Asset Management

Investment Plan

Prepared by Urban Systems Ltd.
for the City of Port Moody
December 2014

URBAN systems

Table of Contents

Glossary of Acronyms and Terms

Asset Management Investment Plan (AMIP) - A long-term plan that provides a high level snapshot of investment requirements by bringing together all of the theoretical long-term costs and timing for a community's linear and non-linear infrastructure.

Asset Management Financial Plan (AMFP) – A plan for funding long-term infrastructure capital costs.

Annual Average Target Investment (AATI) – The total summation of the Replacement Value/ Service Life of all assets. This is the theoretical sustainable level of investment in a community's assets. The AATI does not include the initial backlog.

Condition Assessment - A term that describes the process of a qualified group of trained industry professionals performing an analysis of the condition of a group of assets that may vary in terms of age, design, construction methods, and materials.

Expected Life – The total theoretical lifespan of an asset. Expected life may also be called average life, service life, or useful life.

Historic Cost – The actual cost of procuring or constructing an asset in the past. Historic costs are used for Tangible Capital Asset reporting purposes.

Infrastructure Backlog – The total sum of the replacement cost of assets that are considered to be beyond their expected life. The infrastructure backlog is also commonly called an infrastructure deficit.

Geographic Information System (GIS) – A system used to store, manage, and analyze information that has a spatial reference.

Replacement Value – The estimated cost of replacing an asset in today's dollars. The replacement value is used for asset management purposes, including in the AMIP. The replacement values are based on recent construction cost data within the lower mainland.

Remaining Life – The expected number of years that an asset should continue to provide service. The remaining life is the difference between the expected life and the age of the asset.

1.0 Introduction

Stewardship of city-owned infrastructure assets is a foundational element for the City of Port Moody (the City) in achieving their vision to be financially sustainable. In recognition of the need for improving infrastructure investment decision making, in the near and long-term, with an emphasis on cost-effectiveness and affordability, City Council has outlined a set of asset management goals and initiatives.

> The provision, maintenance, and renewal of the City's road and utilities infrastructure are critical to the well-being and quality of life in Port Moody.
>
> - *Official Community Plan Bylaw*

This Asset Management Investment Plan (AMIP) (comprised of this report and the associated model) summarizes the estimated 20-year costs associated with infrastructure replacement and renewal. These costs were modelled using best available information on the City's assets. The purpose of this Plan is to help answer the following questions:

- How much will it cost to replace the City's infrastructure?
- When will the City likely need to replace it?
- How much should the City be investing on an annual basis to sustain our infrastructure over the long-term?
- What risks or opportunities should we be considering when making decisions about service levels or infrastructure investments?

Port Moody's Asset Categories*

- Water System
- Wastewater System
- Stormwater System
- Transportation System
- Fleet
- Facilities
- Parks & Recreation
- IT Equipment
- Solid Waste

*Sub-categories have been summarized in Appendix 1.

The model developed for this study can be used to answer these questions at a big-picture level. The model also provides more granular information about each asset type, and for a specific asset for purposes of detailed project planning.

The City currently has an accounting policy to track tangible capital assets (TCA) values and to depreciate these assets over their useful life. However, public sector accounting rules require the use of historical values rather than replacement values which can lead to under valuing the true level of investment that will be needed. Therefore the Asset Management Investment Plan is based on replacement values to more accurately reflect the true costs.

It is common for communities across Canada to find that the estimated cost of infrastructure renewal is higher than available funding levels. Therefore, this Plan is accompanied by a 20-year funding plan that assesses revenue generation opportunities over the long-term and evaluates scenarios for meeting the capital, operational, and maintenance costs for the City. Together, these plans will support the City to identify appropriate revenue levels, allocate budgets, build and manage reserves, and identify and manage debt when required to supplement capital financing.

2.0 Putting the Asset Management Investment Plan in Context

Communities across British Columbia, as well as the rest of Canada, are struggling with aging infrastructure and according to the Canadian Infrastructure Report Card have collectively accumulated an infrastructure backlog (infrastructure in fair to very poor condition) of approximately $171 billion. This represents an average backlog to replacement value of 30%. In comparison, the City of Port Moody's total backlog is $33.6 million, which translates to a 7% backlog to replacement value. Relative to the average City in Canada Port Moody is doing better which is a result of newer development/infrastructure.

Once again, it is important to note that some level of backlog is acceptable. Further study is needed to understand what an acceptable backlog is for Port Moody.

The City of Port Moody understands the critical role managing infrastructure assets plays in a sustainable community. Managing infrastructure assets requires careful planning, proper investment, and appropriate maintenance. The City has been building an asset management program, and this AMIP serves to bring together the best current knowledge on all of the City's infrastructure assets to answer the important questions listed in Figure 1.

Figure 1. Answering questions through the AMIP

Question	Related AMIP Information
How much will it cost to replace our infrastructure?	• Current replacement value
When will we likely need to replace it?	• Remaining life
What condition is it in?	• Percent remaining life • Condition assessments
What risks or opportunities should we be considering when making decisions about service levels or infrastructure investments?	• Infrastructure maintenance backlog • 20 year funding requirements • Remaining life • Service level failures
How much should we be investing on an annual basis to sustain our infrastructure over the long-term?	• Average annual target investment

The AMIP is an ideal launching point for a community's asset management business practice, as it includes all infrastructure assets and presents a relatively accurate long-term cost outlook. The AMIP can be used to inform decision-making regarding the management of, and investment in, community infrastructure. With the completion of the AMIP the City can now identify its long-term revenue generation requirements. The long-term revenue requirements clearly articulate a critical component of what is required for a sustainable community, and serves to inform decisions around levels of service and risk tolerance.

2.1 The Levels of the AMIP

The AMIP model is comprised of three inter-connected levels:

- **Level 1:** Summary by asset category and subcategory for investment planning and decision-makers
- **Level 2:** Detailed data for linear asset subcategories and for non-linear assets to be used for ongoing reporting, operations, and maintenance

- **Level 3**: Highly detailed segment by segment information regarding the linear infrastructure such as pipe and roads (sewer system, water system, local road system)

Information contained in the Section 4.0 Asset Summary represents Level 1information. This level of summary:

- Provides a comprehensive tool that focuses financial and community infrastructure management discussions on all City owned tangible capital assets
- Is based on very detailed information from Level 2, providing a sound basis for credible and defensible decision making
- Encourages exploration around sustainable funding levels and funding reform
- Provides a basis for discussions on affordable levels of service, and the pace of community growth

The Level 1 model has been included in Appendix 2. Level 2 and Level 3 are available to the City in electronic format only.

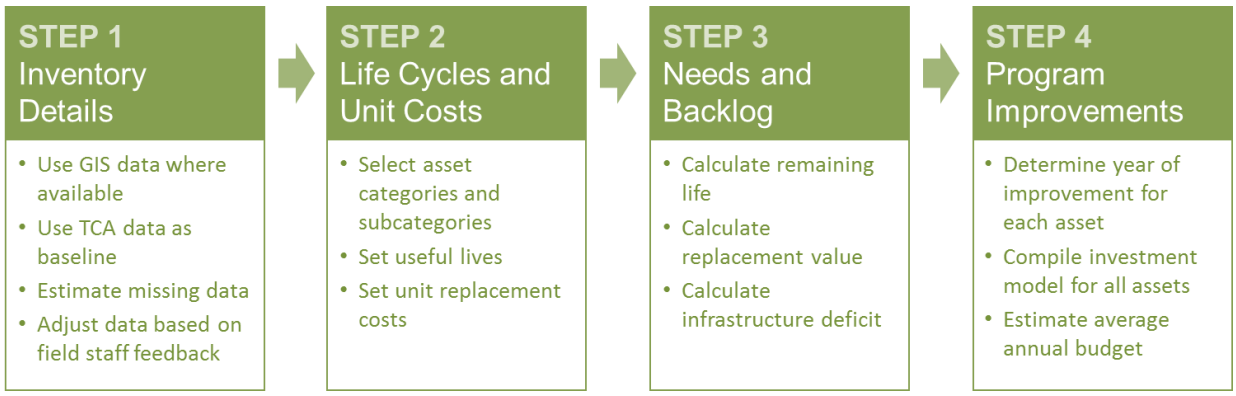
3.0 Methodology

The AMIP model summarizes critical asset information in a centralized location. Developed as a working model, it has been set up to be used at both a summary level by asset category, and a more detailed/ individual asset level. The AMIP model includes the following information:

- Current replacement value
- Remaining value
- Expected remaining life
- Infrastructure backlog
- 20 year renewal costs and timing
- Total and annual average cost
- Average Annual Target Investment (AATI)[1]

The AMIP was developed using a 4-step analytical approach.

Figure 2. AMIP Development Steps



The City of Port Moody's AMIP covers a 20-year timeframe, which provides a longer range view of capital needs and potential upcoming financial shortcomings than a typical Municipal Capital Plan.

[1] AALTI is the annual depreciation of the replacement value. The AALTI represents the ideal annual budget allocation. Annual surpluses would go into reserves and be drawn upon for renewal of assets. When the annual budget is less than the AALTI, the Backlog grows.

4.0 Data Sources and Assumptions

The City's AMIP for asset renewal was built using the best asset data available, without the need for further data collection at this time. The AMIP was predominantly based on infrastructure service lives; however some condition assessment information and related capital plans was available and incorporated into the AMIP for roads and facilities. Estimates were made for any missing data to ensure the AMIP provides a complete overview of the City's infrastructure and is ready for immediate use.

