Rural Municipality of St. Andrews

Municipal Service Delivery Improvement Program

Best Practices for Solid Waste Management Master Plan

August 3, 2022

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RM of St. Andrews

Best Practices for Solid Waste Management Master Plan

Engagement

The Rural Municipality of St. Andrews engaged Exchange Group (EXG), a Manitoba-based Chartered Professional Accounting and Consulting Firm, to review the solid waste services provided to the residents and to assist in identifying best practices for the creation of a Solid Waste Master Plan. The review was performed under the Municipal Service Delivery Improvement Program (MDSIP) established by the Province of Manitoba.

Professional Disclosures

Exchange Group is a Chartered Professional Accounting firm providing accounting, assurance, and consulting services.

Rules of Professional Conduct: The Manitoba Chartered Professional Accountants' Rules of Professional Conduct require us to be independent to prepare this Report.

Independence: Exchange Group is independent of the Rural Municipality of St. Andrews and the Province of Manitoba.

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RM of St. Andrews

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A. PROJECT BACKGROUND & SCOPE

A.1 Project Background

Exchange Chartered Professional Accountants (EXG) were engaged to conduct a review of the solid waste services at the Rural Municipality of St. Andrews (St. Andrews) and to assist in identifying best practices for the creation of a Solid Waste Master Plan.

A.2 Project Scope / Limitations

EXG reviewed solid waste services provided to the residents of the St. Andrews. For some analysis, EXG relied on information contained in other consultants' expert published reports. Further research may be needed in conjunction with the information provided in this Report.

A.3 Information Used

EXG utilized the following for the preparation of this Report:

a. Information supplied by the St. Andrews
b. Interviews
c. Publically available information and reports
d. Site tours both in St. Andrews and other Municipalities

B. Background Information

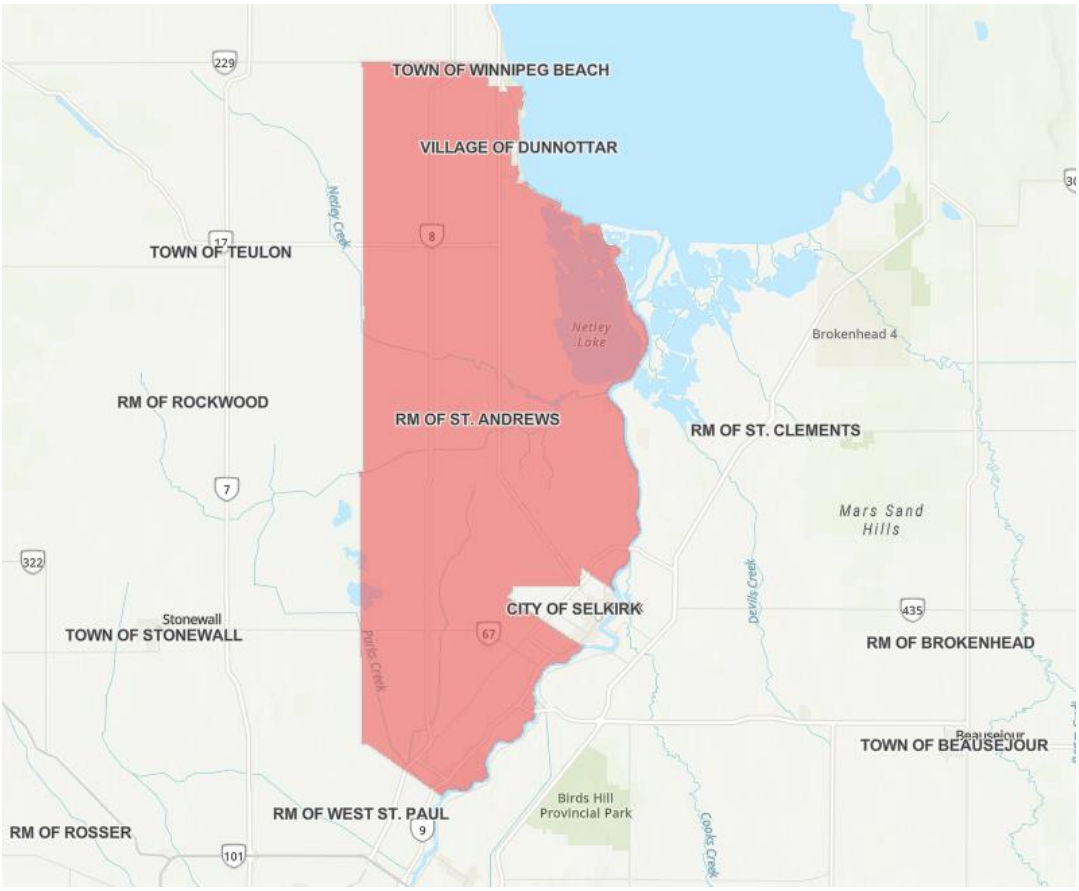
1. St. Andrews is a municipality located approximately eight kilometres north of the City of Winnipeg.

2. According to the 2021 census, St. Andrews covers approximately 739 square kilometres and has a population of 11,723.

3. The Municipality has 4,736 private dwellings, with 4,404 being occupied by permanent residents. The remaining 332 private dwellings tend to be seasonal residents.

4. The largest communities located within St. Andrews are Clandeboye, Petersfield and Lockport.

5. Adjacent communities to St. Andrews are the City of Selkirk, the Town of Winnipeg Beach, and the Village of Dunnotar.



B.1 Map of St. Andrews' Key Locations

B.2 St. Andrews' Goals

6. Based on EXG's interviews with St. Andrews, with the evolving environmental impacts of climate change, the following are some goals that the Municipality would like to achieve with their solid waste services:

REDUCE

① ↓ Greenhouse Gasses (GHG)

③ ↓ Number of Visitors to the Landfill

INCREASE

② ↑ Diversion through Recycling and Composting

⑥ ↑ Extend the useful life of existing cells

IMPLEMENT

④ → Alternative Diversion Options

⑤ → Best Practices

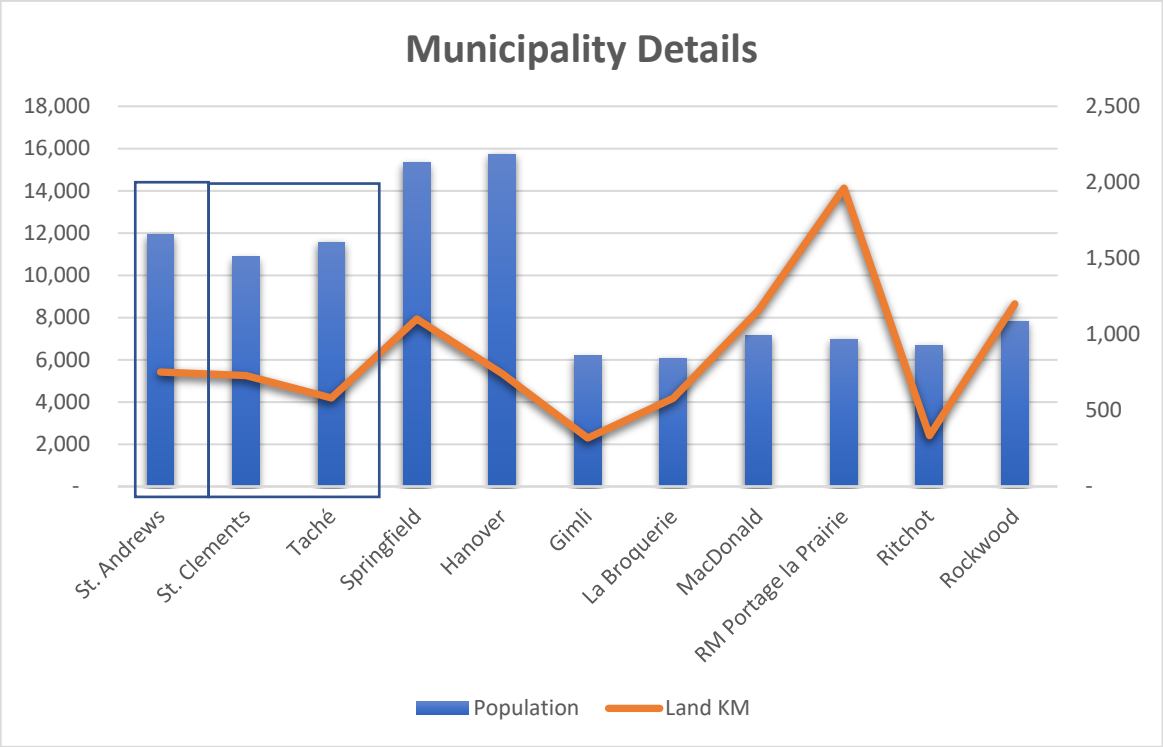
B.3 Current Challenges

7. The following are some challenges faced by St. Andrews in their solid waste services:

1. Too many visitors to the landfill due to no curbside collection service.
2. Low diversion rate in the Municipality and lack of easy ways to recycle.
3. Barriers to implementing composting.
4. Limited internal tracking of public works activities at the landfill.
5. Limited data tracking of materials.
6. Tipping fees collected do not fully offset the costs of operating the landfill.
7. The Municipality does not have a weight scale to price loads based on actual weight.
8. Unable to quantify greenhouse gas.

B.4 Cross-Jurisdictional Municipalities

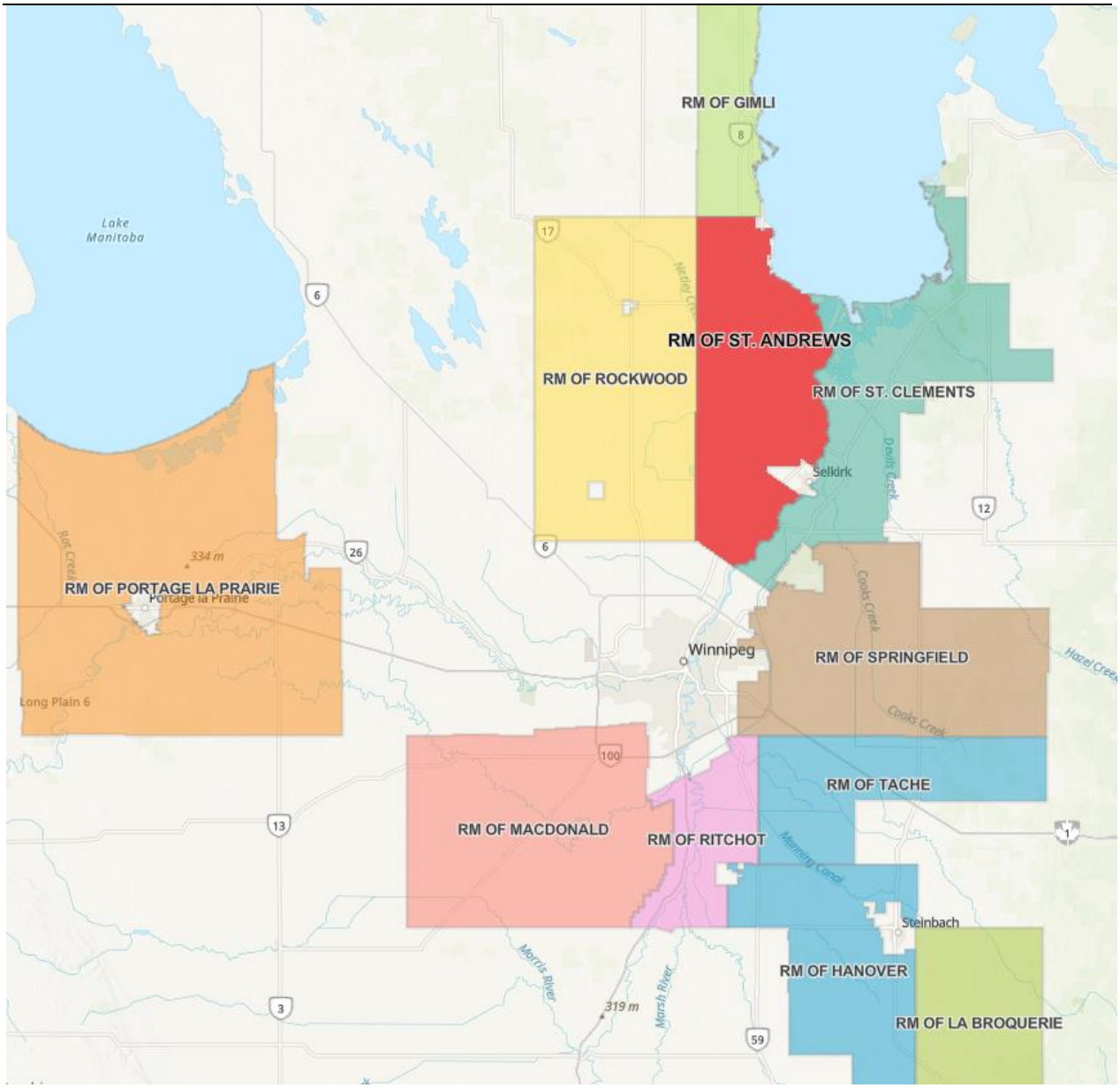
8. Based on St. Andrews' Chief Administrative Officer (CAO) recommendations, EXG analyzed comparable Municipalities in the following chart which outlines their size and population.



