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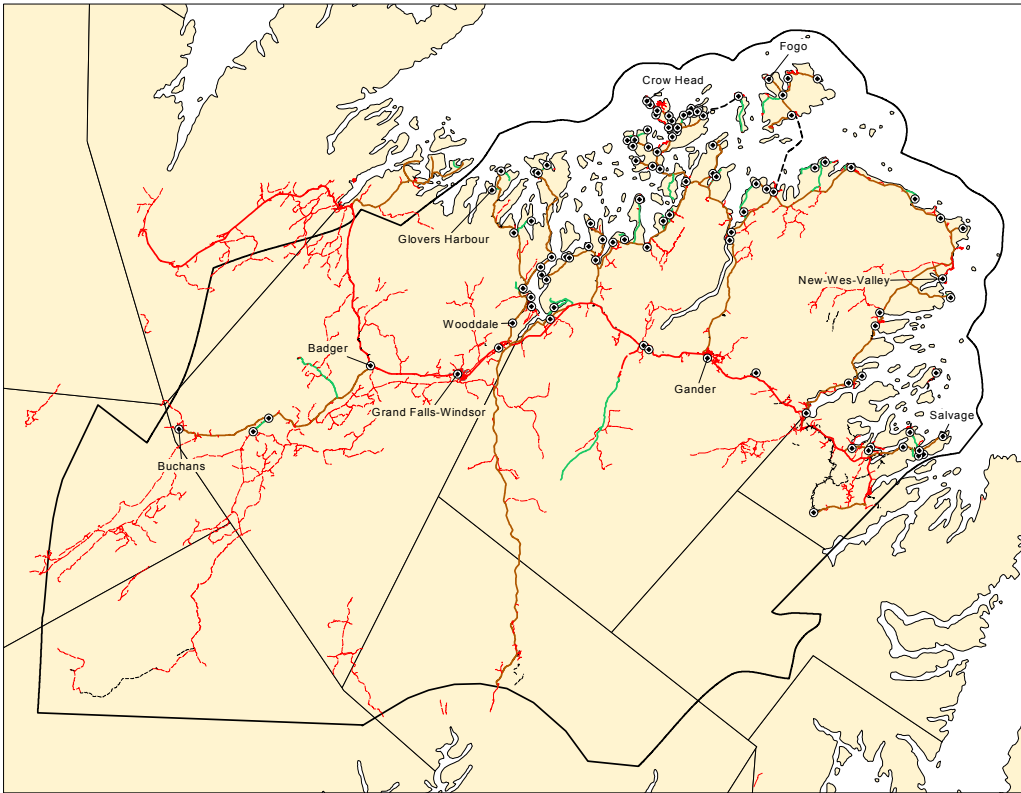
# CENTRAL NEWFOUNDLAND SOLID WASTE MANAGEMENT PLAN

## Curbside Collection Alternatives Study

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Final Report Submitted to  
Central Newfoundland Waste Management Committee

BNG PROJECT # 722021



**CENTRAL NEWFOUNDLAND  
SOLID WASTE MANAGEMENT PLAN**

**Final Report  
Curbside Collection Alternatives Study**

**Final Report Submitted to:**

**Central Newfoundland Waste Management Committee**  
c/o Town of Gander  
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Final Report – Curbside Collection Alternatives Study

Client: Central Newfoundland Waste Management Committee



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## 1.0 EXECUTIVE SUMMARY

BAE-Newplan Group (BNG) was retained by the Central Newfoundland Waste Management Committee (CNWMC) to investigate three alternatives with respect to curbside collection of solid waste in the Central Newfoundland Study Area. The three alternatives which BNG investigated included:

- Scenario #1 - Status Quo
- Scenario #2 - Responsibility of Regional Authority (Regional Zones)
- Scenario #3 - Responsibility of Regional Authority (No Regional Zones)

The study team conducted an analysis of collection, travel, and unloading times for each scenario and developed an overall annual curbside collection cost. All assumptions were based on previous information collected during Phase I of the Central Newfoundland Solid Waste Study, collection surveys with various municipalities, and consultation with operators and manufacturers of collection vehicles. Based on the analysis, the study team developed an overall collection cost for each alternative, as well as a cost per person for each zone.

Results of Scenario #1 (Status Quo) revealed an overall annual collection cost of **\$1,753,227.95** and an average annual cost of **\$23.20** per person.

Results of Scenario #2 (Responsibility of Regional Authority - Regional Zones) revealed an overall annual collection cost of **\$1,329,147.38**. The average annual cost per person for each collection zone is as follows:

- Buchan's Junction - \$23.51 per person;
- Point Leamington - \$21.39 per person;
- Virgin Arm - Carter's Cove - \$22.38 per person;
- Fogo Island - \$18.80 per person;
- Main Point – Davisville - \$14.60 per person;
- Indian Bay - \$19.94 per person;
- Terra Nova Regional - \$23.17 per person; and
- Direct Haul - \$15.38 per person.

Results of Scenario #3 (Responsibility of Regional Authority - No Regional Zones) revealed an overall annual cost of **\$1,329,147.38** and an average annual cost per person of **\$17.59**.

## 2.0 INTRODUCTION

In an effort to further understand the curbside collection costs associated with the Waste Management Plan, the Central Newfoundland Waste Management Committee (CNWMC) retained BAE-Newplan Group (BNG) to investigate three curbside collection alternatives for the Central Newfoundland Study Area. The three alternatives which BNG investigated included:

1. **Status Quo** – Municipalities maintain responsibility and all costs associated with the collection and transportation of solid waste to the Local Waste Management Facilities (LWMFs) or to the Regional Waste Management Facility (RWMF) using current collection methods. It does not include the cost of transporting solid waste from the LWMF's to the RWMF.
2. **Responsibility of Regional Authority (Regional Zones)** – The Regional Waste Management Authority assumes all responsibility for collection and transportation of municipal solid waste generated by the residents of each municipality. Transportation of the solid waste would be to a LWMF (municipalities which are located in LWMF zones) or the RWMF (municipalities which are situated in the direct haul zone). It does not include the cost of transporting solid waste from the LWMF's to the RWMF. It was assumed that the Regional Authority would use the most economical waste collection vehicle (Expert 2000 (60/40 vertical split) 37 yd<sup>3</sup> compactor truck) to collect and transport the solid waste to the LWMFs.

