



The Municipality of West Elgin

Asset Management Plan



December 18, 2014



The Municipality of West Elgin

TO: COUNCIL OF THE MUNICIPALITY OF WEST ELGIN
FROM: Scott Gawley, Administrator/Treasurer
DATE: December 18, 2014
SUBJECT: Asset Management Plan Revised

RECOMMENDATION:

THAT Council approves the Revised Asset Management Plan; AND FURTHER that the Revised Plan be posted on the Municipality of West Elgin Website.

INTRODUCTION:

On December 19, 2013 Council adopted the first Asset Management Plan for the Municipality of West Elgin. The Municipality's existing infrastructure is aging and deteriorating while demand grows for better infrastructure.

Asset Management planning is the process of making the best possible decisions regarding the building, operating, maintaining, renewing, replacing and disposing of infrastructure assets. The objective is to maximize benefits, manage risk, and provide satisfactory levels of service to the public in a sustainable manner. Asset management requires a thorough understanding of the characteristics and condition of infrastructure assets, as well as the service levels expected from them. It also involves setting strategic priorities to optimize decision making about when and how to proceed with investments. Finally, it requires the development of a financial plan.

DISCUSSION:

The Asset Management Plan has been revised in 2014 to include changes in the costing of planned capital improvements of the two Wastewater Plants in Rodney and West Lorne. A review of the plants was conducted by the Ontario Clean Water Agency (OCWA) Engineering on September 5, 2014 to assess the current status and to determine the needs for the capital improvement plans. Energy efficiency measurements were also completed so that the Municipality of West Elgin can be compliant with the provincial legislation for Energy Management Plans.


The 2008 plans for infrastructure renewal that was proposed and currently listed in the Municipality of West Elgin Plan for \$4.5 million (with inflation now estimated to be \$4.9 million) were reviewed. The infrastructure renewal project was submitted as an Expression of Interest (EOI) under the Small Communities Fund (SCF). The Municipality has received notice that the project is now eligible to move the second stage of submitting an application for the grant.

The Municipality of West Elgin's Asset Management Plan has been revised to include updated costs from 2008 of the Wastewater plant upgrades at West Lorne and Rodney, along with the Capital Projects completed in 2014, as part of the municipality's annual review.

The revised numbers for the Project submitted under the Infrastructure Renewal Project for the West Lorne and Rodney Wastewater Treatment Plants under the Small Communities Fund (SCF):

2015	\$ 450,187.61
2016	\$1,287,536.57
2017	\$1,616,173.52
2018	\$1,346,060.96
2019	<u>\$ 212,164.42</u>
	\$4,912,123.07

Respectfully Submitted by:


Scott Gawley, CPA, CGA
Administrator/Treasurer

Attachments - Council Report – September 11, 2014 – Infrastructure Grant
Funding
- SCF Funding Application – Project Estimate