The AMIP model is driven by input tables that summarize assumptions; however when sufficient data is not available for the input tables, or asset-specific changes are made, then estimates are done directly within the Level 2 or Level 3 worksheets.

4.1 Asset Attributes

The following asset attributes have been used in the AMIP model:

- Location
- Material or Make
- Size or Model
- Dimensions
- Quantity
- Year Built
- Service Life
- Installation cost:
  - Construction costs
  - Construction contingency costs
  - Planning and design costs
  - Project management costs
  - Construction administration costs
- Condition rating

Inventory and physical details of assets were provided through the City of Port Moody's GIS inventory. Information on roads and facilities were referenced from recent long range management plan reports written for each asset type. Information on IT and fleet assets were provided by City staff, from internal asset management systems. Where asset attribute information was not available, estimates were made using adjacent infrastructure details or best engineering practices. These values have been highlighted with red text in the AMIP model.

4.2 Unit Costs

Unit costs for water, sewer, and drainage infrastructure were based on recently tendered projects in the Lower Mainland for the replacement of existing infrastructure in a retrofit scenario. Unit costs for roads, IT, and fleet were provided by staff. The replacement cost included allowances for design, contract administration, and contingency that varied by asset category as summarized below. A summary of unit costs used in analysis is included in Appendix 3.

Allowances included in asset replacement costs

Asset Category	Design	CA	Contingency
Water System	5%	5%	15%
Wastewater System	5%	5%	15%
Stormwater System	5%	5%	15%
Roadway System	5%	5%	15%
Fleet	0%	0%	10%
Buildings and Facilities	10%	10%	20%

4.3 Expected Life

The expected service life for each asset type was carried over from asset master plans, where possible (i.e. for the water and roads systems). When master plans were not available, the Guide to the Amortization of Tangible Capital Assets was used. This document was developed in 2008 by the Province of British Columbia, Local Government Infrastructure and Finance Division. Expected lives were adjusted for roads and facilities, as information about specific asset condition was available through recent reports. Generally speaking, accuracy can be enhanced through condition assessments that enable a service life adjustment. A summary of unadjusted expected life values is included as part of the input tables in Appendix 3.

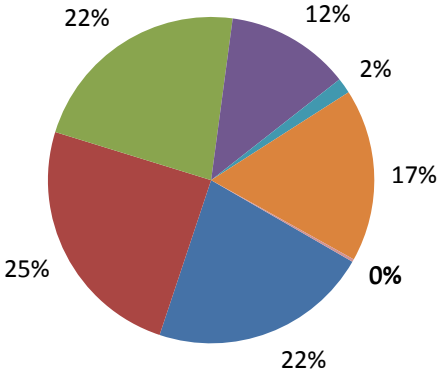
5.0 Asset Summary

Overall Summary

Total Replacement Value

Fig. 3

$457.6M

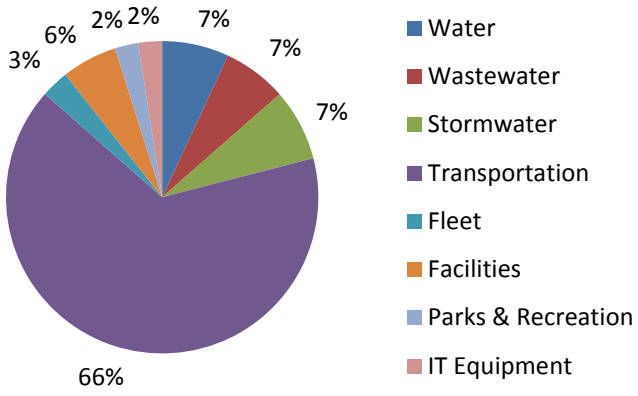


Together, wastewater, stormwater, and water assets make up the majority of the total asset replacement value. The estimated replacement value of these assets is approximately $457.6M (based on recent construction costs in the Metro Vancouver area).

Infrastructure Backlog

Fig. 4

$20.8M

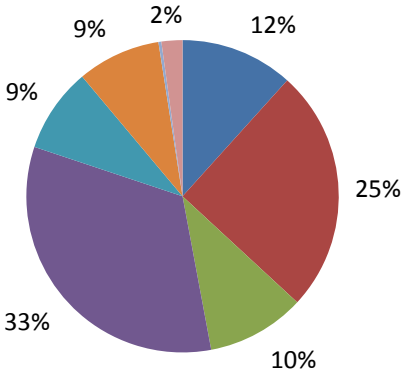


The majority of the $20.8M backlog is related to transportation assets. The infrastructure backlog is a theoretical value only, and should be used to guide further discussion and analysis about level of service, risk, and prioritization.

Total 20 Year Renewal Costs

Fig. 5

$163.8M

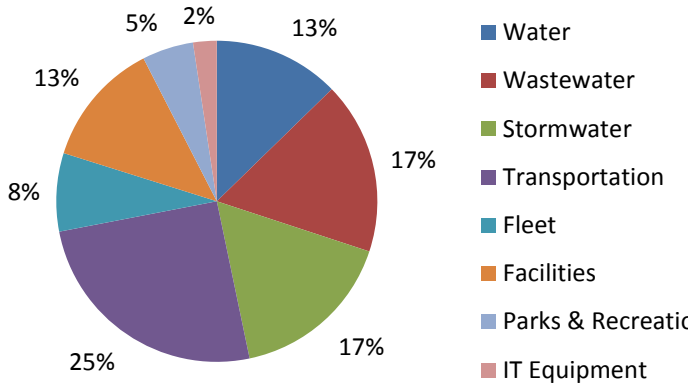


The total 20-year renewal costs include the infrastructure backlog of $20.8M. Although transportation assets represent only 12% of the total asset replacement value 33% of funding over the next 20-years is required for transportation assets.

Annual Average Target Investment

Fig. 6

$9.7M

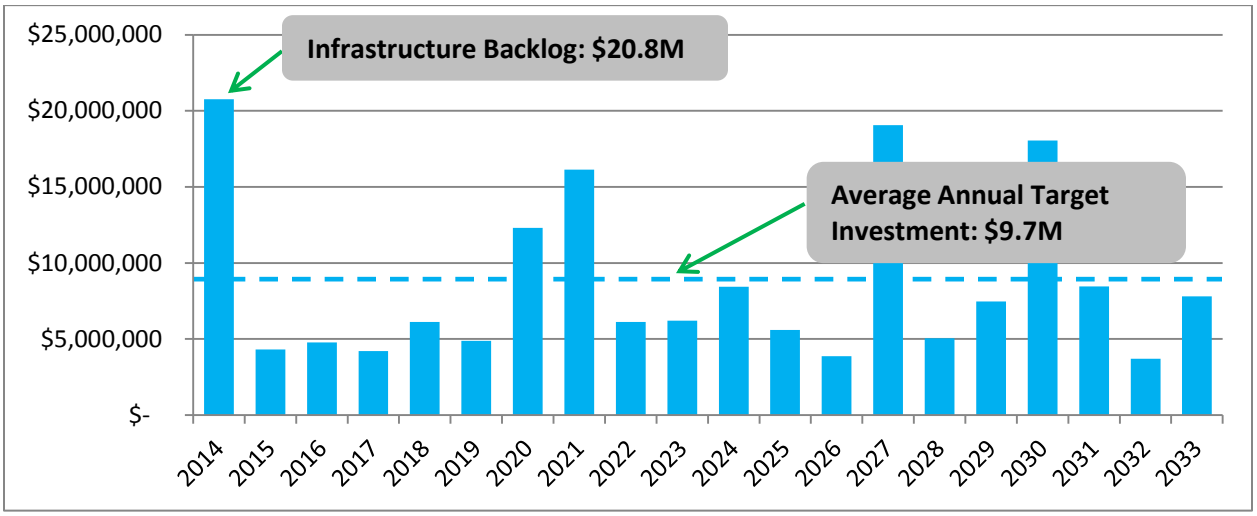


The AATI of $9.7M does not include the infrastructure backlog.

Note: All values are based on 2012/2013 Data

Infrastructure Renewals

Fig. 7



The graph above shows the City's infrastructure backlog is approximately $20.8M. This represents the replacement value of all assets that have exceeded their expected useful life with the exception of roads and facilities. Further analysis of roads and facilities identified that some of the assets which have exceeded their expected life are still functioning and replacement could be distributed over a five to ten year period. Infrastructure renewal spikes in the years 2020, 2021, 2027, and 2030 can be largely attributed to renewals required in the wastewater system.

The AATI of $9.7M is the theoretical sustainable infrastructure funding level, and does not include the infrastructure backlog. Of the $9.7M, approximately $3M is attributed to the water and wastewater utilities and the remaining $6.7M is attributed to general assets with replacement funded through the asset levy.

Moving Forward

The infrastructure backlog and the timing of infrastructure renewals, identified in this AMIP, are not meant to serve as a prescriptive plan for future investments. Instead, this AMIP is intended to provide context for policy and strategic level decisions, as well as a starting point for further analysis, review, and prioritization of the levels of service that are provided and the acceptable risk to providing service. A zero backlog is not a realistic goal. A more detailed review, which incorporates risk and target service levels, would help define what a tolerable backlog would be.

The current annual investment is $6.9M ($3.8M from the General fund and $3.1 from Utilities). Increasing investments into infrastructure renewals through capital projects and/ or contribution to reserves toward the Annual Average Target Investment level of $9.7M, may be a long-term goal, and is ultimately a policy-level decision. Annual investments below the AATI will result in an infrastructure backlog that continues to grow; however, the backlog only represents a risk to service delivery. The City may identify alternative strategies for managing or tolerating this risk rather than fully funding the backlog and the AATI.