For this alternative, each LWMF was considered as a separate zone, as was direct haul to the RWMF. Separate cost for each zone were developed.

3. **Responsibility of Regional Authority (No Regional Zones)** – As with Scenario #2, the Regional Waste Management Authority assumes all responsibility for collection and transportation of municipal solid waste generated by the residents of each municipality. Transportation of the solid waste would be to a LWMF (municipalities which are located in LWMF zones) or the RWMF (municipalities which are situated in the direct haul zone). It does not include the cost of transporting solid waste from the LWMF's to the RWMF. It was assumed that the Regional Authority would use the most economical waste collection vehicle (Expert 2000 (60/40 vertical split) 37 yd<sup>3</sup> compactor truck) to collect and transport the solid waste to the LWMFs.

For this alternative, one unit cost per person was developed for the entire Central Newfoundland Area. The Regional Zones were ignored during this Scenario.

### 3.0 METHODOLOGY AND ASSUMPTIONS

The investigation utilized previous information collected during Phase I of the Central Newfoundland Solid Waste Management Study, collection surveys with various municipalities (urban and rural), and consultation with operators and manufacturers of collection vehicles. Collection assumptions used to carry out this investigation included the following:

- Curbside collection of municipal solid waste will occur once per week;
- Collection cost included curbside collection to LWMF or curbside collection to RWMF. Cost of transporting solid waste from the LWMF to the RWMF was not included in this investigation;
- Collection of IC&I waste in urban communities (Grand Falls-Windsor and Gander) was not included in the curbside collection (13,902 tonnes/year);
- Collection of IC&I waste in rural communities was included in curbside collection;
- The LWMF's or the RWMF will be the home base for compactor trucks and these trucks will be parked at these facilities at the end of each day; and
- Number of households per community was based on the Statistics Canada 2001 Census.

A summary of all information used to complete the costing model is provided in Table 3-1.

Table 3-1: Summary of Information used to Complete the Costing Model.

Type of Vehicle	Number of Stops to Fill	Time Required to Fill (Hr)	Hourly Rate (\$/hr) <sup>5</sup>	Travel Speed (km/hr)	Unloading Times (hr)
Pick-up truck	50	1	34.00	SEE NOTE 6	0.25
5 tonne truck	65	1.3	46.50		0.17
18 yd <sup>3</sup> Compactor Truck <sup>1</sup>	350	5.8	45.00		0.17
33 yd <sup>3</sup> Compactor Truck <sup>2</sup>	650	6.5	45.00		0.17
37 yd <sup>3</sup> Compactor Truck <sup>3</sup>	650	6.5/10.8 <sup>4</sup>	47.00		0.17

<sup>1</sup> - Currently being used by several rural communities (i.e. New-Wes-Valley).

<sup>2</sup> - 33 yd<sup>3</sup> compactor truck is currently being used by Grand Falls – Windsor and Gander (urban areas) and can hold approximately 12 tonnes of solid waste.

<sup>3</sup> - Assumed this collection vehicle would be used for curbside collection if the Regional Authority assumed curbside collection responsibilities. Based on discussions with the manufacturer, BNG assumed that this truck will also carry approximately 12 tonnes based on a 60-40 split of solid waste (wet/dry).

<sup>4</sup> - Time is based on compactor truck collecting 100 households per hour in a urban area (i.e. Grand Falls-Windsor) and 60 households per hour in a rural area (i.e. New-Wes-Valley). Note that the compactor can not be filled during one day in a rural setting, however the truck will unload at the end of each day.

<sup>5</sup> - Amortization of Capital Cost of Collection Vehicle included in hourly rate.

<sup>6</sup> - All travel speeds are based on the posted speed limit for each road network (i.e. 100 km/hr on the Trans Canada Highway).

## 4.0 CURBSIDE COLLECTION COST FOR EACH SCENARIO

### 4.1 SCENARIO 1: STATUS QUO

A detailed analysis of the status quo scenario is provided in Appendix A. A summary of the detailed analysis is provided in Table 4-1.

Table 4-1: Breakdown of Cost for Scenario #1 (Status Quo).

Region	Cost per Zone	Tonnes of Waste <sup>1</sup>	Cost per Tonne	No. of Dwellings	Cost Per Dwelling	Population	Cost Per Person
Buchan's Junction	\$47,361.86	383	\$123.66	552	\$85.80	1,105	\$42.86
Point Leamington	\$89,132.16	936	\$95.23	1,162	\$76.71	2,702	\$32.99
Virgin Arm - Carter's Cove	\$266,381.44	2,656	\$100.29	3,586	\$74.28	7,660	\$34.78
Fogo Island	\$80,620.80	1,043	\$77.30	1,230	\$65.55	3,018	\$26.71
Main Point - Davisville	\$138,983.00	1,991	\$69.81	1,709	\$81.32	5,748	\$24.18
Indian Bay	\$194,433.75	2,497	\$77.87	3,033	\$64.11	7,158	\$27.16
Terra Nova Regional	\$176,254.45	2,576	\$68.42	2,890	\$60.99	6,410	\$27.50
Direct Haul	\$760,060.49	13,641	\$55.72	16,960	\$44.81	41,754	\$18.20
<b>Total</b>	<b>\$1,753,227.95</b>	<b>25,723</b>	<b>\$68.16</b>	<b>31,122</b>	<b>\$56.33</b>	<b>75,555</b>	<b>\$23.20</b>

<sup>1</sup> - Does not include IC&I Waste.

### 4.2 SCENARIO 2: RESPONSIBILITY OF REGIONAL AUTHORITY – REGIONAL ZONES

A detailed analysis of the Regional Authority taking responsibility of the curbside collection while maintaining Regional Zones is provided in Appendix B. A summary of the detailed analysis is provided in Table 4-2.

Table 4-2: Breakdown of Cost for Scenario #2 (Regional Zones).