MUNICIPALITY OF WEST ELGIN									
ASSET MANAGEMENT PLAN									
FUTURE NEEDS									
DECEMBER 31, 2014									
	Original Cost	Current Year	Five Years	Ten Years	Fifteen years	Twenty Years	Twenty Five	Thirty Years	Thirty Five
		2014	2014-2018	2019-2023	2024-2028	2029-2033	Years	2039-2043	Years
							2034-2038		2044-2048
Land									
General Government	1,103,734								
Protective Services	44,018								
Transportation Services	469,417								
Environmental Services	742,076								
Health Services	23,655								
Recreation & Cultural Services	2,557,279								
Planning & Development	0								
	4,940,179	0	0	0	0	0	0	0	0
Land improvements									
General Government	101,690	0	0	0	0	147,426	0	0	0
Protective Services	11,561	0	0	0	16,544	0	0	0	0
Transportation Services	0	0	0	0	0	0	0	0	0
Environmental Services	0	0	0	0	0	0	0	0	0
Health Services	0	0	0	0	0	0	0	0	0
Recreation & Cultural Services	1,541,018	32,476	587,292	1,013,662	197,358	271,000	0	287,667	0
Planning & Development	0	0	0	0	0	0	0	0	0
	1,654,269	32,476	587,292	1,013,662	213,902	418,426	0	287,667	0
Buildings									
General Government	448,927	0	0	0	0	0	0	0	0
Protective Services	700,669	0	0	0	0	0	0	521,915	60,989
Transportation Services	490,203	0	0	0	1,363,358	0	0	0	1,196,051
Environmental Services	8,025,028	0	4,912,123	559,136	0	1,971,486	2,899,768	1,828,493	0
Health Services									
Recreation & Cultural Services	4,931,594	482,878	256,566	711,952	2,668,753	702,126	5,113,543	241,270	1,793,713
Planning & Development									
	14,596,421	482,878	5,168,689	1,271,089	4,032,111	2,673,613	8,013,311	2,591,679	3,050,752
Automotive									
General Government									
Protective Services	1,243,070	282,649	1,176,541	52,564	308,575	0	0	0	0
Transportation Services	2,443,657	599,826	889,509	1,045,882	0	811,210	0	0	0
Environmental Services	135,419	30,037	28,970	29,572	38,094	0	70,959	0	0
Health Services									
Recreation & Cultural Services	321,160	45,526	40,115	175,652	129,065	0	0	0	0
Planning & Development									
	4,143,306	958,037	2,135,135	1,303,670	475,735	811,210	70,959	0	0
Equipment									
General Government	74,876	13,730	84,603	12,576	0	0	0	0	0
Protective Services	279,794	85,048	43,535	231,865	0	0	0	0	0
Transportation Services	43,323	0	0	52,811	0	0	0	0	0
Environmental Services	13,466,994	0	56,719	0	0	21,568,551	0	0	0
Health Services									
Recreation & Cultural Services	255,127	0	36,171	293,688	0	0	0	0	0
Planning & Development									
	14,120,115	98,778	221,028	590,940	0	21,568,551	0	0	0
Roads & Bridges									
General Government									
Protective Services									
Transportation Services	10,351,262	1,513,081	2,015,474	3,129,638	4,555,284	6,921,249	1,392,280	279,904	594,069
Environmental Services									
Health Services									
Recreation & Cultural Services									
Planning & Development									
	10,351,262	1,513,081	2,015,474	3,129,638	4,555,284	6,921,249	1,392,280	279,904	594,069
Environmental Services									
General Government									
Protective Services									
Transportation Services									
Environmental Services	12,931,507	641,616	43,252	5,391	0	206,275	128,135	1,065,590	10,291,489
Health Services									
Recreation & Cultural Services									
Planning & Development									
	12,931,507	641,616	43,252	5,391	0	206,275	128,135	1,065,590	10,291,489
TOTAL	62,737,058	3,726,866	10,170,871	7,314,390	9,277,032	32,599,324	9,604,684	4,224,839	13,936,310

Forty Years	Forty Five Years	Fifty Years	Fifty Five Years	Sixty Years	Sixty Five Years	Seventy Years	Seventy Five Years	Eighty Years	Eighty Five Years	Ninety Years	Ninety Five Years
2049-2053	2054-2058	2059-2063	2064-2068	2069-2073	2074-2078	2079-2083	2084-2088	2089-2093	2094-2098	2099-2103	2104-2108
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	897,146	0	0	0	0	0	0	0	0	0	0
0	897,146	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	2,576,387	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	3,257,595	0	0
131,687	0	0	0	0	0	0	0	0	0	0	0
40,825	8,915,938	0	0	766,808	0	0	0	4,077,629	0	0	0
1,619,741	2,035,596	662,676	0	0	0	0	0	0	0	0	0
1,792,253	10,951,534	662,676	0	766,808	2,576,387	0	0	4,077,629	3,257,595	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1,591,852	1,145,286	0	2,023,449	3,187,707	0	177,559	0	0	0	0	0
1,591,852	1,145,286	0	2,023,449	3,187,707	0	177,559	0	0	0	0	0
5,771,602	321,781	456,594	3,874,828	10,753,997	3,974,778	19,324,050	8,192,149	0	0	0	0
5,771,602	321,781	456,594	3,874,828	10,753,997	3,974,778	19,324,050	8,192,149	0	0	0	0
9,155,706	13,315,748	1,119,270	5,898,277	14,708,512	6,551,165	19,501,609	8,192,149	4,077,629	3,257,595	0	0

