COUNCIL AGENDA/INFORMATION		
☐ Closed	Date:	Item #
☑ Reg. Council	Date: Dec 7, 09	Item # 9
☐ Supplemental	Date:	Item #

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Director	CAO

9

DISTRICT OF WEST VANCOUVER
750 – 17TH STREET, WEST VANCOUVER, BC V7V 3T3

COUNCIL REPORT

Attachments for item 9 provided under separate cover

Date: December 7, 2009 File: 1700.07

From: John McMahon, Manager, Utilities

Subject: **Utilities Infrastructure Management**

RECOMMENDED THAT:

1. Council acknowledge the preliminary conclusions arising from infrastructure management studies on the District's Utilities systems;
2. Council supports an approach to 2010 Sewer and Water Utility rates that defers planned increases to capital renewal budgets until 2011, in order to engage the public with respect to long term infrastructure issues during the coming year;
3. Staff be instructed to prepare utility rate bylaws that incorporate increases in Metro Vancouver regional sewer and water expenditures, allow for the municipal cost share of sewer and water infrastructure stimulus projects, and reflect increases in the contracts for garbage collection and recycling services; and
4. The report from the Manager, Utilities entitled "Utilities Infrastructure Management" be received for information.

Purpose

The purpose of this report is to present preliminary results from infrastructure management work currently underway and to introduce the potential implications on future utility rate requirements.

1.0 Background

As infrastructure has been built over the years, staff have strived to manage the maintenance of these assets to minimize operational costs. With the inventory of assets increasing and the financial capability of communities to re-invest in infrastructure decreasing, the management of infrastructure has become increasingly complex. In 2007, the Federation of Canadian Municipalities stated that Canada had used up 79% of the service life of its public infrastructure and set the price for eliminating the municipal infrastructure deficit at $123 billion. Many articles have appeared in the media discussing the approach needed to address this situation (see example in Appendix 1).

To assist municipalities, Infrastructure Canada developed a multi-step process known as the "6 What's of Asset Management" (Figure 1, figures presented in Appendix 2). In

short, this process summarizes the infrastructure that exists, how much it would cost to replace today, how much of its lifespan is remaining, and when it should be replaced. This information is then used to project the resources needed in the future and approximately when they will be needed.

Using this process, the District recently engaged AECOM to conduct a series of infrastructure management planning studies to assess the long range implications of infrastructure renewal for the potable water, sanitary sewage, and storm drainage systems. These studies are currently underway and the preliminary results are presented in this report.

2.0 Analysis

2.1 Discussion

The assets currently managed by the Utilities Department include both linear assets (e.g., water and sewer mains) and non-linear assets (e.g., pump stations, treatment plants). Table 1 provides a brief summary of the inventory, as well as the current replacement cost.

Table 1: Inventory and Replacement Valuation

Asset Category	Amount of Infrastructure	Replacement Cost
Water Mains	320 km of water main and appurtenances: 14,075 services	$ 202,000,000
Other Water Infrastructure	2 dams, 1 water treatment plant, 11 pump stations, 21 reservoirs, 29 PRVs, 3 chlorination stations and a power turbine	$ 71,000,000
Sanitary Sewer Mains	340 km of sanitary mains and appurtenances	$ 282,800,000
Other Sanitary Infrastructure	57 lift stations, one wastewater treatment plant, 208 grinder pumps, and one bioswale	$ 16,800,000
Stormwater Mains	235 km of stormwater mains and appurtenances	$ 222,300,000
Other Stormwater Infrastructure	522 Culverts, 50 km of Creek Banks, 19 Detention Basins, 136 Grates, 1 OGS and 5 rain gauges	$ 110,500,000
Total		**$ 905,400,000**

It is worthwhile to note that if the entire inventory of assets needed to be replaced in today's dollars, the total cost would be in excess of $900 million.

As infrastructure ages and deteriorates, each asset will need to be replaced or rehabilitated at some point in the future: the key question is when. For these studies, the current age of the individual assets was compared with typical industry lifespans. The typical estimate for a linear asset is in the range of 75 - 100 years. Many non-linear assets have a shorter lifespan and hence will need to be replaced multiple times before the pipes will need replacement. Thus, a 100 year planning horizon was used in these studies to allow for one full replacement cycle with all the assets represented. In reality, an individual asset will not fail exactly at the end of its estimated lifespan. To account for this, a probability distribution was applied. The individual costs were then totalled

and presented over time for the potable water, sanitary sewer, and storm drainage systems individually (Figures 2 to 4) and combined together to determine the cumulative impact (Figure 5).

