



PRELIMINARY STATE OF INFRASTRUCTURE REPORTS  
VILLAGE OF NAKUSP

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## General Summary of All Asset Groups

No.	Asset Group	Replacement Cost	Annual Reserves Required
1	Roads	\$ 9 million	\$ 400 thousand
2	Water	\$ 11 million	\$ 200 thousand
3	Storm	\$ 2 million	\$ 40 thousand
4	Sanitary	\$ 10 million	\$ 300 thousand
5	Buildings/Structures	\$ 12 million	\$ 250 thousand
		<b>\$ 44 million</b>	<b>\$ 1.2 million</b>

VILLAGE OF NAKUSP

# BUILDINGS

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## Preliminary State of Infrastructure Report

3/4/2018

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This document reports on the Village of Nakusp's buildings and is intended for Asset Management Planning purposes only. It provides a summary of the replacement cost and projected life expectancy of buildings.

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## Abstract

This document reports on the Village of Nakusp’s buildings and is intended for Asset Management Planning purposes only. It provides a summary of the replacement cost and projected life expectancy of buildings. Buildings were divided into components as per Uniformat standards. Replacement costs and life expectancy data for specific building components were obtained from numerous external reports and averaged. It is expected that these numbers be refined as Nakusp continues in their Asset Management Planning program.

## Definitions

### Uniformat

Uniformat is a widely used standard that provides consistency in building classification and cost analysis.

## Disclaimer

The information, statements, statistics and commentary contained in this Report have been prepared by LandInfo Technologies Inc. (LTi) from information obtained from staff, external resources and onsite inspections. LTi does not express an opinion as to the accuracy or completeness of the information provided, the assumptions made by the parties that provided the information or any conclusions reached by those parties. LTi have based this Report on information received or obtained, on the basis that such information is accurate and, where it is represented to LTi as such, complete.

## (A) Tables and Graphs for All Buildings

Table 1: Replacement Cost of All Buildings

Building	Replacement Cost
200,000GallonReservoir	\$120,957
Arena	\$3,553,700
EmergencyServicesBuilding	\$2,030,941
HealthCentre	\$427,470
HotSprings	\$2,906,598
Library&Museum	\$1,232,492
MicroHydro	\$1,147,814
PRVStation	\$42,357
PublicWorksOffice	\$196,064
PublicWorksYard	\$621,550
PumpStation	\$19,407
SeniorsRecCentre	\$723,525
SewerLiftStation	\$103,007
VillageOffice	\$602,910
WasteWaterTreatmentPlant	\$1,927,550
WaterTreatmentPlant	\$1,258,200
Wells	\$157,607
<b>Grand Total</b>	<b>\$17,072,149</b>

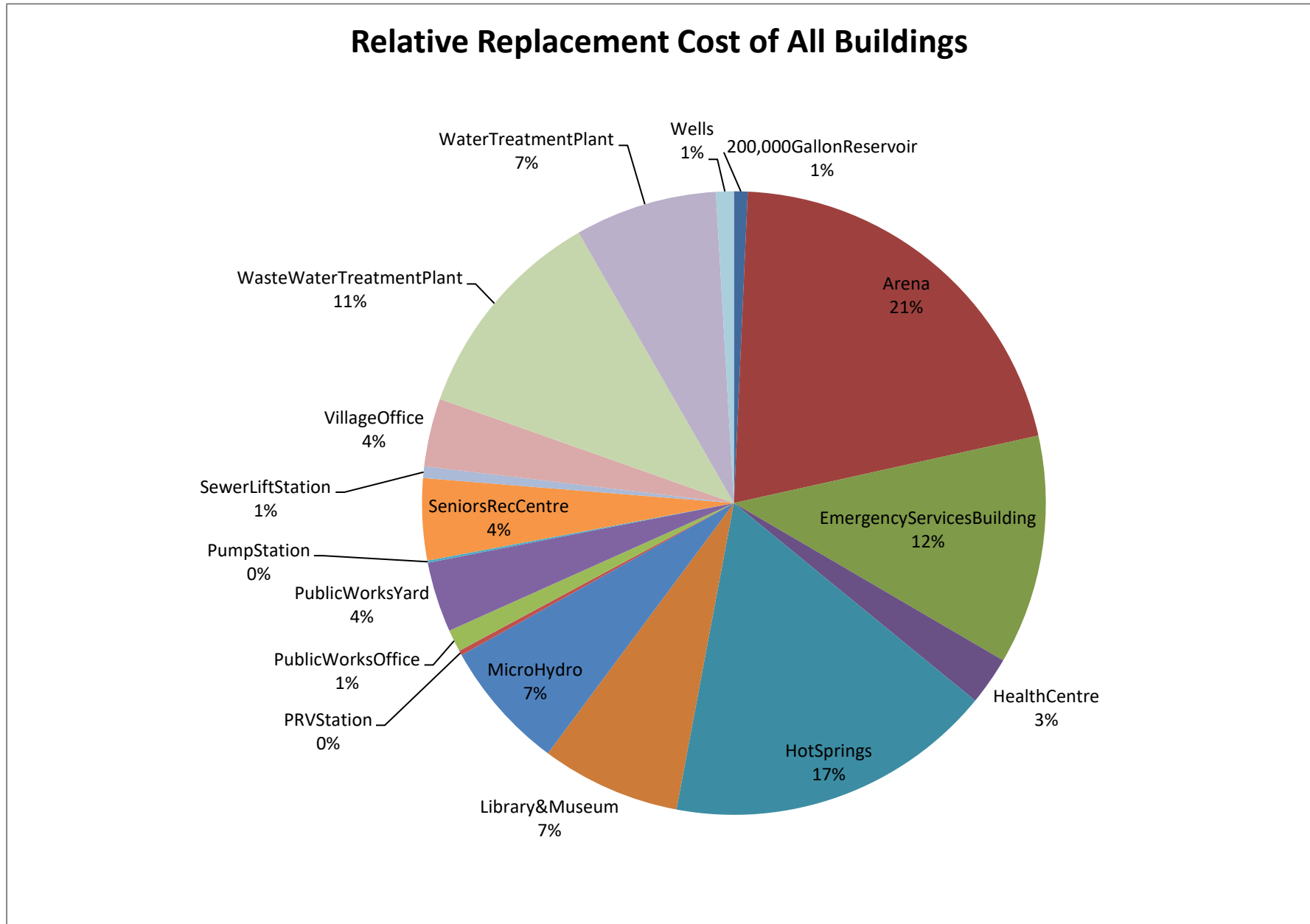


Figure 1a: Replacement Cost of All Buildings

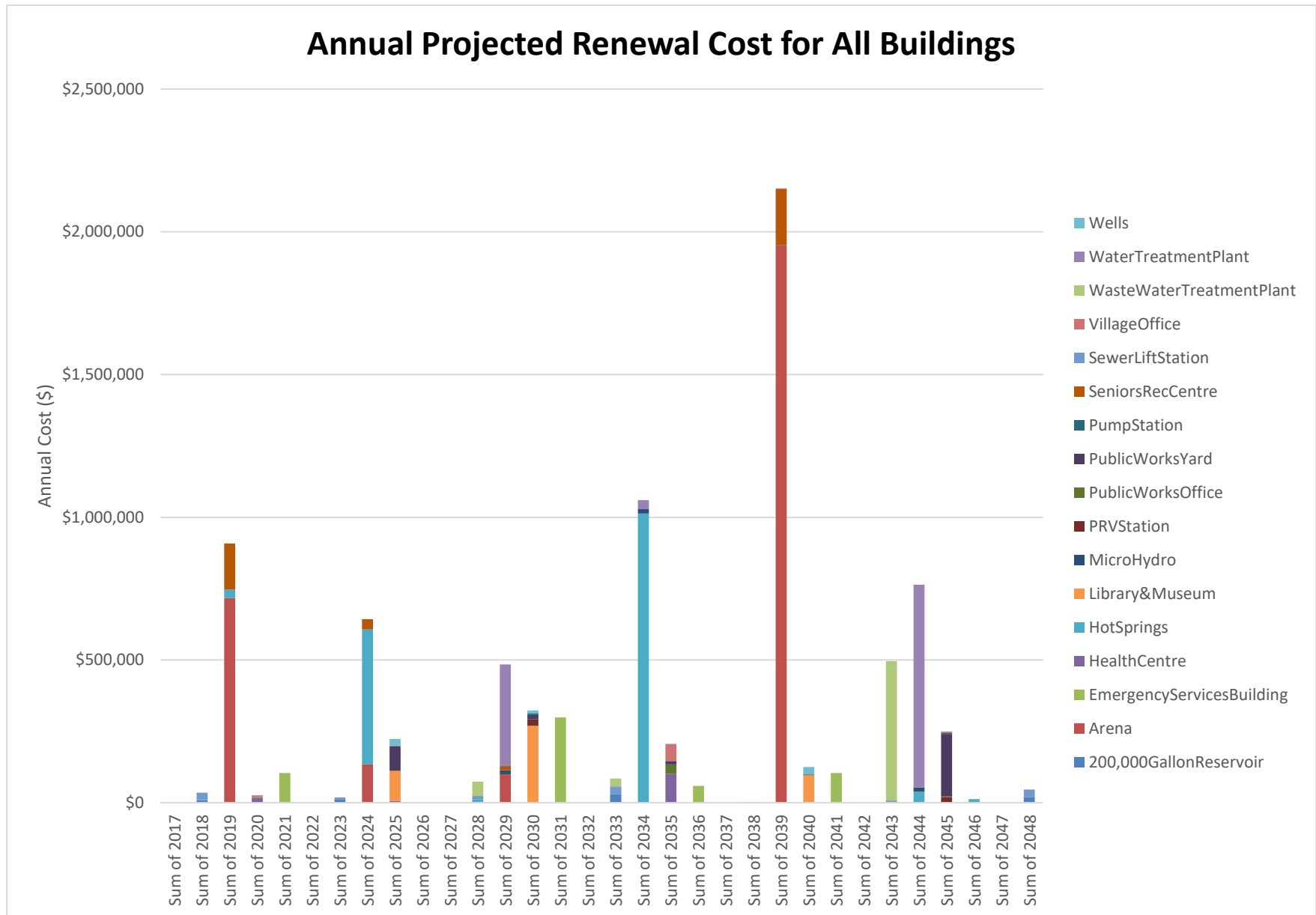


Figure 1b: Annual Projected Renewal Costs for All Buildings



## (B) Tables and Graphs for Public Works Office

Table 2: Breakdown Replacement Cost for Public Works Office

Component	Replacement Cost	Percentage of Total Cost
Building Elements Demolition	\$4,950	2.52%
Cooling Generating Systems	\$2,970	1.51%
Distribution Systems	\$3,960	2.02%
Domestic Water Distribution	\$1,980	1.01%
Electrical Service & Distribution	\$1,980	1.01%
Exterior Walls	\$105,105	53.61%
Floor Construction	\$16,830	8.58%
Heat Generating Systems	\$2,970	1.51%
Plumbing Fixtures	\$1,980	1.01%
Roof Construction	\$24,000	12.24%
Roof Coverings	\$18,000	9.18%
Sanitary Waste	\$1,980	1.01%
Standard Foundations	\$8,415	4.29%
Wall Finishes	\$944	0.48%
<b>Grand Total</b>	<b>\$196,064</b>	<b>100.00%</b>

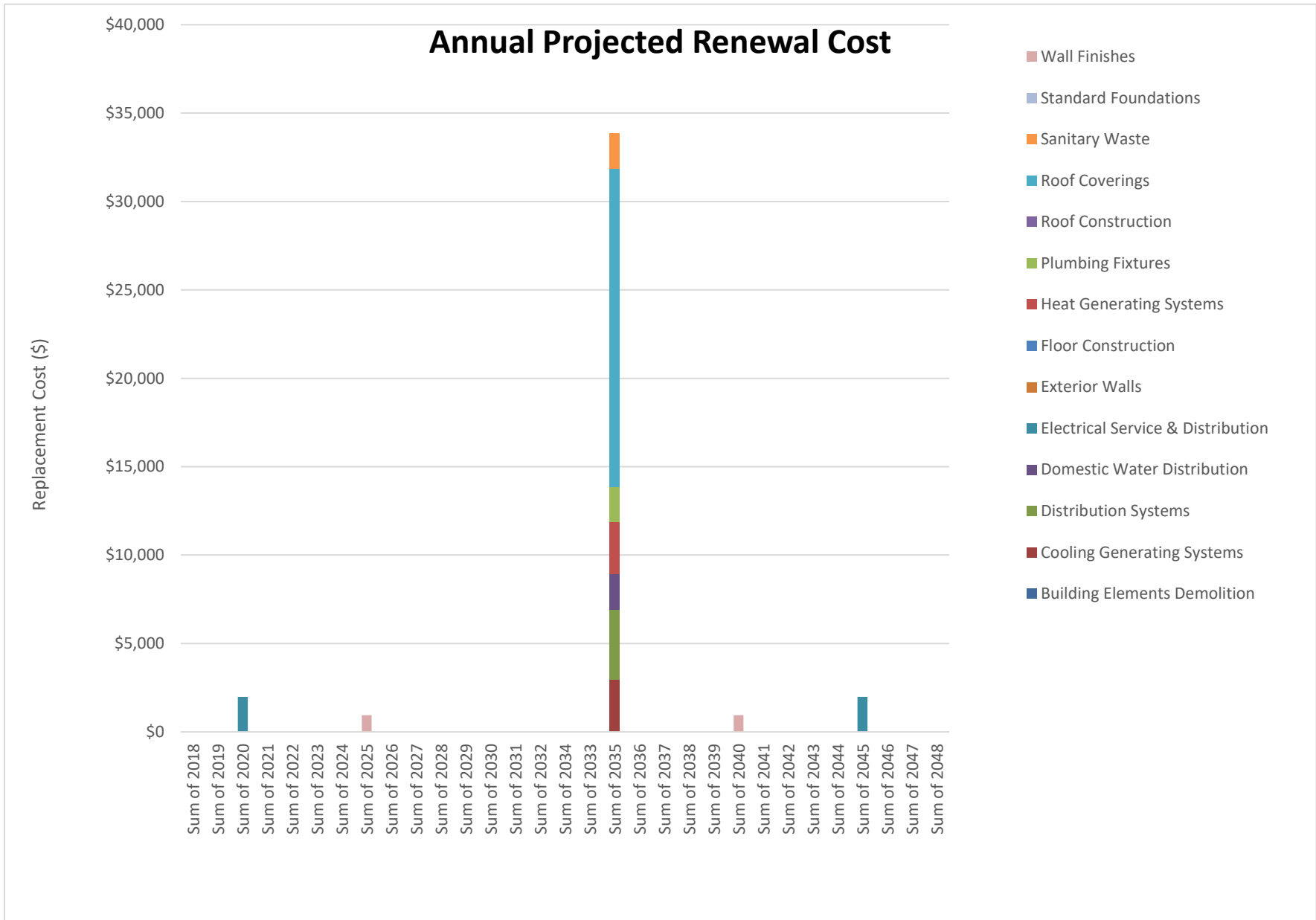


Figure 2: Annual Projected Renewal Costs for Public Works Office

## (C) Tables and Graphs for Public Works Yard

Table 3: Breakdown Replacement Cost for Public Works Yard

Component	Replacement Cost	Percentage of Total Cost
Building Elements Demolition	\$24,500	3.94%
Electrical Service & Distribution	\$9,800	1.58%
Exterior Doors	\$3,500	0.56%
Exterior Walls	\$325,000	52.29%
Roof Construction	\$117,600	18.92%
Roof Coverings	\$82,500	13.27%
Stair Construction	\$2,000	0.32%
Standard Foundations	\$41,650	6.70%
Wall Finishes	\$15,000	2.41%
<b>Grand Total</b>	<b>\$621,550</b>	<b>100.00%</b>



Figure 3: Annual Projected Renewal Costs for Public Works Yard

## (D) Tables and Graphs for Village Office

Table 4: Breakdown Replacement Cost for Village Office

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$78,400	13.00%
Basement Walls	\$58,800	9.75%
Building Elements Demolition	\$8,000	1.33%
Cooling Generating Systems	\$4,800	0.80%
Distribution Systems	\$6,400	1.06%
Domestic Water Distribution	\$3,200	0.53%
Electrical Service & Distribution	\$3,200	0.53%
Exterior Walls	\$251,160	41.66%
Floor Construction	\$81,600	13.53%
Heat Generating Systems	\$4,800	0.80%
Plumbing Fixtures	\$3,200	0.53%
Roof Construction	\$48,000	7.96%
Roof Coverings	\$36,000	5.97%
Stair Construction	\$1,000	0.17%
Stair Finishes	\$750	0.12%
Standard Foundations	\$13,600	2.26%
<b>Grand Total</b>	<b>\$602,910</b>	<b>100.00%</b>

