 *	32,200,000	299,276	88.0	294.0						
1941 *	32,800,000	299,937	89.9	299.6	116.9	1.3				
1942 *	34,800,000	305,350	95.3	312.2	126.7	1.3				
1943 *	35,800,000	310,763	98.1	315.6	134.4	1.4				
1944 *	36,600,000	316,176	100.0	316.3	140.0	1.4				
1945 *	40,300,000	321,589	110.4	343.3	154.6	1.4	231.8	2.1	119.2	1.1
1946 *	40,900,000	327,002	112.1	342.7	156.9	1.4	246.6	2.2	117.7	1.1
1947 *	43,100,000	332,415	118.1	355.2	155.9	1.3	224.4	1.9	125.2	1.1
1948 *	45,100,000	337,828	123.2	364.8	170.0	1.4	235.3	1.9	134.3	1.1
1949	44,208,172	343,241	121.1	352.9	181.6	1.5	276.1	2.3	135.6	1.1
1950	41,835,651	348,654	114.6	328.7	154.7	1.3	229.2	2.0	120.3	1.0

* Estimated consumption data picked off graphs in the 1967 and 1979 Regional Water Supply Studies.

** The Max Day, Max Hour and Max Month for 1941-1948 were calculated by multiplying the Load Factors by Average Day.

Year	Total Water Pumped (Litres) x 1000	Population	Avg Day (ML/d)	Per Capita (L/c/d)	Max Day (ML/d)	Max Day Load Factor	Max Hour (ML/d)	Max Hour Load Factor	Max Month (ML/d)	Max Month Load Factor
1951	43,092,693	354,069	118.1	333.4	165.3	1.4	247.9	2.1	131.1	1.1
1952	44,825,923	365,079	122.5	335.5	181.7	1.5	257.8	2.1	130.1	1.1
1953	44,759,785	376,089	122.6	326.1	190.6	1.6	273.3	2.2	137.9	1.1
1954	47,281,127	387,099	129.5	334.6	191.6	1.5	268.1	2.1	142.5	1.1
1955	51,770,552	398,109	141.8	356.3	209.9	1.5	297.8	2.1	174.5	1.2
1956	52,598,338	409,121	143.7	351.3	216.2	1.5	298.3	2.1	165.7	1.2
1957	51,544,034	421,692	141.2	334.9	223.1	1.6	306.4	2.2	162.4	1.2
1958	54,440,442	434,263	149.2	343.5	223.7	1.5	302.8	2.0	179.0	1.2
1959	55,325,215	446,834	151.6	339.2	219.7	1.4	306.2	2.0	175.1	1.2
1960	58,176,203	459,405	159.0	346.0	247.0	1.6	468.3	2.9	185.8	1.2
1961	68,117,627	471,975	186.6	395.4	335.9	1.8	541.1	2.9	251.9	1.3
1962	58,162,583	478,415	159.3	333.1	256.5	1.6	371.3	2.3	186.4	1.2
1963	61,890,339	484,885	169.6	349.7	291.7	1.7	469.7	2.8	218.7	1.3
1964	63,882,175	491,295	174.5	355.3	288.5	1.7	468.5	2.7	218.5	1.3
1965	65,784,825	497,735	180.2	362.1	286.6	1.6	414.5	2.3	216.3	1.2
1966	67,939,783	504,176	186.1	369.2	312.7	1.7	498.8	2.7	238.2	1.3
1967	69,442,395	510,385	190.3	372.8	323.4	1.7	475.6	2.5	239.7	1.3
1968	67,189,134	516,594	183.6	355.4	307.4	1.7	428.9	2.3	200.6	1.1
1969	69,451,901	522,803	190.3	364.0	333.0	1.8	513.8	2.7	228.3	1.2
1970	75,400,937	529,012	206.6	390.5	367.7	1.8	516.4	2.5	268.5	1.3
1971	76,116,637	535,220	208.5	389.6	287.8	1.4	417.0	2.0	250.2	1.2
1972	83,845,946	540,351	229.1	424.0	349.2	1.5	532.9	2.3	277.9	1.2
1973	85,643,462	545,482	234.6	430.2	330.8	1.4	448.1	1.9	276.8	1.2
1974	90,220,902	550,613	247.2	448.9	417.7	1.7	568.5	2.3	336.1	1.4
1975	90,182,206	555,744	247.1	444.6	385.4	1.6	541.1	2.2	303.9	1.2
1976	95,847,932	560,874	261.9	466.9	372.9	1.4	525.1	2.0	344.0	1.3
1977	88,707,379	561,589	243.0	432.8	323.2	1.3	486.1	2.0	269.8	1.1
1978	92,802,098	562,303	254.3	452.2	336.3	1.3	472.8	1.9	285.3	1.1
1979	93,075,650	563,018	255.0	452.9	371.5	1.5	527.3	2.1	304.8	1.2
1980	96,082,581	563,732	262.5	465.7	423.1	1.6	681.0	2.6	334.1	1.3
1981	89,590,542	564,447	245.5	434.9	361.0	1.5	547.0	2.2	270.0	1.1
1982	91,962,290	565,215	252.0	445.8	371.0	1.5	540.0	2.1	270.0	1.1
1983	96,518,136	575,820	264.4	459.2	429.5	1.6	651.0	2.5	359.9	1.4

Year	Total Water Pumped (Litres) x 1000	Population	Avg Day (ML/d)	Per Capita (L/c/d)	Max Day (ML/d)	Max Day Load Factor	Max Hour (ML/d)	Max Hour Load Factor	Max Month (ML/d)	Max Month Load Factor
1984	96,135,957	581,550	262.7	451.7	362.1	1.4	594.0	2.3	309.4	1.2
1985	97,424,855	582,735	266.9	458.0	399.6	1.5	516.0	1.9	290.1	1.1
1986	98,275,244	594,551	269.2	452.9	396.1	1.5	618.0	2.3	309.2	1.1
1987	100,708,700	600,497	275.9	459.5	431.4	1.6	711.0	2.6	328.5	1.2
1988	109,929,970	606,502	300.4	495.2	543.1	1.8	954.0	3.2	391.0	1.3
1989	108,685,340	612,567	297.8	486.1	477.6	1.6	744.0	2.5	356.4	1.2
1990	109,315,930	618,693	299.5	484.1	522.5	1.7	702.0	2.3	385.2	1.3
1991	103,691,110	622,200	284.1	456.6	476.8	1.7	708.0	2.5	375.2	1.3
1992	94,248,520	617,790	257.5	416.8	405.0	1.6	576.0	2.2	285.5	1.1
1993	89,922,760	621,119	246.4	396.6	358.0	1.5	522.0	2.1	275.8	1.1
1994	89,830,350	623,600	246.1	394.7	346.7	1.4	560.0	2.3	271.9	1.1
1995	95,336,870	626,310	261.2	417.0	419.5	1.6	751.0	2.9	312.6	1.2
1996	93,369,600	632,338	255.1	403.4	351.5	1.4	572.0	2.2	284.1	1.1
1997	90,283,700	636,142	247.4	388.8	355.0	1.4	596.0	2.4	284.4	1.2
1998	91,301,600	627,300	250.1	398.7	361.2	1.4	588.0	2.4	301.9	1.2
1999	88,468,800	628,100	242.4	385.9	361.8	1.5	478.0	2.0	271.0	1.1
2000	82,414,500	629,800	225.2	357.6	294.5	1.3	427.0	1.9	245.6	1.1
2001	79,783,400	631,700	218.6	346.0	276.1	1.3	432.0	2.0	239.0	1.1
2002	81,921,258	631,200	224.4	355.5	307.6	1.4	450.0	2.0	270.2	1.2
2003	84,557,912	642,700	231.7	360.6	336.1	1.5	517.0	2.2	272.0	1.2
2004	81,046,806	642,700	221.0	341.9	285.0	1.3	411.0	1.9	245.0	1.1
2005	80,124,100	647,400	219.5	339.1	266.9	1.2	391.0	1.8	236.0	1.1
2006	82,831,200	649,300	226.9	349.5	339.6	1.5	549.0	2.4	296.1	1.3
2007	79,624,500	653,300	218.1	333.8	294.9	1.35	447.0	2.1	244.9	1.1
2008	78,586,700	658,700	214.7	326.0	259.5	1.21	384.0	1.8	230.1	1.1
2009	77,302,700	675,100	211.8	313.7	258.6	1.22	380.0	1.8	222.6	1.1
2010	75,031,200	683,200	205.6	300.9	247.3	1.20	361.0	1.8	221.6	1.1