Land



**Municipality of West Elgin
Asset Management Strategy**

Asset:	LAND
Inventory:	
Original cost:	\$4,940,179
Anticipated asset life cycle:	not amortized
Integrated:	
Rehab and replacement criteria:	no replacement criteria or plan
Rehab and replacement strategies:	no replacement criteria or plan
Life cycle consequences:	
Integrated asset priorities:	
Reports:	
Estimated cost per year for strategy described:	
Other information or reference materials:	

Land Improvements



**Municipality of West Elgin
Asset Management Strategy**

Asset:	LAND IMPROVEMENTS																																								
Inventory:	Land improvements include parking lots, outside lights, play equipment, docks, fencing, skatepark, trails, sewage upgrades, hydro upgrades, piers, splashpad and skatepark																																								
Original cost:	\$1,654,269																																								
Anticipated asset life cycle:	10 to 50 years - land improvements																																								
Integrated:	With technical advances and financial plans, environmental regulations, operational changes, service increases or decreases.																																								
Rehab and replacement criteria:	Lifecycle cost analysis considering depreciation, repairs, downtime costs, etc. will identify optimal replacement year for equipment.																																								
Rehab and replacement strategies:	Review usage to warrant replacement, repair costs should not exceed 40% of replacement costs. Review lease, seasonal rental opportunities and refurbishing strategies.																																								
Life cycle consequences:	Increased downtime requiring changes to work schedules, disruption of usage and loss of production.																																								
Integrated asset priorities:																																									
Reports:																																									
Estimated cost per year for strategy described:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Current Year</td> <td style="text-align: right;">\$32,476</td> </tr> <tr> <td>1 to 5 years</td> <td style="text-align: right;">\$587,292</td> </tr> <tr> <td>6 to 10 years</td> <td style="text-align: right;">\$1,013,662</td> </tr> <tr> <td>11 to 15 years</td> <td style="text-align: right;">\$213,902</td> </tr> <tr> <td>16 to 20 years</td> <td style="text-align: right;">\$418,426</td> </tr> <tr> <td>21 to 25 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>26 to 30 years</td> <td style="text-align: right;">\$287,667</td> </tr> <tr> <td>31 to 35 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>36 to 40 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>41 to 45 years</td> <td style="text-align: right;">\$897,146</td> </tr> <tr> <td>46 to 50 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>51 to 55 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>56 to 60 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>61 to 65 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>66 to 70 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>71 to 75 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>76 to 80 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>81 to 85 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>86 to 90 years</td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>91 to 95 years</td> <td style="text-align: right;">\$0</td> </tr> </table>	Current Year	\$32,476	1 to 5 years	\$587,292	6 to 10 years	\$1,013,662	11 to 15 years	\$213,902	16 to 20 years	\$418,426	21 to 25 years	\$0	26 to 30 years	\$287,667	31 to 35 years	\$0	36 to 40 years	\$0	41 to 45 years	\$897,146	46 to 50 years	\$0	51 to 55 years	\$0	56 to 60 years	\$0	61 to 65 years	\$0	66 to 70 years	\$0	71 to 75 years	\$0	76 to 80 years	\$0	81 to 85 years	\$0	86 to 90 years	\$0	91 to 95 years	\$0
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Other information or reference materials:																																									

Buildings



Municipality of West Elgin
Asset Management Strategy

Asset:	BUILDINGS																																								
Inventory:	including buildings and building components and some parking lots																																								
Original cost:	\$14,596,421																																								
Anticipated asset life cycle:	10 to 200 years - building components and buildings																																								
Integrated:	With technical advances and financial plans, environmental regulations, operational changes, service increases or decreases.																																								
Rehab and replacement criteria:	Lifecycle cost analysis considering depreciation, repairs, downtime costs, etc. will identify optimal replacement year for equipment.																																								
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Other information or reference materials:																																									