9. The most comparable municipalities to St. Andrews are the RM of St. Clements and the RM of Tache.

10. The RM of Hanover and the RM Springfield have comparable land kilometres with a larger population.

B.6 Map of Cross-Jurisdictional Municipalities



C. 2021 Survey

11. A survey was conducted on the residents in 2021 surrounding plastics and solid waste. The survey received 700 responses.

12. EXG reviewed the survey to gather important topics represented in the survey questions.

C.1 Survey Statistical Results

13. **94%** feel that it is important to conserve the environment.

14. **93%** of respondents are interested in recycling.

15. **90%** feel that improper waste management will impact future generations.

16. **76%** of respondents felt climate change was a real and damaging problem.

17. **51%** feel that implementing a curbside program is the most pressing need in the community regarding waste.

18. **50%** felt that an alternative solution to landfilling should be developed.

C.2 Survey Residents' Comments

19. Following are some common themes in the survey residents' comments:

C.2.1 Curbside Pickup

20. Residents identified a need for a curbside collection program.

21. Numerous residents felt that they were paying high taxes and they should include a curbside pickup program.

22. Many residents find it challenging to drive regularly to the landfill.

C.2.2 More Recycling Options

23. Residents want more locations to recycle.

24. Residents want more items included in the recycling plan.

C.2.3 Composting

25. Residents discussed community composting, including:

    a. Resident drop off at the landfill

    b. Turning compost into soil for residents to use

    c. Option to buy composting from RM.

26. Compost curbside collection service including:

    a. Yard waste (seasonally)

    b. Food waste/organics year-round

    c. Incentive to compost

    d. Home composting.

C.2.4 Recycle Roll-Off Bins

27. Residents discussed issues surrounding the use of the roll-bins placed around the Municipality. These issues include:

    a. Bins are overflowing and should be collected more often

    b. Waste is often being thrown into the bins

    c. The wind is blowing recycling as a result of bins overflowing.

C.2.5 Education

28. Residents referenced that education is important and is needed to improve diversion:

    a. Residents want transparency as to what is happening to the recycled items

    b. More awareness of the recycling bins in hopes of improving the situation

    c. More education on recycling in general

    d. Improving signage at the landfill.

D. St. Andrews' Waste Generated

29. St. Andrews has a number of challenges in calculating the amount of waste, recycling and compostable materials that end up in their landfill:

    a. The data surrounding types of waste collection are not tracked. As a result, St. Andrews is unable to quantify the amount of waste produced by the residents each year.

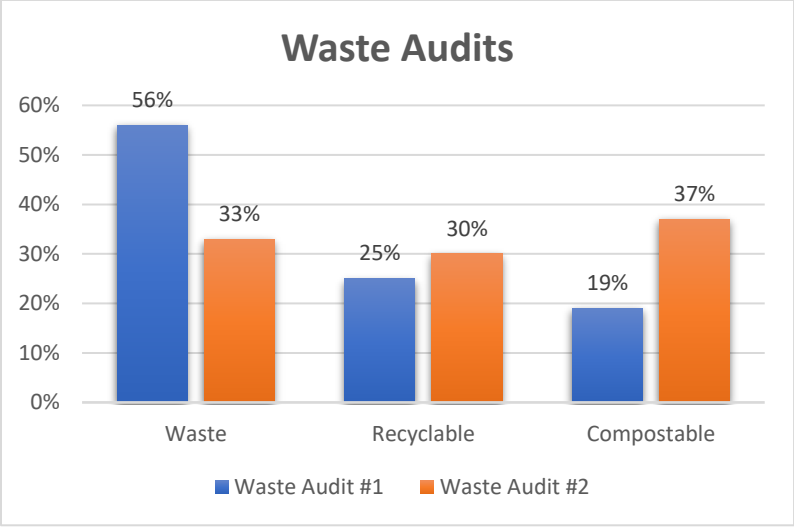
    b. St. Andrews does not have a weight scale, therefore, calculating the amount of waste arriving each year in the landfill has not been available.

30. For an estimate, EXG reviewed two waste audits conducted to understand the waste produced by the residents:

    Waste Audit #1 KGS Group (2021)

    Waste Audit #2 Nativus Consulting Group (2021)

31. The following chart demonstrates the overall findings of each waste audit. To simplify the data of the studies, EXG categorized the information of the percentage of materials dropped off at the landfills into: Waste, Recyclable & Compostable.



32. The results of both studies indicated that a significant portion of the waste (between 44% to 67%) that ends up in the landfill are **Divertible Materials.**

D.1 Waste Audit #1

33. A solid waste audit was conducted examining three different waste streams:

    a. Residential drop-off by St. Andrews' residents at the landfill

    b. Private contractors' pick up from residents in St. Andrews

    c. Waste from the RM of St. Clements. The RM of St. Clements has similar waste to the RM of St. Andrews.

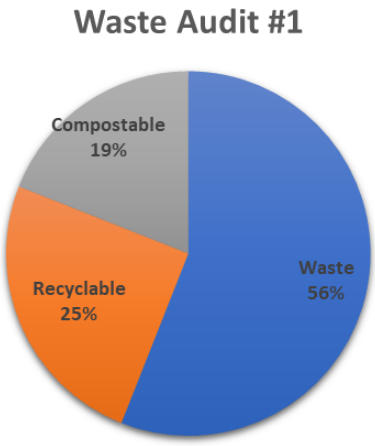
34. An estimate of weekly waste was calculated using the residential drop-off collection over a one-week period and extrapolated.

35. The results of that study indicated the following:

    a. 56% are Waste

    b. 25% are Recyclable

    c. 19% are Compostable



36. Based on the results of the study, **44% of the waste generated consists of divertible materials**.

37. Other important factors in the study indicate that the RM of St. Clements has a very similar percentage of divertible materials of 45%. Best Practice Example #1 later in this Report documents how a curbside recycling program has improved its collection of divertible materials.

D.2 Waste Audit #2

38. A second waste audit was performed that quantified the annual waste generated by collecting 8 samples throughout four seasons during 2021.

39. Based on the audit, the estimated annual waste generated is:

    a. 3,460 tonnes of waste is generated by the St. Andrews

    b. 2,500 tonnes of the waste is landfilled

    c. 700 tonnes of the waste are recycled through recycling roll-off bins placed around the Municipality

    d. 260 tonnes of yard waste informally composted.

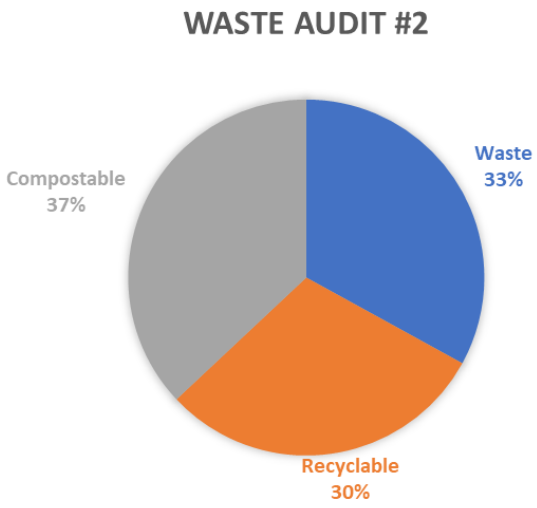
40. Waste was sampled during four seasons and the findings were as follows:

    a. 33% Waste

    b. 30% Recyclable

    c. 37% Compostable

41. Based on the results of the study, **67% of the waste generated consists of divertible materials**.



E. Landfills

E.1 Different Classes of Landfills

42. Landfills in Manitoba are divided into three classes.

43. **Class 1** – are the largest facilities that:

    a. Receive more than 5,000 tonnes of solid waste in a year or 400 tonnes of solid waste in a 30-day period

    b. Receive solid waste from outside the province; or

    c. Is operated by anyone other than a municipality or regional waste management authority.

44. **Class 2** – A facility that does not meet the definition of a Class 1 or Class 3

45. **Class 3** – A waste disposal ground serving a population of less than 1,000 people.

E.2 St. Andrews' Landfills

46. St. Andrews operates two Class 2 Landfills.

47. The landfills are only available to residents of the RM of St. Andrews.

48. In order to access the landfill, residents need a Refuse Permit to gain access to the site. If residents lose their Refuse Permit, they can purchase a new one for $10.

49. Businesses must present proof of a valid Business Licence to gain access to the landfill.

50. St. Andrews tracks landfill visit information via an Excel spreadsheet (the information is collected on-site in the form of paper and entered in the spreadsheet at a later time). Information commonly collected are:

    a. The number of visitors

    b. Materials diverted

    c. Quantity of waste burned

51. Public works hours spent were tracked from mid 2017 to 2020, however, they are not tracked by landfill activities.

E.3 Earl Grey Landfill

52. The Earl Grey Waste Disposal Ground is located at SW 13-13-03 EPM on the east side of Earl Grey Road between Bay Road & Donald Road and does not have a weigh scale.

53. The landfill serves residents throughout St. Andrews but typically serves residents in the southern region.

E.4 Clandeboye Landfill

54. Clandeboye Waste Disposal ground is located at SE 34-14-04 EPM on the north side of Bell Road between PTH 9 and Bracken Road and does not have a weigh scale.

55. The landfill serves residents throughout St. Andrews but typically serves residents in the northern region.

E.5 Village of Dunnotar

56. The Village of Dunnotar operates a Class 2 Landfill and does not have a weigh scale.

57. St. Andrews has a shared service agreement with the Village of Dunnotar.

58. As part of this agreement, residents who live north of Netley road can use the landfill located in the Village of Dunnotar. The Village of Dunnottar has issued 164 permits to the St. Andrews residents since 2017.

59. St. Andrews provides maintenance services to the Village of Dunnotar Landfill.

E.6 Comparative Landfill Information

60. The following is comparative landfill information relative to other municipalities.

Municipality	Weight Scale	Non-Resident Access	# of Class 1 Landfills	# of Class 2 Landfills	# of Transfer Stations	Access to Outside Landfill
St. Andrews	✗	✗	0	2	0	
St. Clements	✓	✓	1	0	4	
Taché	✓	✗	0	1	1	
Gimli	✗	✓	0	1	0	
Hanover	✗	✗	0	0	0	Steinbach
La Broquerie	✗	✗	0	0	0	Steinbach
MacDonald	✗	✗	0	2	0	
Portage la Prairie	✓	✓	0	0	0	Portage la Prairie
Springfield	✗	✗	0	0	2	
Ritchot	✓	✓	1	0	1	
Rockwood	✗	✓	0	1	1	

61. St.Clements and Ritchot are the only municipalities that operate a Class 1 Landfill. This is mainly due to the volume of waste they receive and manage at their facilities from residents and non-residents.

62. St. Clements operates four transfer stations. This is largely due to the overall size and spread of the population. In addition, St. Clements receives waste from other municipalities, which creates a larger waste stream to manage.

63. La Broquerie and Portage la Prairie do not operate a landfill or a transfer station as they are in close proximity to the City of Steinbach (approximately 30 km) and the City of Portage La Prairie (approximately 14 km).

F. St. Andrews' Current Waste Management

F.1 Waste Methods

64. Waste is typically disposed of by two methods:

    a. **Resident Drop Off** – Residents have to drive to the landfill to deposit waste

    b. **Private Collection** – Some residents pay for private collection on a monthly basis that gets transported to the landfills.

F.2 Pricing

65. Residents can drop off household waste at the landfill for free (as long as it is household refuse).

66. Refuse that require additional handling or incurred costs are charged a tipping fee. There are no tipping fees for EPR & PRO programs.

67. Private collectors pay a tipping fee at the standard rate.

68. Neither of the two landfills has a weight scale; therefore, pricing is based on either:

    a. Vehicle size or

    b. Specific material type.