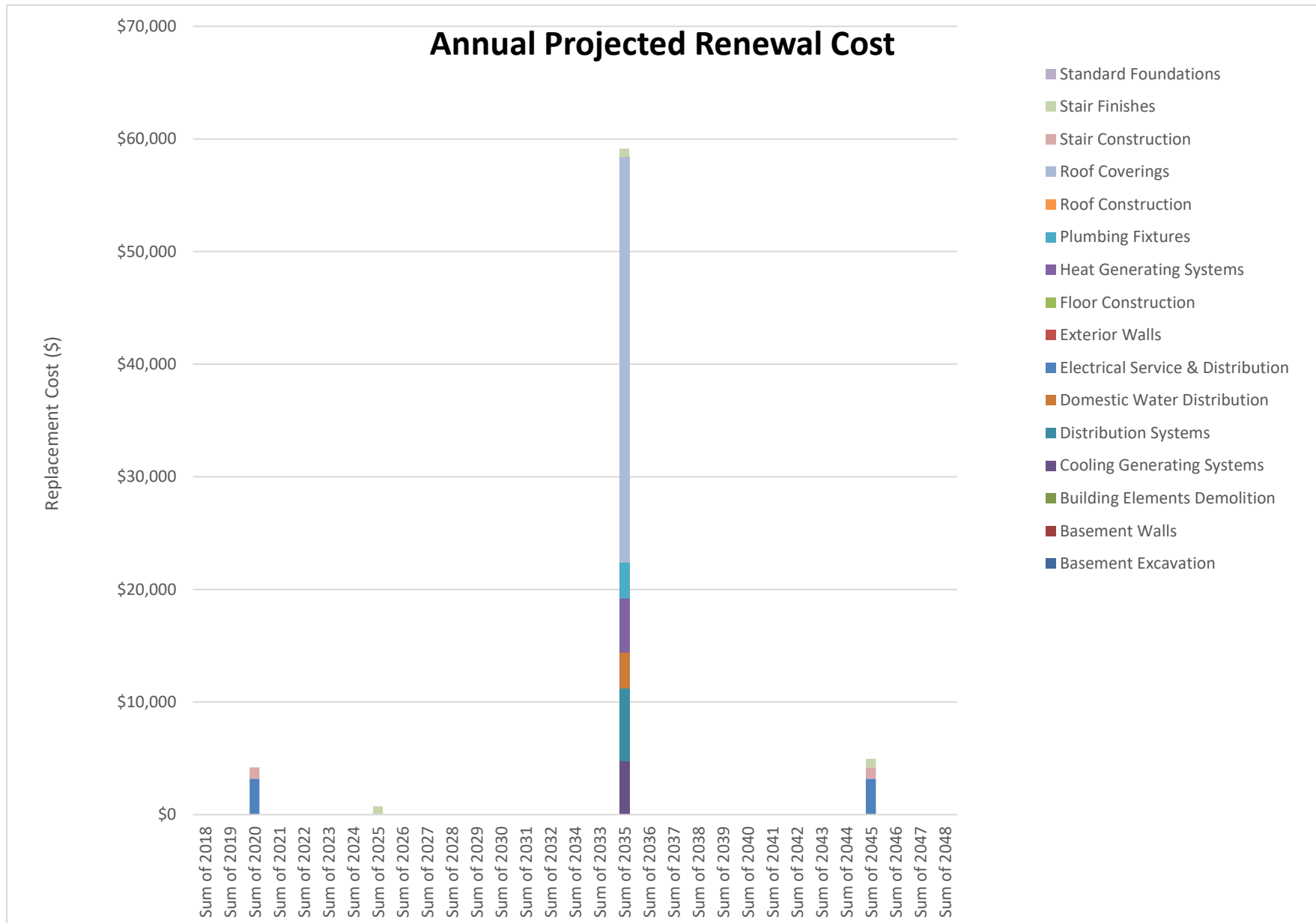


Figure 4: Annual Projected Renewal Costs for Village Office

## (E) Tables and Graphs for Emergency Services Building

Table 5: Breakdown Replacement Cost for Emergency Services Building

Component	Replacement Cost	Percentage of Total Cost
Building Elements Demolition	\$60,630	2.99%
Cooling Generating Systems	\$36,378	1.79%
Distribution Systems	\$48,504	2.39%
Domestic Water Distribution	\$24,252	1.19%
Electrical Service & Distribution	\$24,252	1.19%
Exterior Walls	\$940,290	46.30%
Fire Protection Specialities	\$60,630	2.99%
Fire Protection Sprinkler Systems	\$24,252	1.19%
Floor Construction	\$206,142	10.15%
Heat Generating Systems	\$36,378	1.79%
Plumbing Fixtures	\$24,252	1.19%
Roof Construction	\$363,780	17.91%
Sanitary Waste	\$24,252	1.19%
Stair Construction	\$10,000	0.49%
Stair Finishes	\$7,500	0.37%
Standard Foundations	\$103,071	5.08%
Stand-Pipe & Hose Systems	\$36,378	1.79%
<b>Grand Total</b>	<b>\$2,030,941</b>	<b>100.00%</b>



Figure 5: Annual Projected Renewal Costs for Emergency Services Building



## (F) Tables and Graphs for Library and Museum

Table 6: Breakdown Replacement Cost for Library and Museum

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$84,672	6.87%
Basement Walls	\$66,000	5.36%
Building Elements Demolition	\$20,160	1.64%
Ceiling Finishes	\$24,192	1.96%
Cooling Generating Systems	\$24,192	1.96%
Distribution Systems	\$32,256	2.62%
Domestic Water Distribution	\$16,128	1.31%
Electrical Service & Distribution	\$8,064	0.65%
Exterior Walls	\$394,680	32.02%
Fixed Furnishings	\$40,320	3.27%
Floor Construction	\$137,088	11.12%
Floor Finishes	\$24,192	1.96%
Heat Generating Systems	\$24,192	1.96%
Plumbing Fixtures	\$16,128	1.31%
Roof Construction	\$120,960	9.81%
Roof Coverings	\$90,720	7.36%
Sanitary Waste	\$16,128	1.31%
Stair Construction	\$2,000	0.16%
Stair Finishes	\$1,500	0.12%
Standard Foundations	\$34,272	2.78%
Wall Finishes	\$54,648	4.43%
<b>Grand Total</b>	<b>\$1,232,492</b>	<b>100.00%</b>

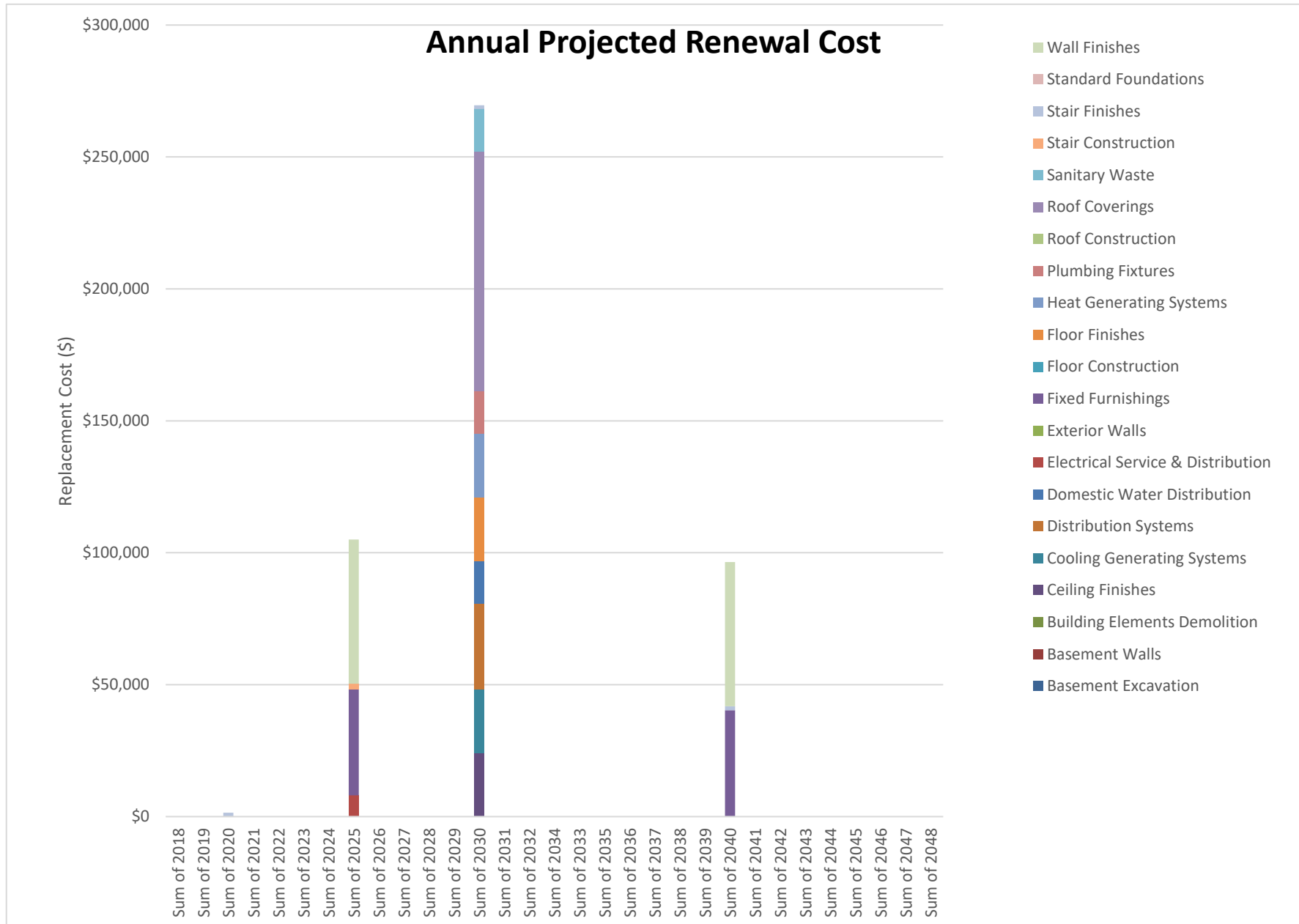


Figure 6: Annual Projected Renewal Costs for Library and Museum

## (G) Tables and Graphs for Seniors Rec Centre

Table 7: Breakdown Replacement Cost for Seniors Rec Centre

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$100,800	13.93%
Basement Walls	\$60,000	8.29%
Building Elements Demolition	\$12,000	1.66%
Ceiling Finishes	\$14,400	1.99%
Cooling Generating Systems	\$14,400	1.99%
Distribution Systems	\$19,200	2.65%
Domestic Water Distribution	\$9,600	1.33%
Exterior Walls	\$320,000	44.23%
Fire Protection Sprinkler Systems	\$9,600	1.33%
Floor Finishes	\$14,400	1.99%
Heat Generating Systems	\$14,400	1.99%
Plumbing Fixtures	\$9,600	1.33%
Roof Coverings	\$54,000	7.46%
Sanitary Waste	\$9,600	1.33%
Special Structures	\$2,500	0.35%
Stair Construction	\$1,500	0.21%
Stair Finishes	\$1,125	0.16%
Standard Foundations	\$20,400	2.82%
Wall Finishes	\$36,000	4.98%
<b>Grand Total</b>	<b>\$723,525</b>	<b>100.00%</b>

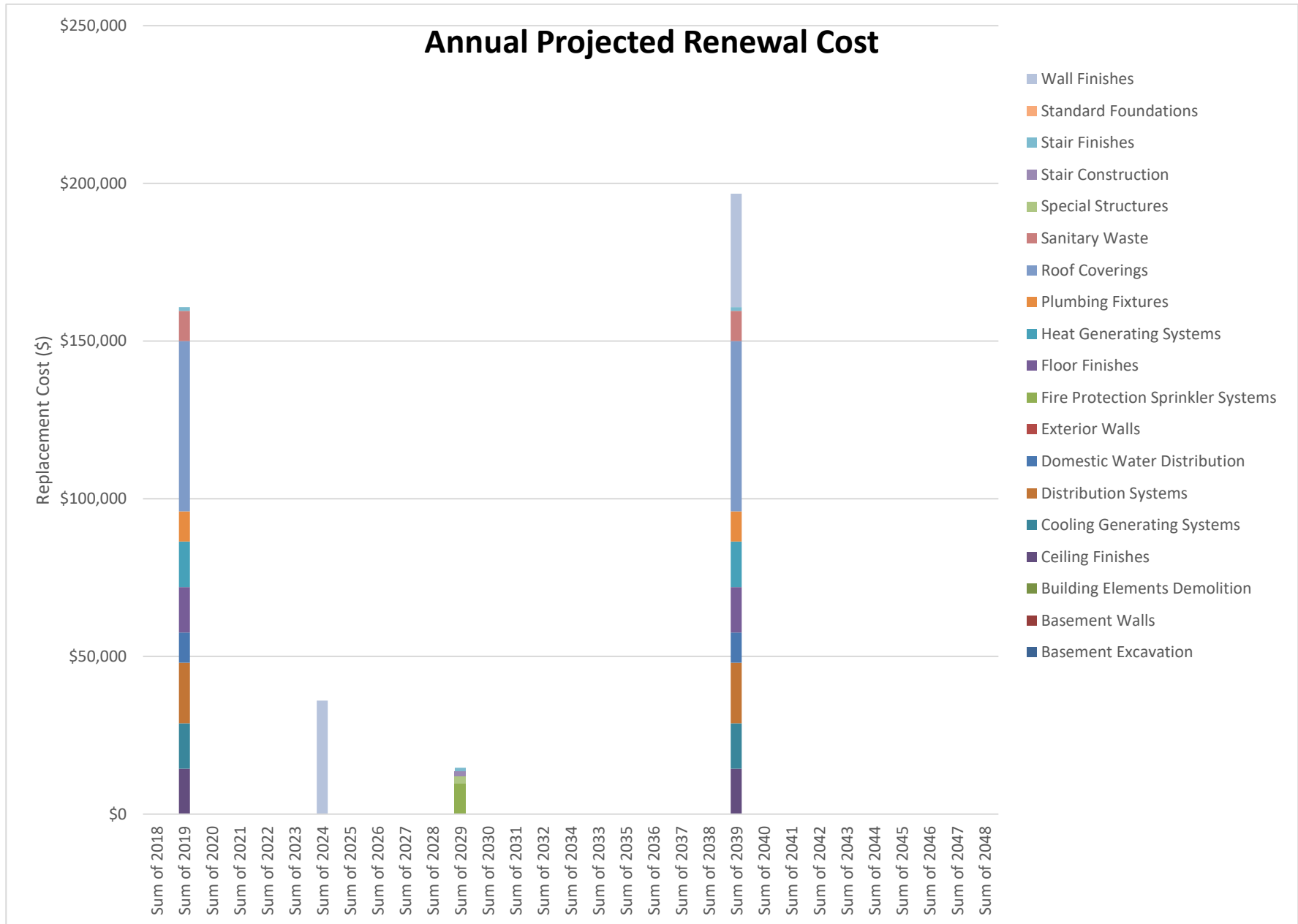


Figure 7: Annual Projected Renewal Costs for Seniors Rec Centre

## (H) Tables and Graphs for Health Centre

Table 8: Breakdown Replacement Cost for Health Centre

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$44,520	10.41%
Basement Walls	\$53,200	12.45%
Building Elements Demolition	\$5,300	1.24%
Cooling Generating Systems	\$6,360	1.49%
Distribution Systems	\$8,480	1.98%
Domestic Water Distribution	\$4,240	0.99%
Electrical Service & Distribution	\$4,240	0.99%
Exterior Walls	\$172,900	40.45%
Floor Construction	\$36,040	8.43%
Floor Finishes	\$6,360	1.49%
Heat Generating Systems	\$6,360	1.49%
Plumbing Fixtures	\$4,240	0.99%
Roof Construction	\$25,440	5.95%
Roof Coverings	\$19,080	4.46%
Sanitary Waste	\$4,240	0.99%
Stair Construction	\$1,500	0.35%
Standard Foundations	\$9,010	2.11%
Wall Finishes	\$15,960	3.73%
<b>Grand Total</b>	<b>\$427,470</b>	<b>100.00%</b>

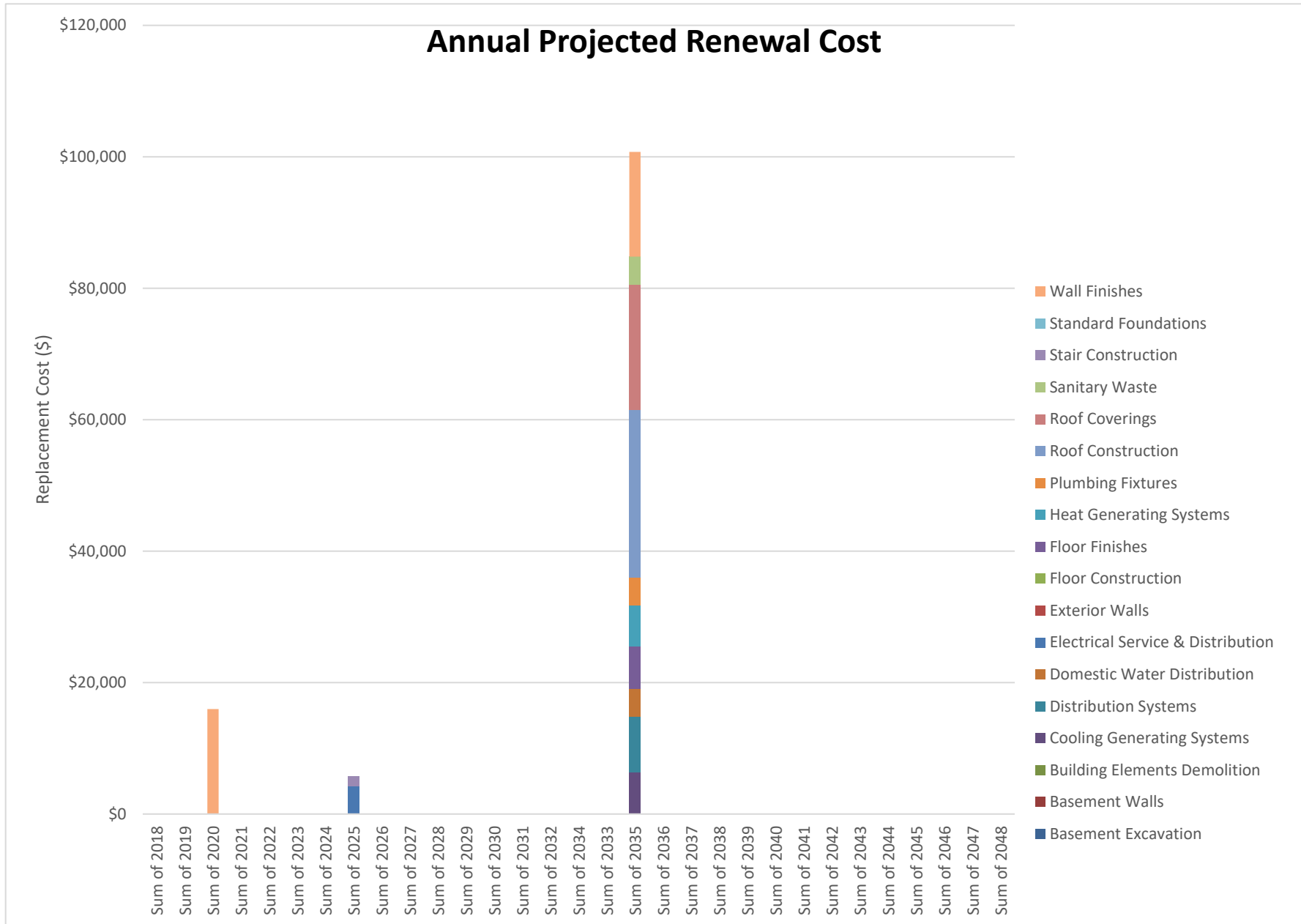


Figure 8: Annual Projected Renewal Costs for Health Centre

## (I) Tables and Graphs for Hotsprings

Table 9: Breakdown Replacement Cost for Hotsprings

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$324,600	11.17%
Basement Walls	\$114,000	3.92%
Building Elements Demolition	\$57,964	1.99%
Ceiling Finishes	\$69,557	2.39%
Cooling Generating Systems	\$69,557	2.39%
Distribution Systems	\$92,743	3.19%
Domestic Water Distribution	\$46,371	1.60%
Electrical Service & Distribution	\$46,371	1.60%
Exterior Walls	\$456,625	15.71%
Fire Protection Sprinkler Systems	\$46,371	1.60%
Floor Construction	\$394,158	13.56%
Floor Finishes	\$34,779	1.20%
Heat Generating Systems	\$69,557	2.39%
Integrated Construction	\$37,500	1.29%
Plumbing Fixtures	\$46,371	1.60%
Roof Construction	\$115,929	3.99%
Roof Coverings	\$86,947	2.99%
Sanitary Waste	\$46,371	1.60%
Special Controls & Instrumentation	\$45,250	1.56%
Special Electrical Systems	\$57,964	1.99%
Special HVAC Systems & Equipment	\$86,947	2.99%
Special Plumbing Systems	\$113,375	3.90%
Specialities	\$340,125	11.70%
Stair Construction	\$1,500	0.05%
Stair Finishes	\$1,125	0.04%
Standard Foundations	\$98,539	3.39%
Wall Finishes	\$6,000	0.21%
<b>Grand Total</b>	<b>\$2,906,598</b>	<b>100.00%</b>