The primary goal of the City should be to establish a consistent and reliable level of funding for infrastructure maintenance and renewal. This should be based on an informed understanding of the infrastructure assets, the level of service delivered, and the risk associated with delivering that service. A consistent level of funding will reduce the risk of fluctuations in revenue requirements (and associated tax increases), and will allow staff to plan and prioritize renewals to specific assets based on a principle of managing and reducing risk to the level of service enjoyed at Port Moody.

Recommendations

1. Implement a risk evaluation process for all assets and create a risk register

With an infrastructure backlog of approximately $20.8M and an annual budget for asset renewals of approximately $6.9M, the City of Port Moody will need to carefully prioritize which projects are the most important. Applying the concept of risk to help prioritize investment decisions is considered to be a best practice for communities. Risk considers the likelihood of an asset failing with the consequences of such a failure, which together develops a risk score for each asset/ project. The risk score is recorded in a risk register that is used as part of the capital planning process. By better understanding the risk associated with delaying renewal projects, the City will be able to better define what a manageable backlog would be.

2. Undertake condition assessments of high risk assets

The City has undertaken condition assessments for roads and facilities. Condition assessments have not been undertaken for water, wastewater or stormwater assets. The physical inspection of each asset within these categories would be very time consuming, and costly. A more efficient approach would be to physically inspect only those assets that are considered to be "high" risk. For example, if it is known that a certain section of pipe is only a few years old than the risk of failure would be low and the inspection of this pipe would not be a priority. By prioritizing condition inspections according to risk, the overall cost and time for condition inspections would be greatly reduced.

3. Fund asset management related studies and planning through existing asset levy contributions

The replacement costs provided within this report include an allowance for engineering and planning. This would include asset management planning, which is an important component of ensuring that costs, risks, and service levels are effectively balanced.

4. Develop an integrated capital plan for roads, water, sewer, and drainage assets

The City has undertaken condition inspections for facilities and roads assets. The consulting firms that undertook these inspections also provided recommendations with respect to what investments are needed in the coming years. Since water, sewer, and drainage assets are generally located within the road right of ways it is important that the replacement of these assets is carefully coordinated. It is recommended that an integrated capital plan be developed for the City's linear infrastructure to ensure that the timing of works is well coordinated.

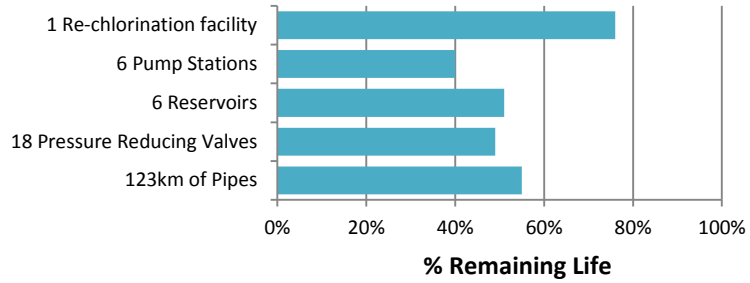
5. Develop an asset management strategic framework

The City has made good progress in building a solid base of information regarding the current status and value of City assets. This information is contained in a wide variety of documents and databases that are in use throughout the organization. An asset management strategic framework would clarify how all of these information sources link together, who is responsible for updating the various forms of information, the required frequency of information updates, and the role that all of these information sources play in the budgeting and capital planning processes.

Water System

Quick Facts

Fig. 8



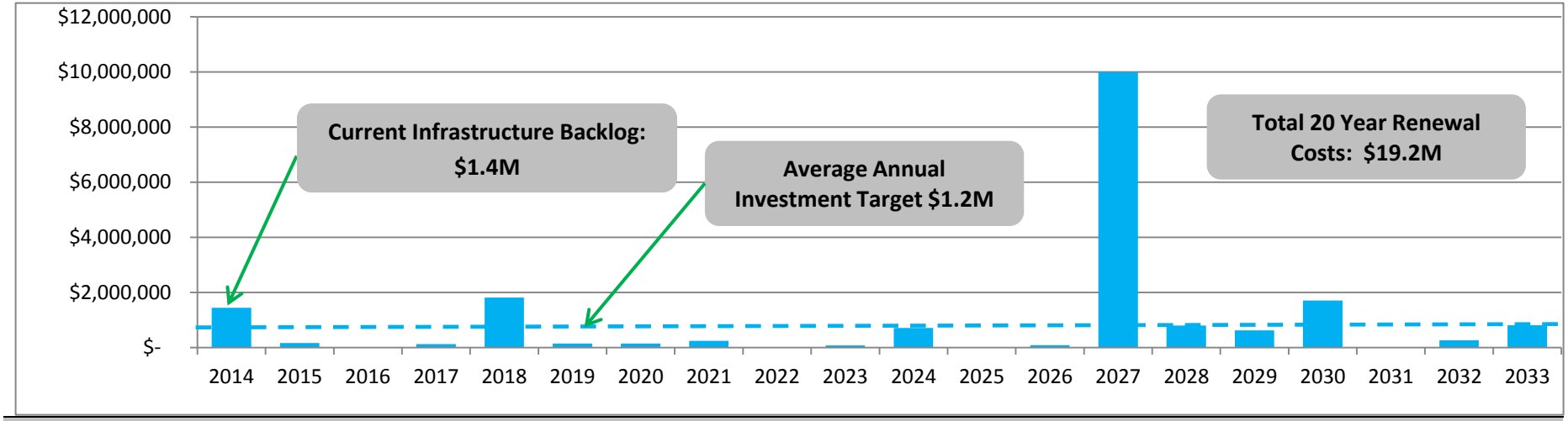
Port Moody's water system has an estimated **replacement value** of **$98,778,000.**

The **average life** of the system components is **80 years**.

The **average remaining life** of the system is **56%,** or **45 years**.

Infrastructure Renewal Investment

Fig. 9



Commentary

The average remaining life of the City's water system is 56%. The pipes within the water system make up the majority of the system's replacement value. The current water system infrastructure backlog ($1.4M) is all attributable to pipes, and represents 1.5% of the total asset replacement value. This backlog has been included in the 2014 investment needs. The AATI provides a target investment value over the lifespan of the assets, but decisions around the specific timing of renewal projects should be made based on additional information, including changes in demand related to growth and use patterns, condition assessments, pipe break patterns, road projects, and tolerance of risk. Some water system replacement projects have been identified for the next five years, and further information is being compiled through various data acquisition programs and the Water Model Infrastructure Plan which will be critical in prioritizing future projects.

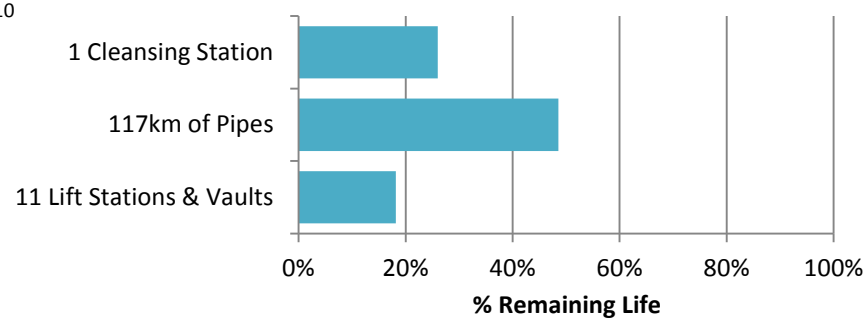
Data Reliability and Accuracy

Water system attribute data was taken from the City's GIS inventory. Asset service lives were identified from a report by Earth Tech, completed in 2006. Unit costs are based on actual recent tender prices in Metro Vancouver. Condition inspections have not been completed for assets, but have been identified as a need in select areas in the near future. Using water main break histories to adjust the remaining life of assets by material class, would have the greatest impact on improving data accuracy.

Wastewater System

Quick Facts

Fig. 10



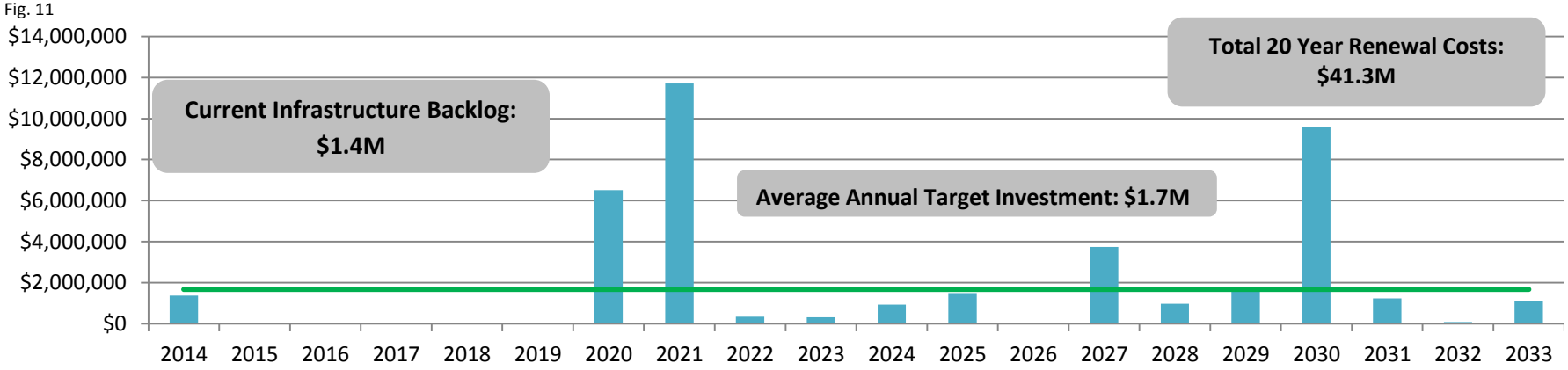
Port Moody's wastewater system has an estimated **replacement value** of **$111,787,000.**

The **average life** of the system components is **67 years**.

