

Asset Management

Stories from the Front Lines

.... a CAO's overview of municipal experiences

- Russ Phillips CAO, RM of Springfield



Asset Management Plan

What is it?

- Asset Management as defined by the National Guide to Sustainable Municipal Infrastructure (Infraguide): is a systematic process that helps municipalities identify the right treatment on the right assets at the right time.
- Asset Management Plan - identifies the actions needed to meet current and future service delivery goals with those assets.
 - The Plan is a “living document”: regularly updated, refinement of practices, strategies and tools.
- Infrastructure assets include but not limited to: Roads, Bridges, Water and Sewer Networks, Drains, Landfills, Sidewalks, Parking Lots, Buildings, Vehicles and Equipment (fleet), Recreation structures and greenspaces and Computer infrastructure.

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PAVER™ Pavement Management Software

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About PAVeR™

PAVER™ – The Pavement Maintenance Management System – originally was developed in the late 1970s to help the Department of Defense (DOD) manage M&R for its vast inventory of pavements. It uses inspection data and a pavement condition index (PCI™) rating from zero (failed) to 100 (excellent) for consistently describing a pavement's condition and for predicting its M&R needs many years into the future. The PCI™ for airports became an *ASTM standard* in 1993 (D5340-10). The PCI™ for roads and parking lots became an *ASTM standard* in 1999 (D6433-09). The ASTM standard can be ordered from the [ASTM](#) website. The PAVeR™ program performs multiple levels of analysis to show where to best allocate scarce M&R dollars.