Region	Cost per Zone	Tonnes of Waste <sup>1</sup>	Cost per Tonne	No. of Dwellings	Cost Per Dwelling	Population	Cost Per Person
Buchan's Junction	\$25,979.72	383	\$67.83	552	\$47.06	1,105	\$23.51
Point Leamington	\$57,792.45	936	\$61.74	1,162	\$49.74	2,702	\$21.39
Virgin Arm - Carter's Cove	\$171,414.01	2,656	\$64.54	3,586	\$47.80	7,660	\$22.38
Fogo Island	\$56,749.68	1,043	\$54.41	1,230	\$46.14	3,018	\$18.80
Main Point – Davisville	\$83,910.67	1,991	\$42.14	1,709	\$49.10	5,748	\$14.60
Indian Bay	\$142,754.04	2,497	\$57.17	3,033	\$47.07	7,158	\$19.94
Terra Nova Regional	\$148,540.60	2,576	\$57.66	2,890	\$51.40	6,410	\$23.17
Direct Haul	\$642,006.21	13,641	\$47.06	16,960	\$37.85	41,754	\$15.38

<sup>1</sup> - Does not include IC&I Waste.



### 4.3 SCENARIO 3: RESPONSIBILITY OF REGIONAL AUTHORITY – NO REGIONAL ZONES

A detailed analysis of the Regional Authority taking responsibility of the curbside collection and charging one uniform fee is provided in Table 4-3.

Table 4-3: Breakdown of Cost for Scenario #3 (No Regional Zones).

	Overall Cost	Tonnes of Waste <sup>1</sup>	Cost per Tonne	No. of Dwellings	Cost Per Dwelling	Population	Cost Per Person
<b>Total</b>	\$1,329,147.38	25,723	\$40.79	31,122	\$42.71	75,555	<b>\$17.59</b>

<sup>1</sup> - Does not include IC&I Waste.

### 5.0 NUMBER OF COMPACTOR TRUCKS REQUIRED

Based on the collection time requirements obtained from the analysis of Scenarios #2 and #3, a total fourteen compactor trucks would be required for curbside collection within the study area. It is recommended that one or two additional compactor trucks be added to the fleet to maintain collection service to the region when/if any the trucks require maintenance or experience mechanical difficulties. A summary of the curbside collection times and number of compactor truck required for the study area is provided in Table 5-1.

Table 5-1: Summary of Collection Times and Number of Compactor Trucks Required.

Region	Collection Time per Week (Hrs)	No. of Trucks Required <sup>1</sup>
Buchan's Junction	10.60	-
Point Leamington	23.60	-
Virgin Arm - Carter's Cove	70.10	-
Fogo Island	23.20	-
Main Point – Davisville	34.30	-
Indian Bay	58.30	-
Terra Nova Regional	47.00	-
Direct Haul	262.70	-
<b>Total</b>	<b>529.80</b>	<b>14</b>

<sup>1</sup> - Assumed 40 hours/week per compactor truck.

# Appendix A

## Status Quo

# Buchan's Junction

**Status Quo - Buchan's Junction**

Name	Number of Households	Type of Collection Vehicle	Number of Stops to fill	Time to fill truck (hr)	Total Time to Collect all Households	Number of Trips	Distance to LWMF (km)	Travel Time per trip (hr)	Unloading time
Buchans	443	Dump Truck	65	1.3	8.86	7	31	1	0.17
Division No. 6, Subd. A* (Buchan's Junction)	40	Pick-up	50	1	0.80	1	2	0.1	0.25
Millertown	69	Pick-up	50	1	1.38	2	7	0.23	0.25
<b>TOTAL</b>	<b>552</b>				<b>11.04</b>	<b>10</b>	<b>40</b>		

Name	Total Loading Time (hr)	Total Travel Time (hr)	Total Unloading Time (hr)	TOTAL	Cost per hour	Total Cost per week	Total Cost per year
Buchans	8.86	7.0	1.19	17.1	\$46.50	\$792.83	\$41,226.90
Division No. 6, Subd. A* (Buchan's Junction)	0.80	0.1	0.25	1.1	\$34.00	\$38.42	\$1,997.84
Millertown	1.38	0.5	0.50	2.3	\$34.00	\$79.56	\$4,137.12
<b>TOTAL</b>	<b>11.04</b>			<b>20.52</b>		<b>\$910.81</b>	<b>\$47,361.86</b>

# Point Leamington

**Status Quo - Point Leamington**

Name	Number of Households	Type of Collection Vehicle	Number of Stops to fill	Time to fill truck (hr)	Total Time to Collect all Households	Number of Trips	Distance to LWMF (km)	Travel Time per trip (hr)	Unloading time
Leading Tickles West	188	Pick up	50	1	3.76	4	50	1.67	0.25
Point Leamington	308	Pick up	50	1	6.16	6	21	0.67	0.25
Point of Bay	113	Pick up	50	1	2.26	3	13	0.5	0.25
Northern Arm	174	Dump Truck	65	1.3	3.48	3	5	0.07	0.17
Division No. 6, Subd. C (Philip's Head)	122	Pick up	50	1	2.44	3	8	0.27	0.25
Division No. 8, Subd. E (Cottrell's Cove)	257	Pick up	50	1	5.14	5	45	1.33	0.25
<b>Total</b>	<b>1,162</b>				<b>23.24</b>	<b>24</b>	<b>142</b>		

Name	Total Loading Time (hr)	Total Travel Time (hr)	Total Unloading Time (hr)	TOTAL TIME (hr)	Cost per hour	Total Cost per week	Total Cost per year
Leading Tickles West	3.76	6.68	1.00	11.44	\$34.00	\$388.96	\$20,225.92
Point Leamington	6.16	4.02	1.50	11.68	\$34.00	\$397.12	\$20,650.24
Point of Bay	2.26	1.50	0.75	4.51	\$34.00	\$153.34	\$7,973.68
Northern Arm	3.48	0.21	0.51	4.20	\$46.50	\$195.30	\$10,155.60
Division No. 6, Subd. C (Philip's Head)	2.44	0.81	0.75	4.00	\$34.00	\$136.00	\$7,072.00
Division No. 8, Subd. E (Cottrell's Cove)	5.14	6.65	1.25	13.04	\$34.00	\$443.36	\$23,054.72
<b>Total</b>	<b>23.24</b>	<b>19.87</b>		<b>43.11</b>		<b>\$1,714.08</b>	<b>\$89,132.16</b>