A number of key conclusions can be drawn from the preliminary results emerging from the studies (also shown graphically in Figures 2 through 5).

- The current total annual capital replacement budget is significantly below the level required to properly maintain the utilities assets.
- The water related assets were installed over a longer period of time, which effectively spreads the replacement requirements more evenly over the entire period.
- The sanitary and storm assets were installed over a much shorter period of time (predominately between 1960-1980), resulting in the requirement for a peak period of asset replacement.
- If the total replacement costs are averaged over the entire replacement period, annual replacement envelopes for the three utilities are approximately $4 Million per year for each asset class.
- The water assets currently have the most significant shortfall (approx $3 Million per year).
- Sanitary and storm assets have a smaller current shortfall, however, this shortage increases dramatically over the coming decades. Unaddressed, this shortfall will peak at the equivalent of approximately $15 Million per year (2009 dollars).
- The cumulative annual average replacement cost for the three assets is approximately $12 Million per year, compared to the current $2.3 Million program.
- Adoption of a pay-as-you-go approach would result in a capital replacement program in excess of $15 Million per year for approximately the period between 2040 and 2075 with a peak greater than $20 Million per year around the 2050 decade.

While the results from the infrastructure management studies are preliminary at this time, the basic conclusions are not expected to substantially change. As the projected impact on future utility rates is significant, it was deemed appropriate to bring forward these preliminary results in time for consideration of the Five Year Financial Plans for the Water and Sewer Utility Funds within the utility rate setting exercise for 2010.

2.2 Environmental Implications

There are widespread environmental implications related to the District's Utilities. Many of the actions and work associated with infrastructure management also provide significant benefit to the environment. Many of the storm drainage assets and the collection and treatment of sanitary sewage help to prevent environmental and physical

degradation to streams, groundwater, and ultimately the ocean. Further, commitment to an Integrated Resource Recovery approach will provide for an integrated, whole-systems approach to planning and managing infrastructure to optimize the recovery of resources from what has traditionally been thought of as "liquid wastes."

2.3 Social Implications

The social implications of asset management are related to the quality of life afforded by the provision of these basic infrastructure services. The nature of West Vancouver is quite unique in Metro Vancouver, as most of the municipality has been developed as relatively low density residential with no industrial base. However, this results in a significant cost of infrastructure that must be borne by the residents. For example, the length of watermain per capita in the District is higher than many other municipalities in Canada and much higher compared to City of Vancouver (Figure 6). This unique characteristic of the District results in the need for relatively higher utility rates.

2.4 Financial Implications

The financial ramifications associated with the key conclusions from the infrastructure management studies are significant, when compared with current funding levels and the associated rate structure. The challenge is balancing the needed utility revenue increases with overall ratepayer affordability.

Potential cost drivers in 2010 for both Sewer and Water Utilities include Metro Vancouver (MV) regional expenditures, infrastructure stimulus projects, and the projected increases associated with the Infrastructure Management Studies. MV has forecasted an 11% increase in the regional sewer levy and an 11.9% increase in the bulk water rate. While the District was successful in offsetting the total costs associated with the Ambleside Sewer Rehabilitation and Montizambert Water Treatment projects with federal and provincial infrastructure grants, the District is still obligated to fund the remaining one-third cost share.

Incorporating the MV rate increases and the one-third share of the infrastructure stimulus projects into the respective Utilities, results in rate revenue requirements of 13% and 14% to the Sewer and Water Utility Funds respectively. Adding increases to capital budgets for 2010 to acknowledge infrastructure management findings would result in additional 9% and 6% increases to the revenue requirements for the Sewer and Water Utility Funds respectively.

Due to the user pay metered nature of the District's quarterly billing, it is not possible to estimate the impact of the revenue requirements for individual customers. The median single family (SFD) usage has been selected as an indicator to illustrate one potential outcome on the final bill. The revenue increases referenced above result in 21% and 25% increases to the Sewer and Water utility bills for 2010. If the additional increases to the capital program are also included, these values rise to 29% and 31% for the sewer and water utility respectively.