Automotive



Municipality of West Elgin
Asset Management Strategy

Asset:	AUTOMOTIVE																																								
Inventory:	light duty vehicles, heavy duty vehicles, fire vehicles, non-road vehicles																																								
Original cost:	\$4,143,306																																								
Anticipated asset life cycle:	10 to 40 years depending on asset type																																								
Integrated:	With technical advances and financial plans, environmental regulations, operational changes, service increases or decreases.																																								
Rehab and replacement criteria:	Lifecycle cost analysis considering depreciation, fuel, repairs, insurance, downtime costs, etc. will identify optimal replacement year for vehicles.																																								
Rehab and replacement strategies:	Review usage to warrant replacement, repair costs should not exceed 40% of replacement costs. Review lease, seasonal rental opportunities and refurbishing strategies.																																								
Life cycle consequences:	Cost per km increases, increased downtime requiring more spare units or changes to work schedules and loss of production.																																								
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Other information or reference materials:																																									

Equipment



Municipality of West Elgin
Asset Management Strategy

Asset:	EQUIPMENT																																								
Inventory:	equipment and machinery																																								
Original cost:	\$14,120,115																																								
Anticipated asset life cycle:	5 to 25 years depending on asset type																																								
Integrated:	With technical advances and financial plans, environmental regulations, operational changes, service increases or decreases.																																								
Rehab and replacement criteria:	Lifecycle cost analysis considering depreciation, repairs, downtime costs, etc. will identify optimal replacement year for equipment.																																								
Rehab and replacement strategies:	Review usage to warrant replacement, repair costs should not exceed 40% of replacement costs. Review lease, seasonal rental opportunities and refurbishing strategies.																																								
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Estimated cost per year for strategy described:	<table border="1"> <tr> <td>Current Year</td> <td>\$98,778</td> </tr> <tr> <td>1 to 5 years</td> <td>\$221,028</td> </tr> <tr> <td>6 to 10 years</td> <td>\$590,940</td> </tr> <tr> <td>11 to 15 years</td> <td>\$0</td> </tr> <tr> <td>16 to 20 years</td> <td>\$21,568,551</td> </tr> <tr> <td>21 to 25 years</td> <td>\$0</td> </tr> <tr> <td>26 to 30 years</td> <td>\$0</td> </tr> <tr> <td>31 to 35 years</td> <td>\$0</td> </tr> <tr> <td>36 to 40 years</td> <td>\$0</td> </tr> <tr> <td>41 to 45 years</td> <td>\$0</td> </tr> <tr> <td>46 to 50 years</td> <td>\$0</td> </tr> <tr> <td>51 to 55 years</td> <td>\$0</td> </tr> <tr> <td>56 to 60 years</td> <td>\$0</td> </tr> <tr> <td>61 to 65 years</td> <td>\$0</td> </tr> <tr> <td>66 to 70 years</td> <td>\$0</td> </tr> <tr> <td>71 to 75 years</td> <td>\$0</td> </tr> <tr> <td>76 to 80 years</td> <td>\$0</td> </tr> <tr> <td>81 to 85 years</td> <td>\$0</td> </tr> <tr> <td>86 to 90 years</td> <td>\$0</td> </tr> <tr> <td>91 to 95 years</td> <td>\$0</td> </tr> </table>	Current Year	\$98,778	1 to 5 years	\$221,028	6 to 10 years	\$590,940	11 to 15 years	\$0	16 to 20 years	\$21,568,551	21 to 25 years	\$0	26 to 30 years	\$0	31 to 35 years	\$0	36 to 40 years	\$0	41 to 45 years	\$0	46 to 50 years	\$0	51 to 55 years	\$0	56 to 60 years	\$0	61 to 65 years	\$0	66 to 70 years	\$0	71 to 75 years	\$0	76 to 80 years	\$0	81 to 85 years	\$0	86 to 90 years	\$0	91 to 95 years	\$0
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Other information or reference materials:																																									