# Virgin Arm – Carter's Cove

**Status Quo - Virgin's Arm - Carter's Cove**

Name	Number of Households	Type of Collection Vehicle	Number of Stops to fill	Time to fill truck (hr)	Total Time to Collect all Households	Number of Trips	Distance to LWMF (km)	Travel Time per trip (hr)	Unloading time
Crow Head	122	Pick up	50	1	2.44	3	30	1	0.25
Summerford	421	Pick up	50	1	8.42	9	7	0.23	0.25
Change Islands	185	Pick up	50	1	3.70	4	34	3	0.25
Twillingate	1195	Pick up	50	1	23.90	24	24	0.73	0.25
Cottlesville	140	Pick up	50	1	2.80	3	11	0.33	0.25
Division No. 8, Subd. I (Purcell's Harbour)	90	Pick up	50	1	1.80	2	23	0.67	0.25
Division No. 8, Subd. H (Virgin's Arm - Carter's Cove)	1,094	Pick up	50	1	21.88	22	17.5	0.52	0.25
Division No. 8, Subd. G (Boyd's Cove)	339	Pick up	50	1	6.78	7	45	1.5	0.25
<b>Total</b>	<b>3,586</b>				<b>71.72</b>	<b>74</b>	<b>191.5</b>		

Name	Total Loading Time (hr)	Total Travel Time (hr)	Total Unloading Time (hr)	TOTAL TIME (hr)	Cost per hour	Total Cost per week	Ferry Cost	Total Cost per year
Crow Head	2.44	3.00	0.75	6.19	\$34.00	\$210.46		\$10,943.92
Summerford	8.42	2.07	2.25	12.74	\$34.00	\$433.16		\$22,524.32
Change Islands	3.70	12.00	1.00	16.70	\$34.00	\$567.80	\$2,808.00	\$32,333.60
Twillingate	23.90	17.52	6.00	47.42	\$34.00	\$1,612.28		\$83,838.56
Cottlesville	2.80	0.99	0.75	4.54	\$34.00	\$154.36		\$8,026.72
Division No. 8, Subd. I* (Purcell's Harbour)	1.80	1.34	0.50	3.64	\$34.00	\$123.76		\$6,435.52
Division No. 8, Subd. H* (Virgin's Arm - Carter's Cove)	21.88	11.44	5.50	38.82	\$34.00	\$1,319.88		\$68,633.76
Division No. 8, Subd. G* (Boyd's Cove)	6.78	10.50	1.75	19.03	\$34.00	\$647.02		\$33,645.04
<b>Total</b>	<b>71.72</b>	<b>58.86</b>	<b>18.50</b>	<b>149.08</b>		<b>\$5,068.72</b>		<b>\$266,381.44</b>



# Fogo Island

**Status Quo – Fogo Island**

Name	Number of Households	Type of Collection Vehicle	Number of Stops to fill	Time to fill truck (hr)	Total Time to Collect all Households	Number of Trips	Distance to LWMF (km)	Travel Time per trip(hr)	Unloading time
Fogo	333	Pick up	50	1	6.66	7	14	0.43	0.25
Fogo Island Region*	232	Pick up	50	1	4.64	5	35	1.03	0.25
Tilting	100	Pick up	50	1	2.00	2	26	0.83	0.25
Joe Batt's Arm - Barr'd Island - Shoal Bay	383	Pick up	50	1	7.66	8	17	0.5	0.25
Seldom-Little Seldom	182	Pick up	50	1	3.64	4	5	0.17	0.25
<b>Total</b>	<b>1230</b>				<b>24.60</b>	<b>26</b>	<b>97</b>		

**Fogo Island Region**

\* Deep Bay 9 km

\* Island Harbour 16 km

\* Stag Harbour 10 km

Name	Total Loading Time (hr)	Total Travel Time (hr)	Total Unloading Time (hr)	TOTAL TIME (hr)	Cost per hour	Total Cost per week	Total Cost per year
Fogo	6.66	3.01	1.75	11.42	\$34.00	\$388.28	\$20,190.56
Fogo Island Region	4.64	5.15	1.25	11.04	\$34.00	\$375.36	\$19,518.72
Tilting	2.00	1.66	0.50	4.16	\$34.00	\$141.44	\$7,354.88
Joe Batt's Arm - Barr'd Island - Shoal Bay	7.66	4.00	2.00	13.66	\$34.00	\$464.44	\$24,150.88
Seldom-Little Seldom	3.64	0.68	1.00	5.32	\$34.00	\$180.88	\$9,405.76
<b>Total</b>	<b>24.60</b>	<b>14.50</b>		<b>39.10</b>		<b>\$1,550.40</b>	<b>\$80,620.80</b>

# Main Point – Davisville

**Status Quo - Main Point - Davisville**

Name	Number of Households	Type of Collection Vehicle	Number of Stops to fill	Time to fill truck (hr)	Total Time to Collect all Households	Number of Trips	Distance to LWMF (km)	Travel Time per trip (hr)	Unloading time
Musgrave Harbour	509	Dump Truck	65	1.3	10.18	8	43	1.06	0.17
Carmanville	370	Pick up	50	1	7.40	8	13	0.33	0.25
Division No. 8, Subd. M (Deadman's Bay)	82	Pick up	50	1	1.64	2	65	1.67	0.25
Division No. 8, Subd. L* (Gander Bay North)	748	Pick up	50	1	14.96	15	30	1	0.25
<b>Total</b>	<b>1709</b>				<b>34.18</b>	<b>33</b>	<b>151</b>		

\* Averaged out Distance to LWMF for all 7 communities in Subdivision

Name	Total Loading Time (hr)	Total Travel Time (hr)	Total Unloading Time (hr)	TOTAL TIME (hr)	Cost per hour	Total Cost per week	Total Cost per year
Musgrave Harbour	10.18	8.48	1.36	20.02	\$46.50	\$930.93	\$48,408.36
Carmanville	7.40	2.64	2.00	12.04	\$34.00	\$409.36	\$21,286.72
Division No. 8, Subd. M (Deadman's Bay)	1.64	3.34	0.50	5.48	\$34.00	\$186.32	\$9,688.64
Division No. 8, Subd. L* (Gander Bay North)	14.96	15.00	3.75	33.71	\$34.00	\$1,146.14	\$59,599.28
<b>Total</b>	<b>34.18</b>	<b>29.46</b>		<b>63.64</b>		<b>\$2,672.75</b>	<b>\$138,983.00</b>