F.3 Burn Piles

69. Each landfill operates a burn pit. This is for clean burnable materials such as wood waste and yard waste.

70. Below is a summary of materials burnt:

Summary of Burned Waste		2019	2020	2021	Total Burned Waste
Burned Waste (m3)	Cubic Metres	123,217	110,434	133,200	366,851

F.4 Comparative Waste Tipping Fees

71. Below is a table summarizing the comparative pricing to other municipalities:

Disposal Type	St. Andrews	St. Clements	Taché	Gimli	Hanover	La Broquerie	MacDonald	Portage la Prairie	Springfield	Ritchot	Rockwood
Garbage Disposal by Residents	Free	Residents-Free up to 10 bags. Then $2/bag. Non-residents-$4/bag.	1-2 bags = $2 each; 3-5 bags=$7.50; 6-10 bags=$15; 11+bags or trucks = $30. Otherwise $60/M.T	Free	$75/M.T	$75/M.T	$3/bag or $5 to $300 based on vehicle size	$50/M.T per resident or $85 per non-resident	Free	R$5 gate fee NR $72/Tonnes	Resident - $3/bag or $20-$205 per vehicle Non-resident - $6/bag or $40-$410 per vehicle
Demolition Disposal by Residents	$20 to $400 (based on size of vehicle)	Residents-$60/M.T Non-resident-$75/M.T	$60/M.T	Free	$75/M.T	$75/M.T	$5 to $300 based on vehicle size	$50/M.T per resident or $85 per non-resident	Free	R$5 gate fee NR $72/Tonnes	$40-$410 per vehicle
Garbage Disposal for commercial purposes	$20 to $400 (based on size of vehicle)	Residents-Free up to 10 bags. Then $2/bag. Non-residents-$4/bag.	1-2 bags = $2 each; 3-5 bags=$7.50; 6-10 bags=$15; 11+bags or trucks = $30. Otherwise $60/M.T	$75/ 1 ton truck as base price and anything above that is negotiated.	$75/M.T	$75/M.T	$5 to $300 based on vehicle size	$50/M.T per resident or $85 per non-resident	Free	R$5 gate fee NR $72/Tonnes	Not accepted

72. Four municipalities have a price per bag for household refuse. These municipalities have some form of curbside collection, which the bag price helps to either fund the landfill or to help the cost of hauling from the transfer station to the landfill.

73. St. Clements, Ritchot and Rockwood all allow non-residents to visit their landfill/transfer stations. They charge higher fees to non-residents.

74. Hanover, La Broquerie and Portage la Prairie access their nearby city landfills. The City of Steinbach and City of Portage la Prairie operate Class 1 landfills, therefore, the price reflects the city tipping fee prices.

G. St. Andrew's Current Recycling Program

G.1 Recycling Collection

75. Recycling is available to the residents by drop-off to roll-off bins or by private collection.

76. The roll-off bins are collected and hauled away throughout the year by their Recycling Contractor.

77. St. Andrews owns ten roll-off bins and rents two from their recycling provider used specifically for glass.

78. The roll-off bins are located at the following locations:

    a. **Earl Grey:** there are three roll-off bins at this location along, with 1 bin that is rented for glass.

    b. **South Fire Hall:** the south fire hall has three roll-off bins for commingled recycling.

    c. **Clandeboye:** there are three roll-off bins at this location along, with 1 bin that is rented for glass.

    d. **St. Andrews Airport:** there is one roll-off bin.

    e. **Harry's Foods:** the roll-off bins at Harry's food were removed in 2021.

79. At each landfill, packaging and printed paper are collected together while glass is collected separately in ½ containers.

80. At the local drop locations, recycling is comingled.

G.2 Divertible Stewardship Programs

G.2.1 Stewardship Program

81. St. Andrews participates in the majority of stewardship programs available. These are programs designed to divert materials from landfills and help recycle the materials.

82. Below is a list of stewardship programs that St. Andrews participates in:

Diversion Programs	
Tires	Tire Stewardship Manitoba
E-Waste	Electronic Product Recycling Association (EPRA)
Household Harzardous Waste	Productcare Recycling
Pesticide Containers	Clean Farms
Mattress Recycling	Mother Earth Recycling
Eco-Centre	Manitoba Association for Resource Recovery Corp. (MARRC)

83. St. Andrews compares well to other municipalities in that St. Andrews participates in the majority of stewardship programs.

G.2.2 Summary of Divertibles

84. St. Andrews provided EXG with data on items tracked through diverting.

85. The items commonly tracked are items diverted through stewardship programs that began to be tracked in 2019. Below is a summary of the materials that are diverted from the landfill:

Summary of Divertible Materials					
Divertible Materials	Unit of Measure	2019	2020	2021	Total Divertible Materials
E-Waste Handling	Metric Tons	13	25	24	**62**
Fluorescent/CFL Lights Handling	Boxes	NA	142	72	**214**
Paint Handling - HHW					
# of Tubskids	Tubskids	NA	38	45	**83**
# of Drums	Drums	NA	10	34	**44**
Fuel	Drums	NA	NA	6	**6**
Mattresses	Mattresses	NA	456	980	**1,436**
Tires	Tires	NA	NA	511	**511**

*** Due to limitations in data, some years were not available to report**

G.3 Roll-Off Bin Analysis

86. The following analysis is compiled from data on the roll-off bins provided by St. Andrews.

G.3.1 Loads Per Site

87. Since 2017, the Municipality has paid for 3,546 loads to be hauled from the roll-off bins (an average of 709 loads per year).

Loads Per Site						
Year	Earl Grey WDG	Harry's Foods	South Fire Hall	Clandeboye WDG	St. Andrews Airport	Yearly Total
2017	156	157	249	91	14	**667**
2018	158	156	259	105	20	**698**
2019	141	155	257	133	25	**711**
2020	152	162	262	158	27	**761**
2021	152	73	296	155	33	**709**
Total	**759**	**703**	**1,323**	**642**	**119**	**3,546**
Average per year	**152**	**141**	**265**	**128**	**24**	**709**

88. The majority of the hauled loads occur at the South Fire Hall, which sees approximately 265 loads per year.

89. The roll-off volume indicates the value of a curbside collection program.

G.3.2 Weight Per Site

90. Since 2017, the total weight hauled from the roll-off bins is 3,778 tonnes. This is approximately 756 tonnes per year (data for St. Andrews airports years 2017 and 2018 were not available).

Weight Per Site						
Year	Earl Grey WDG	Harry's Foods	South Fire Hall	Clandeboye WDG	St. Andrews Airport	Yearly Total
2017	153	153	266	155	-	**727**
2018	158	154	259	147	-	**719**
2019	143	151	279	135	32	**741**
2020	141	143	279	146	107	**816**
2021	161	84	340	161	30	**776**
Total	**755**	**686**	**1,424**	**746**	**169**	**3,778**
Average per year	**151**	**137**	**285**	**149**	**34**	**756**

G.3.3 Program Cost Per Year

91. Over the past five years, the average cost per year for the roll-off bins program is $217,000:

Expense Per Site							
Year	Earl Grey WDG	Harry's Foods	South Fire Hall	Clandeboye WDG	St. Andrews Airport	GST	Total
2017	41,858	42,277	67,952	27,190	2,957	9,112	**191,347**
2018	43,212	43,519	72,551	31,860	4,634	9,789	**205,566**
2019	41,452	44,102	75,338	39,708	7,288	10,394	**218,283**
2020	44,105	46,682	77,640	48,891	7,850	11,258	**236,427**
2021	47,908	22,344	91,226	50,781	9,869	11,106	**233,234**
Total	**218,535**	**198,925**	**384,707**	**198,431**	**32,598**	**51,660**	**1,084,856**
Average per year	**43,707**	**39,785**	**76,941**	**39,686**	**6,520**	**10,332**	**216,971**

G.3.1 Cost Per Roll-off bin

92. In 2021, St. Andrews' average cost was $15,385 per roll-off bin each year (this cost excludes the cost of a rental bin of $6,500 per year).

93. The cost of hauling the owned bin includes a service fee per lift and a fee per metric tonne, whereas the cost of renting the bin only includes the service fee per lift.

94. The owned bins are hauled twice weekly (as needed), and the rented bins are collected once every second week.

Cost per Owned Bin					
Year	Earl Grey WDG	South Fire Hall	Clandeboye WDG	St. Andrews Airport	Total
Average per year	43,707	76,941	39,686	6,520	166,854
Less: approximate rented bin cost	(6,500)		(6,500)		(13,000)
Average less rental bins	37,207	76,941	33,186	6,520	153,854
Owned bins	3	3	3	1	10
Cost per Bin	**12,402**	**25,647**	**11,062**	**6,520**	**15,385**

Excludes Harry's Food removed in 2021.

G.3.5 Common Issues with Recycling Bins

95. The challenge that currently exists with operating the roll-off bins are the following:

    a. The reliance is placed on the residents to drive to the bins, which discourages diversion efforts.

    b. Residents tend to put non-recyclable materials into the bins.

    c. The bins are not compacted, which often results in hauling air-filled containers. This increases the cost over time since there is a fee per pickup.

    d. The bins tend to overflow.

    e. Certain bins are in close proximity to other municipalities, which allows residents outside St. Andrews to use them.

G.4 Comparative Diversion Fees

96. EXG reviewed the prices charged to residents for diversion activities.

97. St. Andrews compares well to the other municipalities as St. Andrews offers the majority of the services to their residents for free.

98.	**Refrigeration Units Containing Freon**	St. Andrews charges a tipping fee of $20 per freon-containing appliance unit. This is comparable to other municipalities that charge a fee for this service in the range of $15 and up.
99.	**Mattresses**	St. Andrews is on par with the average Municipality charging for mattresses. The majority of the municipalities use Mother Earth Recycling as a stewardship program. The stewardship program recycling facility charges a $15 fee per mattress. The price charged by the RM does not cover the cost of hauling the mattresses to Mother Earth Recycling.
100.	**Furniture disposal**	It appears that St. Andrews charges below the average Municipality for furniture. Furniture is transported to Prairie Green, a Class 1 Landfill. The tipping fee charged to residents does not cover the hauling costs to Prairie Green or their tipping fee.

101. The summary below outlines the key differences between the comparable municipalities:

Diversion type	St. Andrews	St. Clements	Taché	Gimli	Hanover	La Broquerie	MacDonald	Springfield	Ritchot	Rockwood
Household Recycling	Free	Free	Free	Free	Free	Free	Free	Free	$5 gate fee	Free
Glass Recyling	Free	Free	Free	Free	Free	Free	Free	Free	$5 gate fee	Free
Scrap Metal	Free	Free	Free	Free	Free	Free	Free	Free	$5 gate fee	Free
Refrigeration Units	$20	R$35 NR$50	$25	$20	$15	$15	Free	Free	$20	R$30 NR $60
Tires	Free	Free	Free	Free	Free	Free	Free	Free	$5 gate fee	Free
E-Waste	Free	Free	Free	Free	Free	Free	Free	Free	$5 gate fee	Free
Household Harzardous Waste	Free	Free	Free	Free	Free	Free	Free	Free	$5 gate fee	Free
Pesticide Containers	Free	Free	Free	Free	Free	Free	Free	Not accepted	$5 gate fee	Free
Mattress	$15	R$15 NR$25 Weight based	$60/M.T	Free	$15	$15	$5-$300 based on vehicle size	Free	$5 gate fee	R$20 NR$40 weight based
Furniture	$10 to $20	R$15 NR$25 weight based	$60/M.T	Free	$75/MT	$75/MT	$5-$300 based on vehicle size	Free	$5 gate fee	R$20 NR$40 weight based
Eco-Centre	Free	Free	Free	Free	Free	Free	Free	Free	$5 gate fee	Free
Composting	Free	Free	Free	Free	Free	Free	Free	Free	$5 gate fee	Free
Batteries	Free	Free	Free	Free	Free	Free	Free	Free	$5 gate fee	Free

G.5 Recycling Rates Rer Capita

102. EXG reviewed the 2020 annual report published on the Multi-Material Stewardship Manitoba website.

103. Using the selected municipalities for cross-comparison, EXG gathered the data of KG and KG per capita reported.

104. The table below compares the St. Andrews recycling rates.

Municipality	Population	KG - 2019	KG Per Capita 2019	KG - 2020	KG Per Capita 2020	Average KG Per Capita
La Broquerie	6,076	188,394	31	155,170	26	**28**
Rockwood	7,823	243,240	31	238,750	31	**31**
Hanover	15,733	750,428	48	707,398	45	**46**
Springfield	15,342	724,340	47	764,100	50	**49**
St. Clements	10,876	520,870	48	556,440	51	**50**
Taché	11,568	600,580	52	638,150	55	**54**
St. Andrews	**11,913**	**733,510**	**62**	**703,030**	**59**	**60**
MacDonald	7,162	473,260	66	500,910	70	**68**
Ritchot	6,679	476,720	71	476,408	71	**71**
Gimli	6,181	508,300	82	479,170	78	**80**
Portage la Prairie	6,975	812,422	116	876,855	126	**121**

105. St.Andrews recycles an average of 60 KG per capita over 2019 and 2020, which places St. Andrews 5th out of 11 municipalities compared.