Existing Water Supply System

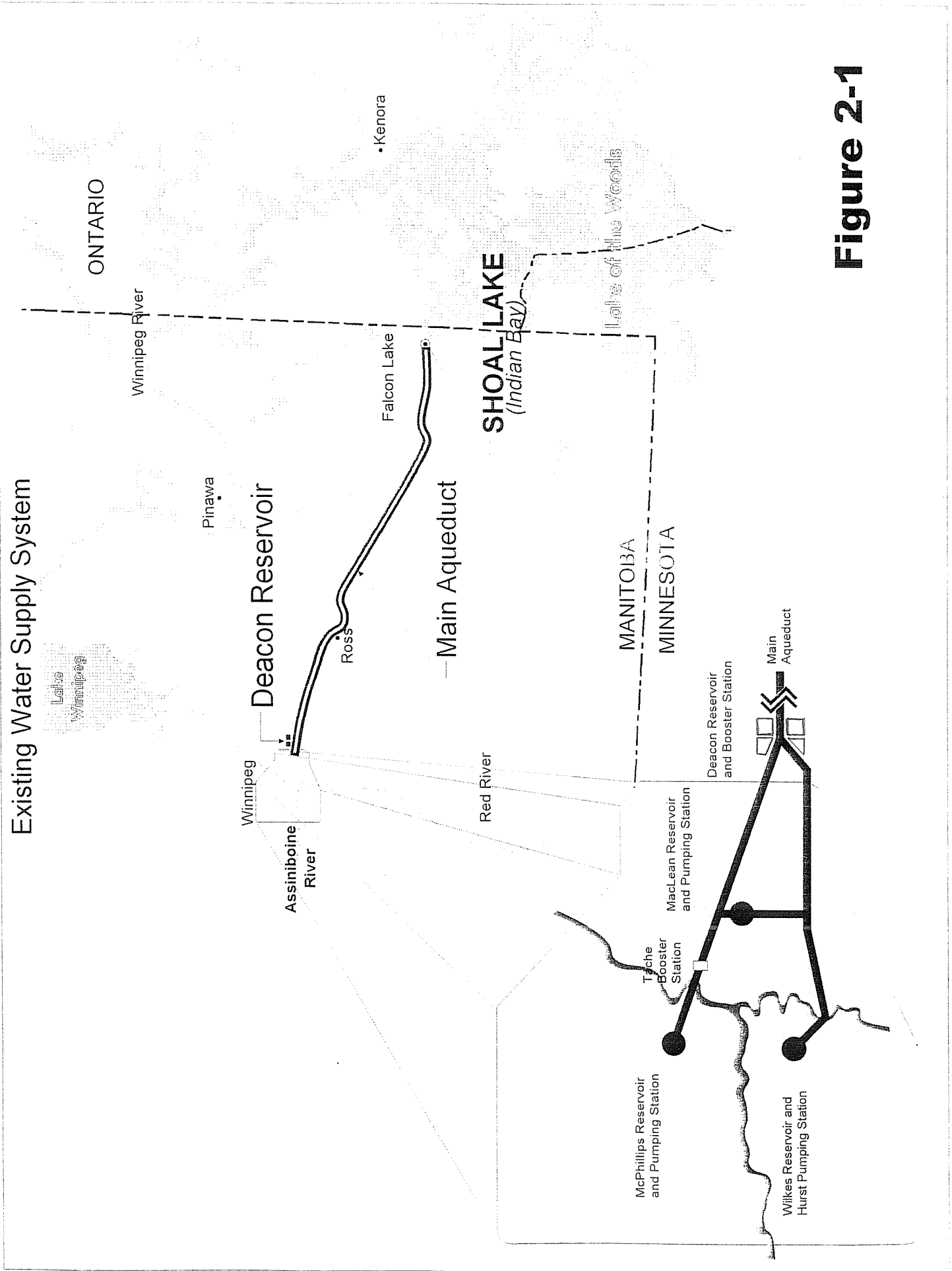


Figure 2-1

Appendix B

Table B.1

Historical Annual Pumping

Year	Total Megalitres	Percent Change From Previous Year
1955	51,770.55	
1956	52,598.34	1.60
1957	51,544.03	-2.00
1958	54,440.44	5.62
1959	55,325.22	1.63
1960	58,176.20	5.15
1961	68,117.63	17.09
1962	58,162.58	-14.61
1963	61,890.34	6.41
1964	63,882.18	3.22
1965	65,784.83	2.98
1966	67,939.78	3.28
1967	69,442.40	2.21
1968	67,189.13	-3.24
1969	69,451.90	3.37
1970	75,400.94	8.57
1971	76,116.64	0.95
1972	83,845.95	10.15
1973	85,643.46	2.14
1974	90,220.90	5.34
1975	90,182.21	-0.04
1976	95,847.93	6.28
1977	88,707.38	-7.45
1978	92,802.10	4.62
1979	93,955.11	1.24
1980	96,082.58	2.26
1981	89,590.54	-6.76
1982	91,962.29	2.65
1983	96,518.14	4.95
1984	96,135.96	-0.40
1985	97,424.86	1.34
1986	98,275.24	0.87
1987	100,708.70	2.48
1988	109,929.97	9.16
1989	108,685.34	-1.13
1990	109,315.93	0.58
1991	103,691.15	-5.15
1992	94,248.49	-9.11
1993	89,922.69	-4.59
1994	89,830.35	-0.10
1995	95,336.87	6.13
1996	93,369.60	-2.06
1997	90,283.70	-3.31
1998	91,301.60	1.13
1999	88,468.80	-3.10
2000	82,414.50	-6.84
2001	79,783.40	-3.19
2002	81,921.26	2.68
2003	84,557.91	3.24
2004	81,046.80	-4.15
2005	80,124.10	-1.14
2006	82,831.20	3.38
2007	79,624.50	-3.87
2008	78,586.70	-1.30
2009	77,302.70	-1.63
2010	75,031.20	-2.94

Table B.2

**Historical Monthly Pumping
Megalitres**

Year	January	% of Annual Pumpage	February	% of Annual Pumpage	March	% of Annual Pumpage
1955	4002.403	7.73	3788.655	7.32	4066.665	7.85
1956	4297.397	8.17	4018.619	7.64	4276.672	8.13
1957	4333.438	8.41	3891.903	7.55	4343.689	8.43
1958	4178.147	7.61	3739.926	6.81	4115.926	7.50
1959	4251.483	7.68	4080.753	7.38	4532.885	8.19
1960	4403.133	7.57	4233.903	7.28	4596.892	7.90
1961	4773.345	6.99	4321.168	6.33	4766.395	6.98
1962	4582.686	7.89	4261.075	7.34	4846.877	8.35
1963	4551.196	7.35	4388.086	7.09	4821.128	7.79
1964	4636.925	7.31	4528.139	7.13	5023.075	7.91
1965	5114.450	7.77	4858.733	7.39	5506.542	8.37
1966	5161.686	7.60	4889.355	7.20	5387.296	7.93
1967	5163.729	7.45	4896.615	7.07	5691.906	8.22
1968	5418.582	8.07	5206.370	7.75	5472.257	8.14
1969	5151.477	7.42	5250.716	7.56	5532.973	7.97
1970	5560.435	7.47	5214.103	7.01	6064.341	8.15
1971	5564.877	7.31	5628.666	7.39	6636.369	8.72
1972	6042.136	7.24	6545.272	7.84	7011.319	8.40
1973	6958.776	8.04	5931.598	6.85	6638.897	7.67
1974	6946.715	7.70	6417.775	7.11	6603.015	7.32
1975	7302.767	8.10	6538.207	7.25	7258.057	8.05
1976	7799.613	8.14	6636.887	6.92	7510.578	7.84
1977	7141.366	8.05	6446.160	7.27	7922.596	8.93
1978	7729.314	8.36	7202.378	7.79	7315.660	7.91
1979	7892.947	8.31	7222.094	7.61	8197.347	8.63
1980	7515.700	7.79	6771.825	7.02	7391.434	7.66
1981	7265.332	8.11	6300.951	7.03	7540.564	8.42
1982	6890.760	7.49	7703.200	8.38	7677.960	8.35
1983	7283.801	7.55	6965.400	7.22	7408.219	7.68
1984	7921.137	8.24	7398.030	7.70	7678.673	7.99
1985	7941.309	8.15	7806.500	8.01	8617.700	8.85
1986	7840.427	7.98	7228.720	7.36	8393.230	8.54
1987	7629.600	7.62	7063.200	7.05	8469.200	8.46
1988	8251.600	7.51	7989.200	7.27	8200.370	7.46
1989	8150.770	7.50	7916.240	7.28	8900.190	8.19
1990	8521.690	7.80	7873.730	7.20	8674.070	7.93
1991	8141.910	7.85	7517.500	7.25	8231.640	7.94
1992	7818.510	8.30	7248.190	7.69	7951.790	8.44
1993	7266.420	8.08	6529.320	7.26	7250.510	8.06
1994	7164.800	8.02	6972.300	7.81	7146.000	8.00
1995	7408.440	7.77	6883.180	7.22	7734.120	8.11
1996	7418.600	7.95	7187.000	7.70	7527.900	8.06
1997	7456.500	8.26	6736.200	7.46	6973.500	7.72
1998	7162.500	7.84	6538.300	7.16	7323.700	8.02
1999	7195.600	8.13	6625.600	7.49	7281.700	8.23
2000	6764.400	8.21	6533.000	7.93	6825.100	8.28
2001	6505.100	8.15	5781.200	7.25	6606.400	8.28
2002	6488.200	7.92	5883.000	7.18	6583.800	8.04
2003	6559.100	7.78	6128.400	7.27	7082.000	8.40
2004	6564.900	8.10	6312.500	8.14	6751.100	8.33
2005	6696.400	8.36	6176.400	8.01	6664.900	8.32
2006	6416.300	7.75	5810.000	7.46	6477.200	7.82
2007	6444.500	8.09	5815.000	7.61	6671.700	8.38
2008	6437.200	8.08	6024.000	7.88	6504.100	8.16
2009	6367.400	8.11	5860.800	7.70	6615.430	8.43
2010	6185.300	8.10	5504.200	7.43	6183.600	8.10

Table B.2 (Cont'd)

**Historical Monthly Pumping
Megalitres**

Year	April	% of Annual Pumpage	May	% of Annual Pumpage	June	% of Annual Pumpage
1955	3744.113	7.23	4177.333	8.07	4570.589	8.83
1956	4105.574	7.81	4189.744	7.97	4780.410	9.09
1957	4057.396	7.87	4615.758	8.95	3996.639	7.75
1958	4104.306	7.48	5236.192	9.54	5206.952	9.49
1959	4233.122	7.65	4547.532	8.22	4961.418	8.97
1960	4331.929	7.45	5087.201	8.74	5047.174	8.68
1961	4751.499	6.96	5834.291	8.54	8402.208	12.30
1962	4667.492	8.04	4906.098	8.45	5465.217	9.41
1963	4663.879	7.53	4852.619	7.84	5156.100	8.33
1964	4822.338	7.60	5440.889	8.57	6090.217	9.59
1965	5386.878	8.19	5057.707	7.69	6156.293	9.36
1966	5272.883	7.76	5188.673	7.64	6087.749	8.96
1967	4576.304	6.61	5851.748	8.45	7007.209	10.11
1968	5366.798	7.99	5712.122	8.50	5860.044	8.72
1969	5470.916	7.88	5573.587	8.03	6341.729	9.13
1970	5791.331	7.78	5601.608	7.53	6069.807	8.16
1971	5961.315	7.83	6222.583	8.17	6936.019	9.11
1972	6416.170	7.69	7759.195	9.29	8299.905	9.94
1973	6498.820	7.51	7919.487	9.15	7630.916	8.82
1974	7317.569	8.11	6951.270	7.70	8515.472	9.44
1975	7217.271	8.00	7326.947	8.12	7913.145	8.77
1976	7304.358	7.62	8380.551	8.74	9191.226	9.59
1977	7164.732	8.08	8228.578	9.28	7590.938	8.56
1978	7724.481	8.36	7879.855	8.52	7748.884	8.38
1979	8160.415	8.59	8658.869	9.12	7776.465	8.19
1980	7700.819	7.98	8929.437	9.26	10022.514	10.39
1981	7031.337	7.85	8500.919	9.49	7234.837	8.08
1982	7485.460	8.14	8412.320	9.15	8220.870	8.94
1983	7118.981	7.38	8107.272	8.40	8423.555	8.73
1984	7991.264	8.31	8070.219	8.39	8000.191	8.32
1985	7822.364	8.03	8475.955	8.70	8858.927	9.09
1986	7574.370	7.71	8539.140	8.69	9275.040	9.44
1987	7771.600	7.76	9422.800	9.41	9853.900	9.84
1988	8082.030	7.35	9943.880	9.05	11363.990	10.34
1989	8463.270	7.79	9650.750	8.88	9139.000	8.41
1990	8478.450	7.76	9661.390	8.84	9040.980	8.27
1991	7941.470	7.66	8971.480	8.65	9204.550	8.88
1992	7557.960	8.02	8785.400	9.32	8409.400	8.92
1993	7213.190	8.02	7902.600	8.79	8273.650	9.20
1994	7117.200	7.97	7912.400	8.86	7899.600	8.84
1995	7210.820	7.56	7942.920	8.33	9376.800	9.84
1996	7498.500	8.03	7849.800	8.41	8383.400	8.98
1997	7321.100	8.11	7471.900	8.28	8532.900	9.45
1998	7271.600	7.96	7817.900	8.56	7632.700	8.36
1999	7267.000	8.21	7431.800	8.40	7821.800	8.84
2000	6779.200	8.23	7344.300	8.91	7099.800	8.61
2001	6344.100	7.95	6693.900	8.39	6818.300	8.55
2002	6534.700	8.08	6934.500	8.57	7240.100	8.95
2003	6723.500	7.95	7259.000	8.62	7038.600	8.36
2004	6539.500	8.07	6755.400	8.34	6893.100	8.51
2005	6456.400	8.06	6664.700	8.32	6854.500	8.55
2006	6427.500	7.76	6803.800	8.21	7623.400	9.20
2007	6460.500	8.11	6778.100	8.51	6788.900	8.53
2008	6284.900	7.91	6803.700	8.56	6753.000	8.50
2009	6285.600	8.03	6530.810	8.35	6812.150	8.71
2010	6180.100	8.15	6529.500	8.61	6401.500	8.44

Table B.2 (Cont'd)