Contact

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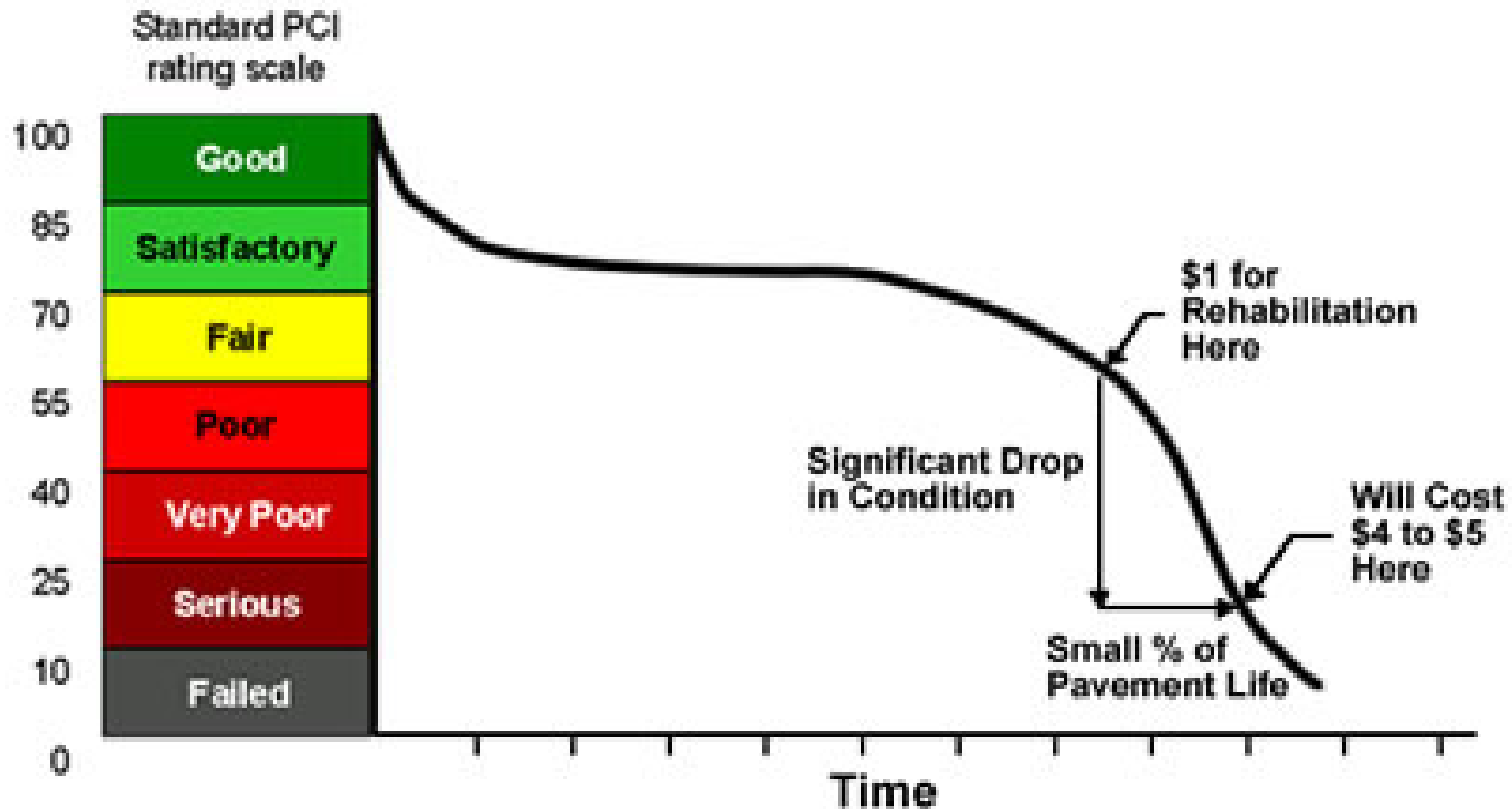
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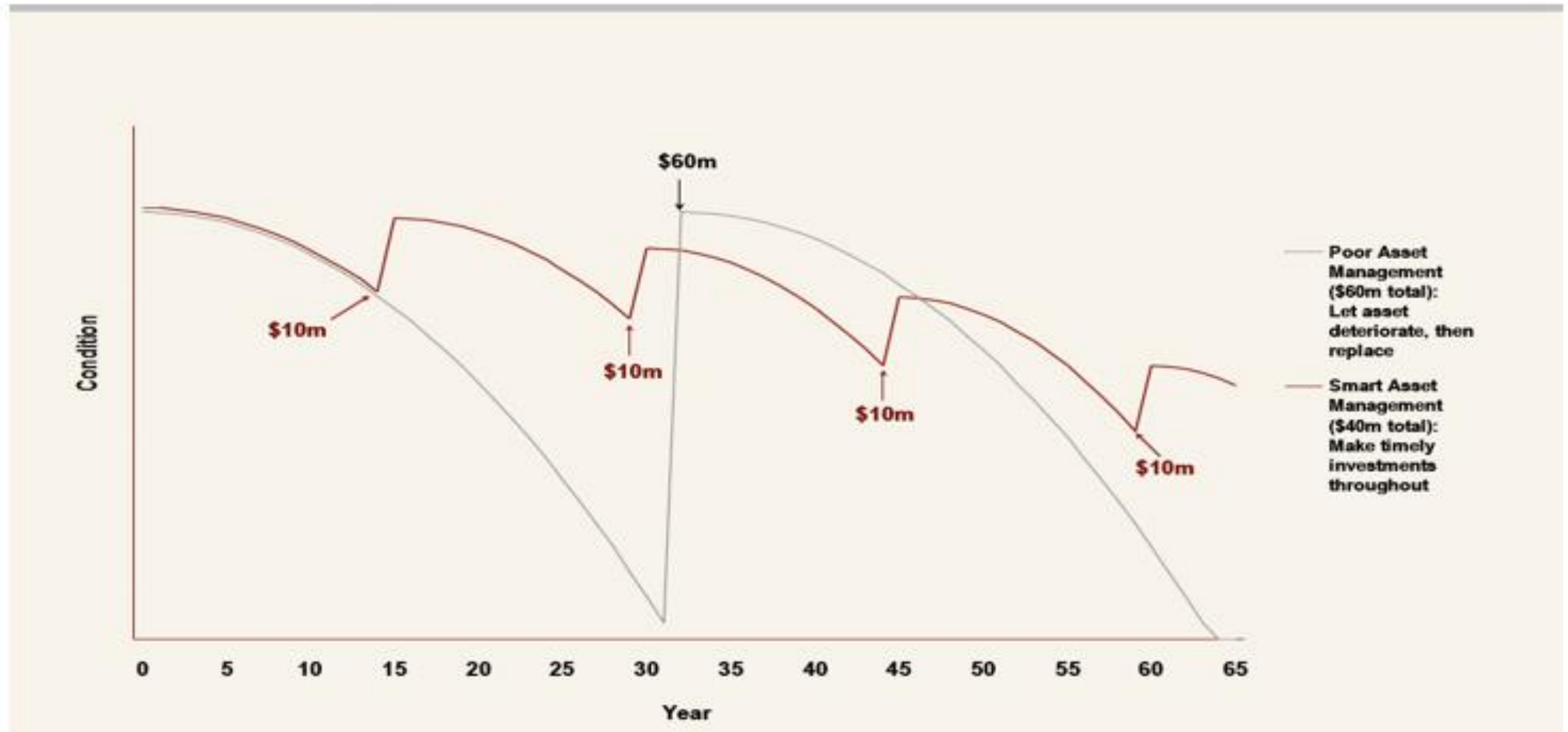
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PAVER