106. Comparing St. Andrews to all 147 municipalities reported to MMSM, **St. Andrews places 96th in KG per capita,** in the **bottom 35% in Manitoba**. (See Appendix 6)

107. According to Multi-Material Stewardship Manitoba Inc. (MMSM) Annual Report, the average Manitoban recycled 64 kg in 2020. The RM of St. Andrews recycled just 59 kg per person in 2020, indicating St. Andrews is **below the average when it comes to recycling.**

108. A large contributor to low recycling rates may be the lack of curbside collection services.

H. St. Andrew's Current Composting

109. Currently, the RM does not formally compost. Residents may bring their leaf and yard waste to Earl Grey as they are not accepted at Clandeboye.

110. The common use of the leaf and yard waste is to create an informal compost pile that is used on the landfill itself.

111. From interviews with other municipalities, this is a common practice as the general consensus is that formal composting is complicated.

I. Comparative Collection Services

112. The curbside collection services offered were compared by each Municipality with the types of materials accepted.

113. EXG classified collection services into:

    a. **Cluster Regions** represent communities that are densely populated.

    b. **Rural Regions** represent less populated areas outside of cluster regions.

114. Based on the analysis, it is not common to offer the services municipal-wide in Rural Regions as waste collection providers typically price based on the number of houses in close proximity to each other. Given that rural regions tend to be spread out, the cost to service those areas remains high. This challenge places the onus on residents to drive to the landfill or transfer station to dispose of their waste and recycling.

I.1 Curbside Collection

115. All other municipalities do offer some form of curbside collection services. The most common are waste and recycling.

116. Curbside collection typically occurs in the form of automated or manual pickup.

117. Automated collection uses waste & recycling carts that have a handle on the side of the bin. The automated collection truck then uses a robotic arm that seizes the bin and places the waste & recycling inside the truck.

118. Manual collection occurs when the waste & recycling company has a truck with labour workers collecting the waste & recycling from each property.

119. St. Andrews lack of curbside collection compares poorly to all regions as it does not provide any of those services to the residents.

120. Curbside Collection Programs are commonly funded through Special Service Levies, Annual Property Taxes or Billed as a service separately to the properties receiving the service.

121. Six of the ten comparable municipalities fund their curbside collection either partly or fully with a special service levy. The charge ranges from $70 to $241.

122. Tache charges a special service levy for recycling, while only the Local Urban Districts (LUD) receive waste collection that is charged through their general levy to those regions.

123. Gimli, Macdonald and Springfield all charge their collection services through annual property taxes. The charge is built into the general levy for the region receiving the service. The charge varies per property.

124. La Broquerie bills their collection service as a separate charge to residents in the LUDs on a quarterly basis, similar to water. The fee is approximately $49 quarterly.

125. The RM of Portage La Prairie charges a special service levy for garbage. Recycling is only available to certain regions where a fee per service is charged with a private contractor (information regarding the private contract was not available for this Report).

I.2 Organic Waste

126. All municipalities do not offer any service for food waste (organics). The cost of offering this service remains too high for the benefit of collecting it.

I.3 Yard Waste

127. Yard waste is offered in certain municipalities, and they were typically offered seasonally.

128. The residents commonly place their yard waste into bags.

129. Some municipalities place bag limits on the residents. Therefore, residents commonly must purchase bag tags at their municipal office if they want additional bags.

I.4 Summary of Collection Services Offered

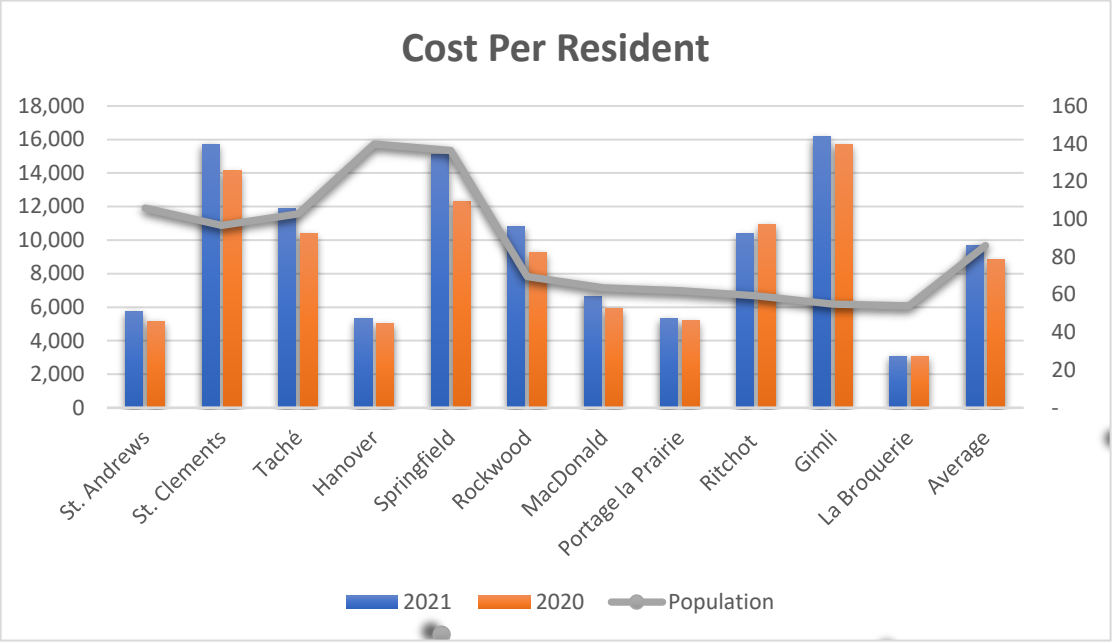
130. The following table summarizes the key differences in each municipalities' collection services:

✓	Available	**SSL**	Special Service Levy
×	Not Available	**PT**	Property Taxes
✋	Available upon request	**Billed**	Billed Seperately

Curbside Collection Services	St. Andrews	St. Clements	Taché	Gimli	Hanover	La Broquerie	MacDonald	Portage la Prairie	Springfield	Ritchot	Rockwood
Service Coverage											
Cluster regions	×	✓	✓	✓	✓	✓	✓	✋	✓	✓	✓
Rural regions	×	×	✓	✓	×	×	×	×	✓	✋	×
Material Type											
Waste	×	✓	✓	✓	✓	✓	×	✋	✓	✓	✓
Recycling	×	✓	✓	✓	✓	✓	✓	✋	✓	✓	✓
Yard Waste	×	×	✓	✓	×	✓	×	×	×	✓	✓
Food Waste	×	×	×	×	×	×	×	×	×	×	×
Ashes	×	×	×	×	×	×	×	×	×	×	✓
Service Information											
Type of pickup	Not Available	Automated	Manned	Manned	Automated	Manned	Automated	Manned	Automated	Automated	Manned
Waste Frequency	Not Available	Weekly	Weekly	Weekly	Weekly	Weekly	Not Available	Weekly	Weekly	Weekly	Weekly
Waste bin type	Not Available	Cart	Bags	Mixed	Cart	Mixed	Not Available	Bags	Cart	Cart	Bags
Recycle Frequency	Not Available	Bi-weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Bi-Weekly	Weekly	Weekly	Not Available
Recycle bin type	Not Available	Cart	Bags	Mixed	Cart	Mixed	Cart	Bags	Cart	Cart	Not Available
Payment type	Not Available	**SSL**	**SSL**	**PT**	**SSL**	**Billed**	**PT**	**SSL**	**PT**	**SSL**	**SSL**
Amount	Not Available	$ 105	$ 70	N/A	$ 158	$ 197	N/A	$ 130	N/A	$134	$ 241

J. Costs Per Resident

131. Using the 2021 and 2020 financial plan budgets, EXG calculated the cost per resident and compared it to each Municipality:



132. St. Andrews **appears** to have one of the lower costs per household, especially given the population that is served. The cost per resident for 2021 was $51 and $46 for 2020. However, it is important to note that the environmental section of the financial plan for the Municipality does not include the public works machine hours spent at the landfill. The hours spent by public works represent a large portion of the cost associated with operating the landfill. Including those machine costs would increase the price per resident which is outlined further in this Report.

133. Hanover, La Broquerie and the RM of Portage la Prairie have lower costs per resident. This is largely because those municipalities do not operate landfills or transfer stations. They have access to the City of Steinbach and the City of Portage la Prairie, each maintaining a Class 1 Landfill.

K. 10-Year Financial Information

K.1 10-Year Financials

134. EXG used general ledger data provided by St.Andrews to conduct a cost analysis over the past 10 years (see Appendix 8 for the 10-year financial statements).

135. The following summarizes the major analysis points from the review.

K.2 Landfill Deficits

136. The following is a Table representing the Landfill Deficits on landfill activities.

10 Year Landfill												
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Grand Total	10 Year Average
Landfill Revenues	**18,060**	**28,599**	**50,709**	**60,044**	**59,494**	**55,752**	**74,674**	**74,622**	**76,776**	**80,729**	**579,458**	**57,946**
Landfill Expenses												
Custodian Contract	57,600	61,920	63,278	90,801	90,801	90,801	122,319	121,500	122,000	134,084	955,105	95,511
Landfill Levy	74,963	78,375	78,375	78,375	78,375	78,626	78,626	78,626	78,626	78,626	781,592	78,159
Hydro	-	1,906	1,149	1,974	2,058	2,234	3,161	3,241	4,332	3,622	23,678	2,368
Monitoring Program	19,194	7,586	2,669	2,405	2,461	2,666	-	4,191	4,151	3,932	49,255	4,925
Furniture & Mattress	-	-	-	2,480	10,596	4,570	2,165	12,242	13,985	19,028	65,066	6,507
Miscellaneous	4,917	5,361	(1,481)	2,909	1,529	2,581	7,752	7,089	235	7,418	38,309	3,831
Supplies	5,223	17,154	5,553	8,173	7,854	2,261	12,428	8,850	5,343	15,808	88,647	8,865
Repairs & Maintenance	5,568	5,633	5,024	5,271	4,064	5,595	5,127	7,870	2,330	5,070	51,553	5,155
Public Works Hours	230,000	232,079	334,000	337,735	342,537	347,872	355,875	362,812	365,479	377,751	3,286,140	328,614
Freon Removal	-	-	-	-	-	-	-	-	3,458	2,041	5,499	550
Rodent Control	5,378	2,700	2,475	500	875	300	15,275	12,901	7,124	7,297	54,825	5,482
Ecocentre	22,906	31,161	16,184	5,731	(5,136)	(5,287)	(5,414)	(4,399)	(1,881)	(723)	53,143	5,314
Total Landfill Expenses	**425,749**	**443,874**	**507,226**	**536,355**	**536,014**	**532,219**	**597,314**	**614,923**	**605,182**	**653,954**	**5,452,811**	**545,281**
Surplus (Deficit)	**(407,689)**	**(415,275)**	**(456,518)**	**(476,310)**	**(476,520)**	**(476,467)**	**(522,641)**	**(540,301)**	**(528,406)**	**(573,225)**	**(4,873,352)**	**(487,335)**

137. The landfill revenues have not grown substantially over the last 10 years, increasing the annual landfill deficit. The largest increase is from allocating a cost of public works.

138. Revenue from tipping fees only from residents of St. Andrews makes it a challenge to break even.

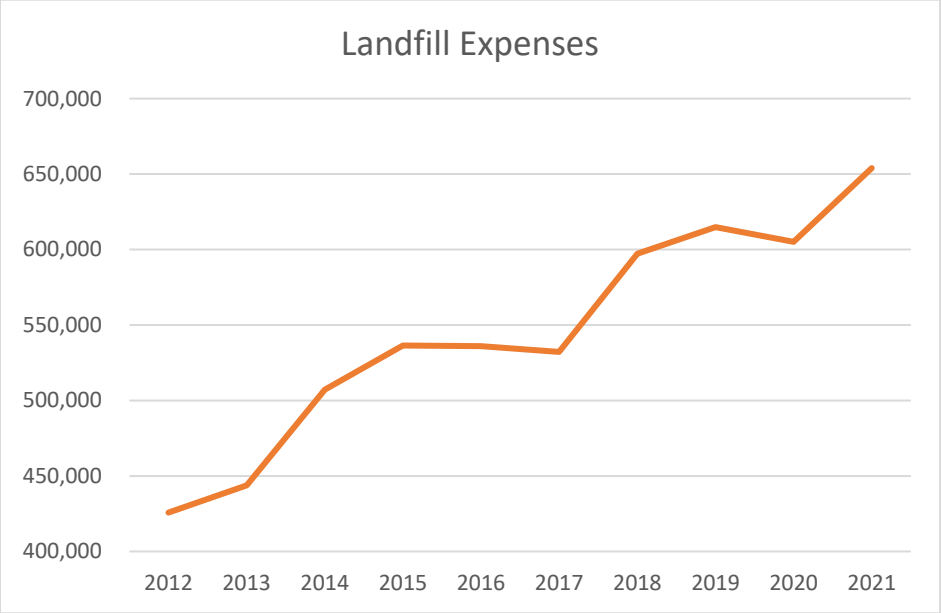
139. Costs include a $10 levy per tonne of waste landfilled of approximately $78,000 (7800 tonnes) per year as part of the Waste Reduction & Recycling Support (WRARS) program. Since the RM does not have a weight scale, the RM pays the levy based on a formula related to population. The WRARS levy is best calculated based on weight. Waste audits discussed earlier in this Report indicate that the RM may be overestimating its levy. Other methods

of calculating the levy are available that may be more accurate. (See Recommended Next Steps)

140. Other related costs may not be included in this analysis due to St. Andrews tracking certain costs in other departments. Therefore, the deficit could be larger.