Historical Monthly Pumping
Megalitres

Year	July	% of Annual Pumpage	August	% of Annual Pumpage	September	% of Annual Pumpage
1955	4695.727	9.07	5551.457	10.72	4511.969	8.72
1956	4722.903	8.98	4823.174	9.17	4294.120	8.16
1957	5054.393	9.81	4625.137	8.97	4067.243	7.89
1958	4843.099	8.82	5482.221	9.99	4914.076	8.95
1959	5427.538	9.81	5325.053	9.63	4555.056	8.23
1960	5493.609	9.44	5759.15	9.90	5008.065	8.61
1961	7304.213	10.69	8077.319	11.83	5199.783	7.61
1962	5402.362	9.31	5266.273	9.07	4677.038	8.06
1963	7009.396	11.32	6308.375	10.19	5187.577	8.38
1964	6736.513	10.61	5837.346	9.20	5161.083	8.13
1965	5886.170	8.95	6680.106	10.15	5241.961	7.97
1966	7224.885	10.63	6943.065	10.22	5731.274	8.44
1967	6323.013	9.13	6938.36	10.02	6469.626	9.34
1968	6167.149	9.18	5787.981	8.61	5398.607	8.04
1969	6102.973	8.79	6689.448	9.63	6351.944	9.15
1970	7530.995	10.12	8346.952	11.22	6327.509	8.50
1971	6449.142	8.47	7744.466	10.17	6702.654	8.80
1972	8068.095	9.66	7866.276	9.42	6501.835	7.79
1973	8573.333	9.90	9074.847	10.48	7207.838	8.33
1974	10630.903	11.78	8412.891	9.32	7450.298	8.26
1975	9445.311	10.47	7559.284	8.38	8101.331	8.98
1976	8793.028	9.17	10087.624	10.52	7361.238	7.68
1977	8938.354	10.08	7465.882	8.42	6984.488	7.87
1978	8082.652	8.74	8563.300	9.26	7971.366	8.62
1979	9779.851	10.30	8295.354	8.74	7734.219	8.14
1980	9892.721	10.26	8146.022	8.45	8070.488	8.37
1981	8763.900	9.78	8470.382	9.45	7810.710	8.72
1982	7881.510	8.57	8367.800	9.10	7735.370	8.41
1983	9330.008	9.67	11158.382	11.56	8330.726	8.63
1984	8906.300	9.26	9590.645	9.98	7447.464	7.75
1985	8992.264	9.23	8178.218	8.39	8030.582	8.24
1986	8915.980	9.07	8203.000	8.35	9145.408	9.31
1987	9231.400	9.22	8957.800	8.95	8551.800	8.54
1988	10739.400	9.77	11068.180	10.07	9323.930	8.48
1989	11047.080	10.16	10615.790	9.77	9282.560	8.54
1990	10624.070	9.72	11940.430	10.92	9466.910	8.66
1991	9345.070	9.01	11629.660	11.22	9095.580	8.77
1992	8140.360	8.64	8850.690	9.39	7657.430	8.12
1993	7922.240	8.81	8114.900	9.02	7681.570	8.54
1994	7362.100	8.24	8595.900	9.62	7700.100	8.62
1995	9487.230	9.95	9518.460	9.98	7694.430	8.07
1996	8806.500	9.43	8600.900	9.21	7886.500	8.45
1997	8412.300	9.32	8524.700	9.44	7682.000	8.51
1998	8525.000	9.34	9359.600	10.25	8209.600	8.99
1999	8255.200	9.33	8400.300	9.50	7288.800	8.24
2000	7552.200	9.16	7614.400	9.24	6557.700	7.96
2001	7294.800	9.14	7409.900	9.29	6907.500	8.66
2002	8377.000	10.20	7409.500	9.02	6855.100	8.35
2003	7978.000	9.43	8433.200	9.97	7340.600	8.68
2004	7595.200	9.37	7087.200	8.74	6739.000	8.32
2005	7119.400	8.89	7316.500	9.13	6729.500	8.40
2006	9180.600	11.08	7729.200	9.33	7124.100	8.60
2007	7591.000	9.53	7489.200	9.41	6630.800	8.33
2008	7105.300	9.05	7133.500	9.08	6531.200	8.32
2009	6899.390	8.89	6648.900	8.56	6617.530	8.52
2010	6870.100	9.11	6675.000	8.85	6217.800	8.25

Table B.2 (Cont'd)

**Historical Monthly Pumping
Megalitres**

Year	October	% of Annual Pumpage	November	% of Annual Pumpage	December	% of Annual Pumpage
1955	4371.961	8.44	4114.735	7.95	4176.565	8.07
1956	4562.802	8.67	4160.795	7.91	4366.106	8.30
1957	4311.295	8.36	3981.628	7.72	4265.498	8.28
1958	4467.691	8.14	4242.295	7.73	4364.183	7.95
1959	4652.463	8.41	4372.861	7.90	4385.053	7.93
1960	5189.359	8.92	4619.045	7.94	4408.220	7.58
1961	5322.289	7.79	4970.175	7.28	4574.390	6.70
1962	5002.800	8.62	4432.886	7.64	4546.000	7.83
1963	5426.051	8.76	4750.706	7.67	4805.736	7.76
1964	5250.948	8.27	4954.381	7.81	4993.340	7.87
1965	5266.677	8.01	5286.552	8.04	5343.982	8.12
1966	5414.768	7.97	5222.336	7.69	5415.813	7.97
1967	5637.463	8.14	5368.049	7.75	5354.720	7.73
1968	5790.345	8.62	5493.755	8.18	5511.939	8.20
1969	5873.796	8.46	5191.591	7.48	5920.751	8.52
1970	5873.996	7.90	6032.597	8.11	5987.264	8.05
1971	5959.755	7.83	6245.863	8.20	6074.929	7.98
1972	6890.163	8.25	6079.502	7.28	6006.080	7.19
1973	7031.989	8.12	6533.779	7.55	6555.859	7.57
1974	7142.398	7.92	6912.443	7.66	6920.153	7.67
1975	7249.497	8.04	7271.282	8.06	6999.108	7.76
1976	8336.400	8.70	7365.111	7.68	7081.272	7.39
1977	7350.805	8.29	6827.801	7.70	6645.679	7.49
1978	8150.342	8.82	7280.192	7.88	6785.451	7.34
1979	7333.271	7.72	6900.569	7.27	7005.777	7.38
1980	7504.008	7.78	7158.034	7.42	7343.579	7.61
1981	7028.883	7.85	6867.763	7.67	6774.964	7.56
1982	7654.160	8.32	6740.980	7.33	7191.900	7.82
1983	7641.782	7.92	7528.637	7.80	7221.573	7.48
1984	8094.763	8.42	7571.862	7.88	7464.409	7.76
1985	7698.645	7.90	7884.491	8.09	7117.900	7.31
1986	7915.400	8.06	7622.700	7.76	7602.400	7.74
1987	7481.700	7.47	8125.300	8.11	7572.400	7.56
1988	8783.590	7.99	8035.940	7.31	8147.860	7.41
1989	8982.520	8.26	8195.410	7.54	8341.710	7.68
1990	8743.490	8.00	8262.970	7.56	8027.750	7.34
1991	8208.370	7.92	7626.060	7.35	7777.850	7.50
1992	7718.850	8.19	7083.760	7.52	7026.160	7.45
1993	7740.260	8.61	6969.740	7.75	7058.300	7.85
1994	7504.800	8.40	6985.500	7.82	6970.300	7.80
1995	7605.100	7.98	7176.000	7.53	7299.200	7.66
1996	7674.900	8.22	7188.400	7.70	7347.200	7.87
1997	7024.400	7.78	7013.100	7.77	7135.100	7.90
1998	7326.100	8.02	7081.600	7.76	7053.000	7.72
1999	7280.500	8.23	6837.600	7.73	6782.900	7.67
2000	6666.900	8.09	6276.000	7.62	6401.500	7.77
2001	6679.600	8.37	6301.900	7.90	6440.700	8.07
2002	6706.300	8.22	6398.300	7.84	6505.000	7.94
2003	6962.300	8.29	6436.300	7.61	6635.600	7.85
2004	6805.200	8.40	6407.500	7.91	6594.700	8.14
2005	6662.300	8.31	6261.300	7.81	6521.800	8.14
2006	6694.800	8.08	6106.700	7.37	6437.600	7.77
2007	6510.500	8.18	6144.200	7.72	6300.100	7.91
2008	6487.400	8.26	6194.500	7.88	6327.900	8.05
2009	6378.500	8.25	6071.050	7.85	6215.100	8.04
2010	6309.100	8.41	5911.400	7.88	6063.600	8.08

Appendix C

Table C.1**Weekly Shoal Lake Water Elevations 2010**

Date	Feet	Metres	Date	Feet	Metres
January 7, 2010	1058.70	322.7	July 1, 2010	1059.28	322.9
January 14, 2010	1058.66	322.7	July 8, 2010	1059.51	322.9
January 21, 2010	1058.63	322.7	July 15, 2010	1059.57	323.0
January 28, 2010	1058.66	322.7	July 22, 2010	1059.68	323.0
			July 29, 2010	1059.91	323.1
February 4, 2010	1058.62	322.7	August 5, 2010	1059.93	323.1
February 11, 2010	1058.57	322.7	August 12, 2010	1059.98	323.1
February 18, 2010	1058.49	322.6	August 19, 2010	1059.80	323.0
February 25, 2010	1058.44	322.6	August 26, 2010	1059.68	323.0
March 4, 2010	1058.38	322.6	September 2, 2010	1059.62	323.0
March 11, 2010	1058.34	322.6	September 9, 2010	1059.46	322.9
March 18, 2010	1058.32	322.6	September 16, 2010	1059.46	322.9
March 25, 2010	1058.29	322.6	September 23, 2010	1059.33	322.9
			September 30, 2010	1059.50	322.9
April 1, 2010	1058.24	322.6	October 7, 2010	1059.52	322.9
April 8, 2010	1058.24	322.6	October 14, 2010	1059.48	322.9
April 15, 2010	1058.20	322.5	October 21, 2010	1059.50	322.9
April 22, 2010	1058.12	322.5	October 28, 2010	1059.48	322.9
April 29, 2010	1058.11	322.5			
May 6, 2010	1058.15	322.5	November 4, 2010	1059.48	322.9
May 13, 2010	1058.15	322.5	November 11, 2010	1059.44	322.9
May 20, 2010	1058.24	322.6	November 18, 2010	1059.38	322.9
May 27, 2010	1058.32	322.6	November 25, 2010	1059.36	322.9
June 3, 2010	1058.50	322.6	December 2, 2010	1059.28	322.9
June 10, 2010	1058.78	322.7	December 9, 2010	1059.26	322.9
June 17, 2010	1058.96	322.8	December 16, 2010	1059.20	322.8
June 24, 2010	1059.10	322.8	December 23, 2010	1059.16	322.8
			December 30, 2010	1059.12	322.8

Table C.2

2010 Water Pumpage Summary Report

Consumption in Millions of Litres

City of Winnipeg - Water and Waste Department

Date	MacLean	Hurst	McPhillips	Total	Cumulative	Daily Load	Monthly	Month	31 Day	31 Day	7 Day	7 Day
					Pumpage	Factor	Total	Load Factor	Total	Load Factor	Total	Load Factor
January 1, 2010	57.4	79.7	46	183.1	183.1	0.89						
January 2, 2010	58.3	80.9	50.6	189.8	372.9	0.92						
January 3, 2010	62.1	82.6	55	199.7	572.6	0.97						
January 4, 2010	61.1	90.1	52.4	203.6	776.2	0.99						
January 5, 2010	60.1	90.3	51.3	201.7	977.9	0.98						
January 6, 2010	60.2	93.4	48.8	202.4	1180.3	0.98						
January 7, 2010	61.3	90.4	50.7	202.4	1382.7	0.98					1382.7	0.96
January 8, 2010	60	91.8	47.7	199.5	1582.2	0.97					1399.1	0.97
January 9, 2010	61.5	94.3	42.2	198	1780.2	0.96					1407.3	0.98
January 10, 2010	62	95.7	45.1	202.8	1983.0	0.99					1410.4	0.98
January 11, 2010	60.4	94.9	47.2	202.5	2185.5	0.98					1409.3	0.98
January 12, 2010	60.0	94.6	45.7	200.3	2385.8	0.97					1407.9	0.98
January 13, 2010	59.4	88.8	54.2	202.4	2588.2	0.98					1407.9	0.98
January 14, 2010	61.0	90.1	52.3	203.4	2791.6	0.99					1408.9	0.98
January 15, 2010	58.3	91.4	49.4	199.1	2990.7	0.97					1408.5	0.98
January 16, 2010	58.8	92.6	48.6	200	3190.7	0.97					1410.5	0.98
January 17, 2010	61.9	92.7	48.4	203	3393.7	0.99					1410.7	0.98
January 18, 2010	60.9	94.3	48.1	203.3	3597.0	0.99					1411.5	0.98
January 19, 2010	60.5	93.8	47.7	202.0	3799.0	0.98					1413.2	0.98
January 20, 2010	60.9	96.6	44.9	202.4	4001.4	0.98					1413.2	0.98
January 21, 2010	61.2	89.5	48.4	199.1	4200.5	0.97					1408.9	0.98
January 22, 2010	58.7	93.8	44.2	196.7	4397.2	0.96					1406.5	0.98
January 23, 2010	59.6	94.0	40.5	194.1	4591.3	0.94					1400.6	0.97
January 24, 2010	62.1	95.2	43.3	200.6	4791.9	0.98					1398.2	0.97
January 25, 2010	58.5	86.8	52.5	197.8	4989.7	0.96					1392.7	0.97
January 26, 2010	56.6	77.3	61.7	195.6	5185.3	0.95					1386.3	0.96
January 27, 2010	61.4	97.9	36.8	196.1	5381.4	0.95					1380.0	0.96
January 28, 2010	60.0	92.4	45.2	197.6	5579.0	0.96					1378.5	0.96
January 29, 2010	59.4	91.5	59.4	210.3	5789.3	1.02					1392.1	0.97
January 30, 2010	60.4	92.5	43.4	196.3	5985.6	0.95					1394.3	0.97
January 31, 2010	61.6	94.4	43.7	199.7	6185.3	0.97	6185.3	0.97	6185.30	0.97	1393.4	0.97
February 1, 2010	60.4	94.2	43.9	198.5	6383.8	0.97			6200.70	0.97	1394.1	0.97
February 2, 2010	59.1	91.7	45.6	196.4	6580.2	0.96			6207.30	0.97	1394.9	0.97
February 3, 2010	59.7	94.2	45.2	199.1	6779.3	0.97			6206.70	0.97	1397.9	0.97
February 4, 2010	59.5	93.5	44.7	197.7	6977.0	0.96			6200.80	0.97	1398.0	0.97
February 5, 2010	59.2	91.0	45.1	195.3	7172.3	0.95			6194.40	0.97	1383.0	0.96
February 6, 2010	60.9	93.6	39.7	194.2	7366.5	0.94			6186.20	0.97	1380.9	0.96
February 7, 2010	60.0	93.2	44.7	197.8	7564.3	0.96			6181.60	0.97	1379.0	0.96
February 8, 2010	59.2	93.6	45.4	198.2	7762.5	0.96			6180.30	0.97	1378.7	0.96
February 9, 2010	59.1	94.3	44.2	197.6	7960.1	0.96			6179.90	0.97	1379.9	0.96
February 10, 2010	59.4	94.6	44.9	198.9	8159.0	0.97			6176.00	0.97	1379.7	0.96
February 11, 2010	59.6	94.3	46.6	200.5	8359.5	0.98			6174.00	0.97	1382.5	0.96
February 12, 2010	58.9	93.3	43.1	195.3	8554.8	0.95			6169.00	0.97	1382.5	0.96
February 13, 2010	61.1	92.9	40.7	194.7	8749.5	0.95			6161.30	0.97	1383.0	0.96
February 14, 2010	50.4	96.9	39.7	186.9	8936.4	0.91			6144.80	0.96	1372.1	0.95
February 15, 2010	59.2	86.8	44.9	190.8	9127.2	0.93			6136.50	0.96	1364.7	0.95
February 16, 2010	61.8	95.6	39.2	196.5	9323.7	0.96			6133.00	0.96	1363.6	0.95
February 17, 2010	61.2	91.7	45.4	198.3	9522.0	0.96			6128.30	0.96	1363.0	0.95
February 18, 2010	59.4	93.0	46.0	198.4	9720.4	0.96			6123.40	0.96	1360.9	0.95
February 19, 2010	59.1	92.7	42.4	194.2	9914.6	0.94			6115.60	0.96	1359.8	0.94