Pavements should be managed, not simply maintained.



Smart Asset Management



Life Cycle Activities

Life cycle activities are specific activities applied at the appropriate time in an asset's life to provide the optimal additional life at the lowest cost. The activities include:

Grade	Activity	Description	Asset Management Category				
			Road and Roadside	Bridges and Culverts	Storm Water Management	Water	Sanitary Sewer
A Excellent	Maintenance	Fit for the future. Well maintained, good condition, new or recently rehabilitated.	<ul style="list-style-type: none"> Regular maintenance 				
B Good	Preventative Maintenance	Adequate for now. Acceptable, generally approaching mid-stage of expected services life.	<ul style="list-style-type: none"> Crack sealing Emulsions Surface treatment 	<ul style="list-style-type: none"> Based on engineers report 	<ul style="list-style-type: none"> Small repairs based on inspection 		
C Fair	Preventative Maintenance / Rehabilitation	Requires attention. Signs of deterioration, some elements exhibit deficiencies.	<ul style="list-style-type: none"> Resurface – Mill and pave; asphalt overlay Extensive surface treatment Pulverize and resurface 		<ul style="list-style-type: none"> Structural lining Mid to large repairs based on assessment 		
D Poor	Rehabilitation	At risk of affecting service. Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration.	<ul style="list-style-type: none"> Rehabilitate 		<ul style="list-style-type: none"> Replacement 		
E Critical	Reconstruction	Unfit for sustained service. Beyond expected service life; wide spread signs of advanced deterioration, some assets may be unusable.	<ul style="list-style-type: none"> Reconstruction 		<ul style="list-style-type: none"> Replacement 		

Why do municipalities need an Asset Management Plan?

- Provide tools to better manage our assets.
- Provide tools to assist elected officials in making more informed decisions
- Gas Tax funding – was going to be March 31, 2018
- Providing predictable service delivery to our ratepayers.

Asset Management Plan

What is our infrastructure deficit? What are our needs?

- Municipalities – went through enormous growth spurts in the 50's, 60's and 70's where we developed our roads, water and sewer networks, bridges and facilities.
- Since then, we didn't foresee that these infrastructure needs would need to be fixed some 40+ years later. Municipalities have not done lifecycle costing well.
- Manitoba's current infrastructure deficit exceeds \$11B, or a staggering \$10k/Manitoban.
 - This does not include new infrastructure needs.
- The City of Winnipeg estimates its current infrastructure deficit is \$3.8B plus an additional \$3.6B for new strategic infrastructure.
- What is your municipality's infrastructure deficit?

Condition Ratings

Rating	Range	Description
A	80-100	Excellent Condition – Fit for the future. Well maintained, good condition, new or recently rehabilitated.
B	60-79	Good Condition – Adequate. Acceptable, generally approaching mid stage of expected service life.
C	40-59	Fair Condition – Requires attention. Signs of deterioration, some elements exhibit deficiencies.
D	20-39	Poor Condition – At risk of affecting service. Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration.
E	0-19	Critical Condition – Unfit for sustained service. Beyond expected useful life, widespread signs of advanced deterioration, some assets may be unusable.