141. As outlined in the graph below, the costs of operating the two landfills have grown substantially over the last ten years.

142. The growing costs don't support the low population growth experienced during that time.



K.3 Public Works Costs

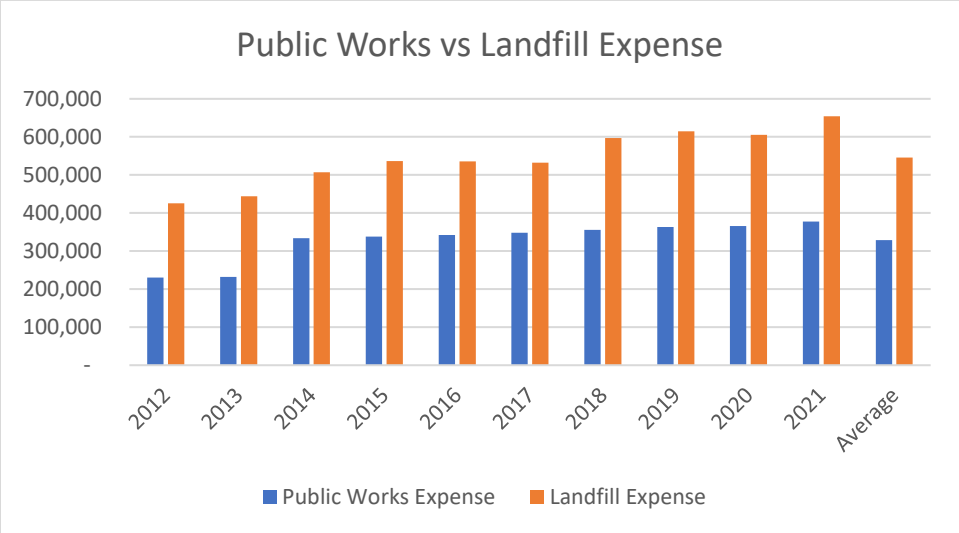
143. The largest cost of operating the landfill is the hours that Public Works spends maintaining the landfill.

144. Public Works time spent operating the landfill is the largest cost driver. Over the last 10 years, public works time has **averaged 60% of total landfill operating expenses**.

145. St. Andrews allocates a cost for Public Works time. Due to insufficient tracking of landfill activities, the cost is an allocation estimate. For the years 2018 to 2021, St. Andrews did not allocate Public Works time; therefore, EXG used the cost of $334,000 from 2014 (adjusted for inflation) for analysis purposes.

146. EXG has identified opportunities to reduce Public Works time by changing certain practices later in this Report.

147. Please see Appendix 5 for the Public Works Expense.



K.4 Public Works Hours

148. Public Works hours are the majority of the cost of operating and maintaining the landfill.

149. The average hours for the last three years were calculated using the data provided by Ron Hahlweg, the Manager of Environment/Utilities. Clandeboye is averaging 700 hours per year, Earl Grey is averaging 1,200 hours per year and hours spent at the Village of Dunnottar is 400 per year.

150. A common challenge that Public Works faces when working at the landfills is the amount of time spent weekly.

151. Between Earl Grey (23 hours) and Clandeboye (13 hours) average weekly hours, this equates to approximately two to three days at each location each week. Each time Public Works changes locations, they also need to haul equipment to each site.

Actual Hours				
Year	**Clandeboye**	**Earl Grey**	**Dunnottar**	**Total**
2018	478	1,111	408	**1,998**
2019	886	1,378	399	**2,663**
2020	713	1,044	358	**2,115**
Total	**2,077**	**3,533**	**1,165**	**6,775**
Average	**692**	**1,178**	**388**	**2,258**
Round up	**700**	**1,200**	**400**	**2,300**
Weekly	**13**	**23**	**8**	**44**

152. Using estimates through discussion with Ron Hahlweg, it is estimated that **approximately 62%** of the Public Works time at the landfills is spent directly on landfill activities. These activities would include activities such as compacting and moving waste inside the landfill. Other activities do not require as much weekly activity.

153. As per the following table, based on the estimated hours for Clandeboye and Earl Grey total of approximately 1,166 each year for landfill activities:

Current Hours by Activity							
	% Allocation	Clandeboye	% Allocation	Earl Grey	% Allocation	Dunnottar	Total Hours
Activities	Estimated Hours	700	Estimated Hours	1,200	Estimated Hours	400	2,300
Landfill	62%	434	61%	732	100%	400	1,566
Matress	10%	70	10%	120			190
Furniture	15%	105	15%	180			285
Snow Removal	10%	70	10%	120			190
Turning Compost	0%	-	1%	12			12
Burning Waste	2%	14	1%	12			26
Scrap Metal Loading	1%	7	2%	24			31

154. Using the hours and estimated cost per machine hour, the annual cost for public works time on only landfill activities at Earl Grey and Clandeboye is $174,900

Cost of Landfill Activities	
Landfill Activities	1,166
Machine hour cost	$ 150
Estimated Cost	174,900

K.5 Recycling Review

155. Over the last 10 years, the **average deficit in recycling activities is $3,700**

156. The RM receives revenue primarily from Multi-Material Stewardship Manitoba (MMSM) to run the recycling program

157. Revenue is also earned from the WRARS rebate program. The program returns 80% of WRARS landfill levies to municipalities that increase recycling efforts.

158. Between 2012-2014 the RM experienced larger deficits. The deficit began to decrease in 2015 as revenue from Multi-Material Stewardship Manitoba (MMSM) and WRARS rebate increased.

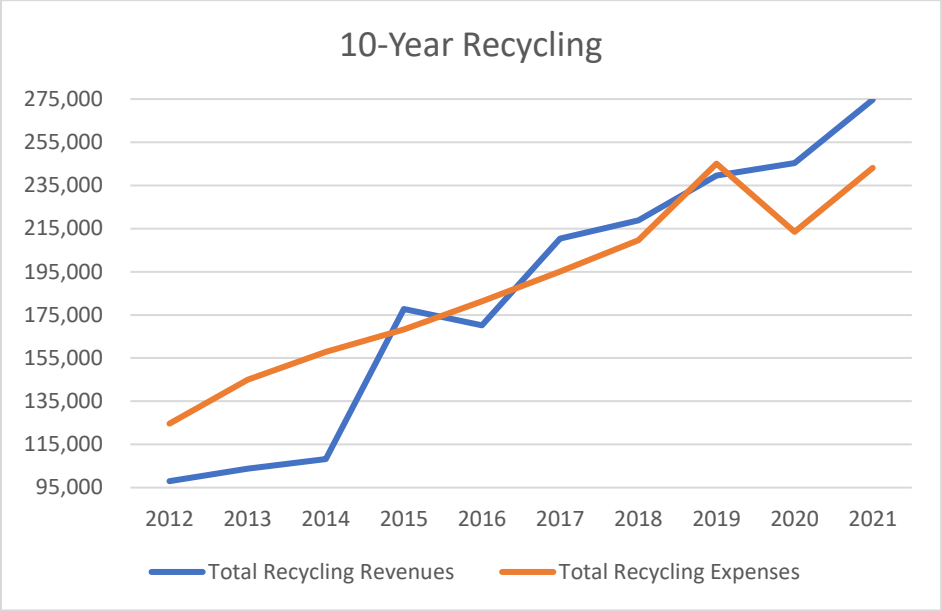
159. The largest cost driver of the recycling program is the recycling contract for the collection of roll-off bins around the Municipality. This cost averages **approximately 96% of recycling expenses.**

160. With the MMSM transition plan to Full Extended Producer Responsibility in review, the recycling program may no longer be run by the RM should they choose to opt out of providing service.

161. Increasing diversion efforts allows the RM to reduce landfill levies paid.

10 Year Recycling												
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Grand Total	10 Year Average
Recycling Revenues												
Recycling Revenue	62,717	65,093	57,005	109,915	112,641	178,084	156,657	170,103	174,399	192,684	1,279,298	127,930
Tire Recycling	1,925	2,156	1,259	1,859	1,833	2,013	1,500	1,711	2,114	2,160	18,527	1,853
Recycling Rebate	33,338	36,519	49,883	65,970	55,739	30,240	60,587	67,792	68,802	79,870	548,739	54,874
Total Recycling Revenues	**97,979**	**103,768**	**108,147**	**177,744**	**170,212**	**210,336**	**218,744**	**239,606**	**245,314**	**274,714**	**1,846,564**	**184,656**
Recycling Expenses												
Insurance	326	378	402	454	482	506	354	455	582	626	4,564	456
Furniture & Mattress	-	-	-	-	2,152	9,179	12,267	16,077	-	1,958	41,633	4,163
Recycling Contract	122,334	142,790	151,666	164,524	178,404	183,094	197,024	227,860	212,234	236,960	1,816,889	181,689
Repairs & Maintenance	619	1,570		1,051	322	1,740				3,571	8,873	1,479
Supplies	1,351	182	775	2,175		532		702	606		6,324	903
Feasibility Study			5,000								5,000	5,000
Total Recycling Expenses	**124,630**	**144,920**	**157,843**	**168,204**	**181,359**	**195,051**	**209,645**	**245,094**	**213,422**	**243,114**	**1,883,282**	**188,328**
Surplus (Deficit)	**(26,651)**	**(41,152)**	**(49,696)**	**9,540**	**(11,147)**	**15,285**	**9,100**	**(5,489)**	**31,892**	**31,599**	**(36,718)**	**(3,672)**

162. As outlined in the graph below, recycling revenues exceed recycling expenses.



L. Best Practices and Implications for St. Andrews

Short Term Best Practices

163. The following are the Best Practices for Rural Municipalities that can be implemented in the short-term timeframe.

L.1 Implementing Curbside Program & Repurpose Roll-off Bins

164. Implementing a curbside collection program for waste & recycling is key to increasing diversion.

165. Repurposing the use of roll-off bins that have been unsuccessful in a community.

166. Rural Municipalities collect in cluster regions (for St. Andrews, this could represent the southern region).

167. A large portion of the waste and recycling is sent to a Class 1 Landfill instead of having all go to their own landfill (for St. Andrews, the potential location to send the waste could be Prairie Green Landfill).

168. Contractors who dispose at Class 1 Landfills have access to weight scales. This will allow reports to be obtained which can be shared with the community to quantify the waste & diversion efforts.

169. Contractors have access to greenhouse gas reports from the Class 1 Landfills (since one of the goals of St. Andrews is to reduce greenhouse gases, this would quantify that goal).

170. Convert landfills to transfer stations and reduce operating hours based on a reduction in waste volume and visitors. The number of visitors to the landfill will be reduced.

L.2 MMSM Recycling Option

171. With the MMSM transition plan in progress, some considerations are:

    a. The transition plan is still in the first phase, therefore are still several unknowns at this stage.

    b. If St. Andrews were to opt out of providing service, MMSM will run the recycling program. The MMSM funding provided will no longer be received; however, the management of the recycling program is handled by MMSM.

    c. Setting up a curbside program may be essential to the transition plan as MMSM intends to minimize disruptions in current service. If the recycling program is not established, MMSM may have to explore establishing it themselves.

    d. St. Andrews should ensure there is flexibility written into the recycling contract to allow for an easier transition.

L.3 Potential Changes from Implementing Curbside Collection

172. With the assistance of Ron Hahlweg and based on the experience of other Municipalities that implemented Curbside Collection, EXG examined possible changes St. Andrews may experience from implementing a curbside program.