Table C.2 2010 Water Pumpage Summary Report

Consumption in Millions of Litres

City of Winnipeg - Water and Waste Department

Date	MacLean	Hurst	McPhillips	Total	Cumulative	Daily Load	Monthly	Month	31 Day	31 Day	7 Day	7 Day	
					Pumpage	Factor	Total	Load Factor	Total	Load Factor	Total	Load Factor	
February 20, 2010	60.7	89.3	45.1	195.1	10109.7	0.95			6108.30		0.96	1360.2	0.95
February 21, 2010	60.8	94.1	44.2	199.1	10308.8	0.97			6108.30		0.96	1372.4	0.95
February 22, 2010	62.1	96.5	41.1	199.6	10508.4	0.97			6111.20		0.96	1381.2	0.96
February 23, 2010	59.2	91.8	46.3	197.4	10705.8	0.96			6114.50		0.96	1382.1	0.96
February 24, 2010	59.8	93.6	43.0	196.4	10902.2	0.96			6110.30		0.96	1380.2	0.96
February 25, 2010	59.0	92.3	45.0	196.3	11098.5	0.95			6108.80		0.96	1378.1	0.96
February 26, 2010	58.8	92.1	45.1	196.0	11294.5	0.95			6109.20		0.96	1379.9	0.96
February 27, 2010	60.1	93.2	42.2	195.5	11490.0	0.95			6108.60		0.96	1380.3	0.96
February 28, 2010	60.5	94.0	44.6	199.1	11689.1	0.97	5503.8	0.96	6110.10		0.96	1380.3	0.96
March 1, 2010	57.6	94.9	46.9	199.3	11888.4	0.97			6099.10		0.96	1380.0	0.96
March 2, 2010	58.1	93.1	46.7	197.8	12086.2	0.96			6100.60		0.96	1380.4	0.96
March 3, 2010	60.3	82.0	57.2	199.5	12285.7	0.97			6100.40		0.96	1383.5	0.96
March 4, 2010	57.2	83.1	55.2	195.4	12481.1	0.95			6097.30		0.96	1382.6	0.96
March 5, 2010	60.4	84.3	53.6	198.3	12679.4	0.96			6099.20		0.96	1384.9	0.96
March 6, 2010	60.1	94.0	42.2	196.3	12875.7	0.95			6096.40		0.96	1385.7	0.96
March 7, 2010	60.7	94.8	44.4	199.9	13075.6	0.97			6098.60		0.96	1386.5	0.96
March 8, 2010	61.7	93.8	49.0	204.5	13280.1	0.99			6107.80		0.96	1391.7	0.97
March 9, 2010	59.9	67.2	74.5	201.6	13481.7	0.98			6115.20		0.96	1395.5	0.97
March 10, 2010	59.0	71.0	71.1	201.1	13682.8	0.98			6118.50		0.96	1397.1	0.97
March 11, 2010	61.1	83.3	55.1	199.5	13882.3	0.97			6119.80		0.96	1401.2	0.97
March 12, 2010	60.2	74.3	62.0	196.5	14078.8	0.96			6118.70		0.96	1399.4	0.97
March 13, 2010	62.5	89.0	50.0	201.5	14280.3	0.98			6121.30		0.96	1404.6	0.98
March 14, 2010	59.8	92.8	43.4	196.0	14476.3	0.95			6116.80		0.96	1400.7	0.97
March 15, 2010	60.8	84.2	60.3	205.3	14681.6	1.00			6126.80		0.96	1401.5	0.97
March 16, 2010	60.0	83.1	59.5	202.6	14884.2	0.99			6134.70		0.96	1402.5	0.97
March 17, 2010	60.5	95.8	47.7	204.0	15088.2	0.99			6151.80		0.97	1405.4	0.98
March 18, 2010	60.7	94.4	46.0	201.1	15289.3	0.98			6162.10		0.97	1407.0	0.98
March 19, 2010	61.9	95.4	42.1	199.4	15488.7	0.97			6165.00		0.97	1409.9	0.98
March 20, 2010	61.6	94.5	42.2	198.3	15687.0	0.96			6165.00		0.97	1406.7	0.98
March 21, 2010	61.7	94.2	46.1	202.0	15889.0	0.98			6168.60		0.97	1412.7	0.98
March 22, 2010	59.7	93.5	47.1	200.3	16089.3	0.97			6174.70		0.97	1407.7	0.98
March 23, 2010	59.6	94.3	46.4	200.3	16289.6	0.97			6179.90		0.97	1405.4	0.98
March 24, 2010	59.6	93.2	46.6	199.4	16489.0	0.97			6180.20		0.97	1400.8	0.97
March 25, 2010	59.1	92.1	46.8	198.0	16687.0	0.96			6178.60		0.97	1397.7	0.97
March 26, 2010	60.5	92.1	45.2	197.2	16884.2	0.96			6178.40		0.97	1395.5	0.97
March 27, 2010	60.0	92.3	43.7	195.9	17080.1	0.95			6177.90		0.97	1393.1	0.97
March 28, 2010	59.2	92.1	44.0	195.3	17275.4	0.95			6176.90		0.97	1386.4	0.96
March 29, 2010	58.7	93.4	48.4	200.5	17475.9	0.98			6181.40		0.97	1386.6	0.96
March 30, 2010	55.3	93.1	48.4	197.1	17673.0	0.96			6183.00		0.97	1383.4	0.96
March 31, 2010	59.2	95.7	44.1	198.7	17871.7	0.97	6182.6	0.97	6182.60		0.97	1382.7	0.96
April 1, 2010	59.0	92.2	43.8	195.0	18066.7	0.95			6178.30		0.97	1379.7	0.96
April 2, 2010	58.9	83.0	44.7	186.6	18253.3	0.91			6167.10		0.97	1369.1	0.95
April 3, 2010	58.2	90.8	39.4	188.4	18441.7	0.92			6156.00		0.97	1361.6	0.95
April 4, 2010	59.3	94.0	39.7	193.0	18634.7	0.94			6153.60		0.97	1359.3	0.94
April 5, 2010	61.5	99.0	44.9	205.4	18840.1	1.00			6160.70		0.97	1364.2	0.95
April 6, 2010	59.3	94.3	46.5	200.1	19040.2	0.97			6164.50		0.97	1367.2	0.95
April 7, 2010	57.2	95.4	44.7	197.3	19237.5	0.96			6161.90		0.97	1365.8	0.95
April 8, 2010	61.4	82.9	57.9	201.9	19439.4	0.98			6159.30		0.97	1372.7	0.95
April 9, 2010	60.9	100.1	36.9	197.9	19637.3	0.96			6155.60		0.97	1384.0	0.96
April 10, 2010	62.0	94.2	43.0	198.9	19836.2	0.97			6153.40		0.97	1394.5	0.97

