REPORT

PREPARED FOR THE DISTRICT OF LANTZVILLE

Asset Management Investment Plan November 2018

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INTRODUCTION

The District of Lantzville has retained Urban Systems to conduct an investment review of the infrastructure assets for which the District relies upon for the delivery of services to the community. This infrastructure includes the District's transportation and drainage network, water and sewer systems, a variety of civic facilities, and various equipment and vehicles. The management of this infrastructure poses a number of challenges including aging of the assets, timing of growth-related improvements, and long-term sustainable funding. With these ongoing challenges, it is very important Lantzville applies informed and integrated strategic planning.

To prepare for future asset replacement costs, Urban Systems has assessed the investment requirements of Lantzville's assets by compiling and integrating inventory data with the 2017 Water Master Plan, the 2017 Property Appraisal, the 2017 Roads Replacement Plan, and where necessary, assumptions based on local knowledge and experience. This approach to asset management, titled an Asset Management Investment Plan (AMIP), takes the current renewal costs, estimated service lives, and deficit of the District's assets and determines annual investment requirements to support long-term financial planning decisions. The AMIP specifically aims to answer the following questions:

- What assets does the District own?
- What is the cost to replace the asset?
- How much money needs to be invested annually (on average) to sustain the District's assets?
- What is the funding gap?

With the completion of the AMIP, Lantzville can now identify its long-term revenue generation requirements, and then determine affordable infrastructure levels of service, and performance. Failure to plan would put the community at risk of service disruptions, emergency repairs and the risk of sudden and significant tax and user fee increases in the future. By being proactive today, the District can ensure that services are sustainable so that current and future generations can enjoy similar levels of service as well as reasonable and stable tax rates and user fees.

WHAT ASSETS DOES THE DISTRICT OWN?

For the purposes of the AMIP, the District's assets have been categorized by the three funds; the Water Fund (water system), the Sewer Fund (sanitary system), and the General Fund consisting of roads and drainage, buildings, and equipment such as machinery and vehicles. Each of these infrastructure categories contains a number of physical assets as discussed below.

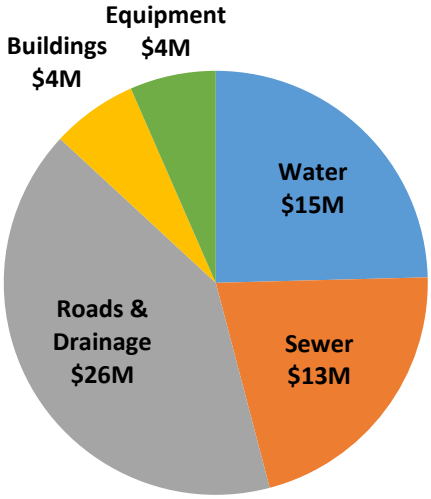
- The ***water system*** is comprised of over 27km of mains in addition to numerous service connections, water meters, fire hydrants, valves, wells, reservoirs, and pump stations.
- The ***sanitary sewer*** consists of mains, service connections, manholes, lift stations, and force mains.
- The ***roads and drainage networks*** include about 50km of local and collector roads, culverts, and other storm structures.
- The District's ***buildings*** include all public buildings and structures including the district office, fire hall, community hall, Heritage Church, and Huddlestone Park structure.
- The ***machinery, equipment, and vehicle*** category include District-owned vehicles and equipment such as fire trucks, public works vehicles, office equipment, firefighting equipment, generators, and other machinery and equipment.

All of these infrastructure assets are essential to the delivery of the services that are valued by the residents of Lantzville.

WHAT IS THE COST TO REPLACE THE ASSETS?

The total replacement value of the District's infrastructure is approximately $62 million, based on current construction replacement costs. The replacement values for each fund are broken down as follows:

Water Fund	$15M
Sewer Fund	$13M
General Fund	
• Roads & Drainage	$26M
• Buildings	$4M
• Machinery, Equipment, & Vehicles	$4M



The General Fund makes up the largest category of infrastructure value at 54%, with the Water Fund about 25% and Sewer Fund about 21%.

The age of the District's assets varies, with some dating back to the mid-1960's, while others such as sewer were constructed in the past decade. These assets have served the community well, however some assets are nearing the end of their useful lifespans and will eventually need to be replaced or rehabilitated. On average, Lantzville's assets are considered to be in acceptable condition (based on age) with an average expected remaining life of 67%. Still, some assets are nearing, or have exceeded their service life and should be inspected closer in the field.