L.3.1 Visitor Effects

173. As mentioned previously in the Report, there are, on average, 128 visitors per day at each landfill.

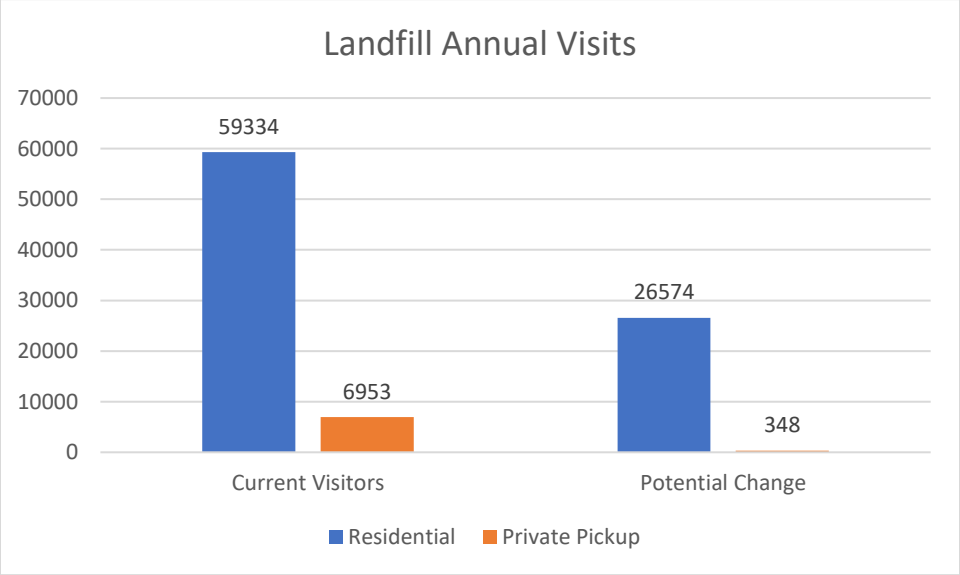
174. The effect of having a curbside collection service will collect waste and recycling at the source and reduce the number of trips residents must make to the landfill.

175. Earl Grey may experience a 60% reduction in residential visitors and a 95% in private pickup visitors

176. Clandeboye may experience a 50% reduction in residential visitors and a 95% reduction in private pickup visitors.

177. An overall reduction of visitors of approximately 59% between both locations

178. The following information will show how the visits to the landfill may be reduced. Please refer to Appendix 1 to 3 for the calculation of visitor decrease.



L.3.2 Public Works Time

179. Implementing a curbside program could have beneficial effects on the time spent by public works maintaining the landfill. With the majority of waste and recycling being collected at its source and transported to a Class 1 Facility, public works tasks could be reduced.

180. The average cost of machine time is approximately $125 to $150. For this estimate, we have used $150.

181. At Clandeboye, the estimated reduction in time spent on various landfill activities is 50%. The change from 700 hours per year to approximately 350 hours per year.

182. Total cost of public work machine hours at Clandeboye could decrease from $105,000 to approximately $52,500 per year.

183. At Earl Grey, the reduction in hours is also approximately 50%. This could reduce the hours from 1,200 annually to 600.

184. The cost of machine hours at Earl Grey could decrease from $180,000 to approximately $90,000 per year.

185. Please see Appendix 4 for the calculation of costs

186. There would be no change in machine hours at the Village of Dunnottar as implementing a curbside program would not change the work performed there.

187. The overall reduction in hours will allow the Municipality to allocate time elsewhere which would help implement other Best Practice options.

Machine Hours Change				
Landfills	Hours - Current	Hours - Curbside	Hours - Difference	Weekly Hours Saved
Clandeboye	700	(350)	350	7
Earl Grey	1,200	(600)	600	12
Dunnottar	-	-	-	-
Totals	**1,900**	**(950)**	**950**	18

L.4 Avoidable Cost – Raising the Berm

188. Approximately every five years, St. Andrews raises the berm around the landfill using waste from inside the cell and placing it around the edges. The top is covered with soil, and the overall goal is to raise the landfill's slope to extend the cell's life.

189. St. Andrews can continue raising the berm; however, the project is costly. The approximate cost of the most recent activity of raising the berm was:

    a. Earl Grey - $113,000

    b. Clandeboye - $45,000

190. The reduction in waste arriving at the landfill will also reduce the frequency of when this project will need to occur.

191. The estimated reduction in time could change from five years to 10 years at each landfill site.

L.5 Automated Collection vs Manual Collection

192. A Best Practice is ensuring the use of an automated collection instead of a manual collection.

193. The automated collection reduces placing a limit on the number of bags residents can dispose of, but rather filling the container. Automated collection also reduced the number of injuries collection operators incur with repetitive lifting.

194. The RM of Springfield is an example of a municipality that recently switched to automated collection. Their experience is that diversion overall has increased from the use of larger containers.

L.6 Implement Composting

195. **Compostable materials ending up in the landfill range from 19% to 37%** based on the two different waste audits.

196. Implementing composting may not stop burn piles altogether but can reduce the materials St. Andrews is burning. Burning materials is part of the Waste Reduction & Recycling Support (WRARS) levy, a $10 per tonne fee for all solid waste disposed of in Manitoba Landfills. Reducing burning will reduce the amount of levy paid.

197. Some examples that St. Andrews can use composting for are the following:

    a. Used by residents
    b. Provided to parks & recreation or to help beautify the Municipality
    c. Potential sale to landscape companies

198. The City of Steinbach has a composting program that requires the following labour and equipment:

a. One staff member for any given task (turning piles, hauling roll-bins etc.) Six equipment operators are on staff to choose from to rotate performing tasks; however, all can be performed by one person.

b. Approximately six hours per week to turn piles in the summer months and approximately once per month during the winter months

c. The following equipment:

- Loader to push & turn compost piles
- A screener which is rented
- Roll-off bins
- Vehicle to haul roll-off bins
- Compost Thermometer
- Watering truck to soak water piles for dry conditions (rare need)

d. Please see Best Practice Example #4 for more detail on the compost program.

199. Keys to a successful compost program are:

a. **Start off simple** – Begin with leaf and yard waste. As the process improves, start expanding into other items such as vegetables & kitchen scraps. Leaf and yard waste tend to be very forgiving, therefore it is a great place to start.

b. **Supervise the piles** – Ensure proper supervision of materials to avoid contamination.

c. **Make it a community event** – Encourage composting days around the Municipality that can become a local event.

d. **Engage the schools –** working with the school divisions to help educate the students will support the program's success.

e. **Education** – Continue to educate the residents.

200. The **Manitoba Composts Support Payments** is a grant that returns an amount per tonne based on the amount of compost produced.

a. The current grant pays:
    - $25 per tonnes under 2,500 tonnes up to $25,000
    - $10 per tonnes over 2,500 tonnes up to $500,000
    - Based on waste audits listed above, St. Andrews could reach a threshold value of up to $25,000.

b. St. Andrews will need to invest in a composting facility prior to being eligible for the grant. (Please see the following implementation process).

c. There is the risk that the grant may change or discontinue by the time the Municipality applies for it.

201. The Municipality may also apply for other grant funding, however, they are not specific to composting.

202. **Implementing Composting** may require some of the following:

a. Obtain necessary environmental approvals, consisting of a permit or a licence. The required approval will depend on the size of the composting that the Municipality prefers.

b. Ensure the Municipality meets the criteria of Schedule D of the Composting Facility Requirements of the Waste Management Facilities Regulation.

c. Take the compost operator training course offered through the Compost Council of Canada. The course will cover the necessary information for commercial composting of leaf and yard waste.

d. Assess equipment needs. Small-scale processes can operate with a loader and a screener that can be rented.

L.6.1 Pilot backyard composting program

203. Establish a pilot project where backyard composting bins are sold to the residents at a subsidized price. The low cost will encourage the residents who are interested in beginning composting.

204. Backyard composting is a simple and easy way to increase the diversion of organics such as kitchen scraps and garden waste that are coming to the landfill in the form of garbage bags.

205. An example of a backyard composting program can be to purchase 100 compost bins that cost $50 each. Subsidize the price down to where residents can pay $20 per unit.

206. An example is how the City of Steinbach ran a similar program, and their compost bins sold out rapidly.

207. There may be grant funding available to assist in the setup of this program

L.7 Implement Waste Pay Per Bag Approach

208. The St. Andrews' Waste Audits indicate that a significant portion of the materials arriving at the landfills is divertible.

209. A pay-per-bag approach can be an effective tool to reduce waste and increase diversion. If a resident has to pay for a bag of waste, it will incentivize them to reduce how much waste is brought to the landfill and thus increase their efforts to divert.

210. Pay per bag eliminates the subsidization of waste for residents that generate larger amounts of household waste.

211. The approach can be to either limit the number of bags before implementing a fee or simply have a price per bag brought in.

212. The risk of implementing a pay-per-bag approach is that it may encourage illegal dumping. Through EXG discussion with municipalities that have implemented a pay-per-bag approach, illegal dumping is not an issue, however, they have curbside collection available to some residents.

L.8 Implement Grasscycling (Mulching)

213. Grasscycling is a simple and easy way to divert grass clippings at their source.

214. Grass clippings that end up in the landfill emit a large amount of methane and contribute to increased leachate levels. They contribute to increased landfill costs over time.

215. Grass clippings from mulching compost naturally on the lawn which help improve soil conditions.

216. St. Andrews can provide information to residents about grass clippings by updating its website to educate the residents on its use.

217. Please see Best Practice Example#3 on the grasscycling program run by the City of Steinbach

L.9 Recycle Shingles

218. Greensite Recycling shingles for use on provincial and city road renewal projects.

219. The recycled product also helps lower the cost for paving companies.

220. St. Andrews could collect shingles and haul them to Greensite Recycling as a diversion strategy.

221. Springfield is an example of an RM that collects shingles for free from the residents and hauls the shingles to Greensite.

L.10 Grinding Wood

222. Grinding wood waste instead of burning wood is a good practice.

223. Wood chips can be given back to the residents or be used in a composting program.

224. Springfield collects yard waste & wood waste at their transfer station. Rather than burning the wood waste, they hire a company that grinds the wood waste into wood chips. Their contractor comes once in the Fall to grind the wood.

225. The wood chips are then given away to residents for their own use.

L.11 Making Diversion Free

226. An effective way to recycle is to make diversion as cheap and easy as possible or make all diversions free to the residents. The impact is collected through property taxes.

227. Having diversion free increases the chances to divert since there is no cost to residents.

228. The City of Winnipeg runs the 4R program. Residents can drop divertible materials free of charge as part of their program. This includes blue box items, compostable items, stewardship programs and even mattresses (pilot program).

L.12 Education

229. Education is key to increasing diversion. This would involve:

    a. Educational content on municipal websites
    b. Social media ads
    c. Good signage around the landfill
    d. Working with school divisions.

L.13 Implement a Landfill Tracking System

230. Implement an electronic tracking system that staff or operators can use to track visitors and materials.

231. Electronic data allows for real-time input and reports that can be reviewed.

232. Electronic data eliminates the manual labour required to enter the data after it has been collected.

233. Please see Best Practice Example #2 on the tracking technology used by the RM of St. Clements.

L.14 Weight Scale

234. A weight scale helps set pricing per tonne and get accurate data on waste arriving in the landfill.

235. The challenge with purchasing a weight scale is the initial capital cost.

236. Investing in a weight scale will depend on the long-term vision of operating a landfill.

Long-Term Best Practices

237. The following are the Best Practices for Rural Municipalities that can be implemented in the long-term timeframe.

L.15 Close Landfills and Covert to Transfer Stations

238. The cost of operating a landfill is continually increasing over time. There are growing requirements for environmental rules (and costs) surrounding the operation of landfills.

239. Based on the tipping fee rates in effect around the province, St. Andrews may never earn enough revenue to cover the annual costs of operating landfills. This is largely due to the population of St. Andrews served is not large enough for both landfills.

240. This may create the opportunity for St. Andrews to close one or both landfills, convert them to transfer stations, and allow the waste to flow to a Class 1 Facility. It may be more cost-effective to transfer the waste to a facility that can manage the waste & recycling while reducing the burden on the Municipality (Please see the Next Steps section of this Report)

241. St. Andrews' roll-off bins can be repurposed and used to establish a transfer station.

242. An option to consider is St. Andrews can implement a cost-per-bag approach at the transfer station to cover the hauling costs to a Class 1 Facility.

243. The long-term-term success of the transfer station will be the investment in a hauling vehicle to avoid the costs of hiring a contractor to haul the materials.

244. St. Andrews would need to engage an environmental consultant to understand better the costs of closing each landfill.

L.16 Waste to Energy

245. St. Andrews partnered with three municipalities to discover the possible use of a waste-to-energy system.

246. The system provides an opportunity to construct an alternative to landfilling while increasing diversion.

247. The technology works by vaporizing carbon-based waste material while creating thermal energy. Thermal energy released is captured and can heat buildings or water for industrial use by a reduction in fossil fuels.

248. The process creates a single waste stream as opposed to the traditional multi-stream through waste & recycling practices. As a result, the technology is useful for regions that do not have landfill diversion options such as recycling.