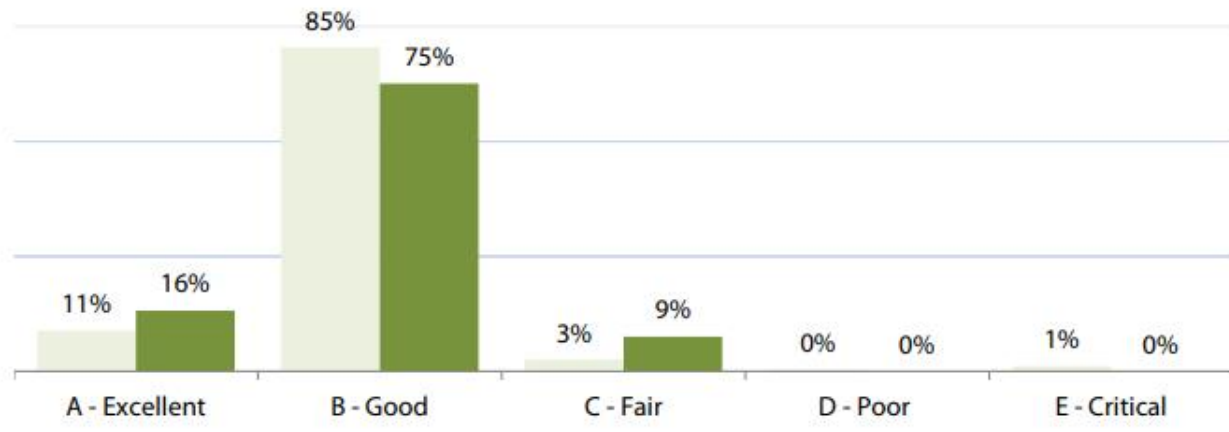
Overall 2015 Rating B	Infrastructure Report Card Town of Essex - Infrastructure and Development			
Asset Type	Desired Rating	2015 Rating	Funding Score	Comments
Operations - Administration	B	C	118%	The 2015 Rating for Administration is based on an asset's estimated useful life and where it sits in its lifecycle. Approximately 52% of the operational assets are in fair to excellent condition. The annual average revenue required to sustain Administration assets is approximately \$214,995. Based on the average annual funding of \$254,216 there is an average annual surplus of \$39,221.
Roads and Roadside	B	C	84%	The 2015 Rating for Roads and Roadside is based on condition assessment (performed internally) for roads, and estimated useful life for roadside assets. Approximately 72% of the road network is in fair to excellent condition. The annual average revenue required to sustain the road network is approximately \$2,669,144. Based on the average annual funding of \$2,250,137 there is an average annual funding gap of (\$419,007).
Bridges and Culverts	A	B	107%	The 2015 Rating for Bridges and Culverts are completed by an engineering firm every two years, as required by Ontario Regulation 104/97. Approximately 91% of the bridges and culverts are in good to excellent condition. The annual average revenue required to sustain the bridges and culverts is approximately \$416,574. Based on the average annual funding of \$443,862 there is an average annual surplus of \$27,288.
Stormwater	B	C	29%	The 2015 Rating for Stormwater is based on each asset's estimated useful life and where it sits in its lifecycle. Approximately 77% of mains are in poor to good condition. The average annual revenue required to sustain the stormwater network is approximately \$708,475. Based on the average annual funding of \$206,033, there is an average annual funding gap of (\$502,442).
Water	A	B	87%	The 2015 Rating for Stormwater is based on each asset's estimated useful life and where it sits in its lifecycle. Approximately 76% of water mains are in good to excellent condition. The average annual revenue required to sustain the water network is approximately \$1,458,450. Based on the average annual funding of \$1,261,573, there is an average annual funding gap of (\$196,877).
Wastewater	A	B	45%	The 2015 Rating for Stormwater is based on each asset's estimated useful life and where it sits in its lifecycle. Approximately 71% of the sewer mains are in good to excellent condition. The average annual revenue required to sustain the sewer network is approximately \$1,220,933. Based on the average annual funding of \$549,363, there is an average annual funding gap of (\$671,570).