Garbage collection and recycling services are provided in a separate Solid Waste Utility, and new five year contracts were negotiated for each service in 2009. The costs associated with these contracts result in the need for a 53% increase in the overall solid waste user fees for single family residential homes.

2.5 Sustainability

Implementing an asset management framework to the municipality's utility systems allows environmental, social, and financial implications to be considered comprehensively.

2.6 Consultation

Communicating to residents a long term view with respect to infrastructure is essential to understanding the necessary utility rate increases in coming years. Staff recommend implementing a public consultation strategy in 2010 to engage residents regarding infrastructure issues prior to increasing capital replacement budgets in 2011. Additionally, staff plan to finalize the infrastructure management studies on the utilities and complete a similar study on the roads and transportation system assets during 2010. Thus, a comprehensive State of the Engineering Infrastructure Report will be presented to Council in 2010 for public consideration.

3.0 Options

Given the need for the increase in the 2010 Solid Waste Utility rates, the need for the Sewer and Water Utilities to incorporate the Metro Vancouver rate increases, and the need for the District to provide matching funding for the infrastructure stimulus projects during 2010, staff recommend deferment of the increases to the capital renewal budgets suggested by the asset management studies until 2011. The recommended escalation can then be implemented over the following five year period. During 2010, staff plan to implement a public consultation strategy to engage residents regarding infrastructure issues.

Alternatively, Council could support increases to the capital renewal budgets starting in 2010, which would result in total rate revenue requirements of 22% and 20% in the Sewer and Water Utilities respectively.

Author: _____
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Concurrence _____
Richard Laing, Director, Financial Services

Appendices:
Appendix 1, "Five Myths of Canadian Infrastructure," by Todd Latham, ReNew Canada, November/December, 2009.
Appendix 2, Figures

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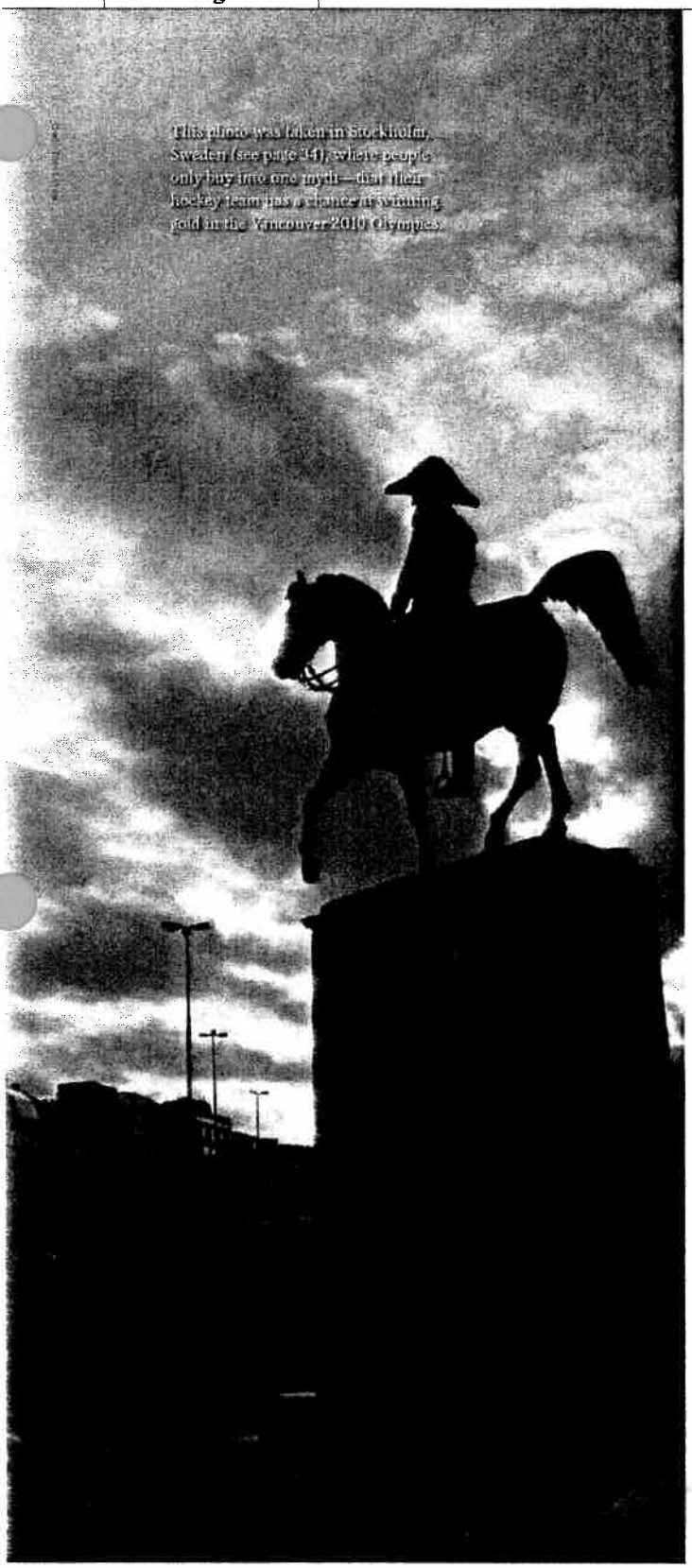