Table C.2

2010 Water Pumpage Summary Report

Consumption in Millions of Litres

City of Winnipeg - Water and Waste Department

Date	MacLean	Hurst	McPhillips	Total	Cumulative	Daily Load	Monthly	Month	31 Day	31 Day	7 Day	7 Day	
					Pumpage	Factor	Total	Load Factor	Total	Load Factor	Total	Load Factor	
April 11, 2010	63.3	88.7	50.6	202.6	20038.8	0.99			6156.50		0.97	1404.1	0.98
April 12, 2010	62.3	94.3	47.4	203.9	20242.7	0.99			6163.90		0.97	1402.6	0.97
April 13, 2010	61.0	95.3	46.9	203.3	20446.0	0.99			6165.70		0.97	1405.8	0.98
April 14, 2010	62.0	101.1	44.7	207.7	20653.7	1.01			6177.40		0.97	1416.2	0.98
April 15, 2010	61.7	108.4	36.0	206.1	20859.8	1.00			6178.20		0.97	1420.4	0.99
April 16, 2010	60.9	96.6	46.8	204.3	21064.1	0.99			6179.90		0.97	1426.8	0.99
April 17, 2010	63.0	98.3	45.6	206.9	21271.0	1.01			6182.80		0.97	1434.8	1.00
April 18, 2010	65.6	105.1	44.8	215.5	21486.5	1.05			6197.20		0.97	1447.7	1.01
April 19, 2010	66.5	106.8	46.3	219.6	21706.1	1.07			6217.40		0.98	1463.4	1.02
April 20, 2010	63.1	101.8	48.2	213.1	21919.2	1.04			6232.20		0.98	1473.2	1.02
April 21, 2010	64.5	100.3	49.7	214.5	22133.7	1.04			6244.70		0.98	1480.0	1.03
April 22, 2010	59.8	96.3	62.1	218.2	22351.9	1.06			6262.60		0.98	1492.1	1.04
April 23, 2010	66.2	100.8	52.8	219.8	22571.7	1.07			6282.10		0.99	1507.6	1.05
April 24, 2010	64.9	98.8	47.9	211.1	22782.8	1.03			6293.80		0.99	1511.8	1.05
April 25, 2010	67.1	100.4	51.5	218.9	23001.7	1.06			6314.70		0.99	1515.2	1.05
April 26, 2010	64.9	99.7	54.7	219.3	23221.0	1.07			6336.80		0.99	1514.9	1.05
April 27, 2010	64.6	85.7	68.9	219.2	23440.2	1.07			6360.10		1.00	1521.0	1.06
April 28, 2010	62.6	98.1	50.9	211.6	23651.8	1.03			6376.40		1.00	1518.1	1.05
April 29, 2010	53.3	94.3	53.9	201.5	23853.3	0.98			6377.40		1.00	1501.4	1.04
April 30, 2010	61.8	87.4	48.0	197.1	24050.4	0.96	6178.7	1.00	6377.40		1.00	1478.7	1.03
May 1, 2010	60.4	94.9	42.4	197.6	24248.0	0.96			6376.30		1.00	1465.2	1.02
May 2, 2010	61.5	95.9	44.2	201.6	24449.6	0.98			6382.90		1.00	1447.9	1.01
May 3, 2010	60.6	93.8	49.2	203.4	24653.0	0.99			6399.70		1.00	1432.0	0.99
May 4, 2010	59.7	91.3	50.4	201.4	24854.4	0.98			6412.70		1.01	1414.2	0.98
May 5, 2010	59.9	93.4	48.7	202.0	25056.4	0.98			6421.70		1.01	1404.6	0.98
May 6, 2010	60.6	87.7	55.2	203.5	25259.9	0.99			6419.80		1.01	1406.6	0.98
May 7, 2010	54.3	104.0	41.4	199.7	25459.6	0.97			6419.40		1.01	1409.2	0.98
May 8, 2010	61.8	93.2	44.3	199.3	25658.9	0.97			6421.40		1.01	1410.9	0.98
May 9, 2010	59.6	93.3	47.8	200.7	25859.6	0.98			6420.20		1.01	1410.0	0.98
May 10, 2010	60.0	94.8	48.4	203.2	26062.8	0.99			6425.50		1.01	1409.8	0.98
May 11, 2010	59.8	94.0	49.6	203.4	26266.2	0.99			6430.00		1.01	1411.8	0.98
May 12, 2010	61.2	96.3	50.1	207.6	26473.8	1.01			6435.00		1.01	1417.4	0.98
May 13, 2010	61.2	95.4	50.5	207.1	26680.9	1.01			6438.20		1.01	1421.0	0.99
May 14, 2010	63.0	98.7	52.5	214.2	26895.1	1.04			6449.10		1.01	1435.5	1.00
May 15, 2010	66.3	101.1	52.3	219.7	27114.8	1.07			6461.10		1.01	1455.9	1.01
May 16, 2010	69.5	100.9	55.6	226.0	27340.8	1.10			6481.00		1.02	1481.2	1.03
May 17, 2010	68.7	104.5	63.0	236.2	27577.0	1.15			6512.90		1.02	1514.2	1.05
May 18, 2010	72.3	93.6	74.9	240.8	27817.8	1.17			6546.80		1.03	1551.6	1.08
May 19, 2010	72.0	109.1	66.2	247.3	28065.1	1.20			6578.60		1.03	1591.3	1.11
May 20, 2010	72.1	108.1	65.0	245.2	28310.3	1.19			6604.20		1.04	1629.4	1.13
May 21, 2010	66.3	101.8	53.3	221.4	28531.7	1.08			6612.50		1.04	1636.6	1.14
May 22, 2010	60.3	91.8	44.6	196.7	28728.4	0.96			6594.70		1.03	1613.6	1.12
May 23, 2010	58.7	90.6	44.5	193.8	28922.2	0.94			6570.30		1.03	1581.4	1.10
May 24, 2010	62.6	91.4	52.5	206.6	29128.8	1.00			6557.10		1.03	1551.8	1.08
May 25, 2010	65.7	94.5	53.1	213.3	29342.1	1.04			6559.30		1.03	1524.3	1.06
May 26, 2010	70.3	93.2	52.5	216.0	29558.1	1.05			6556.40		1.03	1493.0	1.04
May 27, 2010	68.7	90.9	50.6	210.2	29768.3	1.02			6547.30		1.03	1458.0	1.01
May 28, 2010	64.7	84.1	52.6	201.4	29969.7	0.98			6529.50		1.02	1438.0	1.00
May 29, 2010	65.3	79.3	48.4	193.0	30162.7	0.94			6510.90		1.02	1434.3	1.00
May 30, 2010	69.8	87.0	50.5	207.3	30370.0	1.01			6516.70		1.02	1447.8	1.01

Table C.2

2010 Water Pumpage Summary Report

Consumption in Millions of Litres

City of Winnipeg - Water and Waste Department

Date	MacLean	Hurst	McPhillips	Total	Cumulative	Daily Load	Monthly	Month	31 Day	31 Day	7 Day	7 Day
					Pumpage	Factor	Total	Load Factor	Total	Load Factor	Total	Load Factor
May 31, 2010	69.1	89.7	50.9	209.7	30579.7	1.02	6529.3	1.02	6529.30	1.02	1450.9	1.01
June 1, 2010	67.8	90.8	51.2	209.7	30789.4	1.02			6541.40	1.03	1447.3	1.01
June 2, 2010	70.1	87.6	56.4	214.1	31003.5	1.04			6553.90	1.03	1445.4	1.00
June 3, 2010	69.1	92.1	53.0	214.2	31217.7	1.04			6564.70	1.03	1449.4	1.01
June 4, 2010	66.1	84.1	54.7	204.8	31422.5	1.00			6568.10	1.03	1452.8	1.01
June 5, 2010	66.4	86.2	45.8	198.4	31620.9	0.96			6564.50	1.03	1458.2	1.01
June 6, 2010	71.8	86.2	53.3	211.3	31832.2	1.03			6572.30	1.03	1462.2	1.02
June 7, 2010	68.3	89.8	63.4	221.5	32053.7	1.08			6594.10	1.03	1474.0	1.02
June 8, 2010	61.9	95.1	52.5	209.5	32263.2	1.02			6604.30	1.04	1473.8	1.02
June 9, 2010	63.4	100.0	44.0	207.4	32470.6	1.01			6611.00	1.04	1467.1	1.02
June 10, 2010	62.2	95.3	50.0	207.5	32678.1	1.01			6615.30	1.04	1460.4	1.01
June 11, 2010	60.4	91.8	51.3	203.5	32881.6	0.99			6615.40	1.04	1459.1	1.01
June 12, 2010	59.2	95.9	41.6	196.7	33078.3	0.96			6604.50	1.04	1457.4	1.01
June 13, 2010	63.4	98.9	48.3	210.6	33288.9	1.02			6608.00	1.04	1456.7	1.01
June 14, 2010	64.8	94.4	61.6	220.8	33509.7	1.07			6614.60	1.04	1456.0	1.01
June 15, 2010	64.3	100.3	55.5	220.1	33729.8	1.07			6615.00	1.04	1466.6	1.02
June 16, 2010	66.1	97.2	65.9	229.2	33959.0	1.11			6618.20	1.04	1488.4	1.03
June 17, 2010	63.2	96.5	54.2	213.9	34172.9	1.04			6595.90	1.03	1494.8	1.04
June 18, 2010	60.6	79.9	64.9	205.4	34378.3	1.00			6560.50	1.03	1496.7	1.04
June 19, 2010	78.7	62	65.0	205.7	34584.0	1.00			6518.90	1.02	1505.7	1.05
June 20, 2010	65.9	83.5	64.9	214.3	34798.3	1.04			6488.00	1.02	1509.4	1.05
June 21, 2010	69.2	79.3	75.5	219.1	35017.4	1.07			6485.70	1.02	1507.7	1.05
June 22, 2010	63.7	79.2	77.0	219.9	35237.3	1.07			6508.90	1.02	1507.5	1.05
June 23, 2010	65.5	103.6	55.7	224.9	35462.2	1.09			6540.00	1.03	1503.2	1.04
June 24, 2010	66.4	73.0	81.7	221.1	35683.3	1.08			6554.50	1.03	1510.4	1.05
June 25, 2010	64.8	77.8	79.6	222.2	35905.5	1.08			6563.40	1.03	1527.2	1.06
June 26, 2010	63.6	91.8	52.4	207.8	36113.3	1.01			6555.20	1.03	1529.3	1.06
June 27, 2010	63.3	95.5	46.4	205.2	36318.5	1.00			6550.20	1.03	1520.2	1.06
June 28, 2010	65.3	98.2	56.5	220.0	36538.5	1.07			6568.80	1.03	1521.1	1.06
June 29, 2010	65.0	98.3	56.6	219.9	36758.4	1.07			6595.70	1.03	1521.1	1.06
June 30, 2010	64.9	98.3	54.6	217.8	36976.2	1.06	6396.5	1.04	6606.20	1.04	1514.0	1.05
July 1, 2010	66.3	98.2	53.0	217.5	37193.7	1.06			6614.00	1.04	1510.4	1.05
July 2, 2010	66.5	97.8	59.4	223.7	37417.4	1.09			6628.00	1.04	1511.9	1.05
July 3, 2010	61.2	91.0	47.4	199.6	37617.0	0.97			6613.50	1.04	1503.7	1.04
July 4, 2010	64.5	95.8	52.0	212.4	37829.4	1.03			6611.70	1.04	1510.9	1.05
July 5, 2010	67.3	98.1	61.0	226.4	38055.8	1.10			6633.30	1.04	1517.3	1.05
July 6, 2010	65.6	96.7	58.6	220.9	38276.7	1.07			6655.80	1.04	1518.3	1.05
July 7, 2010	55.3	99.4	71.0	225.7	38502.4	1.10			6670.20	1.05	1526.2	1.06
July 8, 2010	66.5	101.5	61.3	229.3	38731.7	1.12			6678.00	1.05	1538.0	1.07
July 9, 2010	67.9	102.9	63.6	234.4	38966.1	1.14			6702.90	1.05	1548.7	1.08
July 10, 2010	63.3	99.2	51.1	213.6	39179.7	1.04			6709.10	1.05	1562.7	1.09
July 11, 2010	64.9	98.6	56.8	220.3	39400.0	1.07			6721.90	1.05	1570.6	1.09
July 12, 2010	68.6	74.5	97.1	240.1	39640.1	1.17			6758.50	1.06	1584.3	1.10
July 13, 2010	63.4	83.1	75.7	222.2	39862.3	1.08			6784.00	1.06	1585.6	1.10
July 14, 2010	62.5	97.3	58.7	230.0	40092.3	1.12			6803.40	1.07	1589.9	1.10
July 15, 2010	62.3	98.8	62.5	233.6	40325.9	1.14			6816.20	1.07	1594.2	1.11
July 16, 2010	59.6	100.4	61.2	221.2	40547.1	1.08			6817.30	1.07	1581.0	1.10
July 17, 2010	55.0	94.3	45.9	195.2	40742.3	0.95			6783.30	1.06	1562.6	1.09
July 18, 2010	57.9	99.9	52.8	210.6	40952.9	1.02			6780.00	1.06	1552.9	1.08
July 19, 2010	60.9	102.4	64.1	227.4	41180.3	1.11			6802.00	1.07	1540.2	1.07