# Indian Bay

**Status Quo - Indian Bay**

Name	Number of Households	Type of Collection Vehicle	Number of Stops to fill	Time to fill truck (hr)	Total Time to Collect all Households	Number of Trips	Distance to LWMF (km)	Travel Time per trip (hr)	Unloading time
New-Wes-Valley	1166	Compactor 18yd <sup>3</sup>	350	5.8	19.32	4	28	0.73	0.17
Greenspond	177	Pick up	50	1	3.54	4	36	1.33	0.25
Indian Bay	116	Pick up	50	1	2.32	3	3	0.10	0.25
Centreville-Wareham-Trinity	519	Pick up	50	1	10.38	10	4	0.13	0.25
Dover	270	Pick up	50	1	5.40	6	25	0.67	0.25
Hare Bay	459	Dump Truck	65	1.3	9.18	7	27	0.73	0.17
Lumsden	264	Pick up	50	1	5.28	6	45	1.50	0.25
Division No. 7, Subd. A* (Cape Freels North)	60	Pick up	50	1	1.20	2	44	1.33	0.25
Division No. 7, Subd. B* (No Community)	2	Pick up	50	1	0.00	0	0	0	0
<b>TOTAL</b>	<b>3033</b>				<b>56.62</b>	<b>42</b>	<b>212</b>		

Assumed 60 Stops/ Hour with Compactor Truck

Name	Total Loading Time (hr)	Total Travel Time (hr)	Total Unloading Time (hr)	TOTAL TIME (hr)	Cost per hour	Total Cost per week	Total Cost per year
New-Wes-Valley	19.32	2.92	0.68	22.92	\$45.00	\$1,031.50	\$53,638.15
Greenspond	3.54	5.32	1.00	9.86	\$34.00	\$335.24	\$17,432.48
Indian Bay	2.32	0.30	0.75	3.37	\$34.00	\$114.58	\$5,958.16
Centreville-Wareham-Trinity	10.38	1.30	2.50	14.18	\$34.00	\$482.12	\$25,070.24
Dover	5.40	4.02	1.50	10.92	\$34.00	\$371.28	\$19,306.56
Hare Bay	9.18	5.11	1.19	15.48	\$46.50	\$719.82	\$37,430.64
Lumsden	5.28	9.00	1.50	15.78	\$34.00	\$536.52	\$27,899.04
Division No. 7, Subd. A* (Cape Freels North)	1.20	2.66	0.50	4.36	\$34.00	\$148.24	\$7,708.48
Division No. 7, Subd. B* (No Community)	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>56.62</b>	<b>30.63</b>	<b>9.62</b>	<b>96.87</b>		<b>\$3,739.30</b>	<b>\$194,443.75</b>

# Terra Nova Regional

**Status Quo -Terra Nova Regional**

Name	Number of Households	Type of Collection Vehicle	Number of Stops to fill	Time to fill truck (hr)	Total Time to Collect all Households	Number of Trips	Distance to LWMF (km)	Travel Time per trip (hr)	Unloading time
Glovertown	910	Compactor 18 yd <sup>3</sup>	350	5.8	15.08	3	10	0.27	0.17
Traytown	144	Pick up	50	1	2.88	3	4	0.17	0.25
Sandringham	109	Pick up	50	1	2.18	2	13	0.33	0.25
Eastport	299	Pick up	50	1	5.98	6	19	0.28	0.25
Sandy Cove	83	Pick up	50	1	1.66	2	22	0.67	0.25
Gambo	859	Compactor 18 yd <sup>3</sup>	350	5.8	14.23	3	26	0.6	0.17
Happy Adventure	143	Pick up	50	1	2.86	3	22	0.67	0.25
Terra Nova	15	Pick up	50	1	0.30	1	34	1	0.25
Terra Nova National Park	200	Pick up	50	1	4.00	4	20	0.6	0.25
Salvage	100	Pick up	50	1	2.00	2	30	0.9	0.25
St. Brendan's	139	Pick up	50	1	2.78	3	38	3	0.25
Division No. 7, Subd. D* (Burnside - St. Chad's)	83	Pick up	50	1	1.66	2	28	0.83	0.25
Division No. 7, Subd. N* (No Community)	6								
<b>TOTAL</b>	<b>2,890</b>				<b>55.61</b>	<b>34</b>	<b>266</b>		

Assumed 60 Stops/ Hour with Compactor Truck

Name	Total Loading Time (hr)	Total Travel Time (hr)	Total Unloading Time (hr)	TOTAL TIME (hr)	Cost per hour	Total Cost per week	Ferry Cost	Total Cost per year
Glovertown	15.08	0.81	0.51	16.40	\$45.00	\$738.00		\$38,376.00
Traytown	2.88	0.51	0.75	4.14	\$34.00	\$140.76		\$7,319.52
Sandringham	2.18	0.66	0.50	3.34	\$34.00	\$113.56		\$5,905.12
Eastport	5.98	1.68	1.50	9.16	\$34.00	\$311.44		\$16,194.88
Sandy Cove	1.66	1.34	0.50	3.50	\$34.00	\$119.00		\$6,188.00
Gambo	14.23	1.80	0.51	16.54	\$45.00	\$744.52		\$38,714.97
Happy Adventure	2.86	2.01	0.75	5.62	\$34.00	\$191.08		\$9,936.16
Terra Nova	0.30	1.00	0.25	1.55	\$34.00	\$52.70		\$2,740.40
Terra Nova National Park	4.00	2.40	1.00	7.40	\$34.00	\$251.60		\$13,083.20
Salvage	2.00	1.80	0.50	4.30	\$34.00	\$146.20		\$7,602.40
St. Brendan's	2.78	9.00	0.75	12.53	\$34.00	\$426.02	\$1,287.00	\$23,440.04
Division No. 7, Subd. D* (Burnside - St. Chad's)	1.66	1.66	0.50	3.82	\$34.00	\$129.88		\$6,753.76
Division No. 7, Subd. N* (No Community)	0.00	0.00	0.00	0.00	\$0.00	\$0.00		\$0.00
<b>TOTAL</b>	<b>55.61</b>	<b>24.67</b>	<b>8.02</b>	<b>88.30</b>		<b>\$3,364.76</b>		<b>\$176,254.45</b>