This photo was taken in Stockholm, Sweden (see page 34) where people only buy into one myth—that their hockey team has a chance of winning gold in the Vancouver 2010 Olympics.

FIVE MYTHS OF CANADIAN INFRASTRUCTURE

By Todd Latham

This past May, I was the moderator of a lively University of Toronto session on water investment. One of the presenters was Bruce Pardy, a law professor at Queen's University, who presented eight water policy myths. His premise is that, in Canada, the conversation about water suffers from at least eight pervasive myths. This inspired me to come up with my own list of myths for infrastructure in Canada.

We're doing better than other countries

While we may be ahead of our U.S. counterparts on understanding and managing public infrastructure, countries like Sweden, New Zealand and Australia are way ahead with asset management and sustainable funding regimens. We need to keep learning from other jurisdictions and adopt more progressive governance and public policy initiatives.

It's all about roads and bridges

Transportation infrastructure may be what people notice when they drive into work, but the subsurface utilities (pipes and distribution conduits for water, sewage, power and communications) are often far more in need of repair.

The Canadian public understands

Taxpayers support infrastructure renewal as long as it creates new jobs, doesn't increase their taxes and does not require user-pay structures or special municipal levies to pay for it. The party is over: citizens need to wake realize that quality of life is not free.

Local governments are looking long term

If long term means to the end of an elected official's term of office, then yes. But politics is a short-term game—unlike infrastructure, which is stretched over a 20 to 100-year term. In a parliamentary system, it's easy to have a long-term vision, but almost impossible to implement it.

There's little we can do about climate change

There's a lot we can do personally to reduce our footprint. But, bigger than that, a recent Conference Board of Canada study has shown that 85 per cent of Canadian companies polled actually see "global warming" as a chance to profit. New regulations and a potential carbon market means opportunities for new products and services.

Todd is the founder of ReNew Canada. Bruce Pardy's presentation on water myths has been adapted into an article which appears in the November/December 2009 issue of Canadian Water Treatment magazine. Feedback welcome: todd@renewcanada.net

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Figure 1: Infraguide "6 What's of Asset Management"

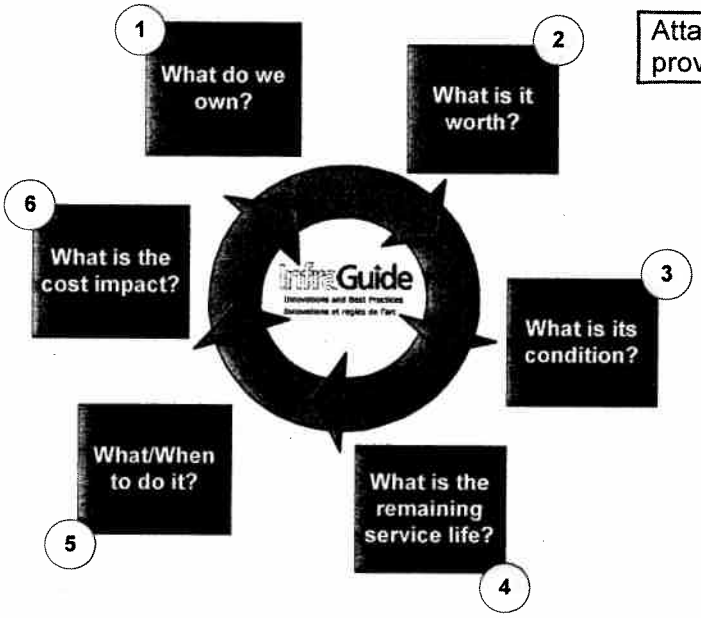

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Figure 2: Water Replacement Budget Projection