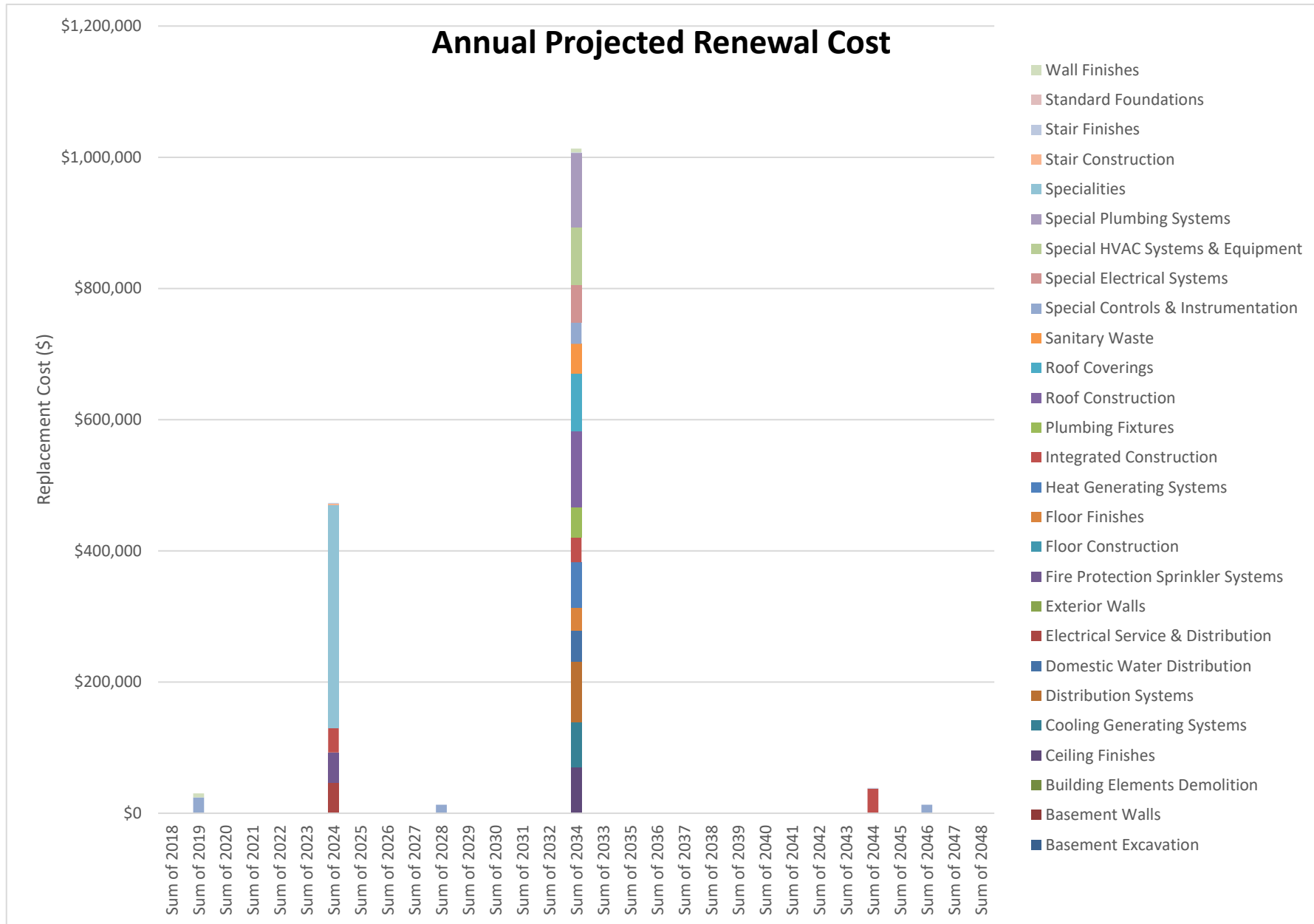


Figure 9: Annual Projected Renewal Costs for Hot Springs



## (J) Tables and Graphs for Wastewater Treatment Plant

Table 10: Breakdown Replacement Cost for Wastewater Treatment Plant

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$70,000	3.63%
Ceiling Finishes	\$2,400	0.12%
Communication & Security Systems	\$2,400	0.12%
Cooling Generating Systems	\$2,400	0.12%
Electrical Service & Distribution	\$1,600	0.08%
Exterior Doors	\$3,500	0.18%
Exterior Walls	\$52,000	2.70%
Floor Construction	\$13,600	0.71%
Floor Finishes	\$2,400	0.12%
Heat Generating Systems	\$2,400	0.12%
Integrated Construction	\$1,250,000	64.85%
Lighting & Branch Wiring	\$3,200	0.17%
Plumbing Fixtures	\$1,600	0.08%
Roof Construction	\$16,000	0.83%
Roof Coverings	\$12,000	0.62%
Special Controls & Instrumentation	\$480,400	24.92%
Special Plumbing Systems	\$750	0.04%
Standard Foundations	\$8,500	0.44%
Wall Finishes	\$2,400	0.12%
<b>Grand Total</b>	<b>\$1,927,550</b>	<b>100.00%</b>

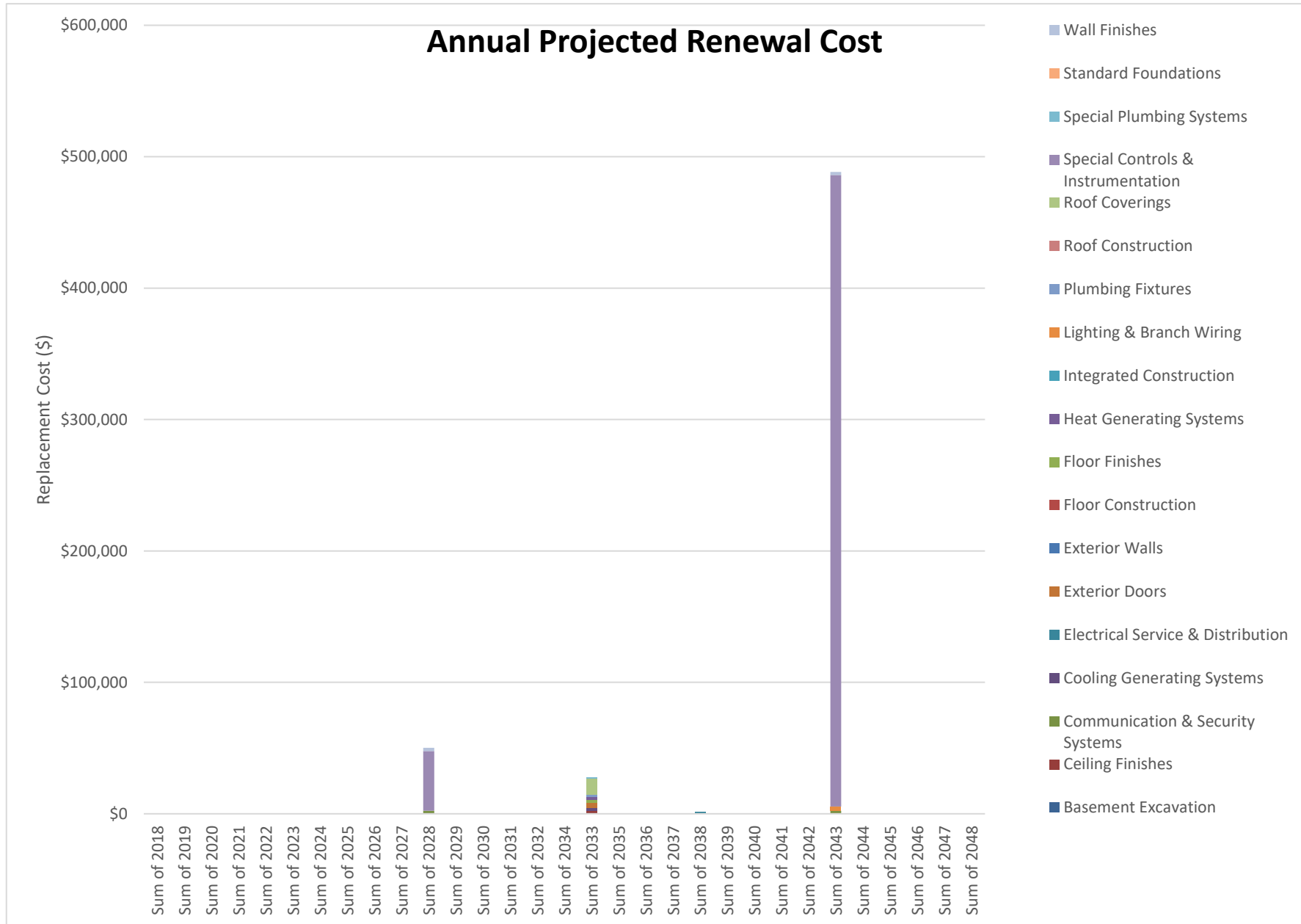


Figure 10: Annual Projected Renewal Costs for Wastewater Treatment Plant

## (K) Tables and Graphs for Water Treatment Plant

Table 11: Replacement Cost of Water Treatment Plant

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$70,000	10.51%
Ceiling Finishes	\$3,000	0.45%
Communication & Security Systems	\$3,000	0.45%
Cooling Generating Systems	\$3,000	0.45%
Electrical Service & Distribution	\$2,000	0.30%
Exterior Doors	\$700	0.11%
Floor Finishes	\$3,000	0.45%
Integrated Construction	\$100,000	15.01%
Plumbing Fixtures	\$2,000	0.30%
Roof Coverings	\$15,000	2.25%
Special Controls & Instrumentation	\$460,000	69.05%
Special Plumbing Systems	\$1,500	0.23%
Wall Finishes	\$3,000	0.45%
<b>Grand Total</b>	<b>\$666,200</b>	<b>100.00%</b>

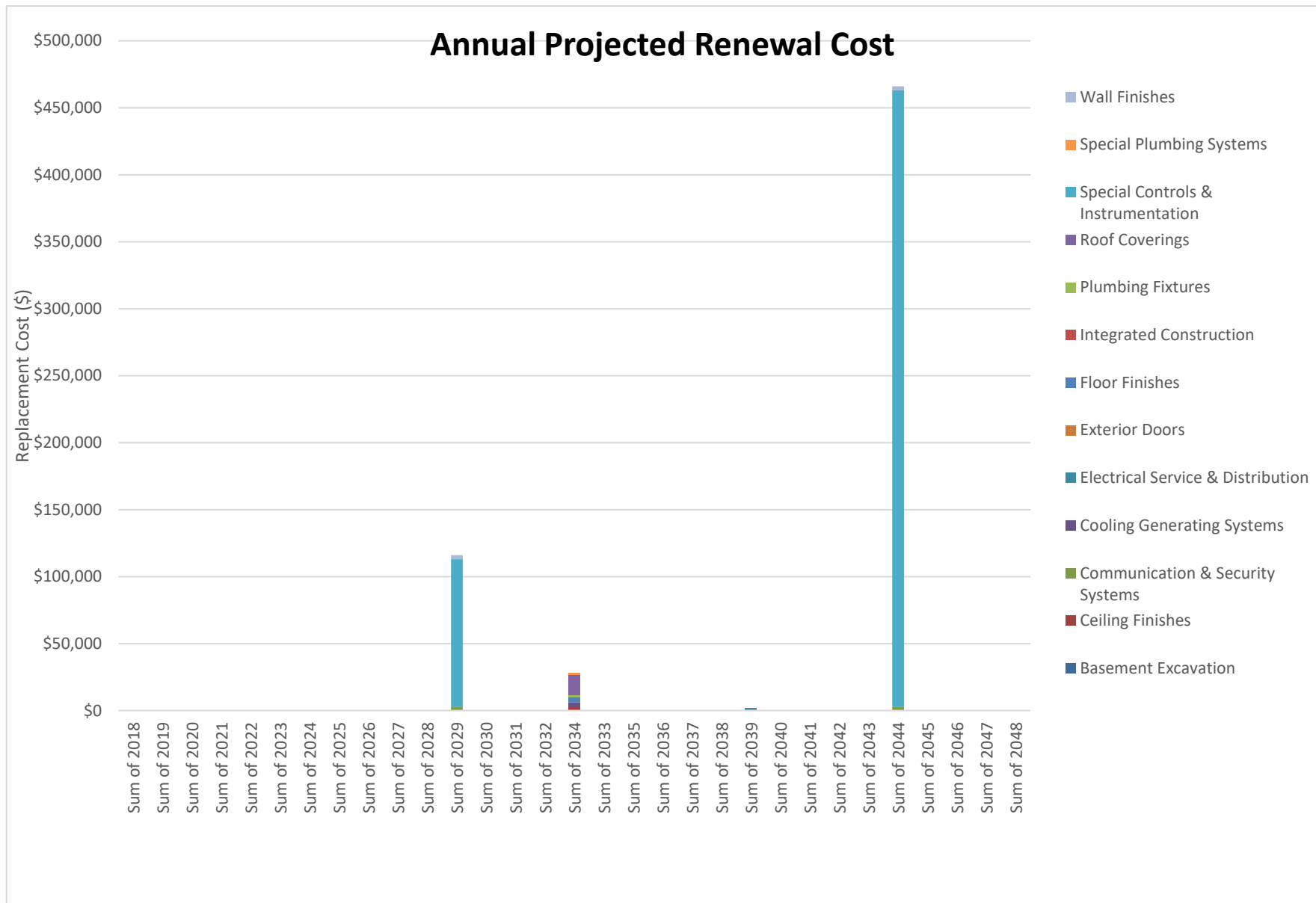


Figure 11: Annual Projected Renewal Costs for Water Treatment Plant

## (L) Tables and Graphs for Wells

Table 12: Replacement Cost of Wells

Component	Replacement Cost	Percentage of Total Cost
Ceiling Finishes	\$1,500	0.95%
Electrical Service & Distribution	\$1,000	0.63%
Exterior Doors	\$7	0.00%
Exterior Walls	\$32,500	20.62%
Floor Construction	\$8,500	5.39%
Floor Finishes	\$1,500	0.95%
Integrated Construction	\$25,000	15.86%
Lighting & Branch Wiring	\$2,000	1.27%
Roof Construction	\$10,000	6.34%
Roof Coverings	\$7,500	4.76%
Special Controls & Instrumentation	\$22,350	14.18%
Special Structures	\$40,000	25.38%
Standard Foundations	\$4,250	2.70%
Wall Finishes	\$1,500	0.95%
<b>Grand Total</b>	<b>\$157,607</b>	<b>100.00%</b>



Figure 12: Annual Projected Renewal Costs for Wells

## (M) Tables and Graphs for 200,000 Gallon Reservoir

Table 13: Replacement Cost of 200,000 Gallon Reservoir

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$35,000	28.94%
Electrical Service & Distribution	\$1,000	0.83%
Exterior Doors	\$7	0.01%
Exterior Walls	\$32,500	26.87%
Floor Construction	\$8,500	7.03%
Lighting & Branch Wiring	\$2,000	1.65%
Roof Construction	\$10,000	8.27%
Roof Coverings	\$7,500	6.20%
Special Controls & Instrumentation	\$18,700	15.46%
Standard Foundations	\$4,250	3.51%
Wall Finishes	\$1,500	1.24%
<b>Grand Total</b>	<b>\$120,957</b>	<b>100.00%</b>

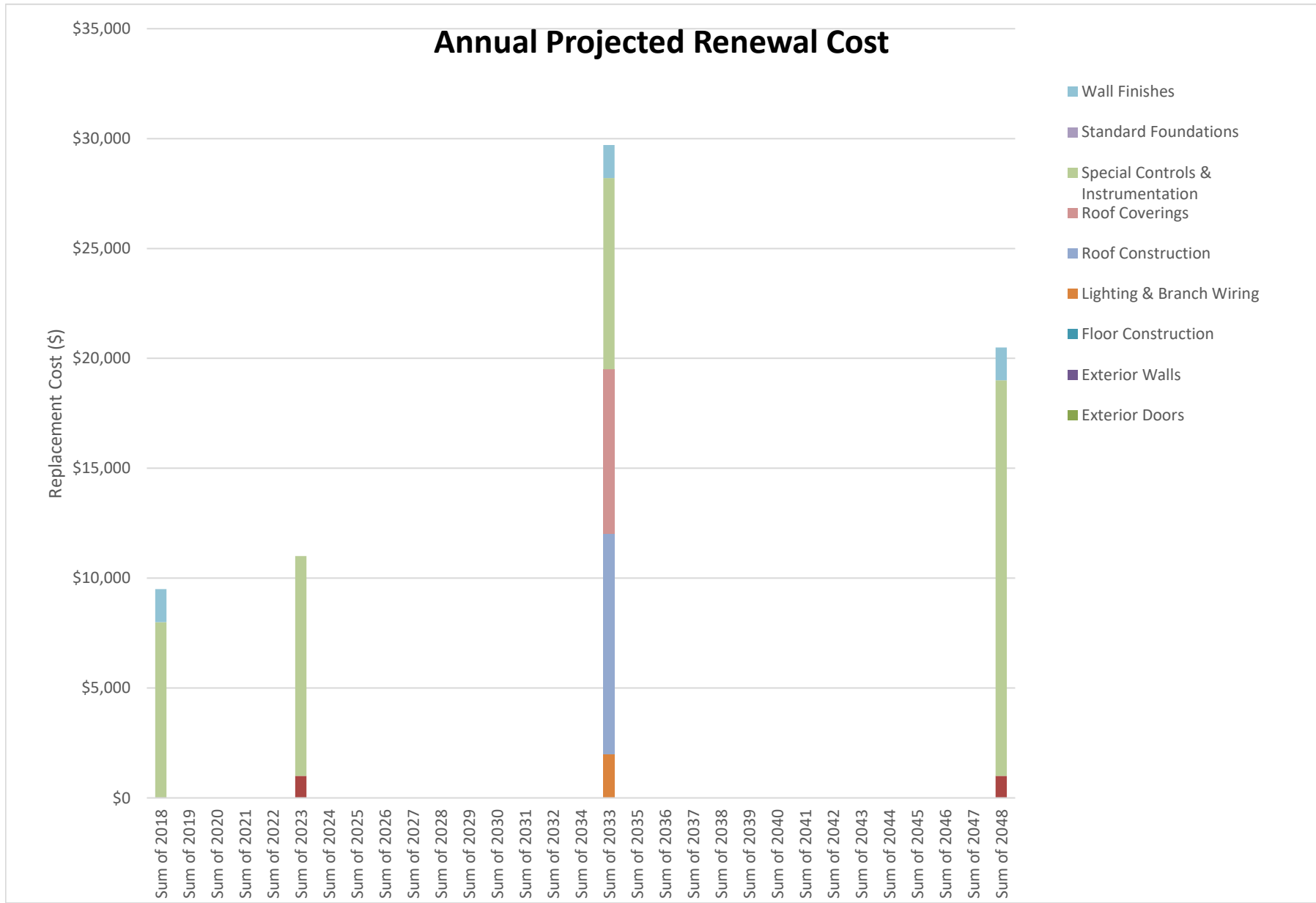


Figure 13: Annual Projected Renewal Costs for 200,000 Gallon Reservoir



## (N) Tables and Graphs for PRV Station

Table 14: Replacement Cost of PRV Station

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$7,000	36.93%
Electrical Service & Distribution	\$800	4.22%
Exterior Doors	\$7	0.04%
Floor Construction	\$850	4.48%
Integrated Construction	\$2,500	13.19%
Lighting & Branch Wiring	\$1,600	8.44%
Roof Construction	\$1,000	5.28%
Roof Coverings	\$750	3.96%
Special Controls & Instrumentation	\$1,050	5.54%
Standard Foundations	\$3,400	17.94%
<b>Grand Total</b>	<b>\$18,957</b>	<b>100.00%</b>