The **average remaining life** of the system is **48%,** or **32 years**.

Infrastructure Renewal Investment

Fig. 11



Commentary

The replacement value of the wastewater system is higher than any other asset system, yet the wastewater system backlog ($1.4M) is among the smallest of the asset types. All of the current backlog is related to lift stations and valves in use beyond their expected life. The spikes shown in the Infrastructure Renewal Investment graph are related to pipes, as large areas were installed at the same time. Using additional information in infrastructure renewal decisions, such as condition assessment, growth, risk analysis, and road capital plans, can help to smooth out the investment spikes. Renewal projects for the next five years have been identified, and a Sanitary Model Infrastructure Plan is under development, which will help to prioritize projects.

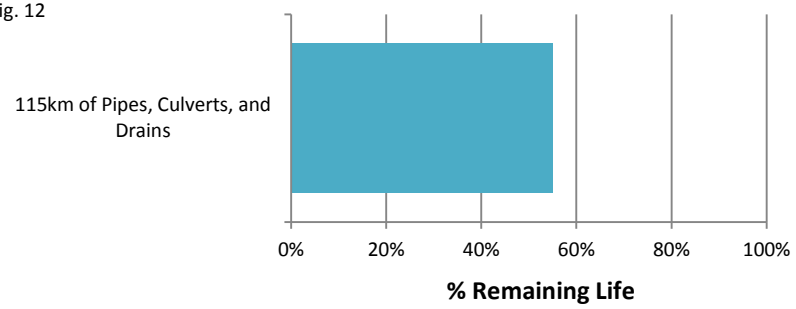
Data Reliability and Accuracy

Sewer system attribute data was taken from the City's GIS inventory. Asset service lives were identified from The Province of British Columbia's *Guide to the Amortization of Tangible Capital Assets (2008)*. Unit costs are based on actual recent tender prices in Metro Vancouver. Some closed circuit television (CCTV) inspections have been completed, however, the information has not been incorporated into the GIS data sets. Further CCTV inspections are planned. Using condition inspections to adjust the remaining life of assets would have the greatest impact on improving data accuracy.

Stormwater System

Quick Facts

Fig. 12



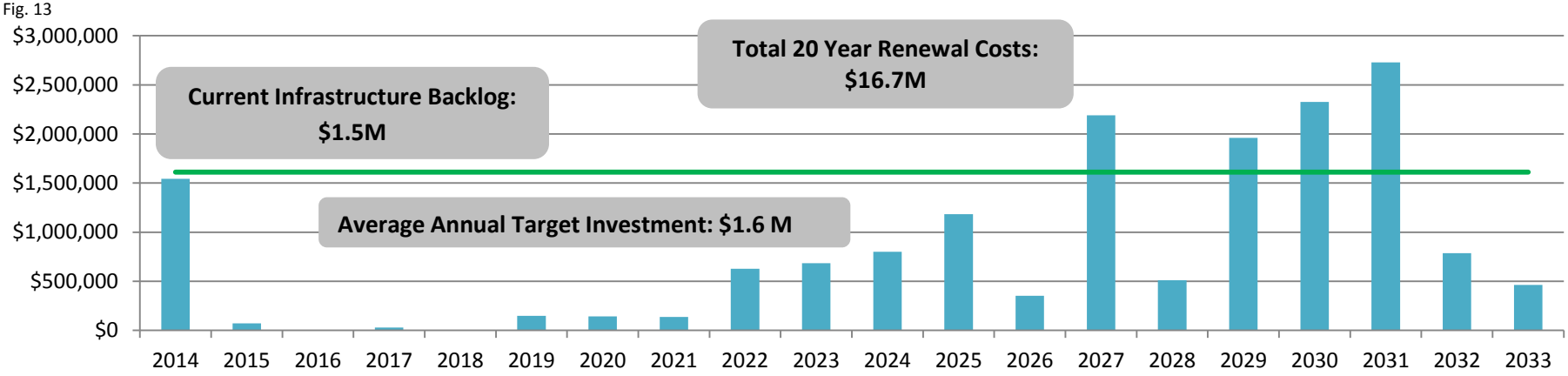
Port Moody's stormwater system has an estimated **replacement value** of **$101,355,000.**

The **average life** of the system components is **63 years**.

The **average remaining life** of the system is **55%,** or **35 years**.

Infrastructure Renewal Investment

Fig. 13



Commentary

The stormwater system has the second highest replacement value of the asset systems. Overall, the system has an average remaining life of 55%. The infrastructure backlog for the stormwater system is relatively low when compared to the other infrastructure systems, which is common in many communities in Canada. Although there are some spikes in the Infrastructure Renewal Investment graph, they are not nearly as high as those seen with the sewer system.

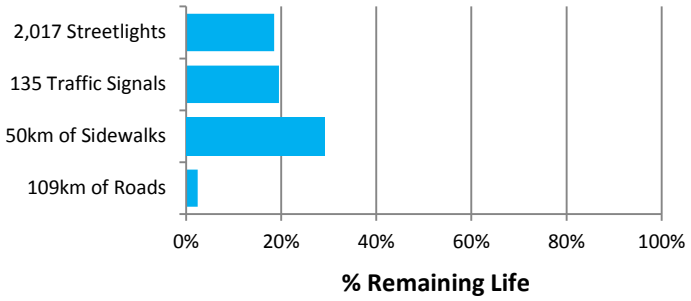
Data Reliability and Accuracy

Stormwater system attribute data was taken from the City's GIS inventory. Asset service lives were identified from The Province of British Columbia's *Guide to the Amortization of Tangible Capital Assets (2008)*. Unit costs are based on actual recent tender prices in Metro Vancouver. Condition inspections have not been completed for assets, but have been identified as a need in select areas in the near future. Using condition inspections to adjust the remaining life of assets would have the greatest impact on improving data accuracy.

Transportation System

Quick Facts

Fig. 14



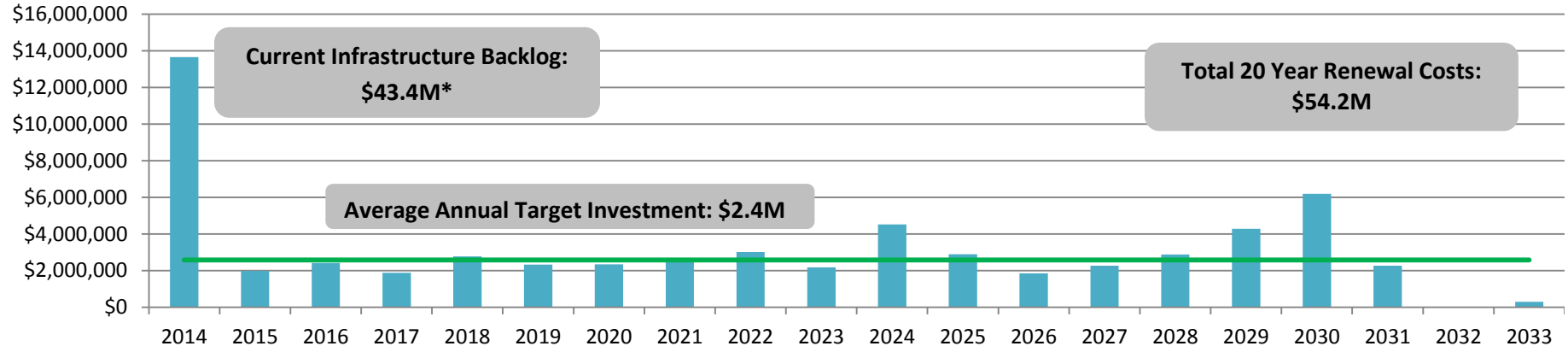
Port Moody's transportation system has an estimated **replacement value** of **$59,856,000.**

The **average life** of the system components is **25 years**.

The **average remaining life** of the system is **9%,** or **2 years**.

Infrastructure Renewal Investment

Fig. 15



Commentary

The transportation system has a lower replacement value than the water, storm, and sewer systems. However, roads have a shorter lifespan than pipes, meaning the average life of the system is less than half of the other systems. The result is a transportation AATI that accounts for a quarter of the overall AATI. A Pavement Asset Management Program, developed for the City by EBA in December 2013, assessed the condition of the road network to be in fair condition overall. The report also stated that an annual investment of $1.6M for road rehabilitation is required to maintain roads in the current condition. Without this investment, the condition of City roads will deteriorate, resulting in the overall road network being in very poor condition within the next 15 years. Once the roadway network reaches a very poor condition, the rehabilitation treatment required is typically reconstruction, which is extensive and costly. Maintaining the major road network (MRN) should be a priority for the City. MRN maintenance is partially funded by TransLink.

Data Reliability and Accuracy

*Note that the infrastructure backlog is not equivalent to the 2014 investment, as the backlog for roads has been spread over 5 years as per the 2013 EBA Pavement Asset Management Program.

Road system attributes were taken from the City's GIS information. Replacement timing has been based on road condition assessments conducted in 2013, and therefore the calculated backlog and renewal costs could be considered more accurate than a purely age-based backlog. Further condition assessments on non-road transportation infrastructure (sidewalks, signals, streetlights) would improve the accuracy of the data.