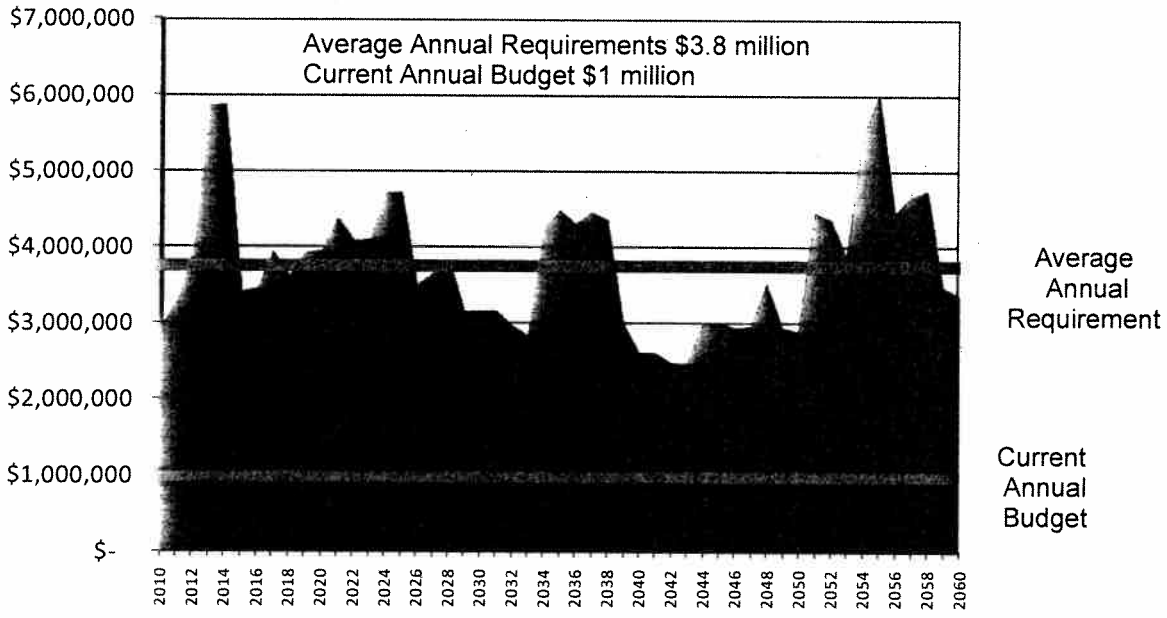


Figure 3: Sanitary Replacement Budget Projection

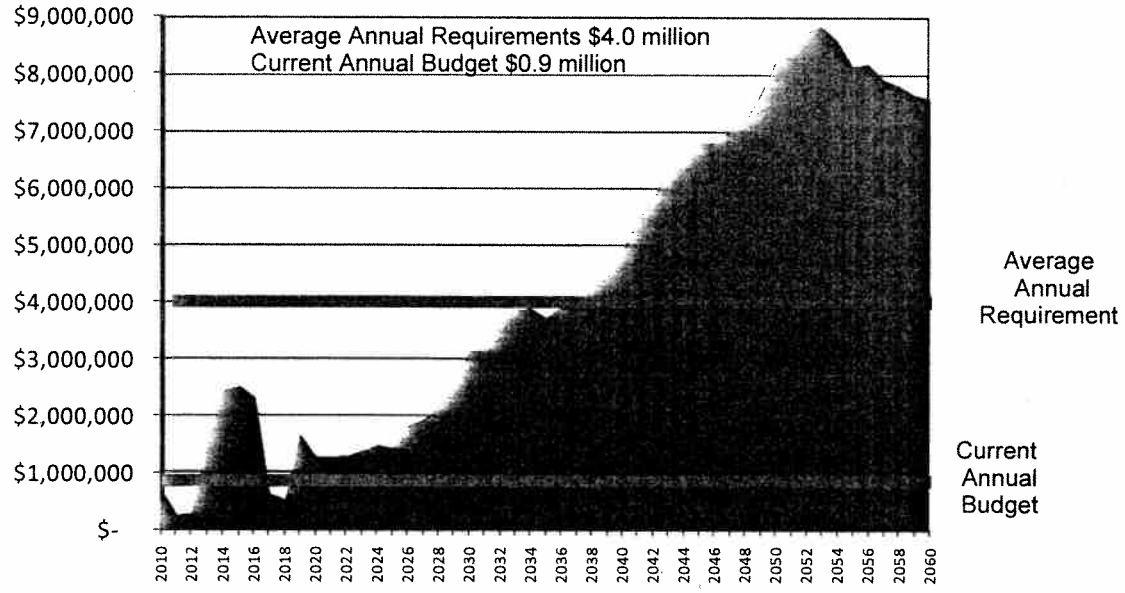