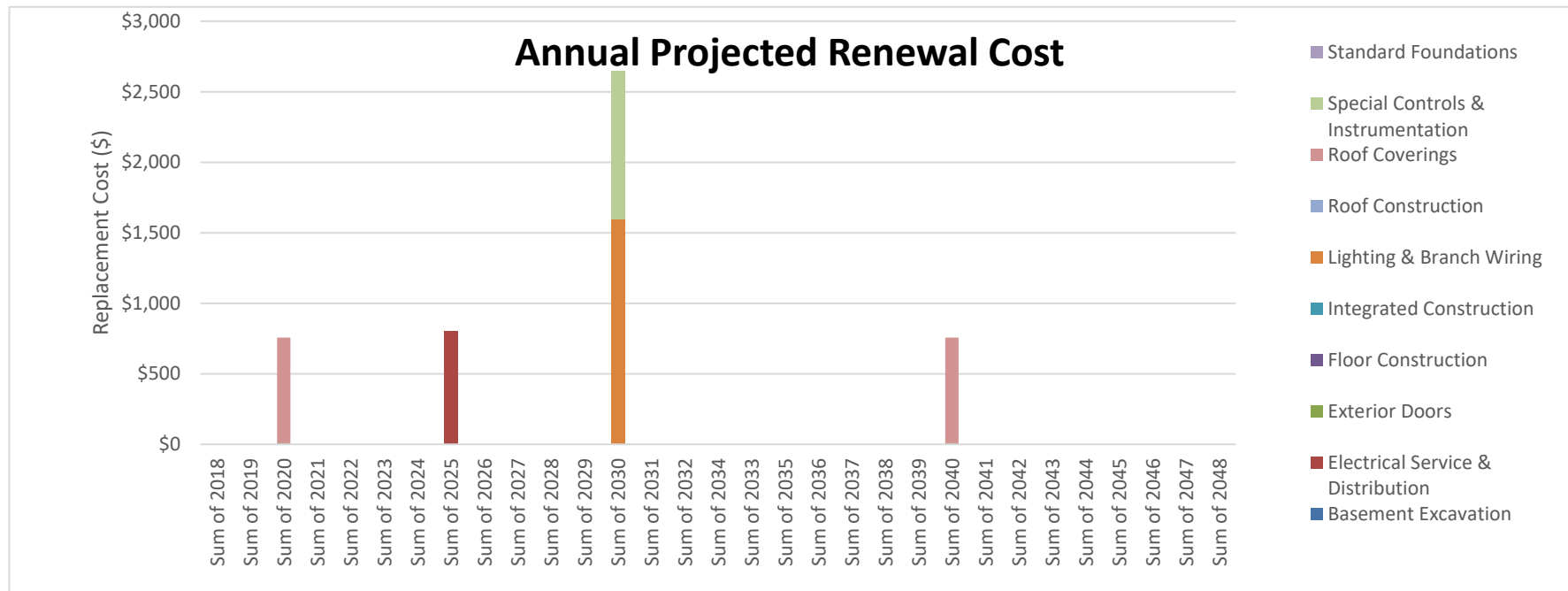


Figure 14: Annual Projected Renewal Costs for PRV Station

## (O) Tables and Graphs for Pump Station

Table 15: Replacement Cost of Pump Station

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$1,400	7.21%
Electrical Service & Distribution	\$200	1.03%
Exterior Doors	\$7	0.04%
Exterior Walls	\$6,500	33.49%
Floor Construction	\$1,700	8.76%
Lighting & Branch Wiring	\$400	2.06%
Roof Construction	\$2,000	10.31%
Roof Coverings	\$1,500	7.73%
Special Controls & Instrumentation	\$4,550	23.45%
Standard Foundations	\$850	4.38%
Wall Finishes	\$300	1.55%
<b>Grand Total</b>	<b>\$19,407</b>	<b>100.00%</b>

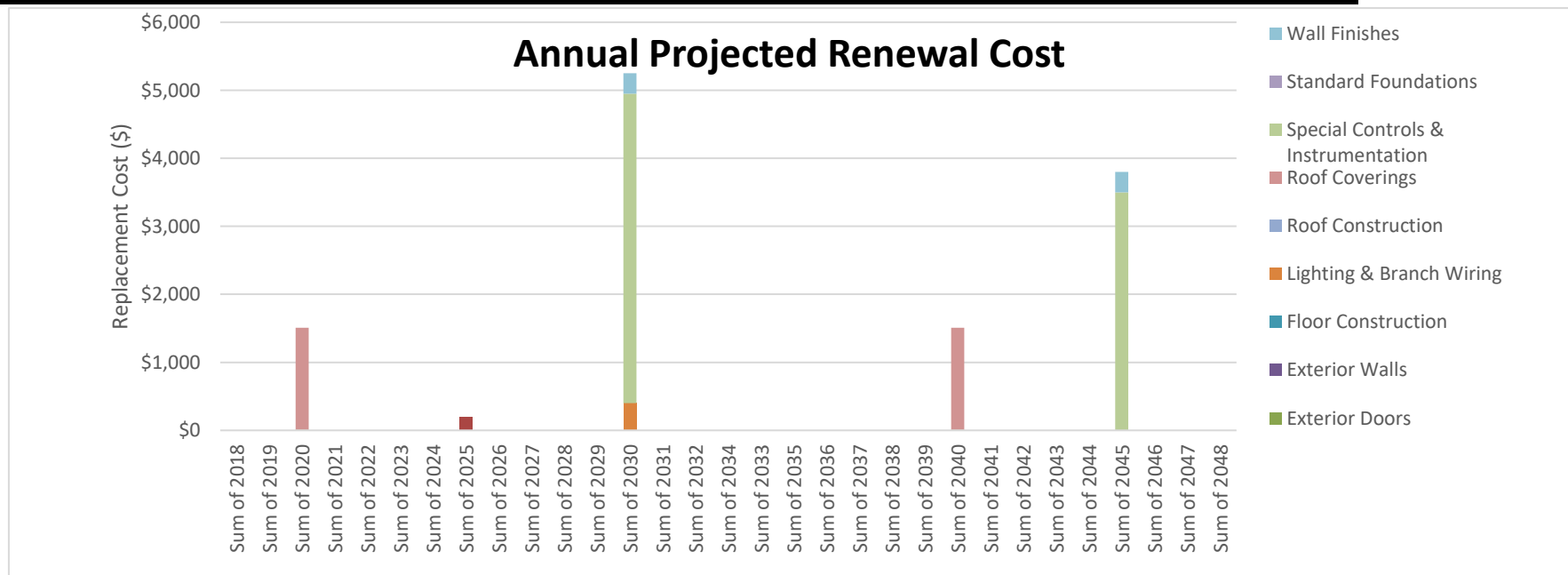


Figure 15: Annual Projected Renewal Costs for Pump Station

## (P) Tables and Graphs for Micro Hydro

Table 16: Replacement Cost of Micro Hydro

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$7,000	15.28%
Electrical Service & Distribution	\$200	0.44%
Lighting & Branch Wiring	\$400	0.87%
Roof Coverings	\$15,000	32.75%
Special Controls & Instrumentation	\$11,700	25.55%
Standard Foundations	\$8,500	18.56%
Wall Finishes	\$3,000	6.55%
<b>Grand Total</b>	<b>\$45,800</b>	<b>100.00%</b>

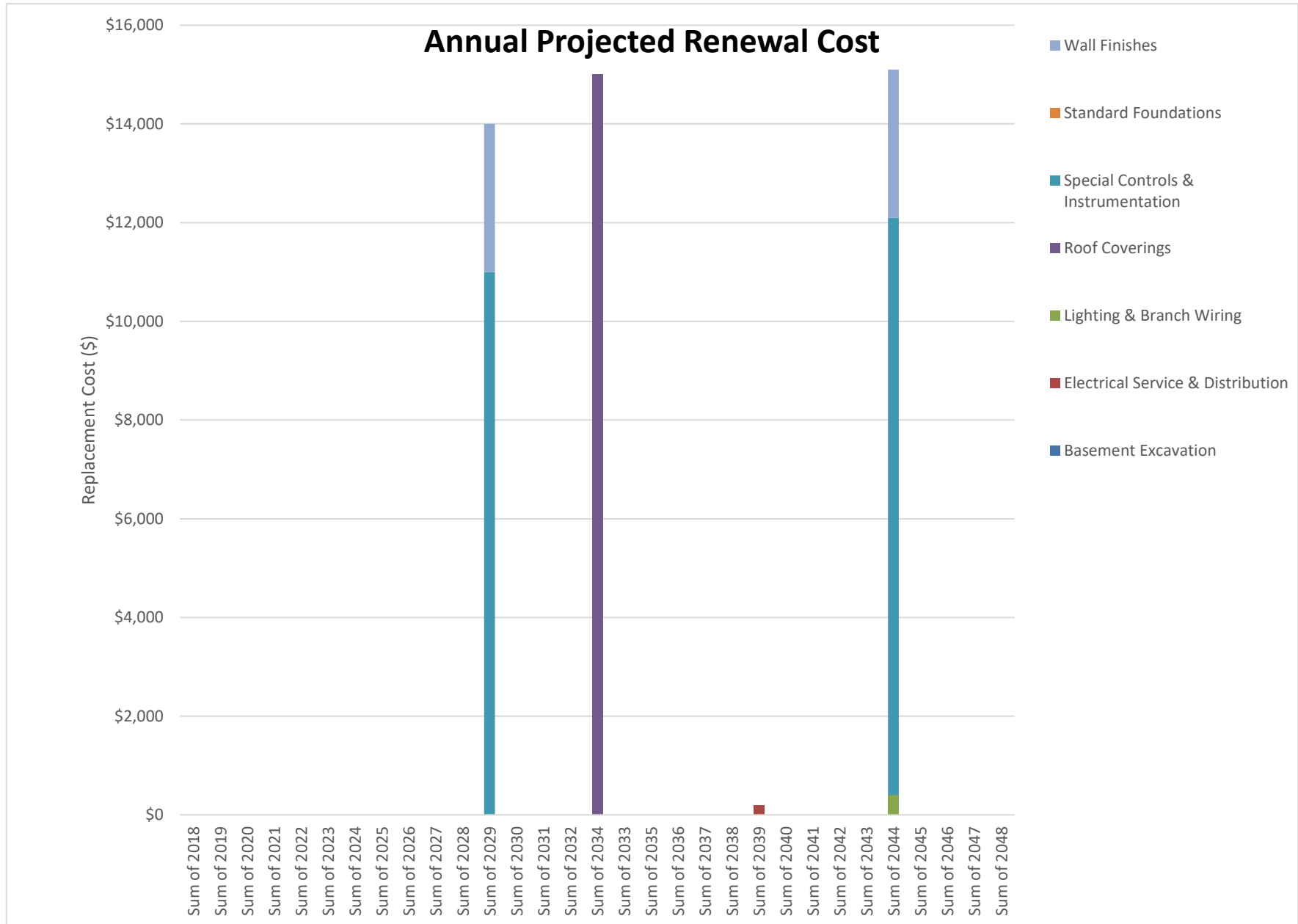


Figure 16: Annual Projected Renewal Costs for Micro Hydro

## (Q) Tables and Graphs for Sewer Lift Station

Table 17: Replacement Cost of Sewer Lift Station

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$1,400	1.36%
Electrical Service & Distribution	\$1,000	0.97%
Exterior Doors	\$7	0.01%
Exterior Walls	\$32,500	31.55%
Floor Construction	\$8,500	8.25%
Lighting & Branch Wiring	\$2,000	1.94%
Roof Construction	\$10,000	9.71%
Roof Coverings	\$7,500	7.28%
Special Controls & Instrumentation	\$34,350	33.35%
Standard Foundations	\$4,250	4.13%
Wall Finishes	\$1,500	1.46%
<b>Grand Total</b>	<b>\$103,007</b>	<b>100.00%</b>



Figure 17: Annual Projected Renewal Costs for Sewer Lift Station

## (R) Tables and Graphs for Arena

Table 18: Replacement Cost of Arena

Component	Replacement Cost	Percentage of Total Cost
Basement Excavation	\$70,000	1.97%
Basement Walls	\$100,000	2.81%
Ceiling Finishes	\$60,000	1.69%
Communication & Security Systems	\$60,000	1.69%
Cooling Generating Systems	\$60,000	1.69%
Distribution Systems	\$80,000	2.25%
Domestic Water Distribution	\$40,000	1.13%
Electrical Service & Distribution	\$40,000	1.13%
Exterior Doors	\$7,000	0.20%
Exterior Walls	\$650,000	18.29%
Floor Construction	\$340,000	9.57%
Floor Finishes	\$30,000	0.84%
Heat Generating Systems	\$60,000	1.69%
Integrated Construction	\$30,000	0.84%
Lighting & Branch Wiring	\$80,000	2.25%
Plumbing Fixtures	\$40,000	1.13%
Roof Construction	\$800,000	22.51%
Roof Coverings	\$300,000	8.44%
Sanitary Waste	\$40,000	1.13%
Special Controls & Instrumentation	\$266,700	7.50%
Stair Construction	\$30,000	0.84%
Standard Foundations	\$340,000	9.57%
Wall Finishes	\$30,000	0.84%
<b>Grand Total</b>	<b>\$3,553,700</b>	<b>100.00%</b>

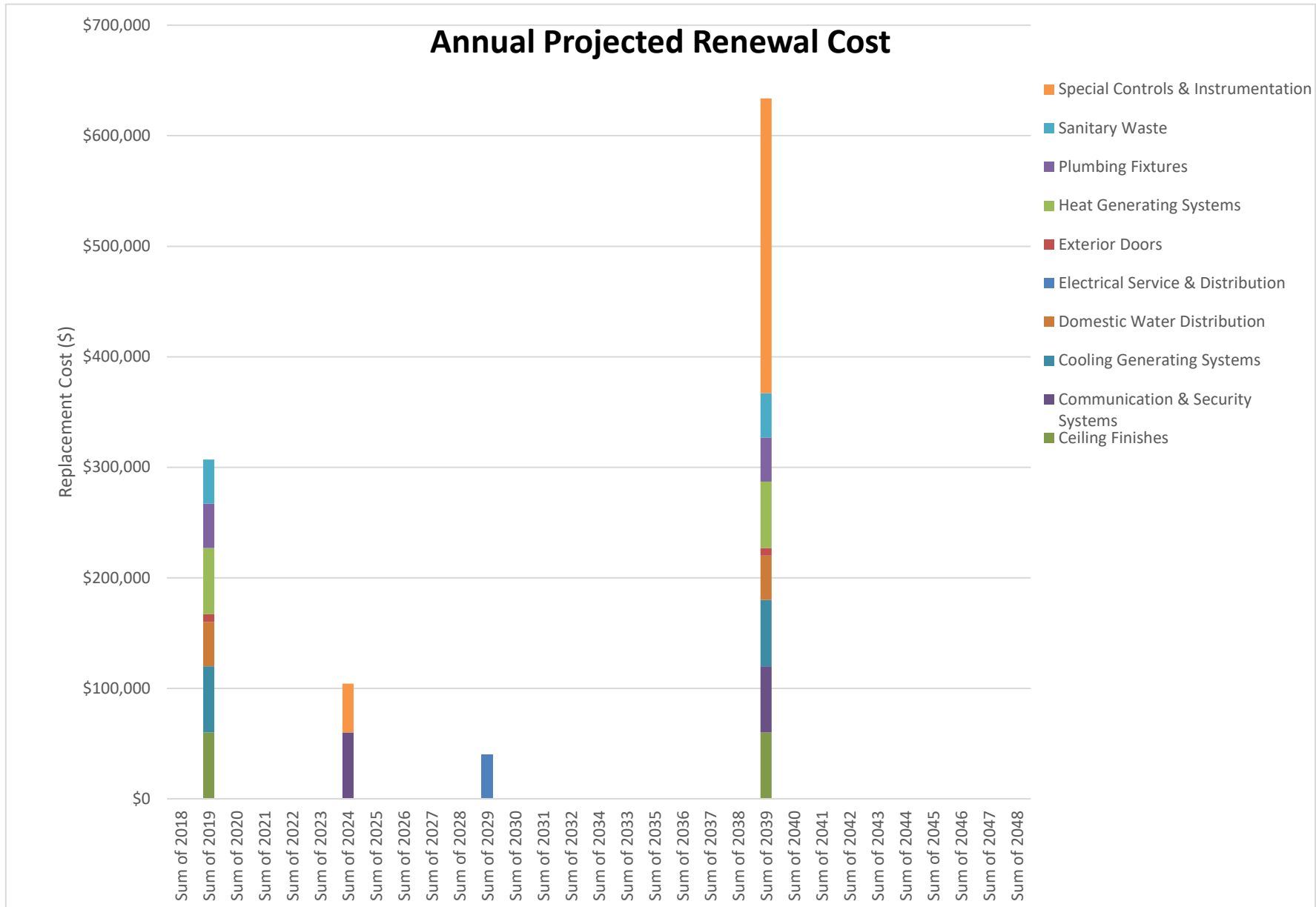


Figure 18: Annual Projected Renewal Costs for Arena



# 1. Inventory of Reclaimed Reclaimed Water Network

Table 1a: Pipe Material by Length

Pipe Material	Length	Relative Length
PVC	1,798 m	100.0%
<b>Grand Total</b>	<b>1,798 m</b>	<b>100.0%</b>

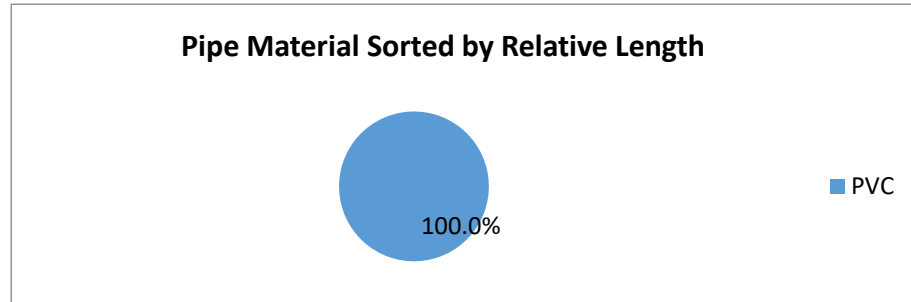


Figure . 23

Table 1b: Pipe Material by Diameter

Pipe Diameter	Length	Relative Length
150	6 m	0.4%
200	1,792 m	99.6%
<b>Grand Total</b>	<b>1,798 m</b>	<b>100.0%</b>