HOW MUCH MONEY NEEDS TO BE INVESTED ANNUALLY?

There is no single "correct" answer to this question. Accurately predicting when infrastructure will need to be replaced is very difficult, if not impossible to do. The useful life of an asset such as a pipe depends on aspects such as the materials it is constructed from, the properties of the soils that it is buried in, how it was installed and many other factors. For this reason, lifespan estimates are generally based on conservative *"best practice"* values.

Each fund's Average Annual Life Cycle Investment (AALCI) was determined as the level of investment needed each year to

Asset Category	AALCI	20 Year Average Needs
Water Fund		
Pipes	$88,000	-
Services	$9,000	-
Facilities	$107,000	$28,000
Total Water Fund	$204,000	$28,000
Sewer Fund		
Pipes	$70,000	-
Services	$14,000	-
Facilities	$128,000	$100,000
Total Sewer Fund	$212,000	$100,000
General Fund		
Roads	$395,000	$628,000
Drainage	$121,000	$49,000
Buildings	$130,000	$193,000
Machinery, Equipment, & Vehicles	$510,000	$536,000
Total General Fund	$1.1 million	$1.4 million
Grand Total	**$1.5 million**	**$1.5 million**

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sustain existing services indefinitely. The AALCI is defined as the summation of each asset's annual depreciation which is based on the asset's replacement cost and service life. The replacement cost of each asset was determined either through the Distirct's historical costs adjusted to the Consumer Price Index (CPI), current replacement values from the 2017 Property Appraisal, or using unit costs presented in **Appendix B**.

The AALCI is the ideal funding level for sustaining existing infrastructure and should be a long-term target for the District. When planned for appropriately, the AALCI can be used in ensuring revenue stability, preventing unnecessary risk, and enabling a community to apply funding to provide ongoing support new asset needs as opposed to addressing emergency situations.

It should be noted that the AALCI only addresses the ongoing recapitalization of the District's existing infrastructure and does not include investments in new assets that might be related to service level increases or growth.

For reference, the AALCI is presented for various components of the Water Fund, Sewer Fund, and General Fund. The Water Fund was determined to require an AALCI of about $204,000, the Sewer Fund about $212,000, and the General Fund about $1.1 million, for a total AALCI of approximately **$1.5 million**.

In addition to the AALCI, the average annual requirements over the next 20 years was also calculated. The overall annual funding targets are approximately the same at $1.5 million per year however the distribution is somewhat different. The average annual investment in roads and buildings over the next 20 years is higher than the AALCI and the converse is true for water and sewer. This makes sense since the water and sewer systems are newer and therefore in better condition whereas the roads and buildings are further into their expected lives and more investment will be needed over the next 20 years.

The 20-year average funding for roads was based on the 2017 Roads Replacement Plan, which provides a more accurate estimation of investment needs since it is based on actual condition rather than just the age of the asset.

WHAT IS THE FUNDING GAP?

The funding gap represents the difference between the current operating budget funds available for capital, and the AALCI. The funding gap was determined for each Fund category, to assess financial planning for all assets within the District's operating budget.

Fund	AALCI	Average Capital Budgeted (2019-2023)	Annual Average Funding Gap
Water	$204,000	$236,000	Nil
Sewer	$212,000	$43,000	($169,000)
General	$1,100,000	$663,000	($437,000)

Based on the District's 2019-2023 operating budget, there is projected average annual capital funding available of $236,000 for the Water Fund, $43,000 for the Sewer Fund, and $663,000 for the General Fund. The AMIP has identified a sizeable funding gap between the AALCI and Lantzville's current budget for the Sewer and General Funds.

MOVING FORWARD?

Lantzville owns approximately $62 million in infrastructure that requires strategic investment in the order of $1.5 million annually to ensure that services are sustained at acceptable levels for current and future generations without the need for sudden and significant tax and user fee increases in the future.

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Like most communities in Canada a sizeable gap currently exists between current funding levels and the sustainable long-term full lifecycle investment requirements. Closing the gap within the next year or two may seem unachievable, however over time and with some careful consideration with respect to service level priorities and the application of the available funding strategies the gap can be narrowed considerably if not entirely.