Figure 4: Storm Replacement Budget Projection

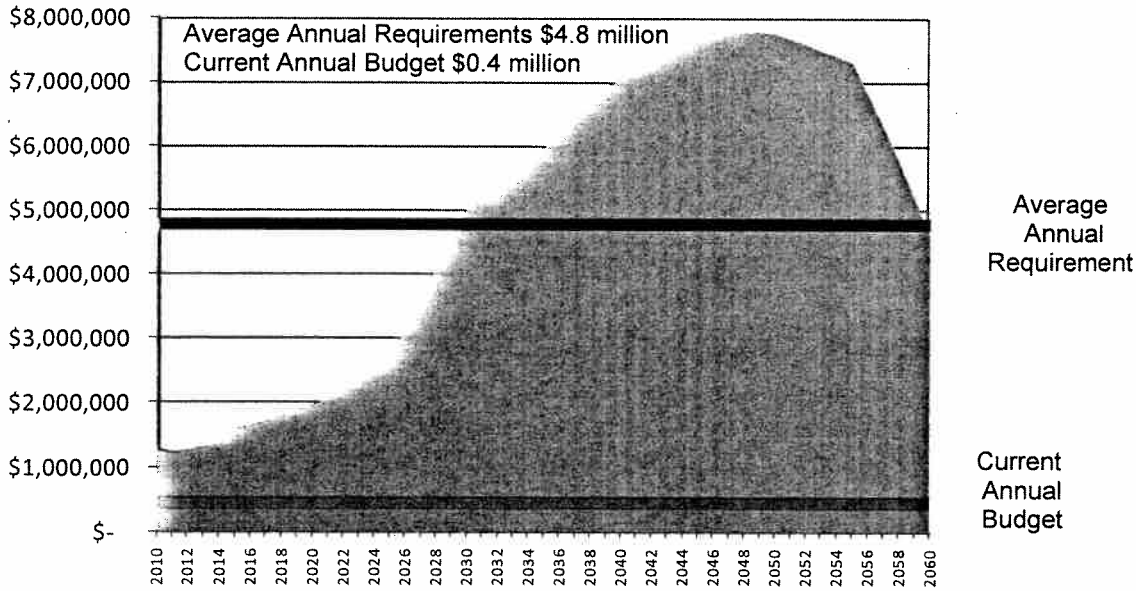


Figure 5: Combined Impact of Water, Sanitary, and Storm

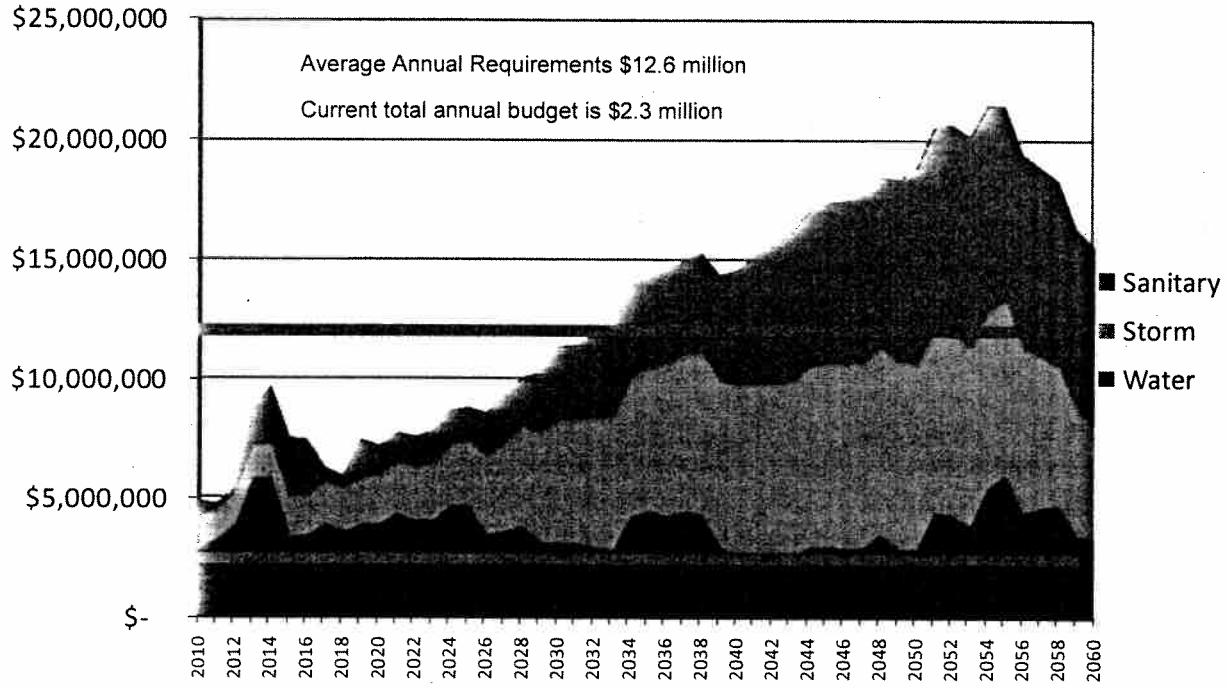