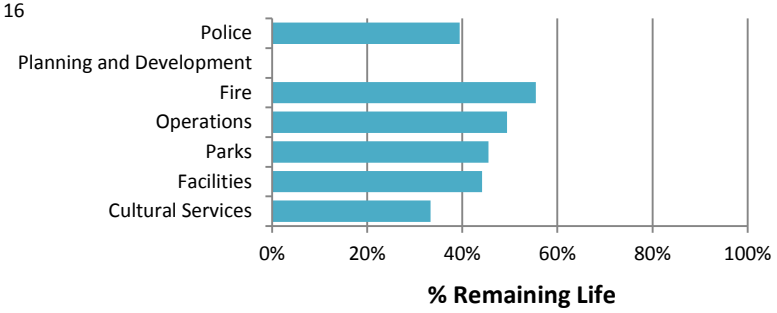
Parks

Overview
At the time of this report, information regarding the age and value of Parks assets was insufficient and therefore a detailed review could not be conduct. 2013 Financial information provided by the City of Port Moody indicates that the net book value of the Parks assets is approximately $8.3M and the annual amortization expense is $0.42M. This indicates that the average life expectance of Parks assets is approximately 20 years. Given that the accumulated amortization of Parks assets is $3.2M, we can estimate that Parks assets are approximately 40% through their expected life (about 10 years old as of this report). CPI data in Canada indicates inflation of about 20% over the last 10 years; therefore we can estimate that the replacement value amortization is in the order of $0.5M. Replacement value amortization is essentially equivalent to the average annual target investment level. **Average Annual Target Investment: $0.5M**

Fleet

Quick Facts

Fig. 16



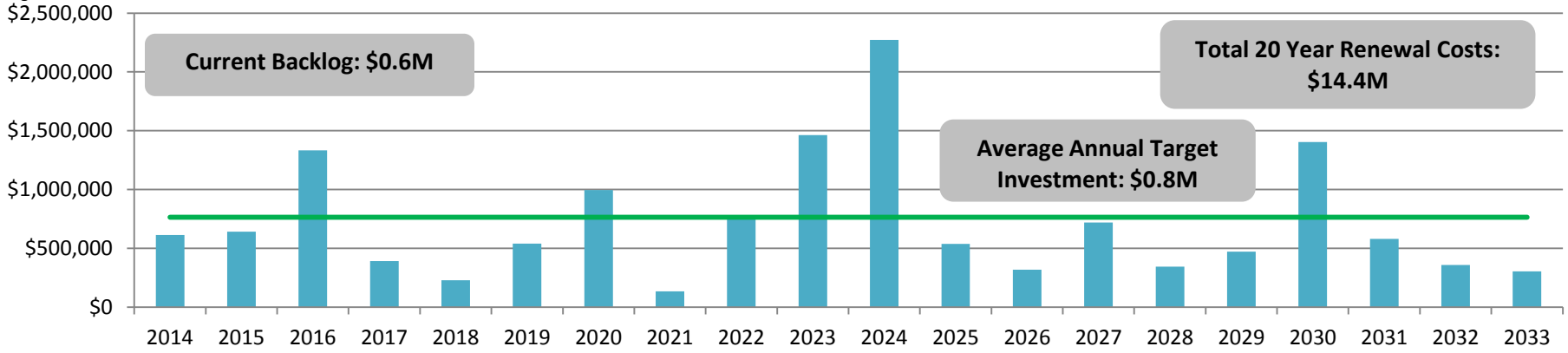
Port Moody's vehicle and equipment fleet has an estimated **replacement value** of **$6,979,000.**

The **average life** of the fleet is **9 years**.

The **average remaining life** of the fleet is **48%,** or **4 years**.

Infrastructure Renewal Investment

Fig. 17



Commentary

Fleet assets have been categorized by department. Almost 70% of the replacement value of the City's fleet is with the Operations Department. Fleet assets typically retain some trade-in value at the end of their useful life. This trade-in value has not been factored into the renewal investments illustrated above, and should be considered when budgeting for the replacement of assets. The backlog of $0.6M represents vehicles that have now reached the end of their expected useful life. A review of fleet management is planned for 2014.

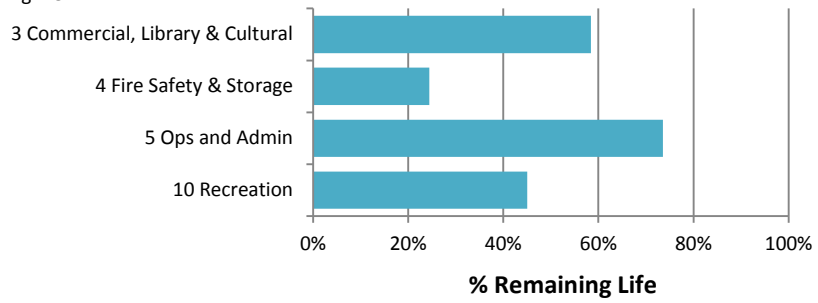
Data Reliability and Accuracy

Fleet information was obtained from The City of Port Moody's Fleet Management System. With fleet assets, age is a relatively predictable indicator of remaining life, and vehicles are often automatically replaced at the end of their useful lives to reduce the risk of higher operations and maintenance costs. Therefore, the accuracy and reliability of the data is considered to be very good and is appropriate for the purpose of asset management.

Facilities

Quick Facts

Fig. 18



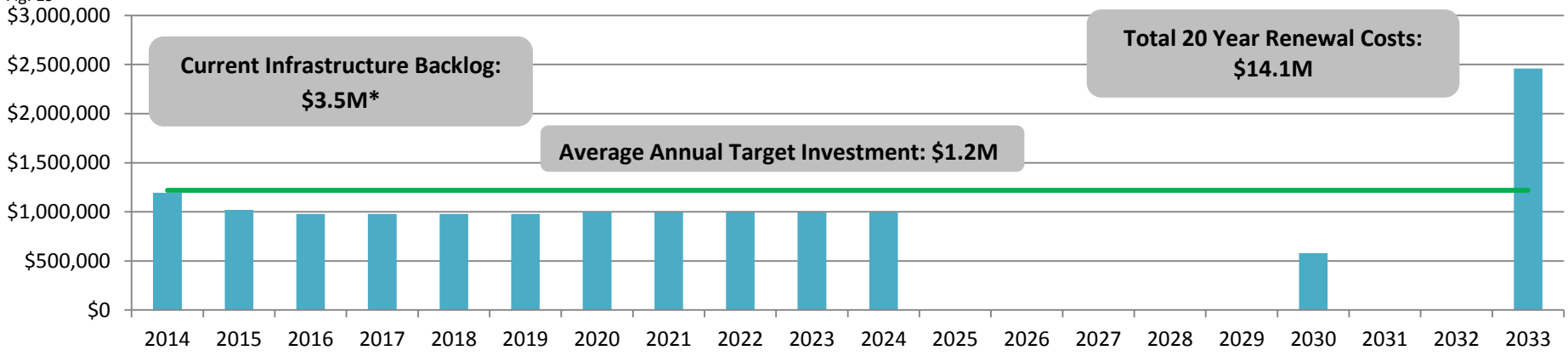
Port Moody's facilities collectively have an estimated **replacement value** of **$77,671,000.**

The **average life** of the facilities is **64 years**.

The **average remaining life** of the City's facilities is **61%,** or **39 years**.

Infrastructure Renewal Investment

Fig. 19



Commentary

Analysis conducted by RDH Building Engineering in 2013 identified the portfolio of facilities to be in a condition that is between good and fair. The analysis resulted in a 10 year investment plan that considered both physical and functional condition, and was based on a consistent annual funding level. The results of the RDH plan have been incorporated into this plan and are illustrated in the Renewal Investment above. Beyond 10 years, the replacement of facilities was based on age of the facility alone.

Data Reliability and Accuracy

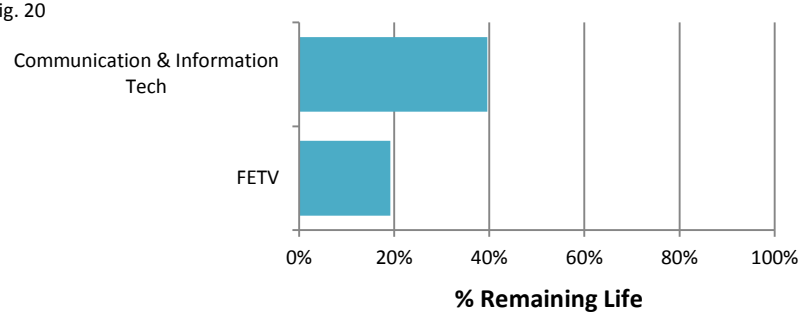
*Note that the Infrastructure Backlog is not equivalent to the 2014 investment, as it has been spread over a 10 year period as per the 2013 Long Range Facilities Plan.

Facility replacement values and expected life Information was based on the Long Range Facilities Plan 2013. The accuracy and reliability of this information is considered high and, if maintained, is appropriate for ongoing asset management purposes.