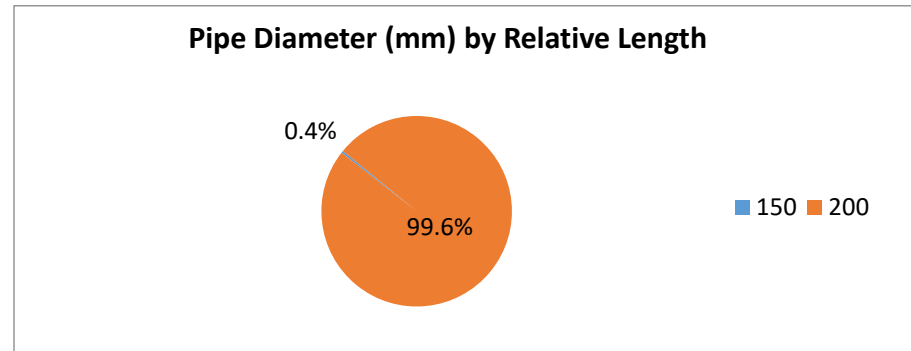


Figure 1b: Pipe Diameter by Relative Length

Table 1c: Count of Reclaimed Water Point Features

Point Feature	Count	Relative Count
Hydrant	1	100.0%
<b>Grand Total</b>	<b>1</b>	<b>100.0%</b>

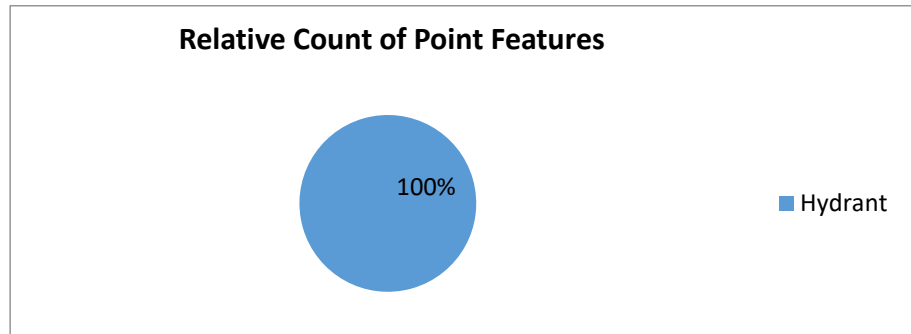


Figure 1c: Relative Count of Reclaimed Water Point Features

## 2. Replacement Costs of Reclaimed Water Network

### A) Total Replacement Cost of Reclaimed Water Network

Table 2a: Total Replacement Cost of Reclaimed Water Network

Reclaimed Water Replacement Cost	Relative Cost
Hydrant	\$7,500 1.3%
Main	\$584,264 98.7%
<b>Grand Total</b>	<b>\$591,764 100.0%</b>

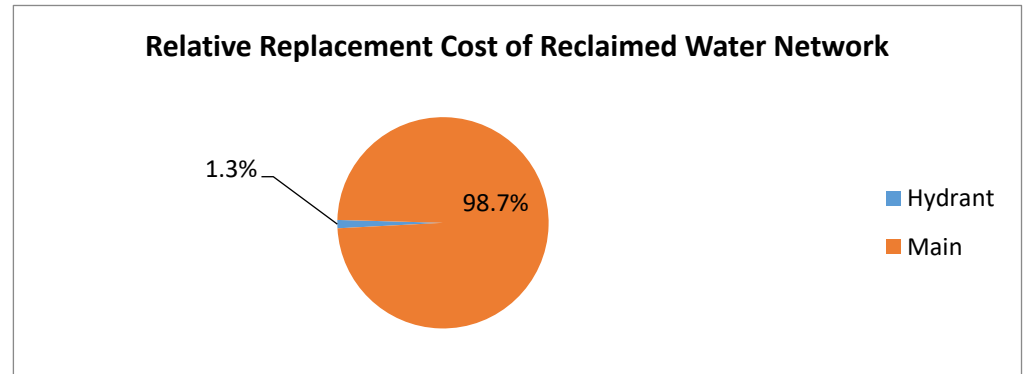


Figure 2a: Relative Replacement Cost of Reclaimed Water Network

### B) Annual Investment Required for Reclaimed Water Network

Table 2b: Annual Investment Required for Reclaimed Water Network

Reclaimed Water Annual Investment	Relative Investment
Hydrant	\$100 1.3%
Main	\$7,790 98.7%
<b>Grand Total</b>	<b>\$7,890 100.0%</b>

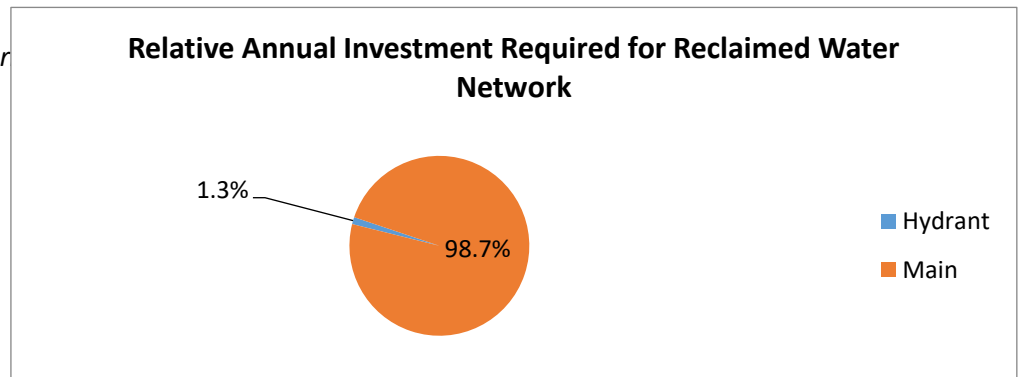


Figure 2b: Relative Annual Investment Required for Reclaimed Water Network

# Village of Nakusp: Preliminary Reclaimed Water Network Condition



VILLAGE OF NAKUSP

# ROADS

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## Preliminary State of Infrastructure Report

3/4/2018

# Land•Info

Technologies

This document reports on the Village of Nakusp's road network and is intended for long term Asset Management Planning purposes only. It provides a summary of the condition as well as the projected life expectancy and replacement costs.

# Table of Contents

- 1. Replacement Cost of Complete Road Network.....1
- 2. Annual Maintenance Costs.....1
- 3. Roads by Length and Area .....2
- 4. Average Annual Renewal Costs including Road Rehabilitation and Maintenance .....2
- 5. Annual Projected Renewal Cost of Road Network (table) .....3
- 5. Annual Projected Renewal Cost of Road Network (graph) .....4

## Abstract

This document reports on the Village of Nakusp’s road network and is intended for long term Asset Management Planning purposes only. It provides a summary of the condition as well as the projected life expectancy and replacement costs. Condition data was obtained from visual assessment using the PASER scale. Maintenance costs, rehabilitation costs, and life expectancy data were obtained from numerous external reports and averaged. The report was generated from Nakusp’s Preliminary State of Infrastructure spreadsheet and based on the replacement cost and life expectancy numbers available at the time of generating the report. It is anticipated that these numbers will be refined as the Municipality move forward in their Asset Management planning process.

## Definitions

### Road Maintenance

Road maintenance is here defined as performing surface fixes to inhibit degradation of the base and subgrade.

### Road Rehabilitation

Road rehabilitation is here defined as milling and overlaying new asphalt without reconstructing the road base and subgrade.

## Disclaimer

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## 1. Replacement Cost of Complete Road Network

Table 1: Replacement Cost of Road Network

Road Material	Replacement Cost
Ex. Asph.	\$8,816,240
<b>Grand Total</b>	<b>\$8,816,240</b>

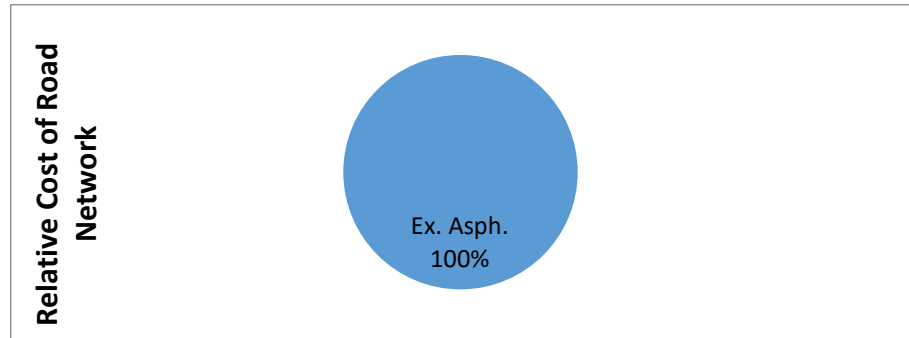


Figure 1a: Relative Cost of Road Network

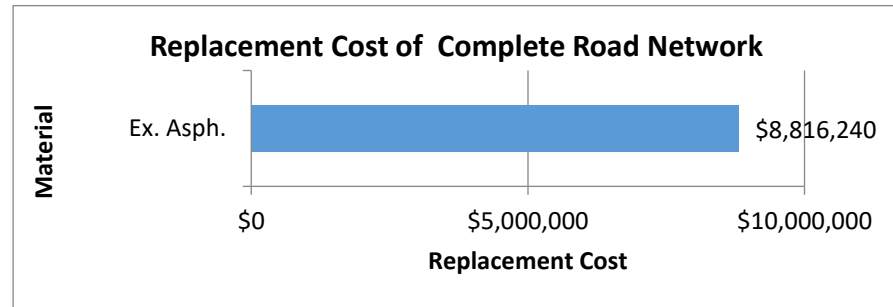


Figure 1b: Replacement Cost of Road Network

## 2. Annual Maintenance Costs

Table 2: Annual Maintenance Costs

Road Material	Maintenance Cost
Ex. Asph.	\$48,089
<b>Grand Total</b>	<b>\$48,089</b>

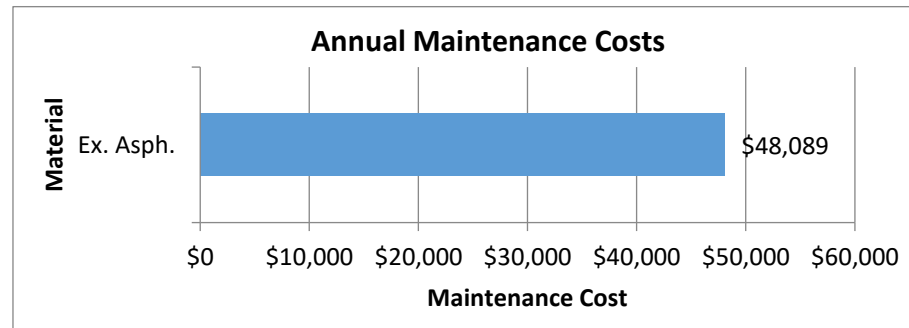


Figure 2: Annual Maintenance Costs

### 3. Roads by Length and Area

Table 3a: Roads by Length

Road Material	Length
Ex. Asph.	20,784 m
<b>Grand Total</b>	<b>20,784 m</b>

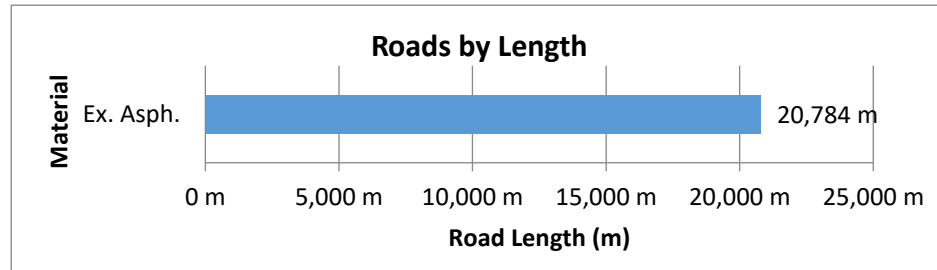


Figure 3a: Roads by Length

Table 3b: Roads by Area

Road Material	Area
Ex. Asph.	160,295 sq m
<b>Grand Total</b>	<b>160,295 sq m</b>

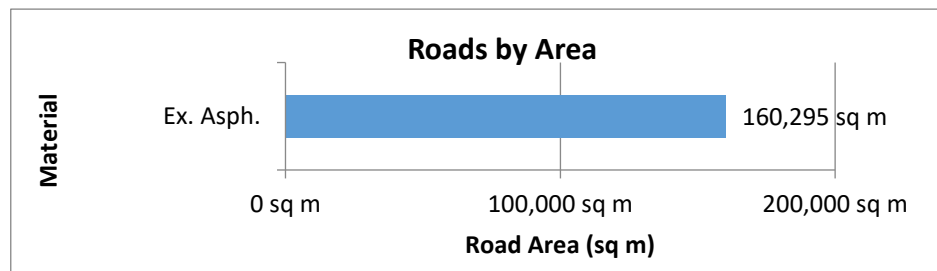


Figure 3b: Roads by Area

### 4. Average Annual Renewal Costs including Road Rehabilitation and Maintenance

Table 4: Average Annual Renewal Costs of Roads

Road Type	Annual Cost
Ex. Asph.	\$ 400,738
<b>Grand Total</b>	<b>\$ 400,738</b>

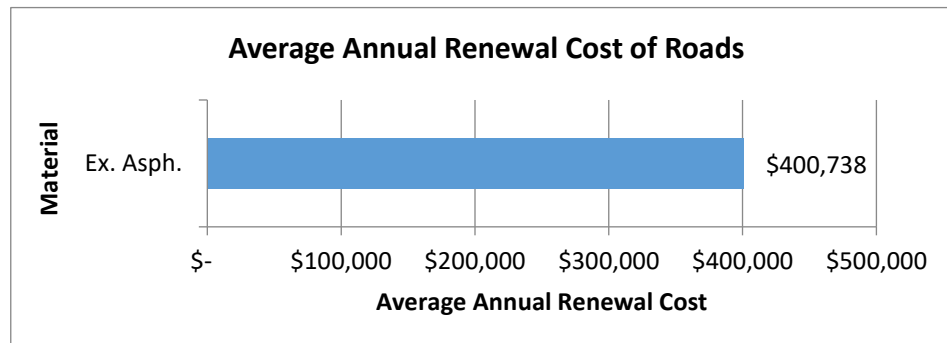


Figure 4: Average Annual Renewal Cost of Roads

## 5. Annual Projected Renewal Cost of Road Network

Table 5: Annual Projected Renewal Cost of Road Network

	Maintenance	Rehabilitation	Annual Total
Sum of 2017	\$ 48,089	\$ -	\$ 48,089
Sum of 2018	\$ 48,089	\$ -	\$ 48,089
Sum of 2019	\$ 48,089	\$ -	\$ 48,089
Sum of 2020	\$ 48,089	\$ -	\$ 48,089
Sum of 2021	\$ 48,089	\$ -	\$ 48,089
Sum of 2022	\$ 45,673	\$ 442,846	\$ 488,519
Sum of 2023	\$ 48,089	\$ -	\$ 48,089
Sum of 2024	\$ 48,089	\$ -	\$ 48,089
Sum of 2025	\$ 42,205	\$ 1,078,657	\$ 1,120,862
Sum of 2026	\$ 48,089	\$ -	\$ 48,089
Sum of 2027	\$ 33,292	\$ 2,712,636	\$ 2,745,928
Sum of 2028	\$ 48,089	\$ -	\$ 48,089
Sum of 2029	\$ 48,089	\$ -	\$ 48,089
Sum of 2030	\$ 34,242	\$ 2,538,528	\$ 2,572,770
Sum of 2031	\$ 48,089	\$ -	\$ 48,089
Sum of 2032	\$ 40,009	\$ 1,481,326	\$ 1,521,335
Sum of 2033	\$ 48,089	\$ -	\$ 48,089
Sum of 2034	\$ 48,089	\$ -	\$ 48,089
Sum of 2035	\$ 45,022	\$ 562,247	\$ 607,269
Sum of 2036	\$ 48,089	\$ -	\$ 48,089
Sum of 2037	\$ 48,089	\$ -	\$ 48,089