Paved Roads



Municipality of West Elgin
Asset Management Strategy

Asset:	PAVED ROADS																						
Inventory:	81 lane kilometres of paved lane surface																						
Original Cost:	\$3,758,870																						
Anticipated asset life cycle:	pavement life of a newly constructed road is affected by design, traffic volumes and loads, construction quality and climate, but generally the end of its useful life is : 20 years																						
Integrated:	with other buried assets located in the utility corridor such as water, sewer, storm sewers, hydro, telephone, natural gas and cable. May also affect street lighting and sidewalks.																						
Rehab and replacement criteria:	Pavement Condition Index (PCI) is a pavement condition rating between zero and 100 which measures defects in pavement. A PCI equal to 100 is new pavement and a PCI equal to zero is pavement that is impassable. PCI threshold point of rehabilitation or reconstruction for Municipal roads: between 60 and 80-rehabilitation, below 60-reconstruction.																						
Rehab and replacement strategies:	Based on the PCI index, road classification, benefit/cost ratio one of the following rehabilitation strategies is selected: Total reconstruction of pavement with 80 mm to 120 mm of hot mix asphalt. Mill and resurface pavement with 50 mm to 75 mm of hot mix asphalt. Strip and resurface pavement with 50 mm to 75 mm of hot mix asphalt. Pulverize and remix with 50 mm to 75 mm of hot mix. Mill and resurface patches of pavement with 50 mm of hot mix asphalt. Routing and crack sealing pavements.																						
Life cycle consequences:	Under funding pavement rehabilitation results in more pavement falling below a PCI of 60 and results in escalating construction costs. Pavement falling below a PCI of 25 affects level of service, and increases risk and liabilities.																						
Integrated asset priorities:	In general, a pavement rehabilitation project drives the replacement of underground water and sewer infrastructure if the infrastructure is near the end of its life cycle.																						
Reports:																							
Estimated cost per year for strategy described:	<table border="0"> <tr> <td>Current Year</td> <td>\$68,841</td> </tr> <tr> <td>1 to 5 years</td> <td>\$1,503,209</td> </tr> <tr> <td>6 to 10 years</td> <td>\$1,752,592</td> </tr> <tr> <td>11 to 15 years</td> <td>\$1,350,630</td> </tr> <tr> <td>16 to 20 years</td> <td>\$812,416</td> </tr> <tr> <td>21 to 25 years</td> <td>\$0</td> </tr> <tr> <td>26 to 30 years</td> <td>\$0</td> </tr> <tr> <td>31 to 35 years</td> <td>\$0</td> </tr> <tr> <td>36 to 40 years</td> <td>\$0</td> </tr> <tr> <td>41 to 45 years</td> <td>\$0</td> </tr> <tr> <td>46 to 50 years</td> <td>\$0</td> </tr> </table>	Current Year	\$68,841	1 to 5 years	\$1,503,209	6 to 10 years	\$1,752,592	11 to 15 years	\$1,350,630	16 to 20 years	\$812,416	21 to 25 years	\$0	26 to 30 years	\$0	31 to 35 years	\$0	36 to 40 years	\$0	41 to 45 years	\$0	46 to 50 years	\$0
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36 to 40 years	\$0																						
41 to 45 years	\$0																						
46 to 50 years	\$0																						
Other information or reference materials:																							

Unpaved Roads



Municipality of West Elgin
Asset Management Strategy

Asset:	UNPAVED ROADS																						
Inventory:	397 lane kilometres total unpaired surfaces.																						
Original Cost:	\$3,972,542																						
Anticipated asset life cycle:	life of a newly constructed road is affected by design, traffic volumes and loads, construction quality and climate, but generally the end of its useful life is : 15 years-tar & chip 25 years-gravel																						
Integrated:	with other buried assets located in the utility corridor such as water, sewer, storm sewers, hydro, telephone, natural gas and cable. May also affect street lighting and sidewalks.																						
Rehab and replacement criteria:	Gravel Condition Index (GCI) is a condition rating between zero and 100 which GCI equal to 100 is newly constructed road and a GCI equal to zero is a road that is impassable. GCI threshold point of rehabilitation or reconstruction for Municipal roads: between 60 and 80-rehabilitation, below 60-reconstruction.																						
Rehab and replacement strategies:	Based on the GCI index, road classification, benefit/cost ratio one of the following rehabilitation strategies is selected: Total reconstruction of road including 450 mm of B gravel sub base and 150 mm of A gravel. Rehabilitation would include between 50 mm and 75 mm of A gravel.																						
Life cycle consequences:	Under funding gravel/tar & chip rehabilitation results in more pavement falling below a PCI of 60 and results in escalating construction costs. Gravel/Tar & chip falling below a PCI of 25 affects level of service and increases risk and liabilities.																						
Integrated asset priorities:	In general, a gravel/tar & chip road rehabilitation project drives the replacement of underground water and sewer infrastructure if the infrastructure is near the end of its life cycle.																						
Reports:																							
Estimated cost per year for strategy described:	<table border="0"> <tr> <td>Current Year</td> <td>\$478,335</td> </tr> <tr> <td>1 to 5 years</td> <td>\$0</td> </tr> <tr> <td>6 to 10 years</td> <td>\$737,740</td> </tr> <tr> <td>11 to 15 years</td> <td>\$1,481,198</td> </tr> <tr> <td>16 to 20 years</td> <td>\$3,213,694</td> </tr> <tr> <td>21 to 25 years</td> <td>\$522,708</td> </tr> <tr> <td>26 to 30 years</td> <td>\$0</td> </tr> <tr> <td>31 to 35 years</td> <td>\$0</td> </tr> <tr> <td>36 to 40 years</td> <td>\$0</td> </tr> <tr> <td>41 to 45 years</td> <td>\$0</td> </tr> <tr> <td>46 to 50 years</td> <td>\$0</td> </tr> </table>	Current Year	\$478,335	1 to 5 years	\$0	6 to 10 years	\$737,740	11 to 15 years	\$1,481,198	16 to 20 years	\$3,213,694	21 to 25 years	\$522,708	26 to 30 years	\$0	31 to 35 years	\$0	36 to 40 years	\$0	41 to 45 years	\$0	46 to 50 years	\$0
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41 to 45 years	\$0																						
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Other information or reference materials:																							