	Condition Rating
	B
	Funding Score
Bridges and Culverts	107%

2014 Replacement Value
\$33.1 Million

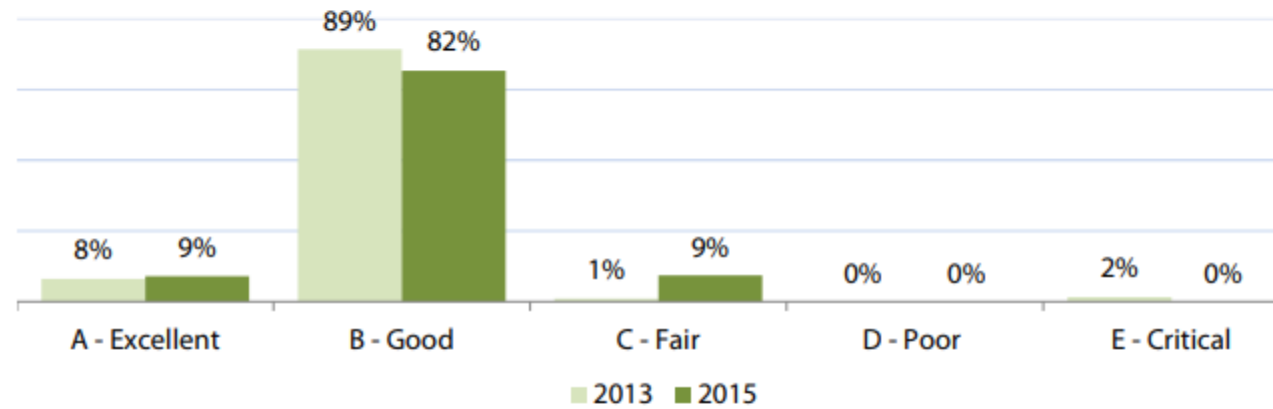
Includes
57 Bridges
35 Culverts

The overall condition of bridges and culverts is a B (Good). Condition assessments are completed by an engineering firm every two years, as required by Ontario Regulation 104/97. The regulation requires that the detailed inspection be led or supervised by a trained, professional engineer. In addition to this, a general maintenance inspection is conducted by staff at least twice per year.

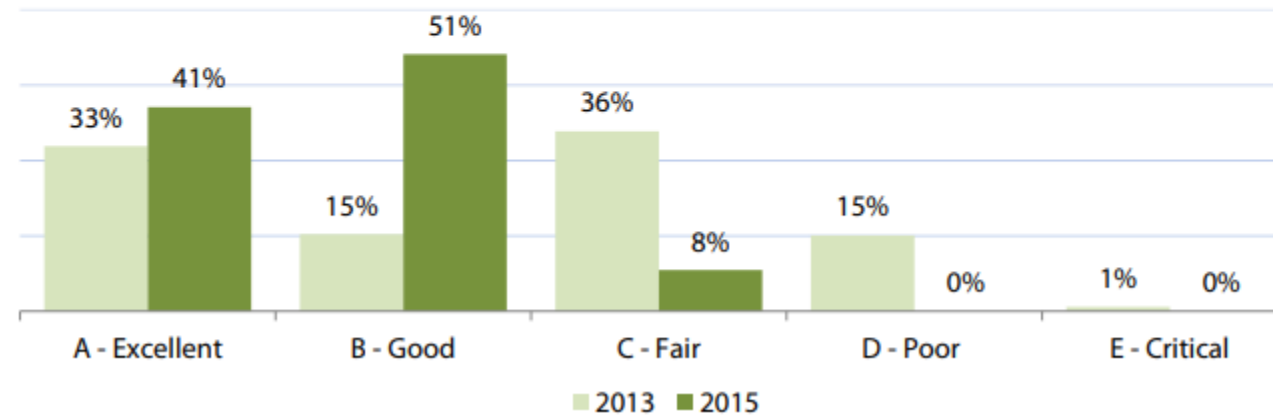


Bridges and Culverts - All	Replacement Value	Units	Desired Rating	2013 Rating	2015 Rating	Trend
Bridges	\$25,943,608	57	A	B	B	➡
Culverts	\$7,117,308	35	A	B	B	➡
Total	\$33,060,916	92	A	B	B	➡