IT Equipment

Quick Facts

Fig. 20



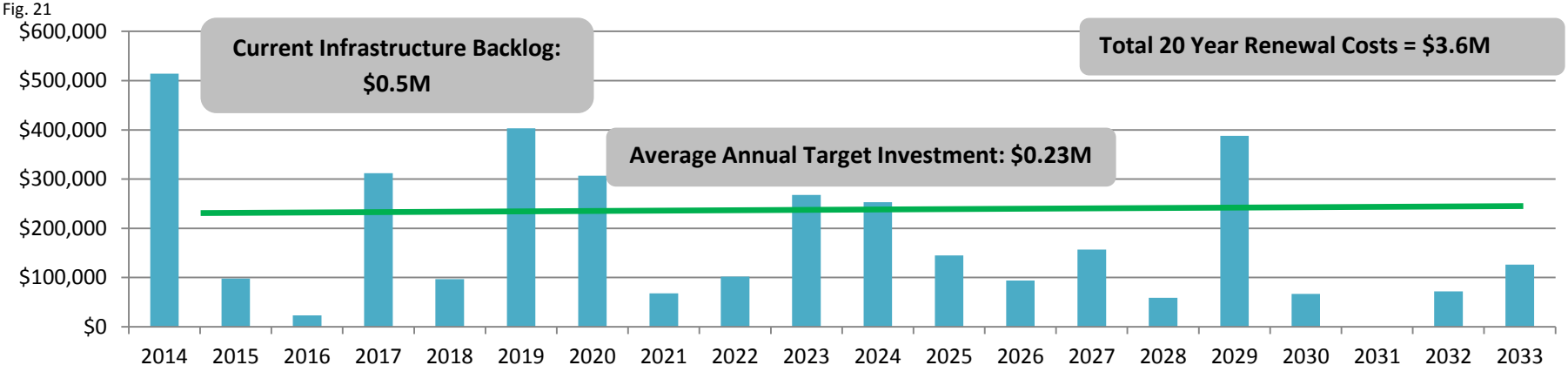
Port Moody's IT infrastructure has an estimated **replacement value** of **$1,179,000.**

The **average life** of the system components is **5 years**.

The **average remaining life** of the system is **33%,** or **1.7 years**.

Infrastructure Renewal Investment

Fig. 21



Commentary

The replacement value of the City's IT infrastructure is low, relative to other infrastructure systems; however the average lifespan is very short. IT service provision is subject to rapid changes in requirements, service expectations, and cost, making it difficult to plan, in detail, for the long-term. An annual replacement allowance should be set and reviewed periodically to determine if it is appropriate to meet needs.

Data Reliability and Accuracy

IT data was supplied by the City's IT department staff. The accuracy of historical data is considered high.

6.0 Using the AMIP

The infrastructure backlog and the timing of infrastructure renewals, identified in this AMIP, are not meant to serve as a prescriptive plan for future investments. Instead, this AMIP is intended to provide a context for policy and strategic level decisions, as well as a starting point for further analysis, review, and prioritization of the levels of service that are provided and the acceptable risk to providing service.

The current annual investment for 2014 is $6.97M. Increasing investment for infrastructure renewals, through capital projects and/ or contribution to reserves toward the AATI level of $9.7M, may be a long-term goal; however it is ultimately a policy-level decision. Annual investments below the AATI will result in an infrastructure backlog that continues to grow; however, the backlog only represents a risk to service delivery. The City may identify alternative strategies for managing or tolerating this risk rather than fully funding the backlog and the AATI.

The primary goal of the City should be to establish a consistent and reliable level of funding for infrastructure maintenance and renewal that is based on an informed understanding of the infrastructure assets, the level of service delivered, and the risk associated with delivering that service. A consistent level of funding will reduce the risk of fluctuations in revenue requirements (and associated tax increases), and will allow staff to plan and prioritize renewals to specific assets based on the principle of managing and reducing risk to the level of service enjoyed at Port Moody.

6.1 Maintaining and Updating the AMIP

The AMIP model is designed for continued use in future years with only minimal adjustments and inputs. Basic adjustments required to update the AMIP are:

- Updated unit costs
- Updated asset inventory (i.e. annual project renewals, decommissioning, and new acquisitions)

If further work is done to improve data accuracy (i.e. conducting condition assessments, adjusting the useful life based on observed failures, etc.) the corresponding asset data can be updated in the AMIP.

Appendices

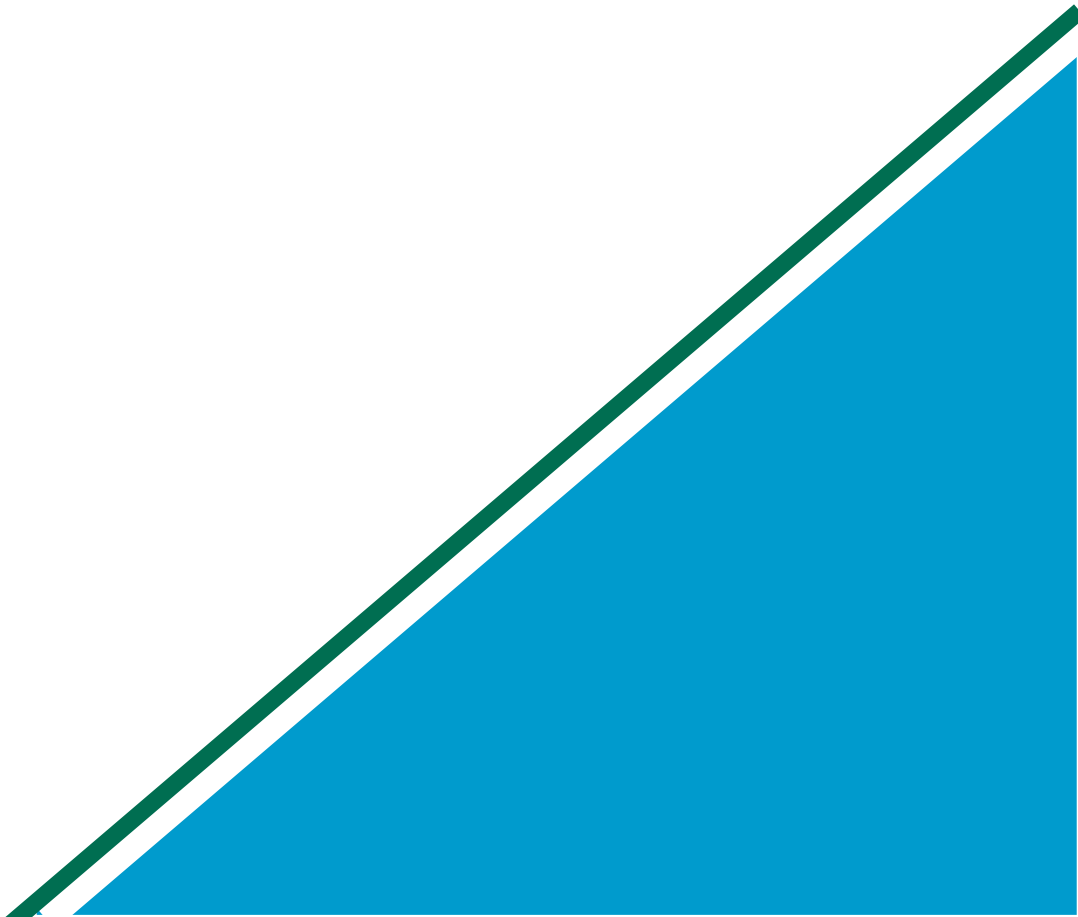
Appendix 1 - Asset Categories and Sub Categories

Appendix 2 – AMIP Level 1 Summary

Appendix 3 – AMIP Model Input Tables

Appendix 1

Asset Categories & Subcategories



Category	Subcategory
Water System	Pipes PRV's Treatment Reservoirs Pump Stations
Wastewater System	Lift Stations & Vaults Pipes Treatment
Stormwater System	Pipes
Transportation	Roads (EBA) Sidewalks Traffic Signals Streetlights
Fleet	Cultural Services Facilities Parks Operations Fire Planning and Development Police
Facilities	Recreational Administrative and Operations Fire Safety, Storage and Residential Commercial, Library and Cultural
Parks & Recreation	Parks Green Spaces Trails
IT Equipment	FETV CIP
Solid Waste	Barnet Highway Landfill Closure Plan

Appendix 2

Level 1 Summary

City of Port Moody
Infrastructure Investment Plan
Summary
(Red font means estimated value)