Bridges & Culverts



**Municipality of West Elgin
Asset Management Strategy**

BRIDGES & CULVERTS	
Asset:	
Inventory:	10 Bridges (1 concrete beam, 2 concrete slab, 4 concrete rigid frame, 2 concrete steel girders, 1 cast in place) 26 Culverts (13 cast in place rigid, 11 c plate-pipe arch, 1 cast in place concrete box/1 c plate-pipe round) Total of 6481 sq. metres of surface area on bridges & culverts \$2,619,850
Original Cost:	
Anticipated asset life cycle:	Bridges have an anticipated life cycle of 75 years. Culverts have an anticipated life cycle of 50 to 75 years.
Integrated:	May be integrated with road resurfacing or widening projects however generally not integrated with other infrastructure.
Rehab and replacement criteria:	Criteria for prioritizing include level of service and traffic volumes, safety and to preserve infrastructure. Bi-annual visual inspection of bridges and culverts is done by external Engineering consultants using Ontario Structure Inspection Forms. Additional investigations are determined if evaluated and tested providing necessary during these visual inspections. Bridge and culvert component conditions are rated as excellent, good, fair or poor and recommended work, if required, is determined.
Rehab and replacement strategies:	Bridge rehabilitation or replacement is based on bridge age and assumed life spans and result condition from external Engineering firm inspections: Asphalt deck resurfacing-15 to 25 years, joint replacement - 30 to 40 years, patching or waterproofing of concrete deck-30 to 40 years.
Life cycle consequences:	Bridge and culvert life cycles will be reduced, level of service is lowered and safety is compromised.
Integrated asset priorities:	n/a
Reports:	Bridge and Culvert Inspection Reports (Spriet Associates, January 2012)
Estimated cost per year for strategy described:	
	Current Year \$965,904
	1 to 5 years \$512,266
	6 to 10 years \$639,306
	11 to 15 years \$1,723,456
	16 to 20 years \$2,895,139
	21 to 25 years \$869,572
	26 to 30 years \$279,904
	31 to 35 years \$594,069
	36 to 40 years \$1,591,852
	41 to 45 years \$1,145,286
	46 to 50 years \$0
	51 to 55 years \$2,023,449
	56 to 60 years \$3,187,707
	61 to 65 years \$0
	66 to 70 years \$177,559
Other information or reference materials:	