The purpose of the AMIP is to provide the District of Lantzville's decision makers with a "big picture" overview of what the long term sustainable funding levels are. Equipped with this information the District's Council is in a better position to make well informed funding and investment decisions.

APPENDIX A

AMIP Summary

Asset Category	Replacement Value	Loss in Value	Remaining Value	Expected Remaining Life	Infrastructure Deficit (if beyond service life)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	20 Year Total	Average Annual Life Cycle Investment (AALCI)
Buildings																											
Foundations	$221,600	$-	$119,600	54%	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$2,770
Structure	$3,593,300	$-	$1,999,100	56%	$2,326,000	$2,326,000	$-	$340,000	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$905,000	$3,571,000	$119,777
Yard Improvements	$375,000	$-	$200,000	53%	$-	$-	$-	$-	$-	$-	$-	$-	$128,000	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$167,000	$-	$295,000	$7,500
Total	$4,189,900	$-	$2,318,700	55%		$2,326,000	$-	$340,000	$-	$-	$-	$-	$128,000	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$167,000	$905,000	$3,866,000	$130,047
Machinery, Equipment, & Vehicles																											
Administration	$192,287	$34,627	$145,461	76%	$101,800	$101,800	$13,412	$-	$42,411	$136,465	$-	$13,412	$-	$42,411	$136,465	$-	$13,412	$-	$42,411	$136,465	$-	$13,412	$-	$42,411	$34,665	$769,149	$38,457
Fire Equipment	$448,786	$334,781	$103,805	23%	$406,943	$406,943	$82,765	$133,861	$56,768	$70,284	$105,107	$82,765	$133,861	$56,768	$70,284	$105,107	$56,804	$133,861	$24,231	$19,759	$1,053	$22,661	$19,183	$-	$-	$1,582,066	$89,757
Parks Equipment	$37,568	$8,467	$13,300	35%	$-	$-	$16,400	$-	$21,168	$-	$-	$16,400	$-	$21,168	$-	$-	$16,400	$-	$21,168	$-	$-	$16,400	$-	$21,168	$-	$150,272	$7,514
Public Works Equipment	$3,093	$3,093	$-	0%	$3,093	$3,093	$-	$-	$-	$-	$3,093	$-	$-	$-	$-	$3,093	$-	$-	$-	$-	$-	$-	$-	$-	$-	$9,280	$619
Sewer Equipment	$108,400	$-	$98,950	91%	$108,400	$108,400	$108,400	$-	$-	$-	$-	$108,400	$-	$-	$-	$-	$108,400	$-	$-	$-	$-	$-	$-	$-	$-	$433,600	$21,680
Water Equipment	$259,295	$15,195	$221,050	85%	$259,295	$259,295	$160,795	$-	$-	$-	$98,500	$160,795	$-	$-	$-	$98,500	$160,795	$-	$-	$-	$-	$-	$-	$-	$-	$938,682	$51,859
Fire Vehicles	$2,677,529	$569,683	$670,746	25%	$1,727,666	$1,727,666	$436,464	$-	$529,666	$-	$-	$700,000	$513,400	$498,000	$-	$-	$436,464	$-	$-	$-	$-	$700,000	$513,400	$-	$-	$6,055,058	$267,753
Public Works Vehicles	$302,801	$163,004	$76,697	25%	$258,477	$258,477	$-	$-	$44,323	$-	$-	$154,928	$-	$-	$15,223	$88,326	$-	$-	$44,323	$-	$-	$154,928	$-	$-	$15,223	$775,752	$30,280
Total	$4,029,760	$1,128,850	$1,330,009	33%	$2,865,674	$2,865,674	$818,236	$133,861	$694,336	$206,749	$206,700	$1,236,700	$647,261	$618,347	$221,972	$295,026	$792,275	$133,861	$132,133	$156,223	$1,053	$907,400	$532,583	$63,579	$49,888	$10,713,859	$507,919
Roads & Drainage																											
Roads	$19,543,402	$9,670,498	$9,872,904	51%	$1,365,351	$1,365,351	$-	$156,164	$64,783	$319,595	$486,776	$-	$458,470	$-	$-	$270,861	$21,502	$37,904	$67,907	$36,161	$64,285	$-	$268,651	$207,364	$656,614	$4,482,389	$394,559
Drainage	$6,039,963	$804,991	$5,153,972	85%	$11,815	$11,815	$10,819	$-	$-	$5,899	$9,600	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$10,612	$-	$-	$48,746	$120,799
Total	$25,583,365	$10,475,489	$15,026,875	59%	$1,377,166	$1,377,166	$10,819	$156,164	$64,783	$325,495	$496,376	$-	$458,470	$-	$-	$270,861	$21,502	$37,904	$67,907	$36,161	$64,285	$-	$279,263	$207,364	$656,614	$4,531,134	$515,358
Sewer Network																											
Sewer Pipes	$6,599,928	$712,427	$5,887,501	89%	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$70,048
Sewer Services	$1,379,812	$117,881	$1,261,930	91%	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$13,798
Sewer Facilities	$4,559,909	$1,170,066	$3,389,843	74%	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$140,494	$-	$34,781	$368,774	$637,800	$820,919	$-	$-	$2,002,768	$128,226
Total	$12,539,648	$2,000,374	$10,539,274	84%	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$140,494	$-	$34,781	$368,774	$637,800	$820,919	$-	$-	$2,002,768	$212,072
Water Network																											
Water Pipes	$8,828,043	$2,817,301	$6,010,741	68%	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$88,280
Water Services	$933,382	$288,800	$644,582	69%	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$9,334
Water Facilities	$5,365,469	$495,956	$4,247,513	79%	$-	$-	$-	$-	$-	$-	$-	$-	$220,466	$-	$-	$-	$-	$-	$-	$109,400	$-	$127,959	$587	$293	$95,365	$554,069	$107,119
Total	$15,126,894	$3,602,058	$10,902,836	72%	$-	$-	$-	$-	$-	$-	$-	$-	$220,466	$-	$-	$-	$-	$-	$-	$109,400	$-	$127,959	$587	$293	$95,365	$554,069	$204,734
Grand Total	$61,469,566	$17,206,771	$40,117,694	65%	$4,242,840	$6,568,840	$829,055	$630,025	$759,119	$532,244	$703,076	$1,236,700	$1,454,197	$618,347	$221,972	$565,888	$813,777	$312,259	$200,040	$336,566	$434,112	$1,673,159	$1,633,351	$438,235	$1,706,867	$21,667,830	$1,570,130