Bridges



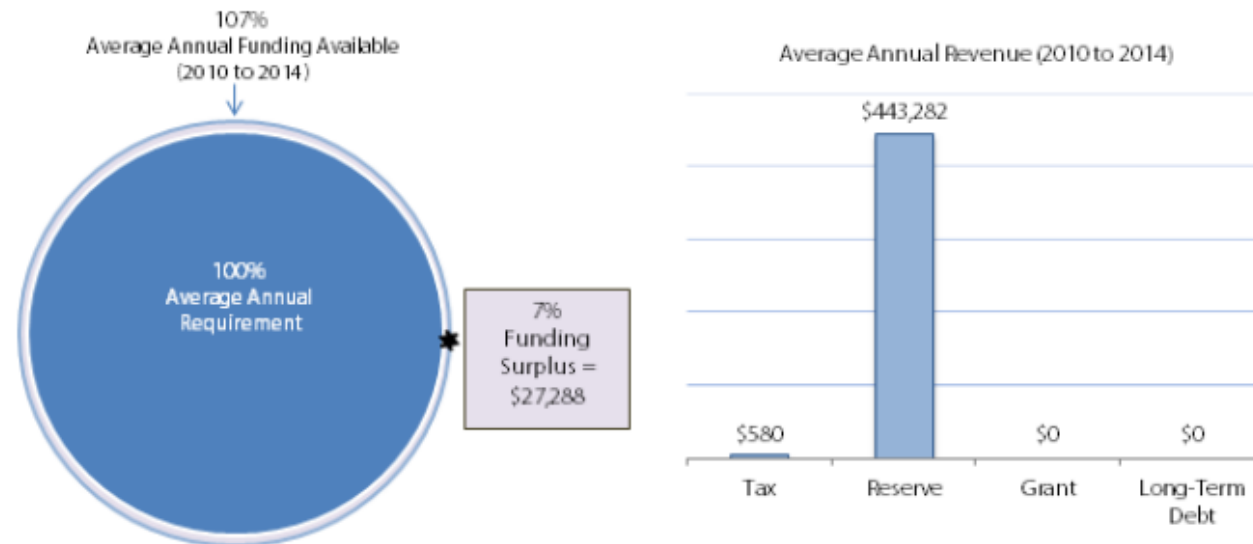
Culverts



Funding (Gap)/Surplus

Funding (Gap)/Surplus = Total Average Annual Funding Available - Average Annual Requirement

Average Annual Requirement	Average Annual Funding Available (2010 to 2014)					Funding (Gap) / Surplus	
	Tax	Reserve	Grant	Long-Term Debt	Total		
All	\$416,574	\$580	\$443,282	\$0	\$0	\$443,862	\$27,288



Funding Score

Funding Score = Total Average Annual Funding Available / Average Annual Requirement

107%

Bridges and culverts infrastructure has a funding score of 107%, with a funding surplus of \$27,288. Based on the 2015 condition rating of B, it would appear that the Town has been maintaining and prioritizing the replacement and rehabilitation of its bridges as identified by bridge condition studies.