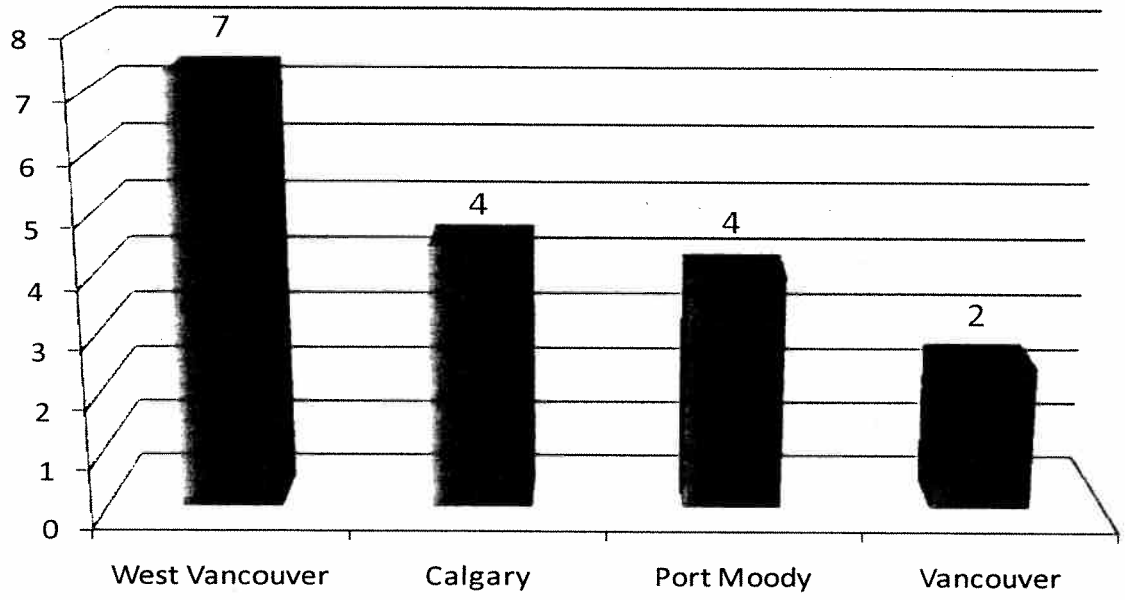


Figure 6: Metres of Watermain per Resident



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