APPENDIX B

Replacement Costs

In general, the replacement costs of all infrastructure were calculated by escalating the historical costs contained in the District's accounting system by the appropriate CPI adjustment factor. Where there were gaps in the historical cost information the unit rates in the following table were applied.

Unit Costs		
Description	**Units**	**Cost**
Road Surface	$/m^2	$50
Sewer Manhole	each	$4,500
Sani-Service	each	$2,200
Water Main – 300mm	$/m	$350
Water-Service	$/m	$2,200
**** Unit costs only shown and used for assets without other sources of historical or replacement values**		

APPENDIX C

Service Lives

Service Lives - Buildings	
Description	**Useful Life**
Foundations	80
Structure	30
Yard Improvements	50

Service Lives – Machinery, Equipment, and Vehicles	
Description	**Useful Life**
Computer Hardware	5
Fire Fighting Equipment	5
Generator	5
Mobile Equipment	5
No Segment	5
Office Furniture and Equipment	5
Other Machinery & Equipment	5
Fire Trucks	10
Heavy Duty Equipment	10
Light Duty	10

Service Lives – Roads & Drainage	
Description	**Useful Life**
Bridges	50
Culverts	50
Curb and Gutter	50
Road Base	75
Road Surface	25
Storm Drainage	50

Service Lives – Sewer Network	
Description	**Useful Life**
Forcemain - PVC	100
Gravity Main Concrete	50
Gravity Main - PVC	100
Gravity Main – Ductile Iron	80
Interceptor	50
Lift Station	25
Manhole	60
Pump	20
Sani-Service - PVC	100

Service Lives – Water Network	
Description	**Useful Life**
Pressure Reducing Station	40
Pump House	40
Pump Station	40
Reservoir	80
Water Hydrants	40
Water Main - PVC	100
Water Meters	30
Water Pump	20
Water Valves	25
Water-Service - PVC	100
Well	40