	Condition Rating
	C
	Funding Score
Stormwater	29%

2014 Replacement Value

\$36.7 Million

Includes

89 Kilometres of mains

2,464 Catch basins

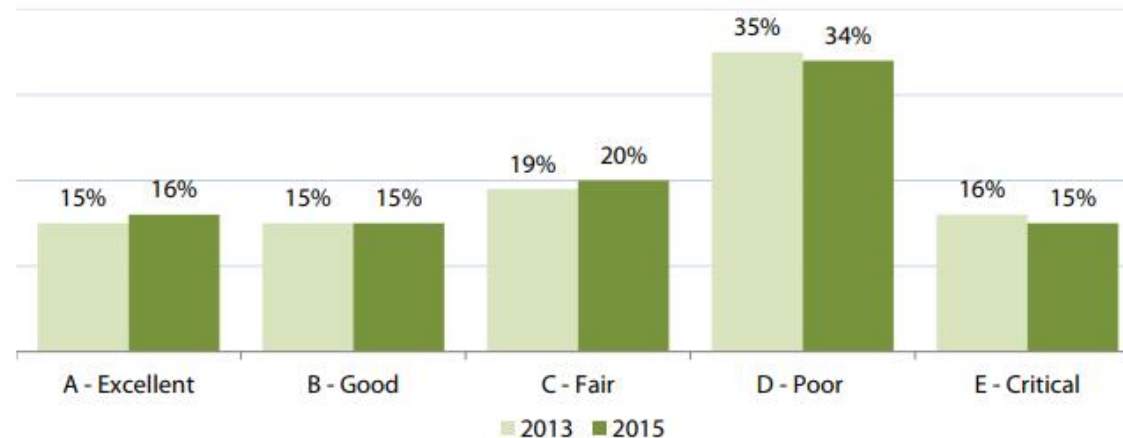
32 Kilometres of curbs and gutters

576 Manholes

The overall condition of stormwater is a C (Fair).

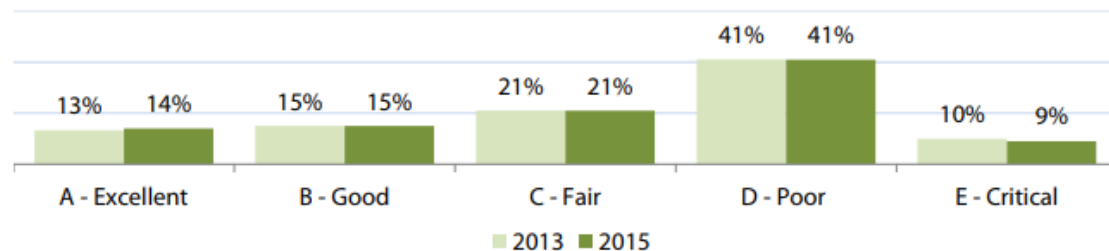
Non-visual linear infrastructure condition ratings are based on an asset's estimated useful life. 34% of assets under stormwater are rated D (Poor).

Typically, assets that fall below a C (Fair) rating are monitored more closely to ensure that they are functioning as intended and maintenance is undertaken to optimize their useful life. Yearly camera and flushing programs are implemented to identify and forecast replacement and repair.

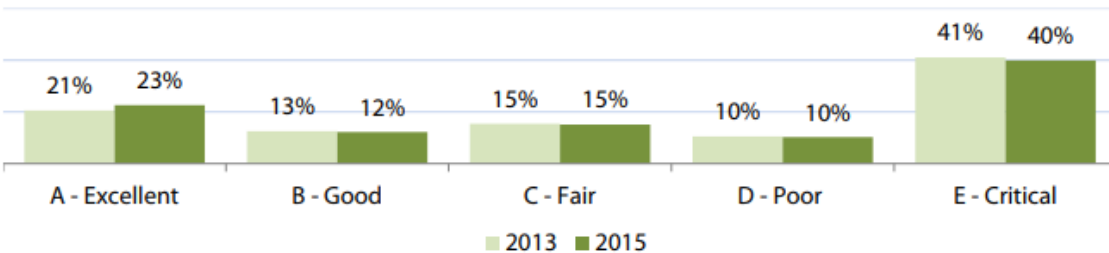


Stormwater - All	Replacement Value	Units	Desired Rating	2013 Rating	2015 Rating	Trend
Storm Mains	\$28,852,372	89 km	B	C	C	➡
Catch Basins	\$4,772,179	2,464	B	C	C	➡
Curb and Gutters	\$2,178,519	32 km	B	C	C	➡
Manholes	\$850,426	576	B	D	B	↗
Total	\$36,653,496	-	B	C	C	➡