Table C.2

2010 Water Pumpage Summary Report

Consumption in Millions of Litres

City of Winnipeg - Water and Waste Department

Date	MacLean	Hurst	McPhillips	Total	Cumulative	Daily Load	Monthly	Month	31 Day	31 Day	7 Day	7 Day	
					Pumpage	Factor	Total	Load Factor	Total	Load Factor	Total	Load Factor	
July 20, 2010	61.0	103.1	64.4	228.6	41408.9	1.11			6824.90		1.07	1546.6	1.07
July 21, 2010	62.6	104.7	67.4	234.7	41643.6	1.14			6845.30		1.07	1551.3	1.08
July 22, 2010	60.2	100.5	61.3	221.9	41865.5	1.08			6848.10		1.07	1539.6	1.07
July 23, 2010	59.3	100.4	62.2	221.9	42087.4	1.08			6850.10		1.07	1540.3	1.07
July 24, 2010	58.2	98.3	54.7	211.2	42298.6	1.03			6836.40		1.07	1556.3	1.08
July 25, 2010	59.5	101.2	58.5	219.1	42517.7	1.07			6834.43		1.07	1564.8	1.09
July 26, 2010	64.7	107.1	70.3	242.1	42759.9	1.18			6854.35		1.08	1579.6	1.10
July 27, 2010	62.0	105.6	56.6	224.2	42984.1	1.09			6870.75		1.08	1575.2	1.09
July 28, 2010	62.4	103.6	62.6	228.6	43212.7	1.11			6894.15		1.08	1569.1	1.09
July 29, 2010	60.5	103.4	61.5	225.5	43438.2	1.10			6899.65		1.08	1572.7	1.09
July 30, 2010	59.7	94.2	66.2	220.0	43658.2	1.07			6899.75		1.08	1570.8	1.09
July 31, 2010	57.9	96.8	54.9	209.0	43867.2	1.02	6891.0	1.08	6890.95		1.08	1568.6	1.09
August 1, 2010	51.2	72.0	61.5	184.6	44051.8	0.90			6858.05		1.08	1534.0	1.07
August 2, 2010	56.3	79.0	70.2	205.4	44257.2	1.00			6839.75		1.07	1497.3	1.04
August 3, 2010	59.9	100.2	60.0	220.1	44477.3	1.07			6860.25		1.08	1493.2	1.04
August 4, 2010	58.7	98.8	56.4	213.9	44691.2	1.04			6861.75		1.08	1478.5	1.03
August 5, 2010	59.1	94.4	60.6	214.2	44905.4	1.04			6849.55		1.07	1467.2	1.02
August 6, 2010	60.4	85.5	73.9	219.2	45124.6	1.07			6847.85		1.07	1466.4	1.02
August 7, 2010	58.3	83.9	64.3	206.5	45331.1	1.00			6828.65		1.07	1463.9	1.02
August 8, 2010	62.5	100.2	60.6	223.4	45554.5	1.09			6822.75		1.07	1502.7	1.04
August 9, 2010	66.8	108.2	69.1	244.0	45798.5	1.19			6832.35		1.07	1541.3	1.07
August 10, 2010	63.3	105.6	64.4	233.2	46031.7	1.13			6851.95		1.08	1554.4	1.08
August 11, 2010	63.6	104.9	64.4	232.9	46264.6	1.13			6864.55		1.08	1573.4	1.09
August 12, 2010	64.4	102.1	64.5	231.0	46495.6	1.12			6855.45		1.08	1590.2	1.10
August 13, 2010	58.3	81.7	73.3	213.3	46708.9	1.04			6846.55		1.07	1584.3	1.10
August 14, 2010	54.7	76.2	62.9	193.8	46902.7	0.94			6810.35		1.07	1571.6	1.09
August 15, 2010	55.6	80.5	59.6	195.7	47098.4	0.95			6772.45		1.06	1543.9	1.07
August 16, 2010	59.3	89.2	72.3	211.7	47310.1	1.03			6762.95		1.06	1511.6	1.05
August 17, 2010	59.4	79.8	69.2	208.4	47518.5	1.01			6776.15		1.06	1486.8	1.03
August 18, 2010	59.7	82.6	73.4	215.7	47734.2	1.05			6781.25		1.06	1469.6	1.02
August 19, 2010	60.0	103.1	53.6	216.7	47950.9	1.05			6770.55		1.06	1455.3	1.01
August 20, 2010	59.6	98.6	61.2	219.3	48170.2	1.07			6761.25		1.06	1461.3	1.02
August 21, 2010	57.8	91.9	53.6	203.3	48373.5	0.99			6729.85		1.06	1470.8	1.02
August 22, 2010	59.6	92.1	61.3	213.0	48586.5	1.04			6720.95		1.05	1488.1	1.03
August 23, 2010	62.4	102.5	62.2	227.1	48813.6	1.10			6726.15		1.06	1503.5	1.04
August 24, 2010	58.4	98.0	55.2	211.7	49025.3	1.03			6726.65		1.06	1506.8	1.05
August 25, 2010	61.4	103.8	61.6	226.8	49252.1	1.10			6734.32		1.06	1517.9	1.05
August 26, 2010	62.4	106.5	61.8	230.7	49482.8	1.12			6722.90		1.05	1531.9	1.06
August 27, 2010	62.7	108.4	61.1	232.2	49715.0	1.13			6730.90		1.06	1544.8	1.07
August 28, 2010	54.0	92.3	48.8	195.1	49910.1	0.95			6697.40		1.05	1536.6	1.07
August 29, 2010	58.8	94.9	50.3	203.9	50114.0	0.99			6675.80		1.05	1527.5	1.06
August 30, 2010	59.2	92.7	57.9	209.7	50323.7	1.02			6665.50		1.05	1510.1	1.05
August 31, 2010	56.7	101.9	49.8	208.4	50532.1	1.01	6664.9	1.05	6664.90		1.05	1506.8	1.05
September 1, 2010	60.2	101.0	49.8	211.0	50743.1	1.03			6691.30		1.05	1491.0	1.04
September 2, 2010	57.7	99.4	48.4	205.5	50948.6	1.00			6691.40		1.05	1465.8	1.02
September 3, 2010	58.0	94.3	52.1	205.4	51154.0	1.00			6676.70		1.05	1439.0	1.00
September 4, 2010	52.5	84.7	48.6	185.6	51339.6	0.90			6648.40		1.04	1429.5	0.99
September 5, 2010	49.3	86.1	43.5	178.9	51518.5	0.87			6613.10		1.04	1404.5	0.98
September 6, 2010	55.0	92.8	53.6	201.4	51719.9	0.98			6595.30		1.03	1396.2	0.97
September 7, 2010	60.3	98.2	54.5	213.0	51932.9	1.04			6601.80		1.04	1400.8	0.97

Table C.2

2010 Water Pumpage Summary Report

Consumption in Millions of Litres

City of Winnipeg - Water and Waste Department

Date	MacLean	Hurst	McPhillips	Total	Cumulative	Daily Load	Monthly	Month	31 Day	31 Day	7 Day	7 Day	
					Pumpage	Factor	Total	Load Factor	Total	Load Factor	Total	Load Factor	
September 8, 2010	61.7	102.9	50.7	215.3	52148.2	1.05			6593.70		1.03	1405.1	0.98
September 9, 2010	61.7	99.0	49.4	210.1	52358.3	1.02			6559.80		1.03	1409.7	0.98
September 10, 2010	57.3	96.8	47.7	201.9	52560.2	0.98			6528.50		1.02	1406.2	0.98
September 11, 2010	57.2	95.6	46.5	197.3	52757.5	0.96			6492.90		1.02	1417.9	0.99
September 12, 2010	57.0	96.0	51.0	204.0	52961.5	0.99			6465.90		1.01	1443.0	1.00
September 13, 2010	58.3	98.5	51.8	208.6	53170.1	1.01			6461.20		1.01	1450.2	1.01
September 14, 2010	58.2	97.3	50.3	205.8	53375.9	1.00			6473.20		1.02	1443.0	1.00
September 15, 2010	57.6	93.3	54.9	205.8	53581.7	1.00			6483.30		1.02	1433.5	1.00
September 16, 2010	56.7	92.1	56.8	205.6	53787.3	1.00			6477.20		1.02	1429.0	0.99
September 17, 2010	57.3	91.3	53.3	201.9	53989.2	0.98			6470.70		1.02	1429.0	0.99
September 18, 2010	57.2	93.0	46.0	196.3	54185.5	0.95			6451.30		1.01	1428.0	0.99
September 19, 2010	58.0	80.7	63.9	202.6	54388.1	0.99			6437.20		1.01	1426.6	0.99
September 20, 2010	57.2	95.7	53.5	206.4	54594.5	1.00			6424.30		1.01	1424.4	0.99
September 21, 2010	57.6	74.5	72.7	204.8	54799.3	1.00			6425.80		1.01	1423.4	0.99
September 22, 2010	57.5	98.4	52.0	207.9	55007.2	1.01			6420.70		1.01	1425.5	0.99
September 23, 2010	61.4	112.1	30.3	203.8	55211.0	0.99			6397.40		1.00	1423.7	0.99
September 24, 2010	63.2	118.4	28.7	210.3	55421.3	1.02			6396.00		1.00	1432.1	1.00
September 25, 2010	64.2	126.1	21.6	211.9	55633.2	1.03			6381.10		1.00	1447.7	1.01
September 26, 2010	67.8	130.2	21.2	219.3	55852.5	1.07			6369.70		1.00	1464.4	1.02
September 27, 2010	68.7	130.1	24.4	223.2	56075.7	1.09			6360.70		1.00	1481.2	1.03
September 28, 2010	67.8	128.8	23.2	219.8	56295.5	1.07			6385.40		1.00	1496.2	1.04
September 29, 2010	67.2	132.1	23.1	222.4	56517.9	1.08			6403.90		1.00	1510.7	1.05
September 30, 2010	71.0	145.5	14.6	231.1	56749.0	1.12	6216.9	1.01	6425.30		1.01	1538.0	1.07
October 1, 2010	69.5	143.2	10.4	223.2	56972.2	1.09			6440.10		1.01	1550.9	1.08
October 2, 2010	65.5	124.2	10.4	201.0	57173.2	0.98			6430.10		1.01	1540.0	1.07
October 3, 2010	67.1	118.1	23.9	209.1	57382.3	1.02			6433.70		1.01	1529.8	1.06
October 4, 2010	67.8	99.1	22.1	209.1	57591.4	1.02			6437.40		1.01	1515.7	1.05
October 5, 2010	62.9	130.5	32.6	226.0	57817.4	1.10			6477.80		1.02	1521.9	1.06
October 6, 2010	57.8	99.4	52.1	209.3	58026.7	1.02			6508.20		1.02	1508.8	1.05
October 7, 2010	57.6	97.1	55.3	210.1	58236.8	1.02			6516.90		1.02	1487.8	1.03
October 8, 2010	57.1	97.4	52.9	207.3	58444.1	1.01			6511.20		1.02	1471.9	1.02
October 9, 2010	53.6	92.4	53.4	199.4	58643.5	0.97			6495.30		1.02	1470.3	1.02
October 10, 2010	53.5	89.4	48.0	190.9	58834.4	0.93			6476.10		1.02	1452.1	1.01
October 11, 2010	57.7	94.1	52.7	204.5	59038.9	0.99			6478.70		1.02	1447.5	1.01
October 12, 2010	57.1	100.1	50.3	207.5	59246.4	1.01			6488.90		1.02	1429.0	0.99
October 13, 2010	57.1	98.0	52.0	207.1	59453.5	1.01			6492.00		1.02	1426.8	0.99
October 14, 2010	56.7	98.5	51.0	206.2	59659.7	1.00			6489.60		1.02	1422.9	0.99
October 15, 2010	55.5	97.4	49.8	202.7	59862.4	0.99			6486.50		1.02	1418.3	0.99
October 16, 2010	56.9	98.5	46.3	201.6	60064.0	0.98			6482.30		1.02	1420.5	0.99
October 17, 2010	57.8	101.6	44.3	203.6	60267.6	0.99			6480.30		1.02	1433.2	1.00
October 18, 2010	56.7	99.7	49.7	206.1	60473.7	1.00			6484.50		1.02	1434.8	1.00
October 19, 2010	56.3	100.1	49.8	206.7	60680.4	1.01			6494.90		1.02	1434.0	1.00
October 20, 2010	55.9	97.7	51.4	204.9	60885.3	1.00			6497.20		1.02	1431.8	0.99
October 21, 2010	55.7	97.4	50.3	203.4	61088.7	0.99			6494.20		1.02	1429.0	0.99
October 22, 2010	56.1	97.7	49.4	203.2	61291.9	0.99			6492.60		1.02	1429.5	0.99
October 23, 2010	56.1	95.0	48.4	199.4	61491.3	0.97			6484.10		1.02	1427.3	0.99
October 24, 2010	56.8	98.0	49.1	203.9	61695.2	0.99			6484.20		1.02	1427.6	0.99
October 25, 2010	55.4	94.5	51.6	201.6	61896.8	0.98			6475.50		1.02	1423.1	0.99
October 26, 2010	54.7	90.7	53.7	199.2	62096.0	0.97			6462.80		1.01	1415.6	0.98
October 27, 2010	57.2	78.2	62.0	197.3	62293.3	0.96			6440.80		1.01	1408.0	0.98