Water Distribution Lines



Municipality of West Elgin
Asset Management Strategy

Asset:	WATER DISTRIBUTION LINES																																								
Inventory:	178 km of distribution pipe # 1854 water services																																								
Original Cost:	\$11,642,951																																								
Anticipated asset life cycle:	75 years																																								
Integrated:	May be integrated with road resurfacing, road reconstruction work and other utilities such as hydro, telephone, natural gas and cable. It may also be a stand alone replacement with a trench cut and repair.																																								
Rehab and replacement criteria:	Criteria for prioritizing the replacement schedule for water mains is the break history of the pipe, age of pipe, size of pipe, soil conditions surrounding the pipe and pressure related issues. The road rehab program may bump up the replacement of a pipe segment if replacement is scheduled in the near future. The replacement criteria is difficult to define but studying break histories and failure can determine when maintenance costs are increasing at a high enough rate that it economically makes sense to simply replace or rehab the pipe.																																								
Rehab and replacement strategies:	Watermain rehabilitation is based on the current condition of the pipe. It is difficult to determine the condition since it is buried. For this reason, the replacement strategy relies entirely on the break history, age, size and material type of pipe plus keeping up with current road projects. There are numerous methods of rehabilitation for water mains such as complete replacement, cleaning and re-lining and potential pipe bursting. Cathodic protection also helps prolong the life expectancy of the pipe.																																								
Life cycle consequences:	The results will be catastrophic failures at undetermined and unexpected times. Some pipe materials with 75 year life expectancies are in need of replacement after 30 years where as some 75 year old pipe can simply be maintained or rehabilitated to gain 50 plus years of additional service life.																																								
Integrated asset priorities:	A deteriorated watermain is replaced because of the level of risk that can be absorbed. Some problem areas are less of a priority and disruption to service an repairing mains is tolerable. Replacement is a high priority where fire protection, water quality and disrupted service can result in water loss and collateral damage. Other utilities such as hydro, telephone and cable may be integrated into the work as well. Often road rehab projects help accelerate the project priority.																																								
Reports:																																									
Estimated cost per year for strategy described:	<table border="1"> <thead> <tr> <th>Current Year</th> <th>\$0</th> </tr> </thead> <tbody> <tr><td>1 to 5 years</td><td>\$43,252</td></tr> <tr><td>6 to 10 years</td><td>\$5,391</td></tr> <tr><td>11 to 15 years</td><td>\$0</td></tr> <tr><td>16 to 20 years</td><td>\$0</td></tr> <tr><td>21 to 25 years</td><td>\$0</td></tr> <tr><td>26 to 30 years</td><td>\$878,028</td></tr> <tr><td>31 to 35 years</td><td>\$872,253</td></tr> <tr><td>36 to 40 years</td><td>\$5,605,688</td></tr> <tr><td>41 to 45 years</td><td>\$208,483</td></tr> <tr><td>46 to 50 years</td><td>\$31,900</td></tr> <tr><td>51 to 55 years</td><td>\$3,767,253</td></tr> <tr><td>56 to 60 years</td><td>\$10,753,997</td></tr> <tr><td>61 to 65 years</td><td>\$3,521,460</td></tr> <tr><td>66 to 70 years</td><td>\$19,098,386</td></tr> <tr><td>71 to 75 years</td><td>\$8,192,149</td></tr> <tr><td>76 to 80 years</td><td>\$0</td></tr> <tr><td>81 to 85 years</td><td>\$0</td></tr> <tr><td>86 to 90 years</td><td>\$0</td></tr> <tr><td>91 to 95 years</td><td>\$0</td></tr> </tbody> </table>	Current Year	\$0	1 to 5 years	\$43,252	6 to 10 years	\$5,391	11 to 15 years	\$0	16 to 20 years	\$0	21 to 25 years	\$0	26 to 30 years	\$878,028	31 to 35 years	\$872,253	36 to 40 years	\$5,605,688	41 to 45 years	\$208,483	46 to 50 years	\$31,900	51 to 55 years	\$3,767,253	56 to 60 years	\$10,753,997	61 to 65 years	\$3,521,460	66 to 70 years	\$19,098,386	71 to 75 years	\$8,192,149	76 to 80 years	\$0	81 to 85 years	\$0	86 to 90 years	\$0	91 to 95 years	\$0
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Other information or reference materials:																																									