## 5. Annual Projected Renewal Cost of Road Network

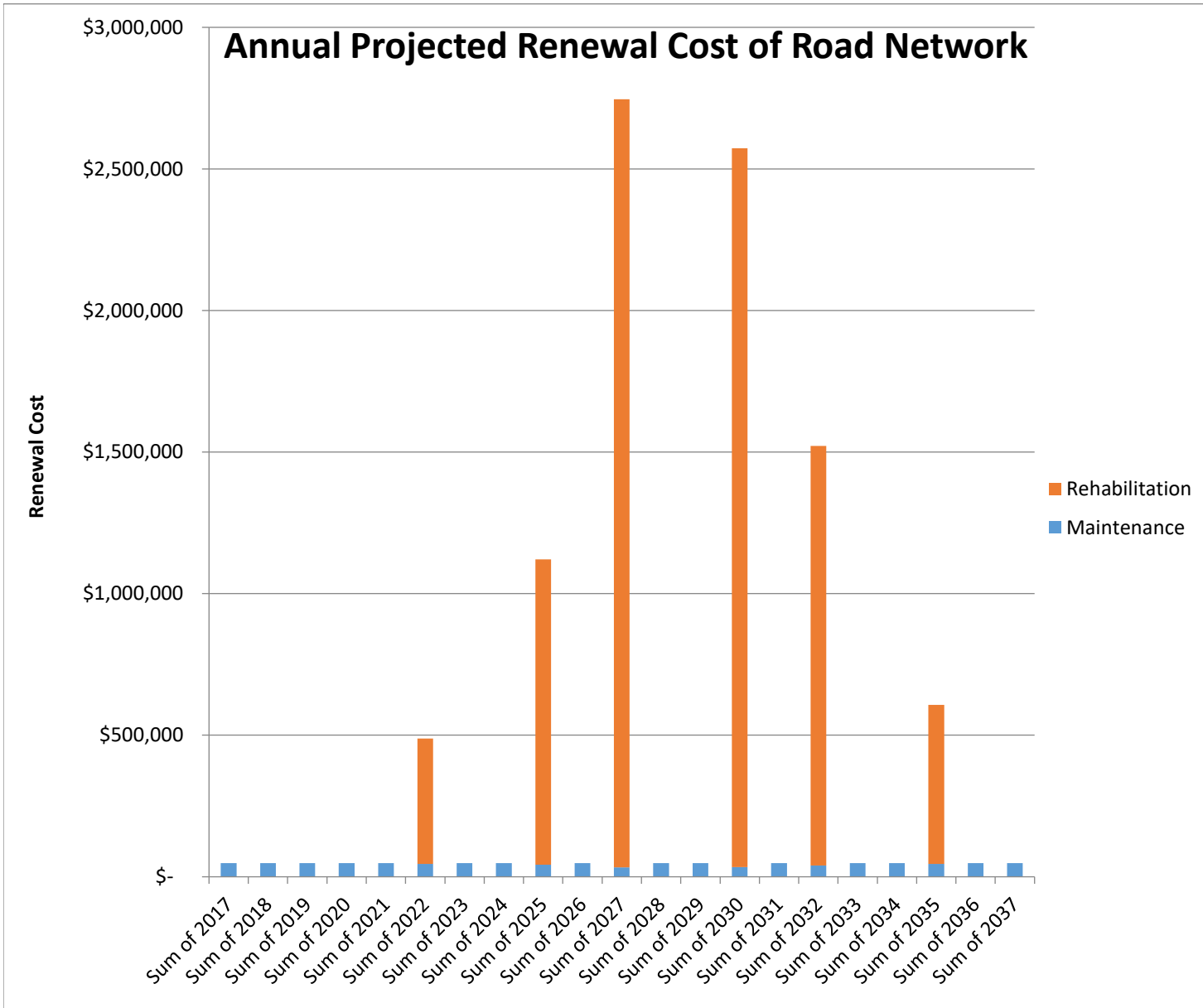
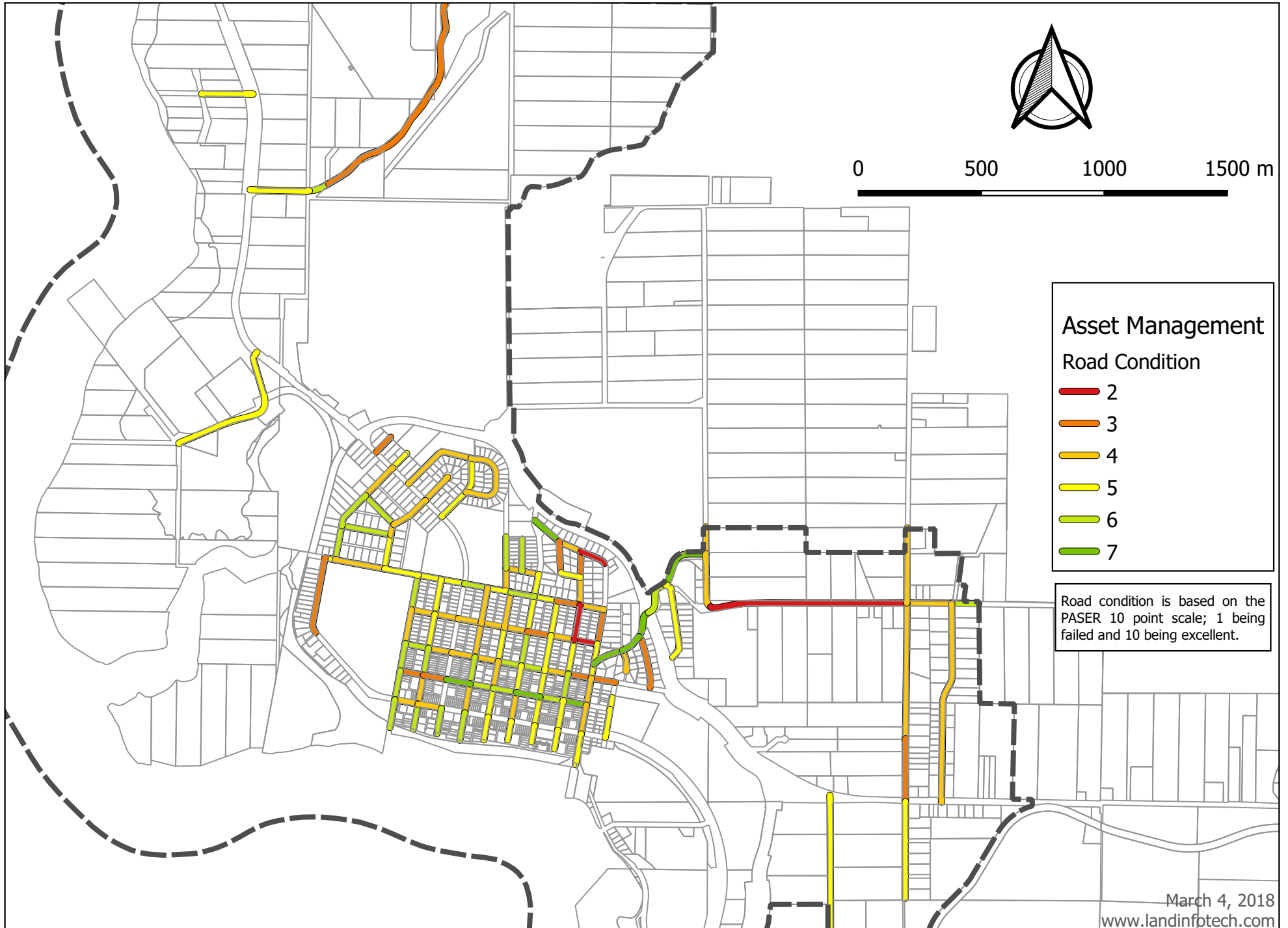


Figure 5: Annual Projected Renewal Cost of Road Network

# Village of Nakusp: Preliminary Road Condition



VILLAGE OF NAKUSP

# SANITARY

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## Preliminary State of Infrastructure Report

3/4/2018

Land•Info

Technologies

This document reports on the Village of Nakusp's sanitary network and is intended for Asset Management planning purposes only. It provides a summary of the condition as well as the projected life expectancy and replacement costs.

**Table of Contents**

1. Inventory of Sanitary Network .....1

2. Replacement Costs of Sanitary Network.....2

    A) Total Replacement Cost

    B) Annual Investment Required

3. Annual Projected Renewal Costs of Sanitary Network .....3,4

**Abstract**

This document reports on the Village of Nakusp’s Sanitary network and is intended for Asset Management Planning purposes only. It provides a summary of the condition as well as the projected life expectancy and replacement costs. The report was generated from Nakusp’s Preliminary State of Infrastructure spreadsheet and based on the replacement cost and life expectancy numbers available at the time of generating the report. Condition was based on age. It is anticipated that these numbers will be refined as the Municipality move forward in their Asset Management planning process.

**Definitions**

**Pipe Material**

- PVC = Polyvinyl chloride
- AC = Asbestos-cement

**Disclaimer**

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# 1. Inventory of Sanitary Network

Table 1a: Pipe Material by Length

Pipe Material	Length	Relative Length
PVC	10,914 m	41.6%
AC	15,292 m	58.4%
<b>Grand Total</b>	<b>26,206 m</b>	<b>100.0%</b>

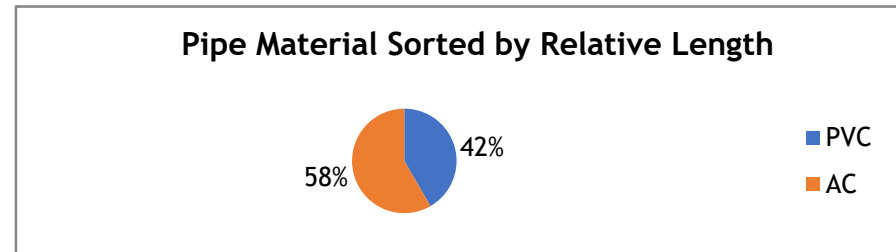


Figure 1a: Pipe Material by Relative Length

Table 1b: Pipe Material by Diameter

Pipe Diameter	Length	Relative Length
100	162 m	0.6%
150	5,963 m	22.8%
200	17,540 m	66.9%
250	1,883 m	7.2%
300	658 m	2.5%

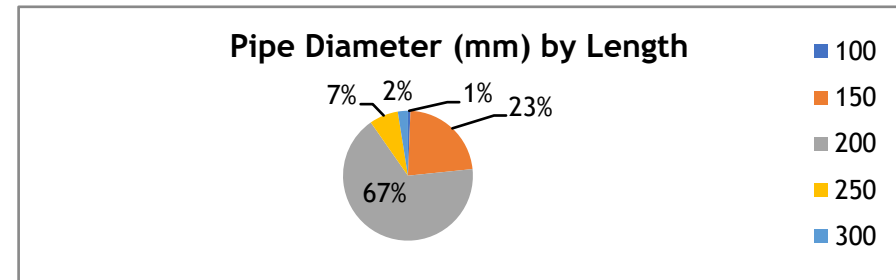


Figure 1b: Pipe Diameter by Length

Table 1c: Count of Sanitary Point Features

Point Feature	Count	Relative Count
Clean Out	17	5.8%
Manhole	278	94.2%
<b>Grand Total</b>	<b>295</b>	<b>100.0%</b>

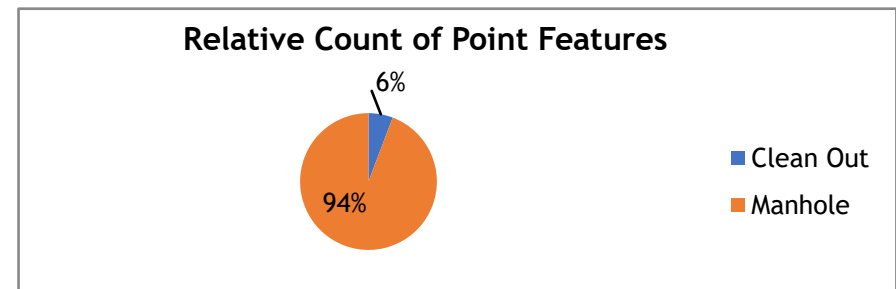


Figure 1c: Relative Count of Sanitary Point Features

## 2. Replacement Costs of Sanitary Network

### A) Total Replacement Cost of Sanitary Network

Table 2a: Total Replacement Cost of Sanitary Network

Sanitary Asset	Replacement Cost	Relative Cost
Clean Out	\$25,500	0.3%
Lateral	\$474,448	5.7%
Main	\$6,677,689	80.6%
Manhole	\$1,112,000	13.4%
<b>Grand Total</b>	<b>\$8,289,636</b>	<b>100.0%</b>

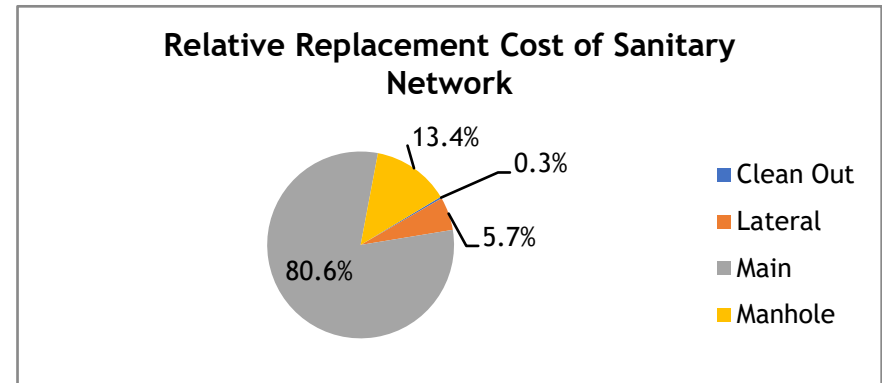


Figure 2a: Relative Replacement Cost of Sanitary Network

### B) Annual Investment Required for Sanitary Network

Table 2b: Annual Investment Required for Sanitary Network

Sanitary Asset	Annual Investment	Relative Investment
Clean Out	\$510	0.4%
Lateral	\$6,790	5.1%
Main	\$102,543	77.6%
Manhole	\$22,240	16.8%
<b>Grand Total</b>	<b>\$132,083</b>	<b>100.0%</b>

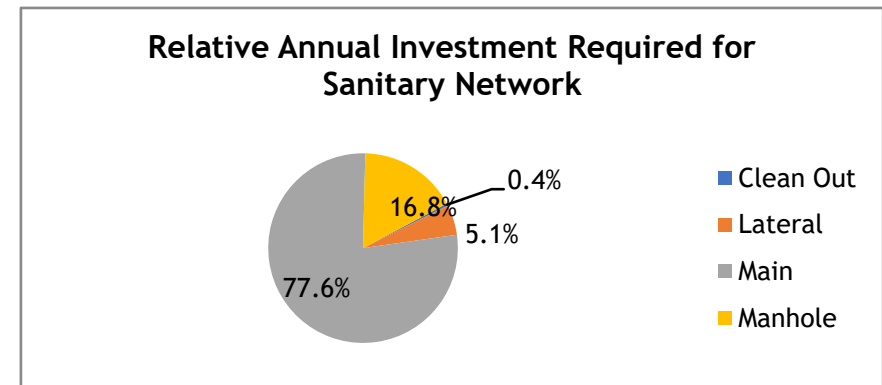


Figure 2b: Relative Annual Investment Required for Sanitary Network

### Figure 3: Annual Projected Renewal Costs of Sanitary Network

Table 3: Annual Projected Renewal Cost

	Clean Out	Main	Manhole	Lateral	Grand Total
Sum of 2017	\$0	\$0	\$0	\$0	\$0
Sum of 2018	\$0	\$0	\$0	\$0	\$0
Sum of 2019	\$0	\$0	\$0	\$0	\$0
Sum of 2020	\$0	\$0	\$0	\$0	\$0
Sum of 2021	\$0	\$0	\$0	\$0	\$0
Sum of 2022	\$21,000	\$0	\$540,000	\$0	\$561,000
Sum of 2023	\$0	\$0	\$0	\$0	\$0
Sum of 2024	\$0	\$0	\$56,000	\$0	\$56,000
Sum of 2025	\$0	\$0	\$0	\$0	\$0
Sum of 2026	\$0	\$0	\$0	\$0	\$0
Sum of 2027	\$0	\$0	\$0	\$0	\$0
Sum of 2028	\$0	\$0	\$0	\$0	\$0
Sum of 2029	\$0	\$0	\$0	\$0	\$0
Sum of 2030	\$0	\$0	\$0	\$0	\$0
Sum of 2031	\$0	\$0	\$0	\$0	\$0
Sum of 2032	\$0	\$3,798,919	\$0	\$0	\$3,798,919
Sum of 2033	\$0	\$0	\$0	\$0	\$0
Sum of 2034	\$0	\$253,283	\$0	\$139,143	\$392,426
Sum of 2035	\$0	\$0	\$0	\$0	\$0
Sum of 2036	\$0	\$0	\$0	\$0	\$0
Sum of 2037	\$0	\$0	\$0	\$0	\$0
Sum of 2038	\$0	\$0	\$0	\$0	\$0
Sum of 2039	\$0	\$0	\$0	\$0	\$0
Sum of 2040	\$0	\$0	\$0	\$0	\$0
Sum of 2041	\$0	\$0	\$0	\$0	\$0
Sum of 2042	\$0	\$0	\$0	\$0	\$0
Sum of 2043	\$0	\$0	\$0	\$0	\$0
Sum of 2044	\$0	\$0	\$0	\$0	\$0
Sum of 2045	\$0	\$0	\$472,000	\$0	\$472,000
Sum of 2046	\$0	\$0	\$0	\$0	\$0

### 3. Annual Projected Renewal Costs of Sanitary Network

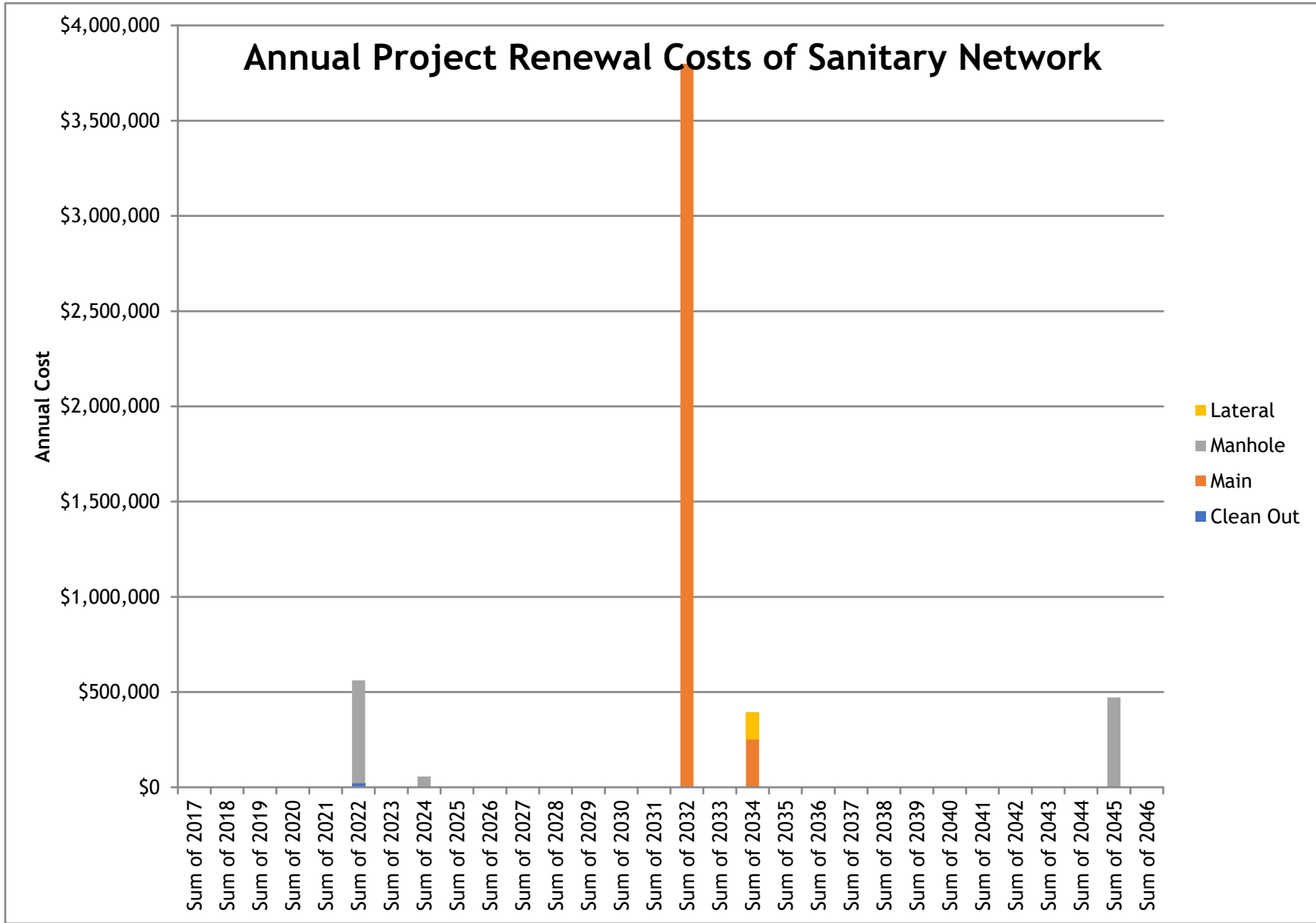
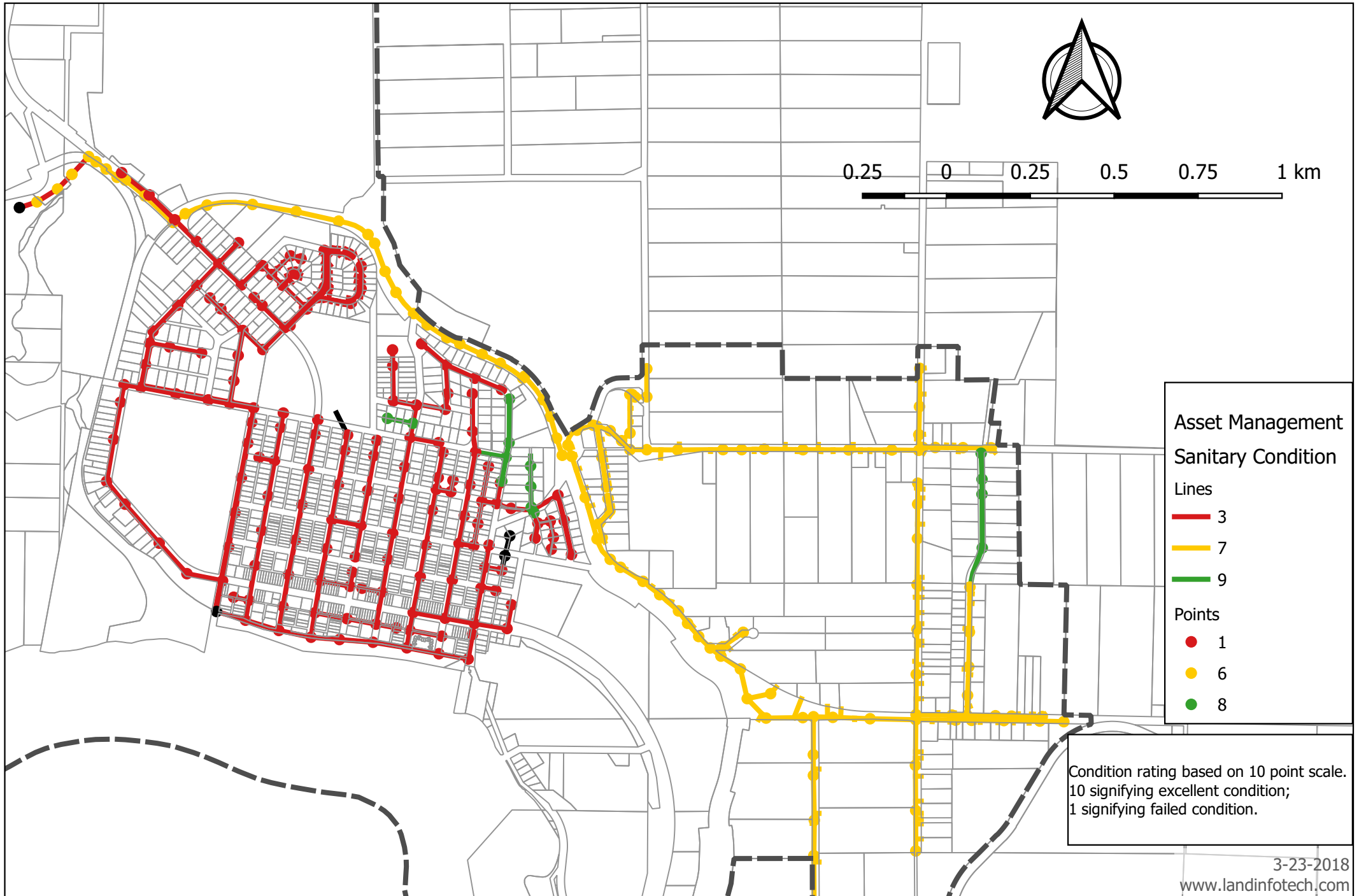