Table C.2

2010 Water Pumpage Summary Report

Consumption in Millions of Litres

City of Winnipeg - Water and Waste Department

Date	MacLean	Hurst	McPhillips	Total	Cumulative	Daily Load	Monthly	Month	31 Day	31 Day	7 Day	7 Day	
					Pumpage	Factor	Total	Load Factor	Total	Load Factor	Total	Load Factor	
October 28, 2010	54.9	93.2	51.2	199.3	62492.6	0.97				6416.90	1.01	1403.9	0.98
October 29, 2010	54.3	93.0	48.8	196.1	62688.7	0.95				6393.20	1.00	1396.8	0.97
October 30, 2010	55.6	94.1	46.0	195.7	62884.4	0.95				6366.50	1.00	1393.1	0.97
October 31, 2010	55.5	94.4	45.1	199.0	63083.4	0.97	6334.4	0.99	6334.40	6334.40	0.99	1388.2	0.96
November 1, 2010	56.2	94.0	51.7	201.9	63285.3	0.98				6313.10	0.99	1388.5	0.96
November 2, 2010	55.3	93.9	50.3	199.6	63484.9	0.97				6311.70	0.99	1388.9	0.97
November 3, 2010	55.5	94.0	51.0	200.5	63685.4	0.98				6303.10	0.99	1392.1	0.97
November 4, 2010	55.5	93.9	50.4	199.8	63885.2	0.97				6293.80	0.99	1392.6	0.97
November 5, 2010	55.2	79.8	63.7	198.7	64083.9	0.97				6266.50	0.98	1395.2	0.97
November 6, 2010	56.2	96.5	43.9	196.6	64280.5	0.96				6253.80	0.98	1396.1	0.97
November 7, 2010	58.7	98.2	49.4	206.3	64486.8	1.00				6250.03	0.98	1403.4	0.98
November 8, 2010	53.8	94.4	52.3	200.5	64687.3	0.98				6243.23	0.98	1402.0	0.97
November 9, 2010	54.8	91.7	52.4	199.0	64886.3	0.97				6242.83	0.98	1401.4	0.97
November 10, 2010	53.4	90.8	48.4	192.6	65078.9	0.94				6244.53	0.98	1393.5	0.97
November 11, 2010	54.7	91.2	45.7	191.6	65270.5	0.93				6231.63	0.98	1385.3	0.96
November 12, 2010	53.2	91.0	48.5	192.7	65463.2	0.94				6216.83	0.98	1379.3	0.96
November 13, 2010	53.9	91.9	43.4	189.2	65652.4	0.92				6198.93	0.97	1371.9	0.95
November 14, 2010	55.5	86.4	54.2	196.1	65848.5	0.95				6188.83	0.97	1361.7	0.95
November 15, 2010	54.8	90.0	55.2	200.0	66048.5	0.97				6186.13	0.97	1361.2	0.95
November 16, 2010	54.6	98.0	46.2	198.8	66247.3	0.97				6183.33	0.97	1361.0	0.95
November 17, 2010	54.5	86.7	57.3	198.5	66445.8	0.97				6178.25	0.97	1366.9	0.95
November 18, 2010	54.5	97.5	44.3	196.3	66642.1	0.95				6168.40	0.97	1371.6	0.95
November 19, 2010	53.2	93.2	44.8	191.1	66833.2	0.93				6152.80	0.97	1370.0	0.95
November 20, 2010	54.8	92.7	46.3	193.8	67027.0	0.94				6141.70	0.96	1374.6	0.96
November 21, 2010	55.1	87.2	53.7	196.0	67223.0	0.95				6134.30	0.96	1374.5	0.96
November 22, 2010	55.6	92.3	51.4	199.3	67422.3	0.97				6130.40	0.96	1373.8	0.95
November 23, 2010	55.9	93.9	49.5	199.3	67621.6	0.97				6130.30	0.96	1374.3	0.95
November 24, 2010	53.5	95.6	45.8	194.9	67816.5	0.95				6121.30	0.96	1370.7	0.95
November 25, 2010	56.0	76.2	62.3	194.5	68011.0	0.95				6114.20	0.96	1368.9	0.95
November 26, 2010	54.5	93.7	46.3	194.4	68205.4	0.95				6109.40	0.96	1372.2	0.95
November 27, 2010	54.9	95.9	43.5	194.4	68399.8	0.95				6106.50	0.96	1372.8	0.95
November 28, 2010	55.7	99.1	43.2	197.9	68597.7	0.96				6105.10	0.96	1374.7	0.96
November 29, 2010	54.9	91.8	52.0	198.7	68796.4	0.97				6107.70	0.96	1374.1	0.95
November 30, 2010	53.9	91.2	53.3	198.4	68994.8	0.96	5911.4	0.96	6110.40	6110.40	0.96	1373.2	0.95
December 1, 2010	55.1	98.9	46.6	200.6	69195.4	0.98				6112.00	0.96	1378.9	0.96
December 2, 2010	55.4	95.2	51.0	201.6	69397.0	0.98				6111.70	0.96	1386.0	0.96
December 3, 2010	54.3	92.9	49.7	196.9	69593.9	0.96				6109.00	0.96	1388.5	0.96
December 4, 2010	55.6	93.8	45.7	195.1	69789.0	0.95				6103.60	0.96	1389.2	0.97
December 5, 2010	55.7	94.9	49.0	199.6	69988.6	0.97				6103.40	0.96	1390.9	0.97
December 6, 2010	54.6	94.8	52.6	202.0	70190.6	0.98				6106.70	0.96	1394.2	0.97
December 7, 2010	54.6	95.4	49.0	199.0	70389.6	0.97				6109.10	0.96	1394.8	0.97
December 8, 2010	55.6	99.2	45.0	199.8	70589.4	0.97				6102.57	0.96	1394.0	0.97
December 9, 2010	55.2	91.6	49.4	196.2	70785.6	0.95				6098.27	0.96	1388.6	0.96
December 10, 2010	54.7	92.1	49.1	195.9	70981.5	0.95				6095.17	0.96	1387.6	0.96
December 11, 2010	55.5	93.8	46.0	195.3	71176.8	0.95				6097.87	0.96	1387.8	0.96
December 12, 2010	56.9	93.8	47.2	197.9	71374.7	0.96				6104.17	0.96	1386.1	0.96
December 13, 2010	54.7	93.1	49.4	197.2	71571.9	0.96				6108.67	0.96	1381.3	0.96
December 14, 2010	54.0	89.8	53.7	197.5	71769.4	0.96				6116.97	0.96	1379.8	0.96
December 15, 2010	54.5	92.1	52.3	198.9	71968.3	0.97				6119.77	0.96	1378.9	0.96
December 16, 2010	58.2	92.5	49.8	200.5	72168.8	0.98				6120.27	0.96	1383.2	0.96

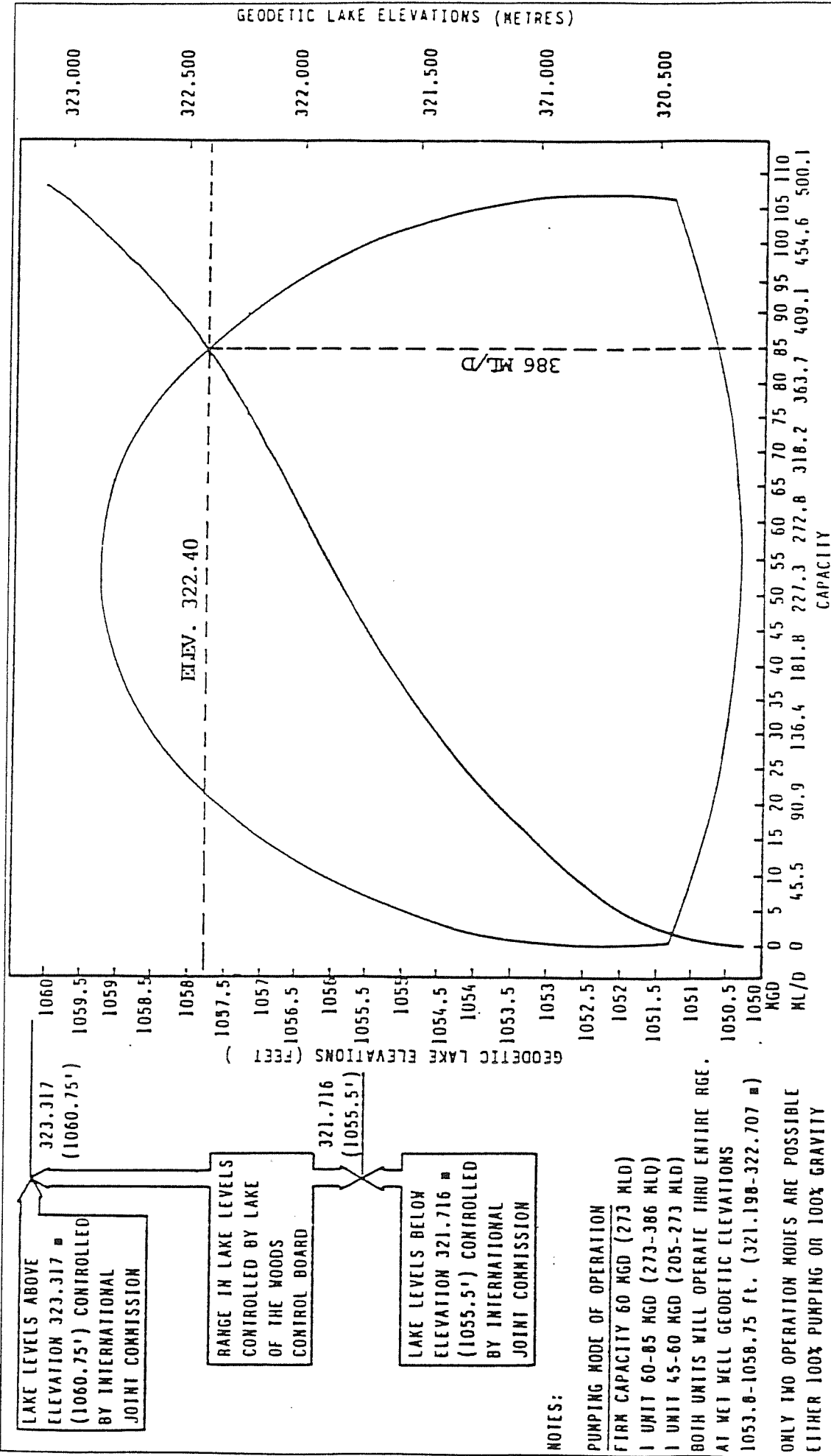
Table C.2 2010 Water Pumpage Summary Report

Consumption in Millions of Litres

City of Winnipeg - Water and Waste Department

Date	MacLean	Hurst	McPhillips	Total	Cumulative Pumpage	Daily Load Factor	Monthly	Month	31 Day	31 Day	7 Day	7 Day
							Total	Load Factor	Total	Load Factor	Total	Load Factor
December 17, 2010	56.3	93.1	48.2	197.6	72366.4	0.96			6119.07	0.96	1384.9	0.96
December 18, 2010	54.8	90.7	49.2	194.7	72561.1	0.95			6115.25	0.96	1384.3	0.96
December 19, 2010	56.3	94.8	47.6	198.7	72759.8	0.97			6117.70	0.96	1385.1	0.96
December 20, 2010	52.7	94.6	52.8	200.1	72959.9	0.97			6126.70	0.96	1388.0	0.96
December 21, 2010	52.7	92.5	50.0	195.2	73155.1	0.95			6128.10	0.96	1385.7	0.96
December 22, 2010	50.4	94.8	51.0	196.2	73351.3	0.95			6128.30	0.96	1383.0	0.96
December 23, 2010	55.6	92.4	50.4	198.4	73549.7	0.96			6127.40	0.96	1380.9	0.96
December 24, 2010	55.0	90.8	49.5	195.3	73745.0	0.95			6123.40	0.96	1378.6	0.96
December 25, 2010	49.2	86.5	38.0	173.7	73918.7	0.84			6102.20	0.96	1357.6	0.94
December 26, 2010	50.5	89.1	39.0	178.6	74097.3	0.87			6086.30	0.95	1337.5	0.93
December 27, 2010	53.2	91.9	43.5	188.6	74285.9	0.92			6080.50	0.95	1326.0	0.92
December 28, 2010	55.1	92.9	48.0	196.0	74481.9	0.95			6082.10	0.95	1326.8	0.92
December 29, 2010	53.8	91.7	47.5	193.0	74674.9	0.94			6077.20	0.95	1323.6	0.92
December 30, 2010	54.6	91.0	49.2	194.8	74869.7	0.95			6073.30	0.95	1320.0	0.92
December 31, 2010	48.9	91.9	47.9	188.7	75058.4	0.92	6063.6	0.95	6063.60	0.95	1313.4	0.91

Aqueduct Flow Vs. Shoal Lake Level



LAKE LEVELS ABOVE
ELEVATION 323.317 m
(1060.75') CONTROLLED
BY INTERNATIONAL
JOINT COMMISSION

RANGE IN LAKE LEVELS
CONTROLLED BY LAKE
OF THE WOODS
CONTROL BOARD

LAKE LEVELS BELOW
ELEVATION 321.716 m
(1055.5') CONTROLLED
BY INTERNATIONAL
JOINT COMMISSION

NOTES:

PUMPING MODE OF OPERATION

- FIRM CAPACITY 60 MGD (273 MLD)
- 1 UNIT 60-85 MGD (273-386 MLD)
- 1 UNIT 45-60 MGD (205-273 MLD)
- BOTH UNITS WILL OPERATE THRU ENTIRE RGE. AT NET WELL GEODETIC ELEVATIONS 1053.8-1058.75 ft. (321.198-322.707 m)
- ONLY TWO OPERATION MODES ARE POSSIBLE EITHER 100% PUMPING OR 100% GRAVITY

AQUEDUCT CAPACITY

- MILE 0-87 (km 0-140) CAPACITY IS 85 MGD (386 MLD)
- MILE 87-INTAKE (km 140-INTAKE CAPACITY IS 120 MGD (545 MLD)
- THERE IS PROVISION FOR A 35 MGD (159 MLD) OFFTAKE AT MILE 87 (km 140).