249. The technology creates the possibility of selling the service to other municipalities that are struggling with waste management.

250. The Province of Manitoba also selected the technology for its Green Bond program in part for the technology's positive environmental impact. The Green Bond program supports projects that help divert organic waste from landfills, create green jobs and reduce greenhouse gas (GHG) emissions.

251. The technology is newly introduced into the province of Manitoba and is being installed in the rural municipalities of Cartier, Rossburn and the Town of Carman.

252. The initial capital cost of the project is high

M. EXG Recommendations

253. Based on the above analysis, the following best practices are recommended for the final development of the St. Andrews' GRC Master Plan, subject to the following:

    a. **Obtain More Accurate Information**: Over the next 12 months, St. Andrews undertake to track more accurate waste volume in weight and actual full financial costing of each landfill.

    b. **Tender New Services**: Based on obtaining the more accurately tracked information and recent increasing supply chain costs due to the effects of COVID-19, tender the recommended best practice activities selected to determine the expected costs.

    c. **Cost / Benefit Analysis**: Compare the current operating costs to the tender results to determine financial viability taking into consideration the environmental impact of continuing to operate two landfills.

M.1 Establish Curbside Waste & Recycling Collection Program

254. We recommend that St. Andrews explore a curbside waste & recycling collection program for cluster areas in southern St. Andrews. St. Andrews is the only Municipality that does not offer some form of curbside collection program.

255. Implementing a curbside program will allow for a smoother transition when the MMSM transition plan is input into practice.

256. St. Andrews is below the provincial average when it comes to recycling. Diversion works best when the process is as easy as possible for the residents to engage in.

257. The roll-off bins placed in the Municipality have been ineffective at increasing diversion. There may be ways to reallocate their use, such as operating a transfer station in the future or sale of bins.

258. The potential to free up Public Work's time may allow for other more productive time use opportunities.

M.2 Implement a Tracking system

259. St. Andrews' manual tracking of landfill activities makes it difficult to acquire data for decision purposes.

260. St. Andrews should invest in a tracking system to better understand materials arriving and use the data for improving decision making.

M.3 Add Mulching Program to Municipal Website

261. We recommend that St. Andrews add a resource to their webpage providing mulching education.

262. Link the City of Steinbach website page on mulching to the municipal website as a resource for the residents.

M.4 Implement Composting

263. We recommend that St. Andrews begin basic resident composting with the goal for more comprehensive composting longer-term.

264. The City of Steinbach is a leader in this field and can be a valuable resource in assisting the St. Andrews in the implementation of a compost program.

M.5 Close Landfill(s) and Operate Transfer Stations in the Long-Term

265. The regulations are changing and becoming more complex over time.

266. The Municipality will not earn enough tipping fee revenue to cover annual expenses due to the population served by two landfills.

267. We recommend closing one or both landfills in the long-term and operating transfer stations.

268. There are Class 1 Facilities within economically viable distances that have the resources to manage the waste.

N. Next Steps

269. The next steps for St. Andrews would be to engage the community and determine their interest in the above options & recommendations. This can be done through open house discussions or surveying the residents.

270. St. Andrews should then evaluate each option.

271. The following table represents revenue and cost options that St. Andrews will need to consider for the recommended best practices. A cost-benefit analysis will need to be performed taking into consideration each combination of individual scenarios to determine the best outcome. These combinations of scenarios will be determined with the assistance of the tendering process.

Revenue Options	Cost Options
A. Pay Per Bag Approach a. Obtain data on the number of household bags arriving by visitors to the landfill b. Analyze a cost to charge per bag c. Use the data to determine potential revenue from visitors taking into consideration municipal regulatory fee limitations.	**A. Curbside Program** a. Determine the regions that would be serviced by the curbside program (Municipal-wide vs Cluster regions) b. Tender the cost of full outsourced curbside waste and recycling program service for both types of collection methods (Automated vs Manual) c. Analyze and compare the capital costs of St. Andrews acquiring the bins and transportation equipment for their own curbside collection service and the annual operating costs

Revenue Options	Cost Options
	d. Negotiate financial arrangements with the nearest Class 1 facility e. Determine the need and alternatives for current roll-off bins.
B. Allow Non-Residents a. Determine whether to accept forms of waste from non-residents b. Determine a price that would best fit those services.	**B. Tracking System** a. Obtain quotes for the cost of Implementing a tracking system b. Determine the types of materials that should be tracked c. Determine reports that would be useful for tracking performance d. Use the data from tracking to adjust operating hours, fee changes, operating landfill vs transfer station etc. e. Consult with WRARS - initiate discussion to determine an alternate way to report the levy calculation based on populations as it appears that St. Andrews may be overpaying based on the last 10 years' trend to more recycling.
C. Increase Property Taxes a. Determine whether increasing property taxes will be beneficial in funding each option (eg. Curbside	**C. Mulching Program** a. Obtain quotes for the development of a website b. Obtain quotes for the cost of mulching blades

Revenue Options	Cost Options
Collection with low taxes for those outside the Curbside Collection area). b. Decide if a special service levy will be needed for specific properties to fund each option.	c. Develop a program that St. Andrews can use to apply for grant funding d. Contact the City of Steinbach for discussions about their program's implementation.
D. Apply for Grant Funding a. Develop individual programs that can be used to apply for grant funding.	**D. Composting** a. Contact provincial office to obtain a permit or license b. Determine the landfill needs to meet the standards for Schedule D of the Environment Act c. Obtain quotes for any costs of redeveloping the compost region to meet standards of Schedule D d. Obtain quotes for the cost of taking the compost operator course e. Obtain quotes for becoming a member of the Compost Council of Canada f. Determine the availability of the loader for compost purposes g. Obtain a quote for the cost of a loader if a Municipal one is unavailable h. Obtain quotes for the cost of renting a screener

Revenue Options	Cost Options
	i. Obtain quotes for purchasing a screener j. Obtain quotes for the cost of testing compost as part of the Compost Quality Alliance (CQA). k. Determine the need for roll-off containers for the compost program l. Develop a program that St. Andrews can use to apply for grant funding m. Contact the City of Steinbach for discussions about their program's implementation.
E. Reducing Levies and Increasing Rebates a. Use changes to landfill operations that may help decrease levies paid. Each item diverted through better environmental practices reduces the WRARS levy and helps increase the WRARS rebate.	**E. Close Existing Landfill(s)** a. Determine the volume of waste at the landfill after implementing a curbside program b. Determine the volume of visitors c. Analyze the negotiated cost with a Class 1 Facility compared to operating one of the existing landfills. d. Obtain quotes from an environmental consultant that will outline closure and post-closure costs.
	F. Operate Transfer Station a. Determine the volume of waste arriving after the effects of implementing a curbside program

Revenue Options	Cost Options
	b. Determine the number of roll-off bins and placement of the bins c. Determine if the Municipality wants to haul roll-off bins or pay an outside provider d. Obtain quotes for the cost of service provider for the roll-off bins e. Obtain quotes for the capital cost of hauling vehicles and associated operating costs.

272. Based on the information gathered for these options, multiple cost / benefit scenarios can be prepared in order to determine the most financially viability option for St. Andrews taking into consideration the environmental impact of continuing to operate two landfills.

O. Best Practice Examples

Best Practice Example #1 - Curbside Recycling – RM of St. Clements

273. The Rural Municipality of St. Clements was interviewed to discuss their recent implementation of a curbside waste & recycle program.

274. The RM of St. Clements is a neighbouring municipality that has comparable waste streams.

275. The RM of St. Clements offers an optional curbside collection for waste and recycling for southern St. Clements. Once the taxpayer has opted in, the property is part of the curbside program forever and cannot opt out. The intent over time is to increase participants and diversion.

276. Prior to 2018, curbside collection services were not available and residents had to drive to the landfill, transfer stations or hire a private contractor to transport their waste & recycling.

277. Since implementing the program in July 2018, the RM experienced significant diversion rate increases. The diagram below represents household recycling volumes from 2016 to 2021 which represent before and after implementation.

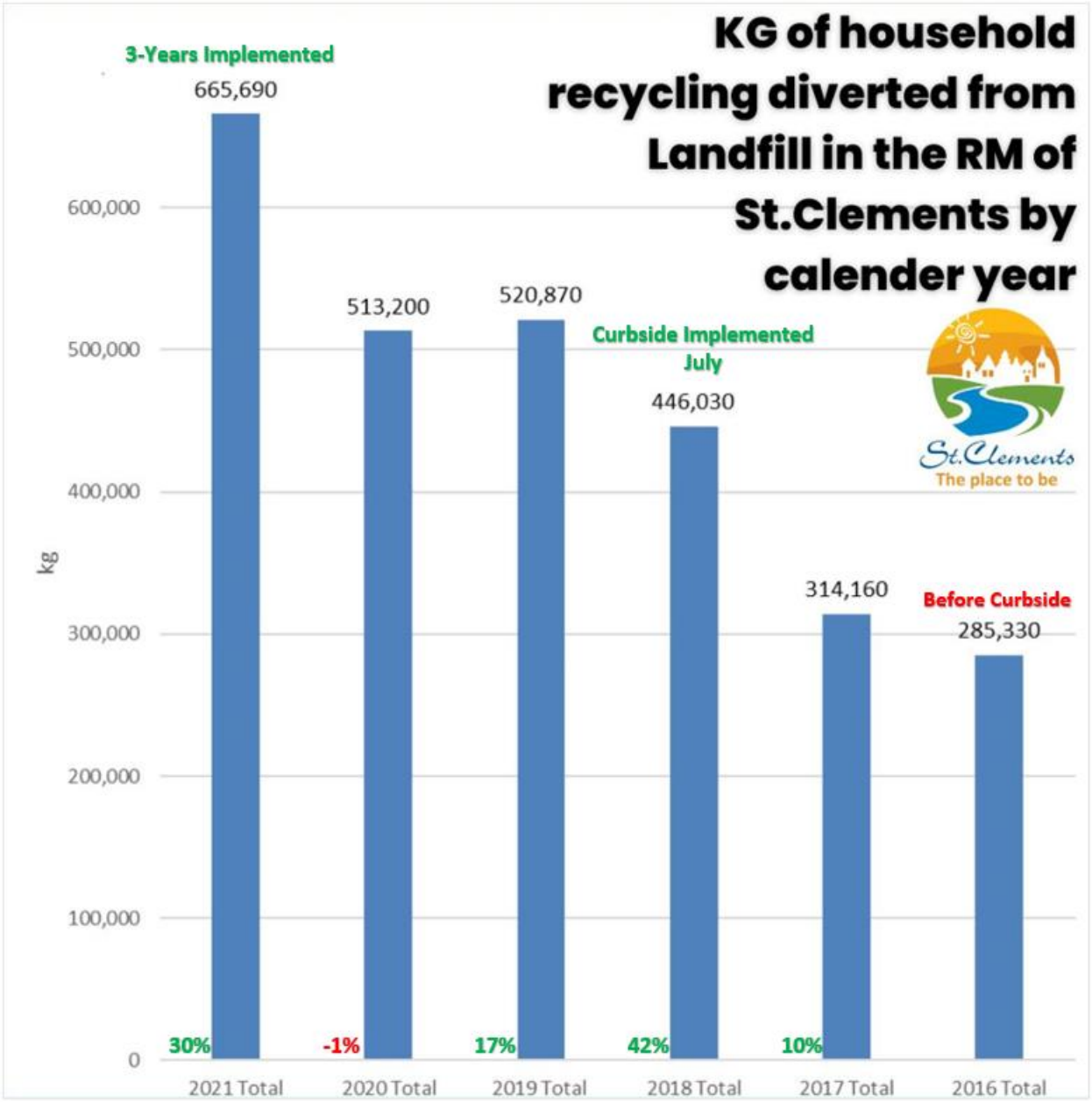
278. From 2017 to 2018, the recycling volume increased 42% from 314,160 tonnes to 446,030 tonnes. An increase of 131,870 tonnes.

279. Since the program was implemented halfway into 2018, it may be more reasonable to compare the recycling volumes from 2017 to 2019 where 2019 represents a full year with the curbside collection program in place. The increase in diversion from 2017 to 2019 is 206,710 kg. **the change represents a 66% increase in household recycling**

280. In 2020, there is a slight drop off in recycling rates. The decrease may be attributable to the effects of Covid-19, however, they continue to remain higher than before a curbside collection program was in place.

281. The most recent information released by the Rural Municipality of St. Clements show a **30% increase from 2020.**

282. The overall success of the program shows a **133% increase in kg recycled since 2016.**



Best Practice Example #2 - Landfill Tracking - Geolind Mapping Solutions

283. EXG met with Geolind Mapping Solutions. Geolind Mapping solutions is a simple, low cost and easy to implement type of tracking technology.