Figure 3: Annual Projected Renewal Costs of Sanitary Network



# Village of Nakusp: Sanitary Network Condition



VILLAGE OF NAKUSP

# STORM WATER

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## Preliminary State of Infrastructure Report

3/4/2018

Land•Info

Technologies

This document reports on the Village of Nakusp's Storm Water distribution network and is intended for Asset Management planning purposes only. It provides a summary of the condition as well as the projected life expectancy and replacement costs.

## Table of Contents

1. Inventory of Storm Water Network.....	1
2. Replacement Costs of Storm Water Network.....	2
A) Total Replacement Cost	
B) Annual Investment Required	
3. Annual Projected Renewal Costs of Storm Water Network .....	3,4

## Abstract

This document reports on the Village of Nakusp’s Storm Water network and is intended for Asset Management Planning purposes only. It provides a summary of the condition as well as the projected life expectancy and replacement costs. The report was generated from Nakusp’s Preliminary State of Infrastructure spreadsheet and based on the replacement cost and life expectancy numbers available at the time of generating the report. Condition was based on age. It is anticipated that these numbers will be refined as the Municipality move forward in their Asset Management planning process.

## Definitions

### Pipe Material

PVC = Polyvinyl chloride

GI = Galvanized Iron

## Disclaimer

The information, statements, statistics and commentary contained in this Report have been prepared by LandInfo Technologies Inc. (LTi) from information obtained from staff, external resources and onsite inspections. LTi does not express an opinion as to the accuracy or completeness of the information provided, the assumptions made by the parties that provided the information or any conclusions reached by those parties. LTi have based this Report on information received or obtained, on the basis that such information is accurate and, where it is represented to LTi as such, complete.

# 1. Inventory of Storm Network

Table 1a: Pipe Material by Length

Pipe Material	Length	Relative Length
Concrete	1,189 m	21.2%
GI	1,639 m	29.2%
PVC	1,535 m	27.4%
Unknown	1,242 m	22.2%
<b>Grand Total</b>	<b>5,604 m</b>	<b>100.0%</b>

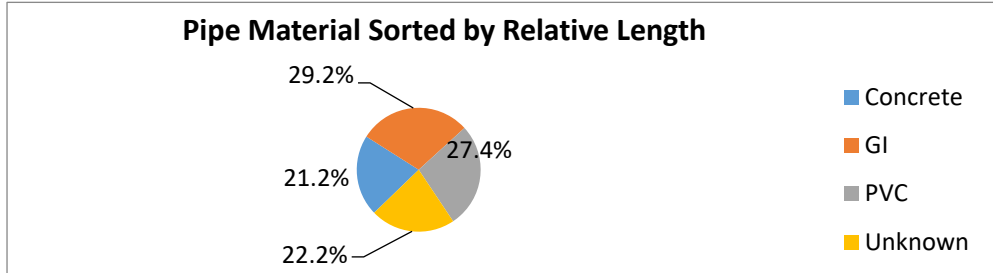


Figure 1a: Pipe Material by Relative Length

Table 1b: Pipe Material by Diameter

Pipe Diameter	Length	Relative Length
44	685 m	12.2%
100	60 m	1.1%
150	383 m	6.8%
200	1,434 m	25.6%
250	45 m	0.8%
300	119 m	2.1%
450	71 m	1.3%
500	1,189 m	21.2%
600	150 m	2.7%
900	799 m	14.3%
1100	29 m	0.5%
Unknown	642 m	11.5%
<b>Grand Total</b>	<b>5,604 m</b>	<b>100.0%</b>

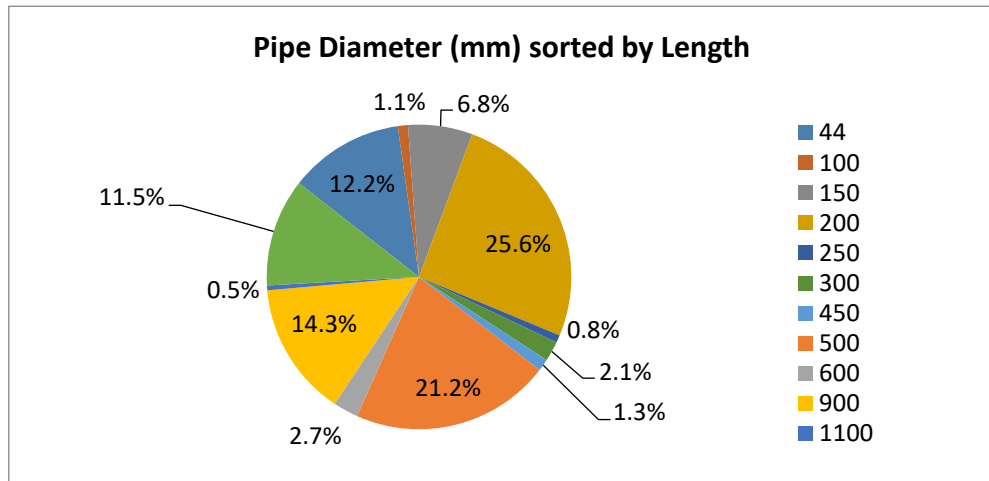


Figure 1b: Pipe Diameter by Relative Length

Table 1c: Count of Storm Point Features

Point Feature	Count	Relative Count
Manhole	23	15.3%
Catch Basin	105	70.0%
Rock Pit	22	14.7%
<b>Grand Total</b>	<b>150</b>	<b>100.0%</b>

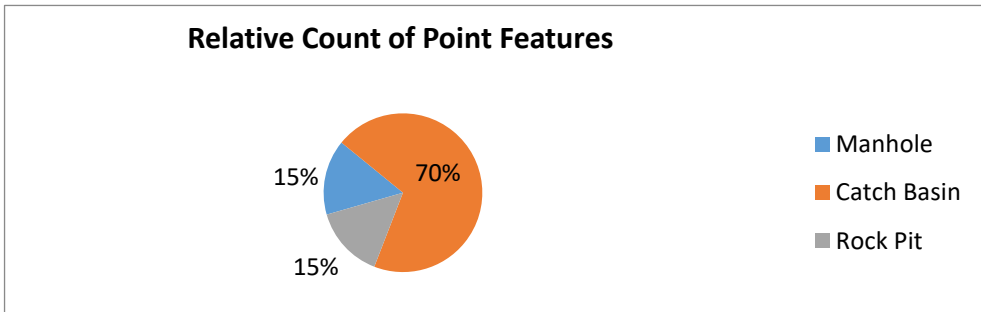


Figure 1c: Relative Count of Storm Point Features

## 2. Replacement Costs of Storm Network

### A) Total Replacement Cost of Storm Network

Table 2a: Total Replacement Cost of Storm Network

Storm Asset	Replacement Cost	Relative Cost
Catch Basin	\$420,000	15.7%
Culvert	\$142,616	5.3%
Main	\$1,904,900	71.1%
Manhole	\$103,500	3.9%
Rock Pit	\$110,000	4.1%
<b>Grand Total</b>	<b>\$2,681,016</b>	<b>100.0%</b>

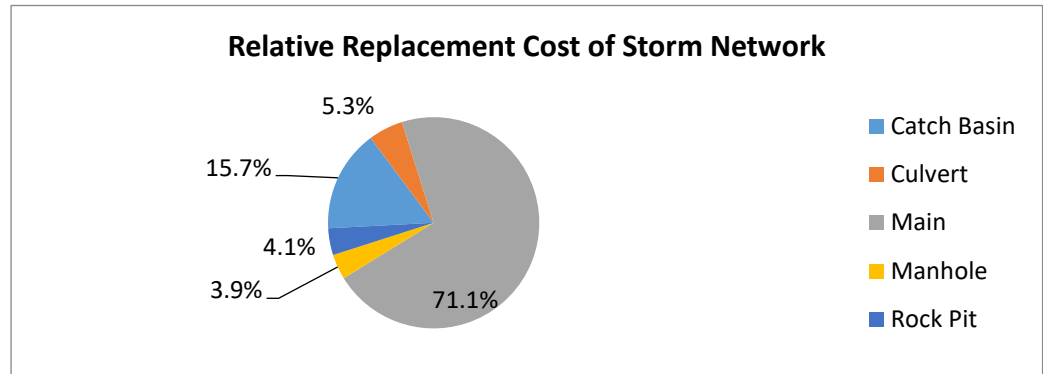


Figure 2a: Relative Replacement Cost of Storm Network

### B) Annual Investment Required for Storm Network

Table 2b: Annual Investment Required for Storm Network

Storm Asset	Annual Investment	Relative Investment
Catch Basin	\$7,000	15.4%
Culvert	\$2,852	6.3%
Main	\$33,467	73.6%
Manhole	\$1,035	2.3%
Rock Pit	\$1,100	2.4%
<b>Grand Total</b>	<b>\$45,454</b>	<b>100.0%</b>

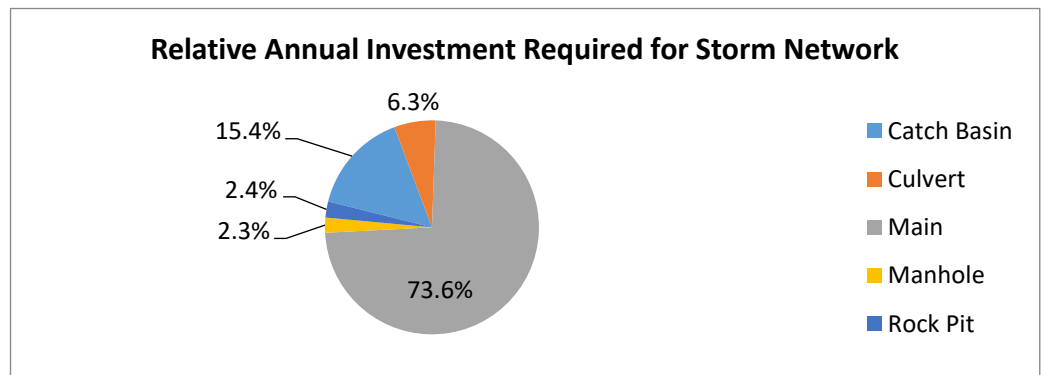


Figure 2b: Relative Annual Investment Required for Storm Network

### 3: Annual Projected Renewal Costs of Storm Network

Table 3: Annual Projected Renewal Cost

	Main	Manhole	Catch Basin	Culvert	Rock Pit	Grand Total	
Sum of 2017	\$1,190,565		\$0	\$136,000	\$142,616	\$0	\$1,469,181
Sum of 2018		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2019		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2020		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2021		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2022		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2023		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2024		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2025		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2026		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2027		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2028		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2029	\$211,567		\$0	\$0	\$0	\$0	\$211,567
Sum of 2030	\$71,649		\$0	\$16,000	\$0	\$0	\$87,649
Sum of 2031		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2032		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2033		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2034		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2035		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2036		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2037		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2038		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2039	\$431,120		\$0	\$268,000	\$0	\$0	\$699,120
Sum of 2040		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2041		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2042		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2043		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2044		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2045		\$0	\$0	\$0	\$0	\$0	\$0
Sum of 2046		\$0	\$0	\$0	\$0	\$0	\$0

### 3. Annual Projected Renewal Costs of Storm Network

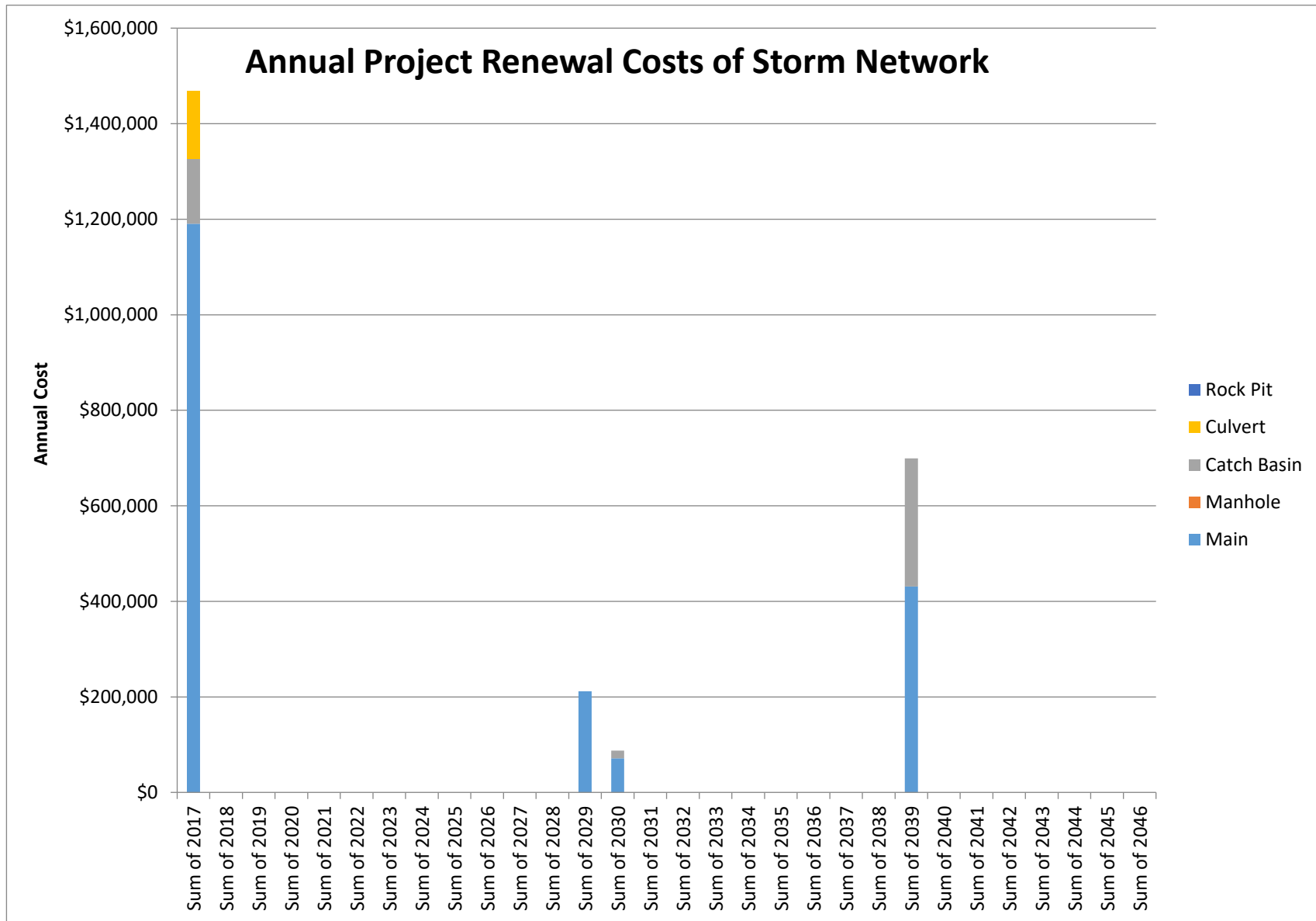
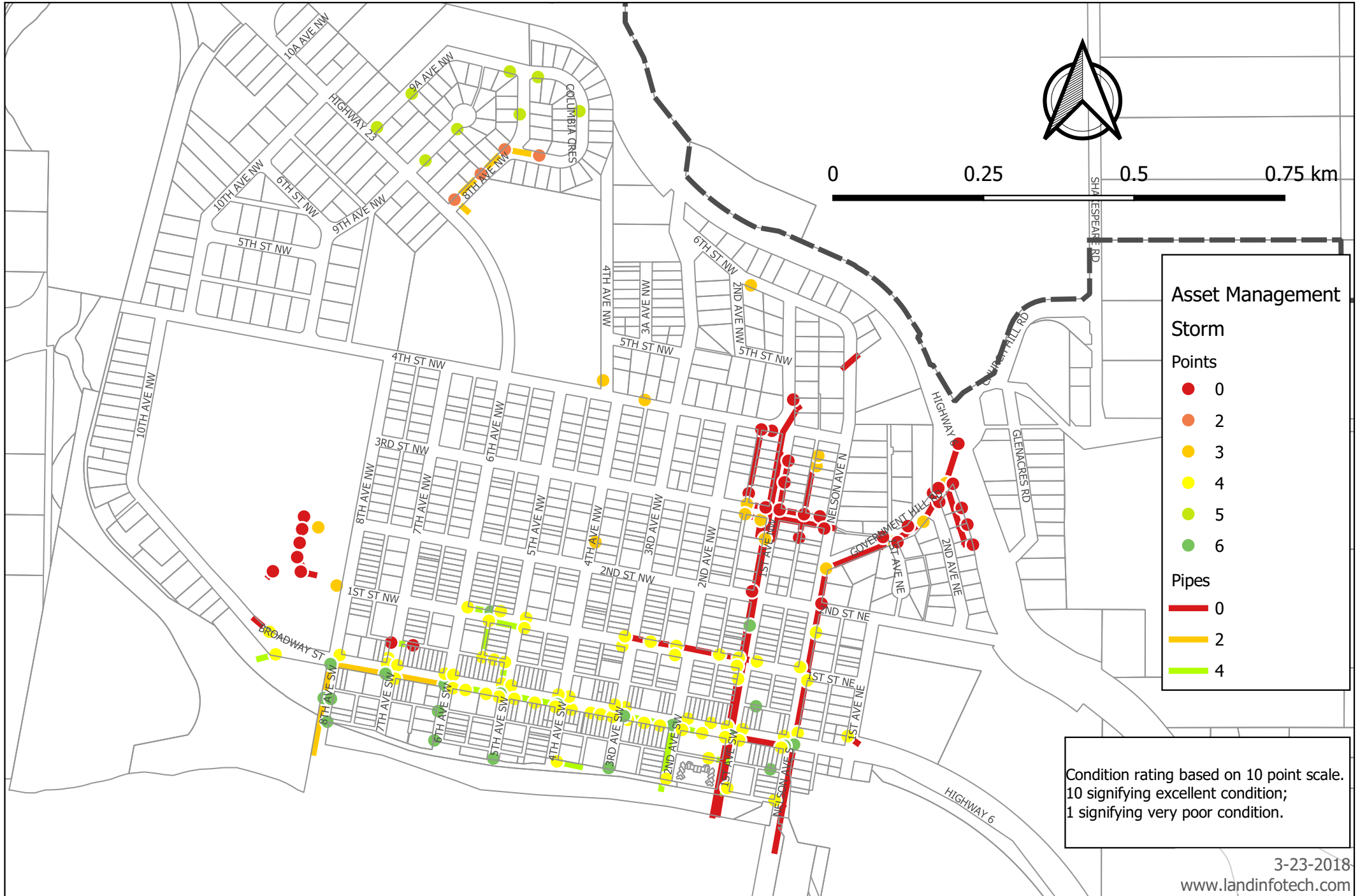