Infrastructure Particulars							Infrastructure Investment Needs and Timing																			Investment Requirements	
Asset Category	Replacement Value	Loss in Value	Remaining Value	Expected Remaining Life	Infrastructure Deficit (Backlog)	Average Life (Years)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	20 Year Total	Average Annual Infrastructure Life Cycle Target Investment
Water System																												
Pipe	$ 81,909,000	$ 33,953,000	$ 47,956,000	59%	$ 1,438,000	85	$ 1,438,000	$ -	$ -	$ 122,000	$ 1,813,000	$ 146,000	$ 141,000	$ 240,000	$ 8,000	$ 77,000	$ 712,000	$ -	$ 84,000	$ 10,000,000	$ 797,000	$ 626,000	$ 384,000	$ -	$ 266,000	$ 262,000	$ 17,117,000	$ 961,000
PRV's	$ 2,805,000	$ 1,429,000	$ 1,376,000	49%	$ -	50	$ -	$ 165,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 165,000	$ 56,000
Treatment	$ 550,000	$ 132,000	$ 418,000	76%	$ -	25	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 550,000	$ 550,000	$ 22,000
Reservoirs	$ 12,194,000	$ 6,695,000	$ 5,499,000	45%	$ -	78	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 157,000
Pump Stations	$ 1,320,000	$ 792,000	$ 528,000	40%	$ -	40	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,320,000	$ -	$ -	$ -	$ 1,320,000	$ 33,000
Sub-total	**$ 98,778,000**	**$ 43,001,000**	**$ 55,777,000**	**56%**	**$ 1,438,000**	**80**	**$ 1,438,000**	**$ 165,000**	**$ -**	**$ 122,000**	**$ 1,813,000**	**$ 146,000**	**$ 141,000**	**$ 240,000**	**$ 8,000**	**$ 77,000**	**$ 712,000**	**$ -**	**$ 84,000**	**$ 10,000,000**	**$ 797,000**	**$ 626,000**	**$ 1,704,000**	**$ -**	**$ 266,000**	**$ 812,000**	**$ 19,152,000**	**$ 1,229,000**
Wastewater System																												
Lift Stations & Vaults	$ 2,365,000	$ 1,936,000	$ 429,000	18%	$ 1,375,000	30	$ 1,375,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 990,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,365,000	$ 79,000
Pipe	$ 108,872,000	$ 56,031,000	$ 52,841,000	49%	$ -	69	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,508,000	$ 11,713,000	$ 341,000	$ 316,000	$ 930,000	$ 1,497,000	$ 54,000	$ 2,207,000	$ 973,000	$ 1,797,000	$ 9,582,000	$ 1,238,000	$ 90,000	$ 1,112,000	$ 38,357,000	$ 1,589,000
Treatment	$ 550,000	$ 407,000	$ 143,000	26%	$ -	50	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 550,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 550,000	$ 11,000
Sub-total	**$ 111,787,000**	**$ 58,374,000**	**$ 53,413,000**	**48%**	**$ 1,375,000**	**67**	**$ 1,375,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 6,508,000**	**$ 11,713,000**	**$ 341,000**	**$ 316,000**	**$ 930,000**	**$ 1,497,000**	**$ 54,000**	**$ 3,747,000**	**$ 973,000**	**$ 1,797,000**	**$ 9,582,000**	**$ 1,238,000**	**$ 90,000**	**$ 1,112,000**	**$ 41,272,000**	**$ 1,679,000**
Stormwater System																												
Pipes	$ 101,355,000	$ 45,613,000	$ 55,742,000	55%	$ 1,543,000	63	$ 1,543,000	$ 71,000	$ -	$ 28,000	$ -	$ 149,000	$ 143,000	$ 137,000	$ 627,000	$ 684,000	$ 799,000	$ 1,183,000	$ 351,000	$ 2,190,000	$ 511,000	$ 1,959,000	$ 2,325,000	$ 2,729,000	$ 786,000	$ 464,000	$ 16,679,000	$ 1,612,000
Sub-total	**$ 101,355,000**	**$ 45,613,000**	**$ 55,742,000**	**55%**	**$ 1,543,000**	**63**	**$ 1,543,000**	**$ 71,000**	**$ -**	**$ 28,000**	**$ -**	**$ 149,000**	**$ 143,000**	**$ 137,000**	**$ 627,000**	**$ 684,000**	**$ 799,000**	**$ 1,183,000**	**$ 351,000**	**$ 2,190,000**	**$ 511,000**	**$ 1,959,000**	**$ 2,325,000**	**$ 2,729,000**	**$ 786,000**	**$ 464,000**	**$ 16,679,000**	**$ 1,612,000**
Transportation System																												
Roads (EBA)	$ 33,015,000	$ 32,214,000	$ 801,000	2%	$ 31,413,000	20	$ 1,624,000	$ 1,644,000	$ 1,645,000	$ 1,638,000	$ 1,628,000	$ 1,645,000	$ 1,639,000	$ 1,642,000	$ 1,647,000	$ 1,639,000	$ 1,704,000	$ 1,652,000	$ 1,646,000	$ 1,644,000	$ 1,637,000	$ 1,641,000	$ 1,640,000	$ 1,628,000	$ 1,650,000	$ 1,653,000	$ 32,885,000	$ 1,651,000
Sidewalks	$ 9,056,000	$ 6,187,000	$ 2,869,000	32%	$ 2,228,000	50	$ 2,228,000	$ 69,000	$ 49,000	$ 228,000	$ 27,000	$ 92,000	$ 605,000	$ 57,000	$ 33,000	$ 139,000	$ 258,000	$ 37,000	$ 591,000	$ 32,000	$ 131,000	$ 83,000	$ 49,000	$ -	$ -	$ 81,000	$ 4,791,000	$ 181,000
Traffic Signals	$ 8,910,000	$ 7,168,000	$ 1,742,000	20%	$ 4,620,000	35	$ 4,620,000	$ -	$ -	$ -	$ 858,000	$ 264,000	$ -	$ -	$ 792,000	$ -	$ -	$ -	$ 132,000	$ -	$ -	$ -	$ 132,000	$ 1,056,000	$ -	$ 264,000	$ 8,118,000	$ 255,000
Streetlights	$ 8,875,000	$ 7,230,000	$ 1,645,000	19%	$ 5,130,000	25	$ 5,130,000	$ 110,000	$ 238,000	$ 9,000	$ -	$ 172,000	$ 471,000	$ 647,000	$ 290,000	$ 150,000	$ 22,000	$ 48,000	$ 106,000	$ 75,000	$ 97,000	$ -	$ 62,000	$ 717,000	$ 4,000	$ 26,000	$ 8,373,000	$ 355,000
Sub-total	**$ 59,856,000**	**$ 52,799,000**	**$ 7,057,000**	**12%**	**$ 43,391,000**	**25**	**$ 13,602,000**	**$ 1,823,000**	**$ 1,932,000**	**$ 1,875,000**	**$ 2,513,000**	**$ 2,173,000**	**$ 2,715,000**	**$ 2,346,000**	**$ 2,762,000**	**$ 1,928,000**	**$ 1,984,000**	**$ 1,737,000**	**$ 2,475,000**	**$ 1,751,000**	**$ 1,865,000**	**$ 1,724,000**	**$ 1,883,000**	**$ 3,401,000**	**$ 1,654,000**	**$ 2,024,000**	**$ 54,167,000**	**$ 2,442,000**
Fleet																												
Cultural Services	$ 18,000	$ 11,000	$ 6,000	33%	$ -	9	$ -	$ -	$ -	$ -	$ 18,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,000	$ -	$ -	$ -	$ -	$ 35,000	$ 2,000
Facilities	$ 566,000	$ 317,000	$ 250,000	44%	$ -	13	$ -	$ 27,000	$ 28,000	$ 55,000	$ -	$ -	$ 191,000	$ -	$ 293,000	$ 28,000	$ 27,000	$ -	$ -	$ 28,000	$ -	$ 27,000	$ 28,000	$ 27,000	$ -	$ -	$ 758,000	$ 45,000
Parks	$ 525,000	$ 286,000	$ 239,000	46%	$ 70,000	10	$ 70,000	$ 106,000	$ 15,000	$ -	$ 67,000	$ 15,000	$ -	$ 7,000	$ 144,000	$ 79,000	$ 110,000	$ 29,000	$ 55,000	$ 60,000	$ 42,000	$ 56,000	$ 47,000	$ 7,000	$ 56,000	$ 129,000	$ 1,092,000	$ 52,000
Operations	$ 4,762,000	$ 2,402,000	$ 2,361,000	50%	$ 241,000	10	$ 241,000	$ 407,000	$ 1,200,000	$ 285,000	$ 93,000	$ 67,000	$ 476,000	$ 48,000	$ 342,000	$ 1,339,000	$ 1,796,000	$ 351,000	$ 65,000	$ 440,000	$ 235,000	$ 63,000	$ 1,165,000	$ 410,000	$ 202,000	$ 176,000	$ 9,400,000	$ 499,000
Fire	$ 283,000	$ 125,000	$ 157,000	55%	$ -	12	$ -	$ -	$ -	$ 51,000	$ 50,000	$ -	$ 69,000	$ 33,000	$ -	$ -	$ 31,000	$ -	$ 26,000	$ 51,000	$ 50,000	$ -	$ 51,000	$ 33,000	$ -	$ -	$ 443,000	$ 24,000
Planning and Development	$ -	$ -	$ -	0%	$ -	0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Police	$ 808,000	$ 489,000	$ 319,000	39%	$ 286,000	6	$ 286,000	$ 101,000	$ 90,000	$ -	$ -	$ 459,000	$ 259,000	$ 47,000	$ -	$ -	$ 309,000	$ 158,000	$ 173,000	$ 141,000	$ 17,000	$ 309,000	$ 112,000	$ 104,000	$ 83,000	$ -	$ 2,646,000	$ 141,000
Sub-total	**$ 6,962,000**	**$ 3,630,000**	**$ 3,332,000**	**48%**	**$ 597,000**	**9**	**$ 597,000**	**$ 641,000**	**$ 1,333,000**	**$ 391,000**	**$ 228,000**	**$ 541,000**	**$ 995,000**	**$ 135,000**	**$ 779,000**	**$ 1,446,000**	**$ 2,273,000**	**$ 538,000**	**$ 319,000**	**$ 720,000**	**$ 344,000**	**$ 473,000**	**$ 1,403,000**	**$ 581,000**	**$ 341,000**	**$ 305,000**	**$ 14,374,000**	**$ 763,000**
Facilities																												
Recreational	$ 26,681,000	$ 14,667,000	$ 12,014,000	45%	$ 2,637,000	61	$ 833,000	$ 701,000	$ 659,000	$ 659,000	$ 659,000	$ 659,000	$ 678,000	$ 676,000	$ 674,000	$ 674,000	$ 674,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 460,000	$ 8,008,000	$ 434,000
Fire Safety, Storage and Residential	$ 2,575,000	$ 1,946,000	$ 629,000	24%	$ 128,000	64	$ 69,000	$ 63,000	$ 63,000	$ 63,000	$ 63,000	$ 63,000	$ 63,000	$ 63,000	$ 63,000	$ 63,000	$ 63,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 696,000	$ 40,000
Commercial, Library and Cultural	$ 4,501,000	$ 1,872,000	$ 2,629,000	58%	$ 117,000	65	$ 48,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 467,000	$ 69,000
Sub-total	**$ 77,671,000**	**$ 30,105,000**	**$ 47,566,000**	**61%**	**$ 3,474,000**	**64**	**$ 1,194,000**	**$ 1,021,000**	**$ 979,000**	**$ 979,000**	**$ 979,000**	**$ 979,000**	**$ 998,000**	**$ 996,000**	**$ 994,000**	**$ 994,000**	**$ 994,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 581,000**	**$ -**	**$ -**	**$ 2,460,000**	**$ 14,141,000**	**$ 1,219,000**
Parks & Recreation																												
Parks							$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 10,000,000	$ 500,000
Green Spaces							$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trails							$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-total							**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	**$ 500,000**	$ 10,000,000	**$ 500,000**
IT Equipment																												
FETV	$ 360,000	$ 291,000	$ 69,000	19%	$ 198,000	5	$ 198,000	$ 47,000	$ -	$ 47,000	$ 91,000	$ 201,000	$ 8,000	$ -	$ 30,000	$ 94,000	$ 153,000	$ 6,000	$ 46,000	$ 108,000	$ -	$ 192,000	$ -	$ -	$ -	$ -	$ 1,223,000	$ 68,000
CIP	$ 819,000	$ 496,000	$ 324,000	40%	$ 316,000	5	$ 316,000	$ 51,000	$ 23,000	$ 265,000	$ 6,000	$ 202,000	$ 299,000	$ 68,000	$ 72,000	$ 174,000	$ 100,000	$ 139,000	$ 48,000	$ 49,000	$ 59,000	$ 196,000	$ 67,000	$ -	$ 72,000	$ 126,000	$ 2,334,000	$ 162,000
Sub-total	**$ 1,179,000**	**$ 787,000**	**$ 393,000**	**33%**	**$ 514,000**	**5**	**$ 514,000**	**$ 98,000**	**$ 23,000**	**$ 312,000**	**$ 97,000**	**$ 403,000**	**$ 307,000**	**$ 68,000**	**$ 102,000**	**$ 268,000**	**$ 253,000**	**$ 145,000**	**$ 94,000**	**$ 157,000**	**$ 59,000**	**$ 388,000**	**$ 67,000**	**$ -**	**$ 72,000**	**$ 126,000**	**$ 3,557,000**	**$ 230,000**
Solid Waste																												
Sub-total						**0**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Infrastructure	**$ 457,588,000**	**$ 234,309,000**	**$ 223,280,000**	**49%**	**$ 52,332,000**	**47**	**$ 20,763,000**	**$ 4,319,000**	**$ 4,767,000**	**$ 4,207,000**	**$ 6,130,000**	**$ 4,891,000**	**$ 12,307,000**	**$ 16,135,000**	**$ 6,113,000**	**$ 6,213,000**	**$ 8,445,000**	**$ 5,600,000**	**$ 3,877,000**	**$ 19,065,000**	**$ 5,049,000**	**$ 7,467,000**	**$ 18,045,000**	**$ 8,449,000**	**$ 3,709,000**	**$ 7,803,000**	**$ 173,342,000**	**$ 9,674,000**
							(incl. Deficit)																					