# Direct Haul Region

**Status Quo -Directly to Landfill**

Name	Number of Households	Type of Collection Vehicle	Number of Stops to fill	Time to fill truck (hr)	Total Time to Collect all Households	Number of Trips	Distance to LWMF (km)	Travel Time per trip (hr)	Unloading time
Bishop's Falls	1390	Compactor 18 yd <sup>3</sup>	350	5.8	23.03	4	36	0.8	0.17
Glenwood	345	Dump Truck	65	1.3	6.90	7	38	0.9	0.17
Appleton	227	Pick up	50	1	4.54	5	37	0.83	0.25
Gander	3993	Compactor 33 yd <sup>3</sup>	650	6.5	39.93	6	58	1.23	0.17
Norris Arm	404	Compactor 18 yd <sup>3</sup>	350	5.8	6.69	1	14	0.37	0.17
Lewisporte	1377	Compactor 18 yd <sup>3</sup>	350	5.8	22.82	4	27	0.83	0.17
Campbellton	281	Pick up	50	1	5.62	6	38	1.2	0.25
Botwood	1335	Compactor 18 yd <sup>3</sup>	350	5.8	22.12	4	49	1.3	0.17
Peterview	274	Dump Truck	65	1.3	5.48	5	45	1.17	0.17
Baytona	122	Pick up	50	1	2.44	3	58	1.9	0.25
Birchy Bay	251	Pick up	50	1	5.02	5	57	1.83	0.25
Comfort Cove-Newstead	242	Pick up	50	1	4.84	5	55	1.77	0.25
Little Burnt Bay	151	Pick up	50	1	3.02	3	43	1.37	0.25
Grand Falls-Windsor	5253	Compactor 33 yd <sup>3</sup>	650	6.5	52.53	8	50	1.1	0.17
Badger	342	Compactor 18 yd <sup>3</sup>	350	5.8	5.67	1	79	1.67	0.17
Embree	322	Pick up	50	1	6.44	7	34	1.07	0.25
Division No. 6, Subd. D* (Norris Arm North)	125	Pick up	50	1	2.50	3	3	0.1	0.25
Division No. 8, Subd. F* (Brown's Arm)	458	Pick up	50	1	9.16	9	40	1.3	0.25
Division No. 6, Subd. E* (Benton)	68	Pick up	50	1	1.36	2	75	1.67	0.25
<b>TOTAL</b>	<b>16960</b>				<b>230.12</b>	<b>88</b>	<b>836</b>		

Assumed 60 Stops/ Hour with Compactor Truck in Rural Area  
 Assumed 100 Stops/ Hour with Compactor Truck in Urban Area

CENTRAL NEWFOUNDLAND SOLID WASTE MANAGEMENT PLAN  
 Curbside Collection Alternatives Study

Name	Total Loading Time (hr)	Total Travel Time (hr)	Total Unloading Time (hr)	TOTAL TIME (hr)	Cost per hour	Total Cost per week	Total Cost per year
Bishop's Falls	23.03	3.20	0.68	26.91	\$45.00	\$1,211.14	\$62,979.43
Glenwood	6.90	6.30	1.19	14.39	\$46.50	\$669.14	\$34,795.02
Appleton	4.54	4.15	1.25	9.94	\$34.00	\$337.96	\$17,573.92
Gander	39.93	7.38	1.02	48.33	\$45.00	\$2,174.85	\$113,092.20
Norris Arm	6.69	0.37	0.17	7.23	\$45.00	\$325.57	\$16,929.57
Lewisporte	22.82	3.32	0.68	26.82	\$45.00	\$1,206.85	\$62,756.13
Campbellton	5.62	7.20	1.50	14.32	\$34.00	\$486.88	\$25,317.76
Botwood	22.12	5.20	0.68	28.00	\$45.00	\$1,260.13	\$65,526.69
Peterview	5.48	5.85	0.85	12.18	\$46.50	\$566.37	\$29,451.24
Baytona	2.44	5.70	0.75	8.89	\$34.00	\$302.26	\$15,717.52
Birchy Bay	5.02	9.15	1.25	15.42	\$34.00	\$524.28	\$27,262.56
Comfort Cove-Newstead	4.84	8.85	1.25	14.94	\$34.00	\$507.96	\$26,413.92
Little Burnt Bay	3.02	4.11	0.75	7.88	\$34.00	\$267.92	\$13,931.84
Grand Falls-Windsor	52.53	8.80	1.36	62.69	\$45.00	\$2,821.05	\$146,694.60
Badger	5.67	1.67	0.17	7.51	\$45.00	\$337.83	\$17,567.38
Embree	6.44	7.49	1.75	15.68	\$34.00	\$533.12	\$27,722.24
Division No. 6, Subd. D* (Norris Arm North)	2.50	0.30	0.75	3.55	\$34.00	\$120.70	\$6,276.40
Division No. 8, Subd. F* (Brown's Arm)	9.16	11.70	2.25	23.11	\$34.00	\$785.74	\$40,858.48
Division No. 6, Subd. E* (Benton)	1.36	3.34	0.50	5.20	\$34.00	\$176.80	\$9,193.60
<b>TOTAL</b>	<b>230.12</b>	<b>104.08</b>	<b>18.80</b>	<b>353.00</b>		<b>\$14,616.55</b>	<b>\$760,060.49</b>

# Appendix B

## Compactor Trucks

# Buchan's Junction

**Collection Using Compactor Trucks - Buchan's Junction**

**Table 1: Required Collection Time**

Name	Type	Population (2001)	Number of Households	Type of Collection Vehicle	Time to Collect (hr)
Buchans	Town	877	443	Compactor	7.38
Division No. 6, Subd. A (Buchan's Junction)	LSD	110	40	Compactor	0.67
Millertown	Town	118	69	Compactor	1.15
<b>Total</b>		<b>1,105</b>	<b>552</b>		<b>9.20</b>