Figure 3: Annual Projected Renewal Costs of Storm Network

# Village of Nakusp: Storm Network Condition





VILLAGE OF NAKUSP

# WATER

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## Preliminary State of Infrastructure Report

3/4/2018

Land•Info

Technologies

This document reports on the Village of Nakusp's water distribution network and is intended for Asset Management planning purposes only. It provides a summary of the condition as well as the projected life expectancy and replacement costs.

# Table of Contents

- 1. Inventory of Water Network.....1
- 2. Replacement Costs of Water Network.....2
  - A) Total Replacement Cost
  - B) Annual Investment Required
- 3. Annual Projected Renewal Costs of Water Network.....3,4

## Abstract

This document reports on the Village of Nakusp’s Water network and is intended for Asset Management Planning purposes only. It provides a summary of the condition as well as the projected life expectancy and replacement costs. The report was generated from Nakusp’s Preliminary State of Infrastructure spreadsheet and based on the replacement cost and life expectancy numbers available at the time of generating the report. Condition was based on age. It is anticipated that these numbers will be refined as the Municipality move forward in their Asset Management planning process.

## Definitions

### Pipe Material

- Cu = Copper
- PVC = Polyvinyl chloride
- AC = Asbestos-Cement
- GI = Galvanized Iron
- DI = Ductile Iron

## Disclaimer

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# 1. Inventory of Water Network

Table 1a: Pipe Material by Length

Pipe Material	Length	Relative Length
AC	26,607 m	77.5%
Cu	129 m	0.4%
DI	5,581 m	16.3%
GI	42 m	0.1%
PVC	1,961 m	5.7%
<b>Grand Total</b>	<b>34,319 m</b>	<b>100.0%</b>

Table 1b: Pipe Material by Diameter

Pipe Diameter	Length	Relative Length
25	129 m	0.4%
50	42 m	0.1%
100	10,393 m	30.3%
150	17,760 m	51.7%
200	1,694 m	4.9%
250	475 m	1.4%
300	3,731 m	10.9%
750	95 m	0.3%
<b>Grand Total</b>	<b>34,319 m</b>	<b>100.0%</b>

Table 1c: Count of Water Point Features

Point Feature	Count	Relative Count
Hydrant	105	25.7%
Standpipe	2	0.5%
Valve	301	73.8%
<b>Grand Total</b>	<b>408</b>	<b>100.0%</b>

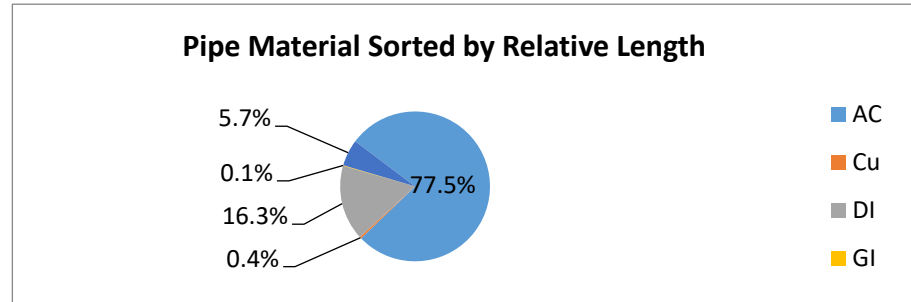


Figure . 23

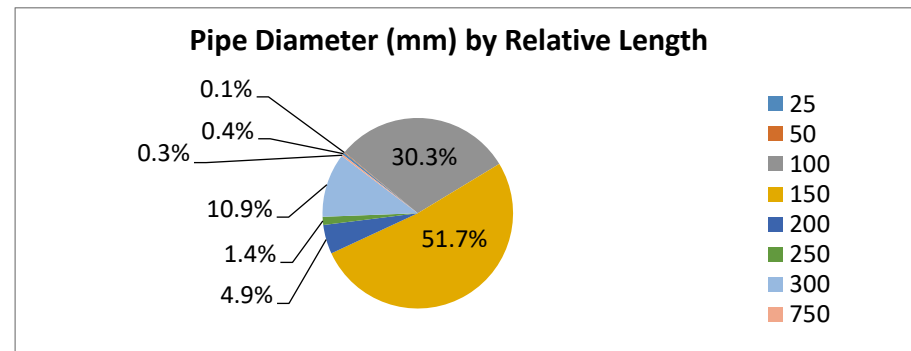


Figure 1b: Pipe Diameter by Relative Length

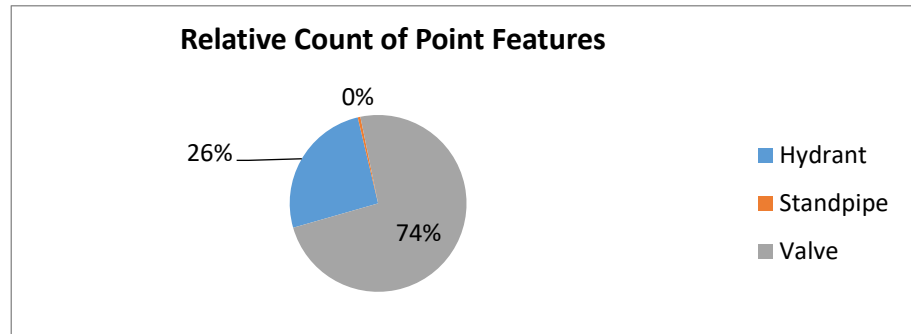


Figure 1c: Relative Count of Water Point Features

## 2. Replacement Costs of Water Network

### A) Total Replacement Cost of Water Network

Table 2a: Total Replacement Cost of Water Network

Water Asset	Replacement Cost	Relative Cost
Hydrant	\$787,500	7.3%
Main	\$9,064,316	84.2%
Standpipe	\$15,000	0.1%
Valve	\$903,000	8.4%
<b>Grand Total</b>	<b>\$10,769,816</b>	<b>100.0%</b>

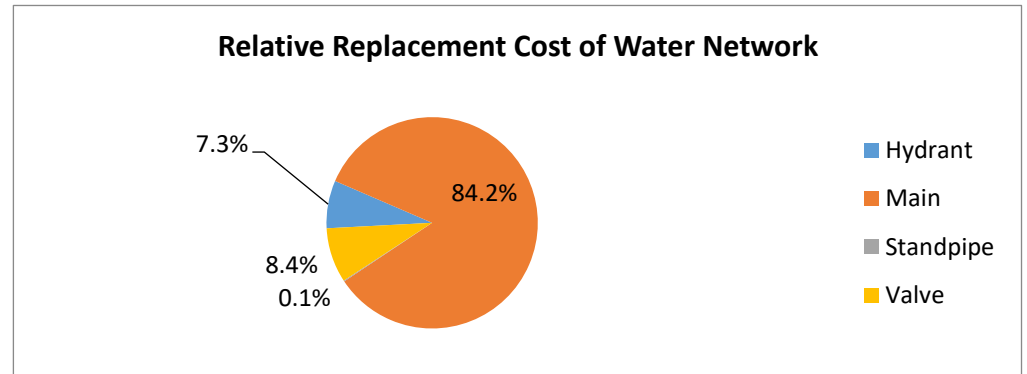


Figure 2a: Relative Replacement Cost of Water Network

### B) Annual Investment Required for Water Network

Table 2b: Annual Investment Required for Water Network

Water Asset	Annual Investment	Relative Investment
Hydrant	\$10,500	5.7%
Main	\$154,711	84.3%
Standpipe	\$200	0.1%
Valve	\$18,060	9.8%
<b>Grand Total</b>	<b>\$183,471</b>	<b>100.0%</b>

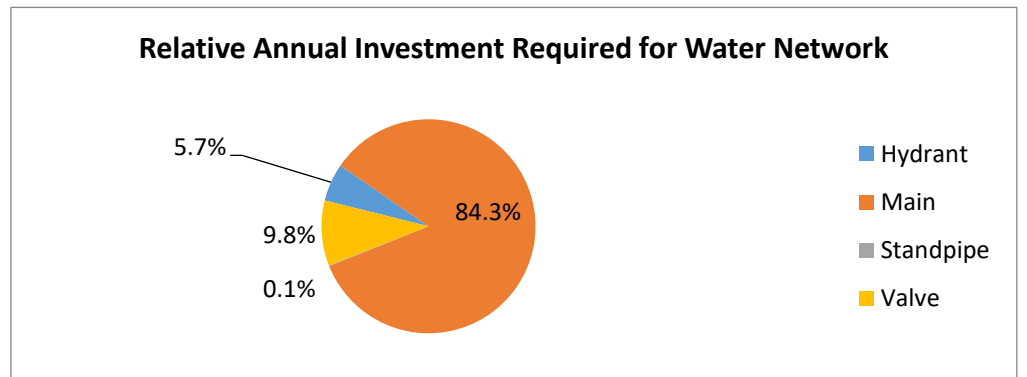


Figure 2b: Relative Annual Investment Required for Water Network

### 3: Annual Projected Renewal Costs of Water Network

Table 3: Annual Projected Renewal Cost

	Main	Hydrant	Valve	Standpipe	Grand Total
Sum of 2017	\$0	\$0	\$0	\$0	\$0
Sum of 2018	\$1,726,682	\$0	\$894,000	\$0	\$2,620,682
Sum of 2019	\$0	\$0	\$0	\$0	\$0
Sum of 2020	\$0	\$0	\$0	\$0	\$0
Sum of 2021	\$0	\$0	\$0	\$0	\$0
Sum of 2022	\$0	\$0	\$0	\$0	\$0
Sum of 2023	\$0	\$0	\$0	\$0	\$0
Sum of 2024	\$0	\$0	\$0	\$0	\$0
Sum of 2025	\$0	\$0	\$0	\$0	\$0
Sum of 2026	\$0	\$0	\$0	\$0	\$0
Sum of 2027	\$0	\$0	\$0	\$0	\$0
Sum of 2028	\$6,705,153	\$0	\$0	\$0	\$6,705,153
Sum of 2029	\$0	\$0	\$0	\$0	\$0
Sum of 2030	\$0	\$0	\$0	\$0	\$0
Sum of 2031	\$0	\$0	\$0	\$0	\$0
Sum of 2032	\$0	\$0	\$0	\$0	\$0
Sum of 2033	\$0	\$0	\$0	\$0	\$0
Sum of 2034	\$0	\$0	\$0	\$0	\$0
Sum of 2035	\$0	\$0	\$0	\$0	\$0
Sum of 2036	\$0	\$0	\$0	\$0	\$0
Sum of 2037	\$0	\$0	\$0	\$0	\$0
Sum of 2038	\$0	\$0	\$0	\$0	\$0
Sum of 2039	\$0	\$0	\$0	\$0	\$0
Sum of 2040	\$0	\$0	\$0	\$0	\$0
Sum of 2041	\$0	\$0	\$0	\$0	\$0
Sum of 2042	\$0	\$0	\$0	\$0	\$0
Sum of 2043	\$63,117	\$787,500	\$0	\$15,000	\$865,617
Sum of 2044	\$0	\$0	\$0	\$0	\$0
Sum of 2045	\$0	\$0	\$0	\$0	\$0
Sum of 2046	\$0	\$0	\$0	\$0	\$0

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### 3. Annual Projected Renewal Costs of Water Network

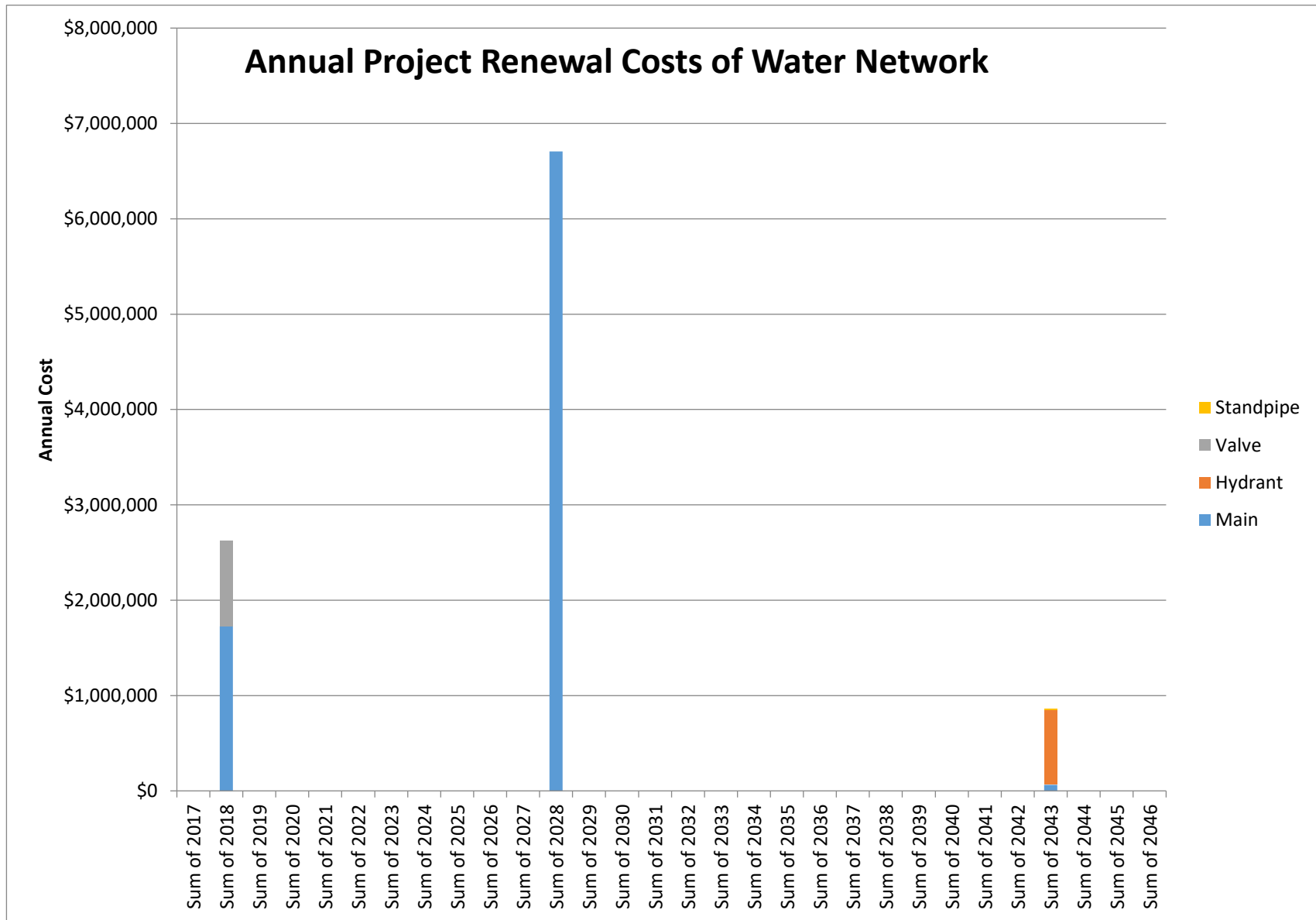


Figure 3: Annual Projected Renewal Costs of Water Network

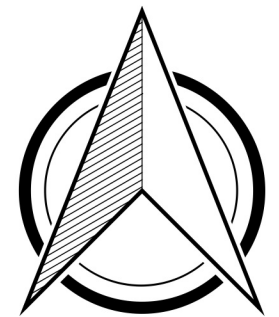
# Village of Nakusp

## Water Line Priority Ratings

### Notes

Prioritization determined through analysis of pressure, material, age and level of service. Priority rating is on a scale from 0 to 100 where 100 and 0 are highest and lowest priority, respectively.

Water lines are labelled with unique ID as per Nakusp's GIS.

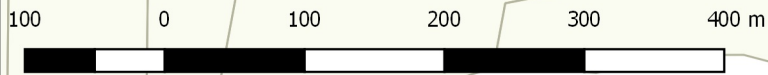


### Legend

#### Water Lines

##### Priority Rating

- 0 - 20
- 20 - 40
- 40 - 60
- 60 - 80
- 80 - 100



November 11, 2017

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