284. It works by linking property roll numbers to a barcode that is provided to the residents. The barcode would replace landfill access refuse cards.

285. The technology works by using cell phones/tablets to scan the barcode provided by residents. The data to track information specific to a roll number.

Example of barcode system

286. Some of the key features of the system are:

a. **Simplicity** – the tracking system is easy to use and can be easily implemented.

b. **Real-time data** – the ability to track waste-related data in real-time removes the need for entering data at a later time through spreadsheets.

c. **Activity tracking** – Data can be tracked in the form of divertible items, the number of waste bags etc.

d. **Customizable** – the program can be customized to the design of the municipalities needs.

e. **Data for decision making** – An example of this can be helping decide where to extend or decrease operating hours due to the data being time-stamped and will help determine peak hours.

f. **Reports** – Many reports are available that can be generated.

g. **Internet not required** – The technology does not require internet immediately, therefore it can be used on-site and uploaded after the fact.

Best Practice Example #3 - Grasscycling Program – City of Steinbach

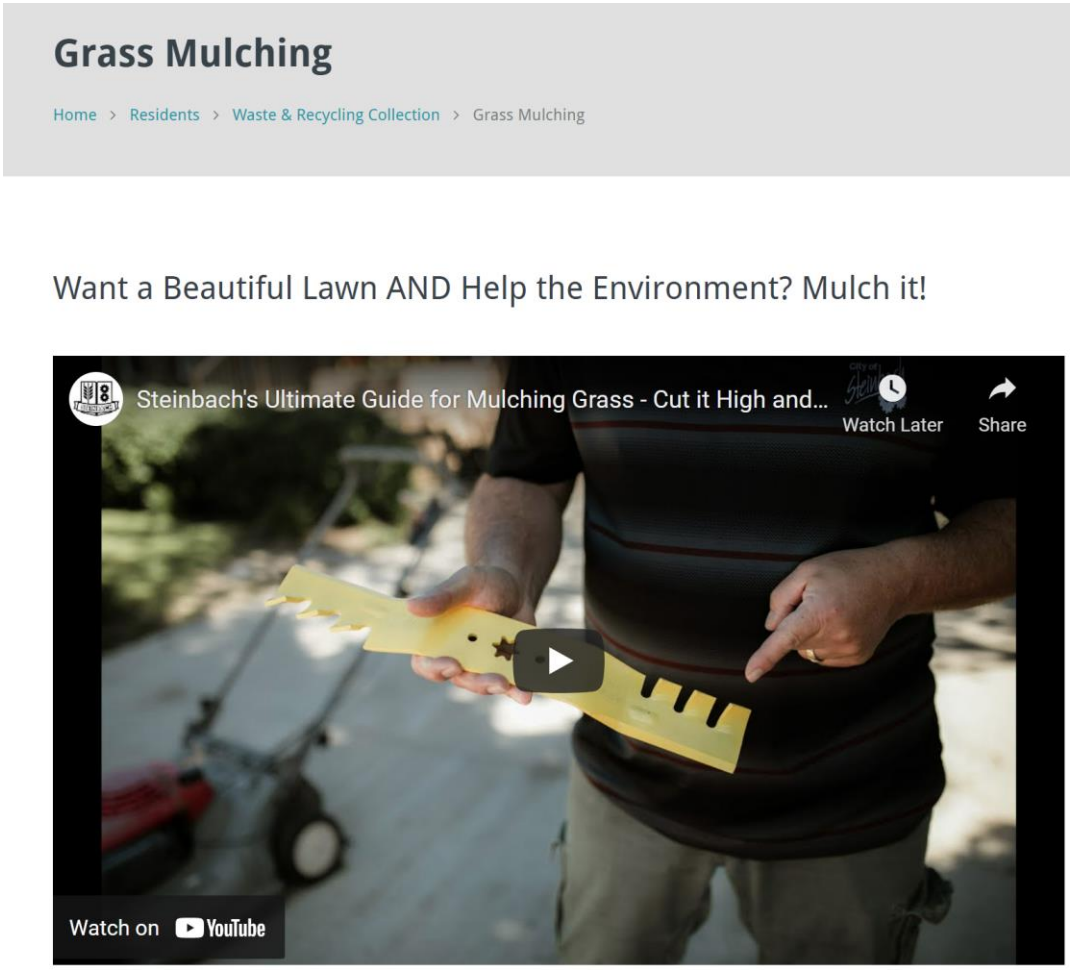
287. The City of Steinbach has a professionally produced video on mulching that is available on their website. The video explains in detail how to properly mulch a yard. The video is highly received amongst the community and outside communities as a valuable resource for mulching.

288. Along with their video are a webpage documenting the mulching, how to do it and its benefits.

289. The web page is a great educational tool for the public to increase diversion.

290. The effort made is to try to reduce grass clippings that arrive in the landfill from curbside collection. If residents mulch their yard, it stops the issue at the source. Since the City also has composting, residents are free to bring their grass clippings to be used as part of the composting program.

291. Below is an example of their webpage on grass mulching.



292. St. Andrews can either create a comparable webpage on the municipal site or place a link toward the City of Steinbach as a resource for the residents.

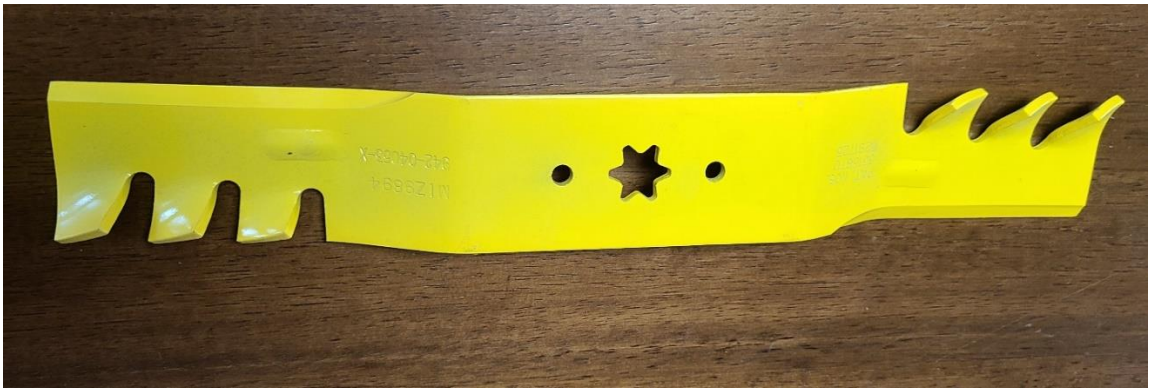
293. Additional ways the City encourages diversion is through the use of their slogan “cut it high and let it lie” that is placed on City vehicles that reflects the view of mulching.

294. The City is also encouraging mulching by showing residents a mulching blade that is best used on a lawnmower. The mulching blade works with the slogan mentioned above as the blade cuts the grass a bit higher, however not leaving the grass clipping residue that traditional mower blades leave. This blade may help ease the average resident who is concerned over the current pile of grass left behind by the lawnmower.

295. The City has been attempting to establish a program where residents can purchase the blade at a subsidized price from the City, however they can be purchased at most major retail outlets.

296. A great example of the type of blade the City is encouraging is the 21-inch Universal Xtreme Lawnmover Blade.

21-inch Universal Xtreme Lawnmower Blade



Best Practice Example #4 - Composting Program- City of Steinbach

297. The City of Steinbach runs an excellent composting program. The program is very transferrable to municipalities in that it is small scale, but achieves a great compost that is useable.

298. The program has excellent community engagement, which helps the diversion process.

299. Residents can drop off compostable materials at the transfer station section of the landfill. From there, they can place their compostable materials in roll-off bins.

Resident drop-off at the transfer station

300. The area where the compost piles are located is not available to residents. Instead, they are for companies such as lawn care or landscape companies to dispose of compostable materials. This process prevents the average resident from placing materials that may contaminate the piles.

Compost Pile at Landfill

301. The staff spends approximately six hours per week turning the compost piles and even less time during the winter months (maybe once per month).

302. The equipment used for turning the piles is a loader.

303. The City then engages Overton Environmental to screen the compost piles.

304. A compost thermometer is used to test the temperature from time to time.

305. The City tests the piles as part of the compost quality alliance, a volunteer program established by the compost Council of Canada to license compost producers to utilize standardized testing methodologies and uniform operating protocols. The tested material is sent to A & L Canada Laboratories Inc. which returns a report detailing the product's end use.

306. The end use of their product is given away partly to parks & recreation to be used around the City, and the remaining portion is available to the residents.

307. What makes their program successful is the continued efforts by the City to increase diversion.

308. An example is how the City had two roll off-bins custom-made for a compost program.

    a. The two roll-off bins are placed in two areas in the City on Saturdays, where a donation is made to a group that monitors it.

    b. The group has a specific list of accepted materials and collects them from the residents who arrive.

c. They are then trained to place the materials in the bin and avoid materials that cannot go in the bins.

309. The residents are never responsible for placing their own materials in the bin, thus helping prevent any contamination.

a. At the end of each day, the City staff hauls the roll-off bins back to the landfill to place the materials in the compost pile.

b. Over time, the residents become educated and improve their processes. The event is now a family event where barbeques and music occur.

c. An example of the bins and accepted materials can be seen below.

Custom Roll-off compost bins

Example of accepted materials in compost roll-off bins

310. The City also works with the school division to compost. The school division purchases compost bags and is used in the schools. The students put compostable material into the bags which the schools then bring to the compost piles.

311. Another way the City engages the community is by providing tours to the schools at the landfill. Showing the process to the students helps educate them and encourages diversion.

Best Practice Example #5 - Winnipeg 4R Depot

312. EXG toured the Winnipeg 4R depot to receive an example of a best practice leader.

313. The Depot is located at 1777 Brady Road, just south of the perimeter highway in Winnipeg.

314. The 4R Depot is a one-stop shop for residents to dispose of divertible materials and commercial waste properly.

315. The key to this facility is that there is no charge for any divertible, however there is a fee for waste disposal.

316. As a resident enters the 4R depot section, an employee at the household hazardous waste entrance greets you to screen the materials you are disposing of.

317. The resident then proceeds in a circular direction containing signage for divertible materials placement.

318. The signage surrounding the Depot is clear and colour coded by type of divertible.

319. Some signage indicates specific materials excluded from placement.

320. With signage and information available on the website, residents can improve their trip to the 4R Depot, by understanding the circular layout—the process results in being as simple as possible to divert goods.

321. Below is an example of a table material approach that describes the type of material, examples of the material and how the material is used. This provides transparency to the residents as the purpose of diverting.

Example: Accepted Materials

Material	Examples	Use/Reuse
Blue cart recyclables	Newspaper, household paper, cardboard, plastic containers, metal cans, glass bottles and jars **Special notes:** no black plastics, no plastic bags, no polystyrene foam (Styrofoam). Please make sure all containers are empty.	Recycled
Other glass	Windows without frames, glassware, broken glass **Special notes:** no sealed units, no frames or attachments, no windshields	Reused for roads and pads at Brady Road Resource Management Facility
Leaf and yard waste	Grass clippings, leaves, plants, flowers, bush/shrub clippings, branches less than 10 centimetres in diameter **Special notes:** no plastic bags	Composted
Clean fill	Soil, sod, clay, sand	Reused for cover at Brady Road Resource Management Facility
Tree wood waste	Stumps, logs, branches more than 10 centimetres in diameter	Composted, reused
Clean timber, lumber and wood	Non-treated/non-painted cutoffs, pallets **Special notes:** no painted, stained, or treated wood, no particle board, no plywood, no drywall	Composted, reused
Rubble and masonry	Brick, asphalt, patio stones, gravel, concrete **Special notes:** no re-bar	Reused for roads and pads at Brady Road Resource Management Facility

322. Below is an example of the 4R Depot packing tips before visiting the Depot to assist in trip preparation.

Example: 4R depot Packing Tips

Your 4R Winnipeg Depot experience starts at home. The way you pack your vehicle/trailer can make dropping off your materials easier.

- Pack similar materials together in your vehicle/trailer.
- Pack your vehicle/trailer so the materials you drop off first are easily accessible.
- The materials you pack last will be dropped off first.

Here is the order we recommend you pack materials into your vehicle:

First:	Garbage (available at the Brady 4R Winnipeg Depot only)
Second:	Scrap metal, lumber, tires, rubble, ceramics, large plastic items
Third:	Soil, clean fill, tree wood waste, leaf and yard waste, major appliances, bicycles
Fourth:	Blue cart recyclables
Last:	Household hazardous waste, paint, electronic waste, batteries, oil products

You may bring your materials in any of the following vehicles/attachments:

- Cars
- Pickup trucks
- Vans
- Single axle utility trailers (self-dumping trailers must be unloaded manually)