Figure 4-1

Appendix D

Table D.1

Historical Water Rates

Effective Date	Block 1 (\$/100 cu. ft.)	Block 2 (\$/100 cu. ft.)	Block 3 (\$/100 cu. ft.)
January 1, 1974	0.42	0.27	0.19
April 1, 1974*	0.42	0.27	0.19
April 1, 1976	0.63	0.41	0.29
April 1, 1977	0.72	0.47	0.34
April 1, 1979**	0.75	0.50	0.38
May 1, 1980	0.83	0.55	0.42
April 1, 1981	1.06	0.70	0.54
April 1, 1982	1.17	0.91	0.82
January 1, 1983	1.24	0.96	0.87
January 1, 1985	1.30	1.01	0.91
April 1, 1988+	1.08	0.84	0.58
January 1, 1989+	1.13	0.88	0.60
February 1, 1990+	1.18	0.92	0.63
January 1, 1991+	1.24	0.96	0.66
January 1, 1992+	1.33	1.03	0.72
January 1, 1993+	1.41	1.10	0.78
January 1, 1994+	1.55	1.23	0.90
January 1, 1995 +	1.70	1.37	1.03
January 1, 1996 +	1.89	1.54	1.18
January 1, 1997 +	2.10	1.72	1.33
January 1, 1998 +	2.32	1.98	1.50
January 1, 1999 +	2.54	2.10	1.65
January 1, 2000 +	2.70	2.22	1.74
January 1, 2001 +	2.75	2.27	1.79
January 1, 2002 +	2.75	2.27	1.79
January 1, 2003 +	2.75	2.27	1.79
January 1, 2004 +	2.75	2.27	1.79
January 1, 2005 +	2.75	2.27	1.79
January 1, 2006 +	2.75	2.27	1.79
January 1, 2007 +	3.15	2.67	2.19
January 1, 2008 +	3.45	2.97	2.49
January 1, 2009 +	3.55	3.07	2.59
January 1, 2010 +	1.29***	1.12***	0.95***

* Instituted Service Charge

** Discontinued Service Charge

*** \$ Per cubic metre per quarter

+ Plus Fixed Quarterly Charge

Table D.2

Historical Billed Water Consumption

BILLED CONSUMPTION (GL)					
Year	Block 1	Block 2	Block 3	Public Water Outlets	Total
1977	34.30	15.88	22.42	0.12	72.72
1978	35.67	16.20	22.85	0.14	74.86
1979	36.85	15.99	22.25	0.15	75.24
1980	40.96	17.01	21.87	0.16	80.00
1981	38.35	16.88	20.23	0.16	75.62
1982	38.60	17.13	18.76	0.23	74.72
1983	41.90	18.28	20.57	0.26	81.01
1984	41.0	17.9	19.1	0.27	78.26
1985	41.9	18.2	19.6	0.29	79.97
1986	42.56	18.28	19.78	0.31	80.93
1987	45.35	19.12	20.29	0.33	85.09
1988	48.61	19.25	19.88	0.39	88.13
1989	47.23	19.25	20.11	0.35	86.94
1990	48.49	19.65	19.86	0.33	88.33
1991	47.31	19.04	18.44	0.30	85.09
1992	45.26	18.25	15.84	0.29	79.64
1993	43.40	17.26	14.55	0.52	75.73
1994	43.83	17.50	14.06	0.27	75.66
1995	45.47	17.6	15.11	0.25	78.43
1996	43.27	17.00	14.26	0.27	74.81
1997	43.26	16.85	13.88	0.26	74.26
1998	43.22	16.98	14.16	0.28	74.64
1999	43.06	16.93	13.85	0.25	74.09
2000	42.76	16.91	12.75	0.17	72.59
2001	42.94	17.29	12.37	0.16	72.76
2002	42.6	16.94	11.95	0.16	71.65
2003	43.93	17.32	12.41	0.16	73.82
2004	41.72	16.41	11.16	0.15	69.44
2005	42.10	16.77	11.65	0.14	70.66
2006	43.54	16.51	10.8	0.11	70.96
2007	41.84	16.28	11.84	0.11	70.07
2008	40.91	16.18	10.43	0.11	67.63
2009	39.28	15.78	9.8	0.10	64.96
2010	37.19	15.72	10.12	0.11	63.14

GL = Gigalitres = 1,000,000,000 Litres

Source - Customer Accounts Branch

Table D.3

Historical Water Revenue

REVENUE x \$1,000,000						
Year	Block 1	Block 2	Block 3	Public Water Outlets	Quarterly Charges	Total
1977	8.31	2.50	2.53	0.85 *	--	14.19
1978	9.08	2.68	2.74	0.87 *	--	15.37
1979	9.58	2.75	2.86	0.39 *	--	15.58
1980	11.46	3.16	3.08	0.07	--	17.77
1981	13.14	3.82	3.51	0.07	--	20.54
1982	15.32	4.99	4.67	0.10	--	25.08
1983	18.13	6.13	6.24	0.12	--	30.62
1984	17.91	6.03	5.85	0.12	--	29.91
1985	19.05	6.41	6.22	0.13	--	31.81
1986	19.47	6.50	6.34	0.14	--	32.45
1987	20.74	6.80	6.50	0.14	--	34.18
1988	19.79	6.11	4.85	0.17	3.94	34.86
1989	18.66	5.92	4.23	0.15	6.64	35.60
1990	19.95	6.24	4.36	0.15	7.07	37.77
1991	20.51	6.40	4.26	0.13	7.68	38.98
1992	20.99	6.55	3.97	0.13	8.12	39.76
1993	21.37	6.62	3.95	0.21	8.41	40.57
1994	23.61	7.46	4.41	0.24	8.74	44.45
1995	26.89	8.37	5.39	0.30	8.73	49.67
1996	28.48	9.08	5.82	0.30	9.00	52.67
1997	31.51	10.05	6.40	0.30	9.10	57.36
1998	34.80	11.25	7.36	0.36	8.97	62.74
1999	37.96	12.34	7.92	0.36	9.16	67.74
2000	40.26	13.10	7.76	0.24	9.19	70.55
2001	41.42	13.76	7.76	0.21	9.30	72.45
2002	41.23	13.53	7.53	0.21	9.17	71.67
2003	42.51	13.83	7.82	0.21	7.58	71.95
2004	40.38	13.11	7.03	0.19	7.51	68.22
2005	40.74	13.40	7.34	0.18	8.58	70.25
2006	42.14	13.19	6.81	0.17	8.70	71.01
2007	45.50	14.92	8.91	0.19	8.82	78.34
2008	49.04	16.65	8.98	0.21	8.92	83.80
2009	48.88	16.97	8.88	0.22	8.85	83.80
2010	47.79	17.51	9.55	0.25	8.92	84.02

* Includes service charges totalling \$0.80, \$0.81 and \$0.33 for 1977, 1978 and 1979, respectively.

Table D.4

Historical Unit Water Revenue

UNIT REVENUE (\$/ML) *			
Year	Block 1	Block 2	Block 3
1977	242.30	157.40	112.80
1978	254.60	165.40	119.90
1979	260.00	172.00	128.50
1980	279.80	185.80	140.80
1981	342.60	226.30	173.50
1982	396.90	291.30	248.90
1983	432.70	335.30	303.40
1984	436.40	337.80	306.30
1985	454.20	352.40	318.20
1986	457.50	355.60	320.50
1987	457.30	355.60	320.40
1988 **	480.80	328.30	251.50
1989 **	522.30	326.20	222.80
1990 **	544.20	337.90	233.10
1991 **	581.90	358.70	247.30
1992 **	627.50	384.10	270.83
1993 **	668.35	411.35	293.90
1994 **	717.26	454.09	335.41
1995 **	766.56	504.03	376.45
1996 **	846.68	564.34	429.23
1997 **	917.84	627.13	482.96
1998 **	996.06	693.41	540.38
1999 **	1073.81	760.36	593.54
2000 **	1135.80	806.90	630.69
2001 **	1158.95	827.22	650.89
2002 **	1164.88	830.64	654.63
2003**	1160.08	830.44	653.88
2004 **	1171.80	832.17	656.59
2005 **	1199.43	835.58	656.20
2006 **	1193.59	836.36	658.34
2007 **	1324.01	954.34	777.87
2008 **	1441.42	1067.04	890.08
2009 **	1500.26	1114.54	936.58
2010 **	1557.25	1153.05	974.86

* Revenue divided by Billed Consumption

** Includes fixed quarterly charges according to meter size

Table D.5

Historical Non-Billed Water

Year	Water Pumped (GL)	Water Billed (GL)	Non-Billed * (GL)	%
1977	88.69	72.72	15.97	18.01
1978	93.05	74.86	18.19	19.55
1979	93.96	75.24	18.72	19.92
1980	96.08	80.00	16.08	16.74
1981	89.59	75.62	13.97	15.59
1982	91.96	74.72	17.24	18.75
1983	96.52	81.01	15.51	16.07
1984	96.13	78.26	17.87	18.59
1985	97.42	79.97	17.45	17.91
1986	98.26	80.93	17.33	17.64
1987	100.71	85.09	15.62	15.51
1988	109.93	88.13	21.80	19.83
1989	108.69	86.94	21.75	20.01
1990	109.32	88.33	20.99	19.20
1991	103.69	85.09	18.60	17.94
1992	94.25	79.64	14.61	15.50
1993	89.92	75.74	14.18	15.77
1994	89.83	75.66	14.17	15.77
1995	95.34	78.43	16.91	17.74
1996	93.37	74.81	18.56	19.88
1997	90.28	74.26	16.02	17.74
1998	91.30	74.64	16.66	18.25
1999	88.47	74.09	14.38	16.25
2000	82.41	72.59	9.82	11.92
2001	79.78	72.76	7.02	8.80
2002	81.92	71.65	10.27	12.54
2003	84.58	73.82	10.76	12.72
2004	81.05	69.44	11.61	14.32
2005	80.12	70.66	9.46	11.81
2006	82.83	70.96	11.87	14.33
2007	79.62	70.07	9.55	11.99
2008	78.59	67.63	10.96	13.95
2009	77.30	64.96	12.34	15.96
2010	75.03	63.14	11.89	15.85

* Difference between water pumped and water billed

GL = Gigalitres = 1,000,000,000 Litres

Source - Customer Accounts Branch

Table D.6

Historical Unaccounted - For Water

Year	Water Pumped (GL)	Water Metered * (GL)	Unaccounted (GL)	%
1977	88.69	73.00	15.69	17.69
1978	93.05	75.14	17.91	19.25
1979	93.96	76.06	17.90	19.05
1980	96.08	80.62	15.46	16.09
1981	89.59	76.52	13.07	14.59
1982	91.96	75.56	16.40	17.83
1983	96.52	81.08	15.44	16.00
1984	96.13	79.12	17.01	17.69
1985	97.42	80.83	16.59	17.03
1986	98.26	81.82	16.44	16.73
1987	100.71	85.94	14.77	14.67
1988	109.93	88.90	21.03	19.13
1989	108.69	87.28	21.41	19.70
1990	109.32	88.76	20.56	18.81
1991	103.69	85.20	18.49	17.83
1992	94.25	79.93	14.32	15.19
1993	89.92	76.04	13.88	15.44
1994	89.83	76.04	13.79	15.35
1995	95.34	78.65	16.69	17.51
1996	93.37	75.02	18.35	19.65
1997	90.28	74.46	15.82	17.52
1998	91.30	74.82	16.48	18.05
1999	88.47	74.34	14.13	15.97
2000	82.41	72.86	9.55	11.59
2001	79.78	73.01	6.77	8.49
2002	81.92	71.91	10.01	12.22
2003	84.58	74.12	10.46	12.37
2004	81.05	70.93	10.12	14.01
2005	80.12	71.07	9.05	11.30
2006	82.83	71.56	11.27	13.61
2007	79.62	70.43	9.19	11.54
2008	78.59	67.92	10.67	13.58
2009	77.30	65.36	11.94	15.45
2010	75.03	63.46	11.57	15.42