Appendix 3

Input Tables

City of Port Moody
Asset Management Investment Plan
Input Tables - Generic

Current Year:	2014

Asset Category	Planning	Design	CA	Contingency
Water System	0%	5%	5%	15%
Wastewater System	0%	5%	5%	15%
Stormwater System	0%	5%	5%	15%
Roadway System	0%	5%	5%	15%
Electrical Systems	0%	0%	0%	30%
Fleet	0%	0%	0%	10%
Buildings and Facilities	0%	10%	10%	20%
Parks and Playgrounds	0%	0%	0%	25%
Transit	0%	0%	0%	25%
Solid Waste	0%	0%	0%	25%
Airport	0%	0%	0%	25%
Other 2				

City of Port Moody
Asset Management Investment Plan
Input Tables - Parks

COST		
BALANCE, BEGINING OF YEAR (2012)		7,420,647
ADDITIONS		866,596
DISPOSALS		0
BALANCE, END OF YEAR (2012)		8,287,243
ACUMULATED AMORTIZATION		
BALANCE, BEGINING OF YEAR (2012)		2,827,658
AMORTIZATION		419,844
ACUMULATED AMORTIZATION ON DISPOSALS		0
BALANCE, END OF YEAR (2012)		3,247,503
Averag life expec		19.74
2005 CPI		104.7
2013 CPI		122.8
Inflation Factor		1.17
Estimated Replacement Value Amortization	$	503,813

City of Port Moody
Asset Management Investment Plan
Input Tables - Stormwater

Code	Material	Service Life
AC	Asbestos Cement[2]	60
C	Concrete	60
CI	Cast Iron	60
CSP	Corrugated Metal Pipe	30
HDPE	High Density Polyethylene	80
PD	Perforated Drain	60
PERFPVC	Perforated PVC	35
PVC	Polyvinyl Chloride	80
PWT	Perforated Weeping Tile	60
RCP	Reinforced Concrete	80
RSP	Reinforced Steel Pipe	80

Note 1: *Includes fittings, services, MH's, CB's, road restoration, and contingency*
Note 2: *Will be replaced with PVC once service life has been reached*

Code	Material	Service Life	Cost	Units
Catchbasin		80	$ 2,500	Each
Lift Station		40	$ 250,000	Each
Manhole		50	$ 5,000	Each
Pipes		Per Above		
Ponds		75	$ 150,000	Each

City of Port Moody
Asset Management Investment Plan
Input Tables - Roadway

Code	Service Life Surface	Service Life Base	Surface
1	2	3	4
ART	15	80	$50
COL	20	80	$40
LOC	30	60	$35
MRN	10	75	$50

Code	Material	Service Life	Cost	Units
Bridges	Concrete	80	$ 100,000	Each
Bridges	Steel	80	$ 75,000	Each
Bridges	Wood	40	$ 40,000	Each
Culverts	CSP	40	$ 10,000	Each
Curb & Gutter	Concrete	50	$ 165	Linear Meter
Curb & Gutter	Asphalt	25	$ 55	Linear Meter
Multi-Use Path	Asphalt	25	$ 75	Linear Meter
Multi-Use Path	Gravel	40	$ 40	Linear Meter
Sidewalk	Concrete	50	$ 165	Linear Meter
Sidewalk	Asphalt	25	$ 50	Linear Meter
Sidewalk	Monolithic	50	$ 210	Linear Meter
Signs	Generic	40	$ 200	Each
Streetlights	Decorative	25	$ 5,000	Each
Streetlights	Ornamental	25	$ 8,000	Each
Traffic Control	Pedestrian	35	$ 80,000	Each
Traffic Control	2 Way	35	$ 150,000	Each
Traffic Control	4 Way	35	$ 250,000	Each

Treatment	Descriptor	Unit Cost*	Units
Crack Sealing	CS	$1.50	L-m
Patching	Patch	$11.50	m^2
Overlay (50mm)	OL_50	$15.00	m^2
Mill & Fill (40mm)	Mill_50	$25.00	m^2
Reclaim	Reclaim	$40.00	m^2
Reconstruction	Reconstruct	$65.00	m^2
Subsequent Rehab	no curb	$15.00	m^2
Subsequent Rehab	curb	$25.00	m^2

*Unit costs from EBA Pavement Management Program (2013)

City of Port Moody
Asset Management Investment Plan
Input Tables - Wastewater

Code	Material	Service Life
AC	Asbestos Cement[2]	60
CI	Cast Iron	60
CONC	Concrete	60
DI	Ductile Iron	100
HDPE	High Density Polyethylene	80
PVC	Polyvinyl Chloride	80
RC	Reinforced Concrete	60
ST	Steel	80
VIT	Vitreous Clay Tile[2]	60

Note 1: *Includes fittings, services, MH's, road restoration, and contingency*

Note 2: *Will be replaced with PVC once service life has been reached*

Code	Material	Service Life	Cost	Units
Flow Meter		30	$ 12,000	Each
Lift Station		25	$ 250,000	Each
Manhole		50	$ 5,000	Each
Pipe		Per Above		
Pump stations		25	$ 200,000	Each
Treatment		40	$ 100,000	Each

City of Port Moody
Asset Management Investment Plan
Input Tables - Water

Code	Material	Service Life
AC	Asbestos Cement[2]	50
CI	Cast Iron[2]	65
CONC	Concrete	80
COP	Copper[2]	80
DI	Ductile Iron	100
GI	Galvanized Iron[2]	60
HDPE	High Density Polyethylene	80
PVC	PVC	80
ST	Steel	80

Note 1: *Includes fittings, services, road restoration and contingency*
Note 2: *Will be replaced with PVC once service life has been reached*

Code	Material	Service Life	Cost	Units
Flow Meters		30	$ 12,000	Each
Hydrants		75	$ 8,000	Each
Valve	200mm dia gate	25	$ 4,000	Each
Intakes		80	$ 300,000	Each
Pipe		Per Above		
PRVs		50	$ 150,000	Each
Pump Stations		40	$ 200,000	Each
Reservoirs		80	$ 800	c.m.
Treatment		80	$ 800,000	Each