Wastewater Collection Lines



Municipality of West Elgin
Asset Management Strategy

WASTEWATER COLLECTION LINES																																									
Asset:	48 km of wastewater mains																																								
Inventory:																																									
Original cost:	\$725,796																																								
Anticipated asset life cycle:	75 years																																								
Integrated:	May be integrated with road resurfacing, road reconstruction work and other utilities such as hydro, telephone, natural gas and cable. It may also be a stand alone replacement with a trench cut and repair.																																								
Rehab and replacement criteria:	Criteria for prioritizing the replacement schedule for sanitary sewers are based upon an assessment of the age, number of collapses, material type and coordination with rehab of roads.																																								
Rehab and replacement strategies:	Replacement is the most common method for collapsed or heavily deteriorating pipe. Other methods include cured in place, a method of lining the sewer with a new resin impregnated felt that helps prolong the life of the sewer. This method helps reduce the costs associated with restoration when the project is complete. Other methods include spot repairs and joint sealing.																																								
Life cycle consequences:	Sanitary sewers will deteriorate in much the same manner as storm sewers although the consequences of failure for sanitary sewers are usually much more significant. The structural deterioration can result in infiltration of groundwater into the sewer that results in an accumulation of debris and sediment therefore lessening the amount of waste water that can flow. Another big consequence of groundwater infiltration is the added volume of sewage to be treated at the wastewater treatment plants which results in added costs. As with any buried infrastructure, maintenance and rehabilitation is key to the longevity of the system.																																								
Integrated asset priorities:	A deteriorated sanitary sewer is replaced or rehabilitated depending on the condition. Should replacement be the method used, then other items such as sidewalks, road trench cuts or full pavement may become part of the project. Other utilities such as hydro, telephone, natural gas and cable may be integrated into the work as well. Often road rehabilitation projects help to determine the project priority.																																								
Reports:																																									
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Other information or reference materials:																																									

Storm Sewers



Municipality of West Elgin
Asset Management Strategy

Asset:	STORM SEWER																																								
Inventory:	km of storm sewers, storm manholes, catch basins																																								
Original cost:	\$562,761																																								
Anticipated asset life cycle:	75 years																																								
Integrated:	May be integrated with road resurfacing, road reconstruction work and other utilities such as hydro, telephone, natural gas and cable. It may also be a stand alone replacement with a trench cut and repair.																																								
Rehab and replacement criteria:	Criteria for prioritizing the replacement schedule for storm sewers are based upon an assessment of the age, number of collapses, material type and coordination with the roads program.																																								
Rehab and replacement strategies:	Replacement is the most common method for collapsed and deteriorated pipe. Cured in place pipe is a method of lining the sewer with a new resin impregnated felt that helps prolong the life of a sewer by as much as 50 years. This method helps reduce the costs associated with restoration when the project is complete. Other methods include spot repairs and joint sealing.																																								
Life cycle consequences:	Storm sewers will deteriorate in much the same manner as sanitary sewers although the consequences of failure for a storm sewer are not usually as significant as those for failure of a sanitary sewer system.. The structural deterioration can result in infiltration of groundwater into the sewer that results in a loss of pipe bedding which promotes further deterioration. It can also result in an accumulation of debris and sediment at sags in the sewer. As with any buried infrastructure, maintenance and rehabilitation is key to the longevity of any system. Without yearly significant spending major failures will occur and larger budgets will be required.																																								
Integrated asset priorities:	A deteriorated storm sewer is replaced or rehabilitated depending on the condition. Should replacement be the method used, then other items such as curb, gutter, sidewalks, road trench cuts or full pavement may become part of the project. Other utilities such as hydro, telephone, natural gas and cable may be integrated into the work as well.																																								
Reports:	Often road rehabilitation projects help to determine the project priority.																																								
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**ASSET COMPONENT INFORMATION
IDENTIFICATION**

- LAND IMPROVEMENT BUILDINGS AUTOMOTIVE EQUIPMENT ROADS BRIDGES/CULVERTS
 WATER SANITARY SEWER STORM SEWER OTHER

Signature: _____

Date: / /

mm / dd / yy

DEPARTMENT _____

ASSET NAME/ID#/DESCRIPTION _____

PHYSICAL DESCRIPTION _____

CUSTODY STAFF _____

MAINTENANCE STAFF _____

STATUS _____

DATE _____

DATE OF ACQUISITION _____

ESTIMATED USEFUL LIFE (years) _____

ESTIMATE END OF USEFUL LIFE _____

COST _____

AMORTIZATION METHOD _____

NOTES _____