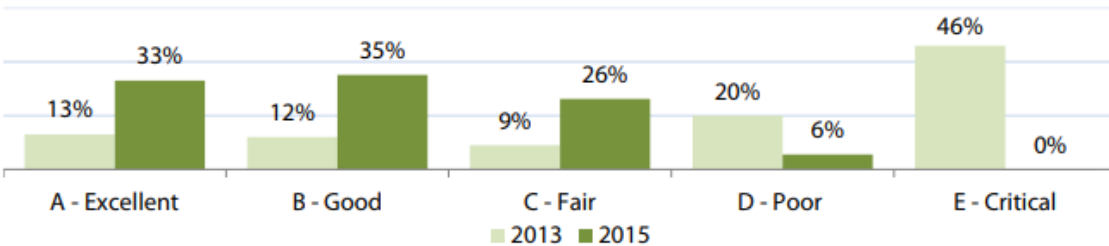
Storm Mains



Catch Basins, Curbs, and Gutters



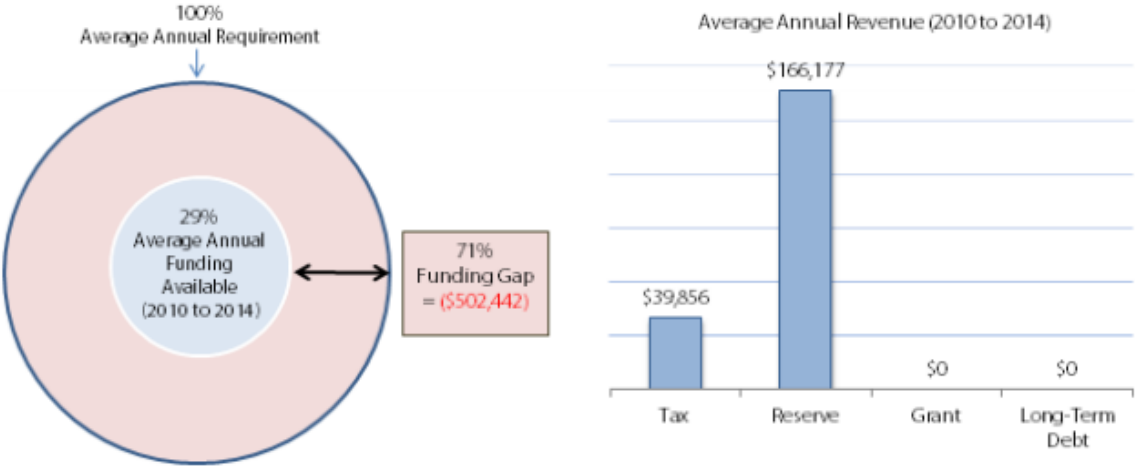
Manholes



Funding (Gap)/Surplus

Funding (Gap)/Surplus = Total Average Annual Funding Available - Average Annual Requirement

Average Annual Requirement	Average Annual Funding Available (2010 to 2014)					Funding (Gap) / Surplus	
	Tax	Reserve	Grant	Long-Term Debt	Total		
All	\$708,475	\$39,856	\$166,177	\$0	\$0	\$206,033	(\$502,442)



Funding Score

Funding Score = Total Average Annual Funding Available / Average Annual Requirement

29%

Stormwater infrastructure has a funding score of 29%, with a funding gap of (\$502,442). Stormwater condition assessments are completed using estimated useful life. With an overall condition rating of C, it shows that the majority of stormwater assets are in the latter half of their lifecycle. Stormwater replacement work is strategically timed to convene with other construction within a utility corridor to provide cost effectiveness.

Asset Management Plan

The RM of Springfield situation

- Tangible Capital Asset (2015 audited statement) Net book value (Cost less Amortization) \$61.3 million.
- Present 5 year Capital Plan estimated at \$36.4 million.
- Infrastructure deficit – not known
- Lifecycle costing - not known
- Infrastructure conditions - only partially known
- Gas tax funding to the RM over the next 5 years in total: \$3.9 million.
- Aging Infrastructure: Maintenance costs are increasing.

Asset Management Plan

Who is involved (stakeholders)?

Internal

- Council
- Chief Administrative Officer
- Senior Manager's
- Support team (staff: direct and indirect)
- Public – our customers.

External

- Federal and Provincial Regulators
- Banking and Financial Institutions
- MASH (other RM's, Academic, Schools and hospitals).
- Consultants/Private Enterprises

Asset Management Plan