**Table 2: Required Travel Time**

Route	Distance to LWMF (km)	Time (hr)
LWMF to Buchans	31	0.5
Buchan's - Buchan's Junction	31	0.5
Buchan's Junction - Millertown	7	0.11
Millertown- Buchan's Junction	7	0.11
Buchan's Junction - LWMF	2	0.05
<b>TOTAL</b>	<b>78</b>	<b>1.27</b>

**Table 3: Total Cost**

Item	Weekly Time Required (hr)	Cost of Truck (\$)/Hr	Weekly Collection Cost	Yearly Collection Cost
Loading Time	9.2			
Travel Time	1.27			
Unloading Time	0.16			
<b>TOTAL</b>	<b>10.6</b>	<b>\$47.00</b>	<b>\$499.61</b>	<b>\$25,979.72</b>

# Point Leamington

### Collection Using Compactor Trucks - Point Leamington

**Table 1: Required Collection Time**

Name	Type	Population (2001)	Number of Households	Type of Collection Vehicle	Time to Collect (hr)
Leading Tickles West	Town	453	188	Compactor	3.13
Point Leamington	Town	685	308	Compactor	5.13
Point of Bay	Town	169	113	Compactor	1.88
Northern Arm	Town	375	174	Compactor	2.90
Division No. 6, Subd. C* (Philip's Head)	LSD	328	122	Compactor	2.03
Division No. 8, Subd. E* (Cottrell's Cove)	LSD	692	257	Compactor	4.28
<b>Total</b>		<b>2,702</b>	<b>1,162</b>		<b>19.37</b>

**Table 2: Required Travel Time**

Route	Distance to LWMF (km)	Time (hr)	
LWMF to Leading Tickles	50	0.83	
Leading Tickles to Glovers Harbour	12	0.21	
Glovers Harbour to Point Leamington	23	0.38	
Point Leamington to Pleasantview	10	0.18	
Pleasantview to LWMF	22	0.37	<b>Day 1 = 10.9 hrs</b>
LWMF to Fortune Harbour	52	0.85	
Fortune Harbour to Cottrell's Cove	5	0.08	
Cottrell's Cove to Moore's Cove	1	0.02	
Moore's Harbour to Point of Bay	33	0.5	
Point of Bay to Phillip's Head	5	0.08	
Phillip's Head to LWMF	10	0.18	<b>Day 2 = 9.5 hrs</b>
LWMF to Northern Arm	3	0.05	
Northern Arm to LWMF	3	0.05	<b>Day 3 = 3.2 hrs</b>
<b>TOTAL</b>	<b>229</b>	<b>3.78</b>	

**Table 3: Total Cost**

Item	Weekly Time Required (hr)	Cost of Truck (\$)/Hr	Weekly Collection Cost	Yearly Collection Cost
Loading Time	19.4			
Travel Time	3.78			
Unloading Time	0.5			
<b>TOTAL</b>	<b>23.6</b>	<b>\$47.00</b>	<b>\$1,111.39</b>	<b>\$57,792.45</b>



# Virgin Arm – Carter's Cove

**Collection Using Compactor Trucks - Virgin Arm - Carter's Cove**

**Table 1: Required Collection Time**

Name	Type	Population (2001)	Number of Households	Type of Collection Vehicle	Time to Collect (hr)
Crow Head	Town	218	122	Compactor	2.03
Summerford	Town	1,010	421	Compactor	7.02
Change Islands	Town	360	185	Compactor	3.08
Twillingate	Town	2,611	1195	Compactor	19.92
Cottlesville	Town	297	140	Compactor	2.33
Division No. 8, Subd. I* (Purcell's Harbour)	-	244	90	Compactor	1.50
Division No. 8, Subd. H* (Virgin's Arm - Carter's Cove)	-	2,402	1,094	Compactor	18.23
Division No. 8, Subd. G* (Boyd's Cove)	-	518	339	Compactor	5.65
<b>Total</b>		<b>7,660</b>	<b>3,586</b>		<b>59.77</b>

**Table 2: Required Travel Time**

Route	Distance to LWMF (km)	Time (hr)	
<b>LWMF to Change Islands</b>	47	1.28	
Change Island to Port Albert	5	0.6	
Port Albert to Stoneville	24	0.4	
Stoneville to <b>LWMF</b>	33	0.5	<b>Day 1 = 9.0 hrs</b>
<b>LWMF to Horwood</b>	32	0.53	
Horwood to Boyd's Cove	12	0.21	
Boyd's Cove to Virgin Arm - Carter's Cove	19	0.33	
Virgin's Arm Carter's Cove to <b>LWMF</b>	2	0.04	<b>Day 2 = 10.0 hrs</b>
<b>LWMF to Cottlesville</b>	12	0.21	
Cottlesville to Summerford	4	0.08	
Summerford to <b>LWMF</b>	7	0.13	<b>Day 3 = 10.0 hrs</b>
<b>LWMF to Crow Head</b>	30	0.5	
Crow Head to Twillingate (a)	6	0.1	a 408 houses
Twillingate to <b>LWMF</b>	24	0.4	<b>Day 4 = 10.0 hrs</b>
<b>LWMF to Twillingate (b)</b>	24	0.4	b 550 houses
Twillingate to <b>LWMF</b>	24	0.4	<b>Day 5 = 10.0 hrs</b>
<b>LWMF to Twillingate (c)</b>	24	0.4	c 237 houses
Twillingate to Purcell's Hr	7	0.25	
Purcell's Hr to <b>LWMF</b>	17	0.28	<b>Day 6 = 9.0 hrs</b>
<b>LWMF to Cobb's Arm</b>	20	0.33	
Cobb's Arm to Herring Neck	4	0.08	
Herring Neck to Merrit's Harbour	10	0.2	
Merrit's Harbour to Indian Cove	4	0.08	
Indian Cove to Newville	3	0.05	

Route	Distance to LWMF (km)	Time (hr)	
Newville to Fairbanks	9	0.15	
Fairbanks to LWMF	10	0.18	<b>Day 7 = 7.0 hrs</b>
LWMF to Tizzard's Harbour	17	0.33	
Tizzard's Harbour to Valley Pond	9	0.17	
Valley Pond to Moreton's Harbour	5	0.12	
Moreton's Harbour to Bridge Port	3	0.07	
Bridge Port to Chanceport	6	0.12	
Chanceport to LWMF	6	0.12	<b>Day 8 = 6.0 hrs</b>
<b>TOTAL</b>	<b>459</b>	<b>9.04</b>	

**Table 3: Total**

Item	Weekly Time Required (hr)	Cost of Truck (\$)/Hr	Weekly Collection Cost	Yearly Collection Cost
Loading Time	59.8			
Travel Time	9.04			
Unloading Time	1.33			
<b>TOTAL</b>	<b>70.1</b>	<b>\$47.00</b>	<b>\$3,296.42</b>	<b>\$171,414.01</b>

# Fogo Island

## Collection Using Compactor Trucks - Fogo Island

**Table 1: Required Collection Time**

Name	Type	Population (2001)	Number of Households	Type of Collection Vehicle	Time to Collect (hr)
Fogo	Town	803	333	Compactor	5.55
Fogo Island Region	Region	564	232	Compactor	3.87
Tilting	Town	285	100	Compactor	1.67
Joe Batt's Arm - Barr'd Island - Shoal Bay	Town	889	383	Compactor	6.38
Seldom-Little Seldom	Town	477	182	Compactor	3.03
<b>Total</b>		<b>3,018</b>	<b>1,230</b>		<b>20.5</b>

### Fogo Island Region

- \* Deep Bay 9 km
- \* Island Harbour 16 km
- \* Stag Harbour 10 km

**Table 2: Required Travel Time**

Name	Distance to LWMF (km)	Time (hr)	
<b>LWMF</b> to Tilting	26	0.44	
Tilting to Joe Batt's Arm	8	0.15	
Joe Batt's Arm to Barr' Islands	1	0.02	
Barr'd Islands to Shoal Bay	5	0.12	
Shoal Bay to <b>LWMF</b>	12	0.2	<b>Day 1: 9.2 hrs</b>
<b>LWMF</b> to Fogo	14	0.24	
Fogo to Island Harbour	20	0.34	
Island Harbour to Deep Bay	7	0.12	
Deep Bay to <b>LWMF</b>	9	0.17	<b>Day 2: 9.0 hrs</b>
<b>LWMF</b> to Stag Hr	10	0.18	
Stag Hr to Seldom - Little Seldom	11	0.2	
Seldom - Little Seldom to <b>LWMF</b>	2	0.04	<b>Day 3: 5.0 hrs</b>
<b>TOTAL</b>	<b>125</b>	<b>2.22</b>	

**Table 3: Total Cost**

Item	Weekly Time Required (hr)	Cost of Truck (\$)/Hr	Weekly Collection Cost	Yearly Collection Cost
Loading Time	20.5			
Travel Time	2.22			
Unloading Time	0.5			
<b>TOTAL</b>	<b>23.2</b>	<b>\$47.00</b>	<b>\$1,091.34</b>	<b>\$56,749.68</b>

# Main Point – Davisville

### Collection Using Compactor Trucks - Main Point - Davisville

**Table 1: Required Collection Time**

Name	Type	Population (2001)	Number of Households	Type of Collection Vehicle	Time to Collect (hr)
Musgrave Harbour	Town	1,294	509	Compactor	8.48
Carmanville	Town	798	370	Compactor	6.17
Division No. 8, Subd. M (Deadman's Bay)	-	220	82	Compactor	1.37
Division No. 8, Subd. L (Gander Bay North)	-	3,436	748	Compactor	12.47
<b>Total</b>		<b>5,748</b>	<b>1,709</b>		<b>28.48</b>

**Table 2: Required Travel Time**

Route	Distance to LWMF (km)	Time (hr)	
LWMF to Deadman's Bay	65	1	
Deadman's Bay to Musgrave Hr (a)	23	0.38	(a) 350 Houses
Musgrave Hr to LWMF	43	0.72	<b>Day 1: 9.5 hrs</b>
LWMF to Musgrave Hr (b)	43	0.72	(b) 159 Houses
Musgrave Hr to Ladle Cove	26	0.45	
Ladle Cove to Aspen Cove	6	0.1	
Aspen Cove to Frederickton	35	0.57	
Frederickton to Noggin Cove	4	0.07	
Noggin Cove to LWMF	18	0.33	<b>Day 2: 8.8 hrs</b>
LWMF to Carmanville	16	0.25	
Carmanville to Main Point	13	0.21	
Main Point to LWMF	4	0.08	<b>Day 3: 9.5 hrs</b>
LWMF to Gander Bay South	7	0.15	
Gander Bay South to Gander Bay North	1	0.03	
Gander Bay North to LWMF	6	0.12	<b>Day 4: 6.5 hrs</b>
<b>TOTAL</b>	<b>310</b>	<b>5.18</b>	

**Table 3: Total Cost**

Item	Weekly Time Required (hr)	Cost of Truck (\$)/Hr	Weekly Collection Cost	Yearly Collection Cost
Loading Time	28.5			
Travel Time	5.18			
Unloading Time	0.67			
<b>TOTAL</b>	<b>34.3</b>	<b>\$47.00</b>	<b>\$1,613.67</b>	<b>\$83,910.67</b>

# Indian Bay



**Collection Using Compactor Trucks - Indian Bay**

**Table 1: Required Collection Time**

Name	Type	Population (2001)	Number of Households	Type of Collection Vehicle	Time to Collect (hr)
New-Wes-Valley	Town	2,832	1166	Compactor	19.43
Greenspond	Town	383	177	Compactor	2.95
Indian Bay	Town	214	116	Compactor	1.93
Centreville-Wareham-Trinity	Town	1,146	519	Compactor	8.65
Dover	Town	730	270	Compactor	4.50
Hare Bay	Town	1,065	459	Compactor	7.65
Lumsden	Town	622	264	Compactor	4.40
Division No. 7, Subd. A* (Cape Freels North)	-	161	60	Compactor	1.00
Division No. 7, Subd. B* (No Community)	-	5	2	Compactor	0.03
<b>Total</b>		<b>7,158</b>	<b>3,033</b>		<b>50.55</b>

**Table 2: Required Travel Time**

Route	Distance to LWMF (km)	Time (hr)	
LWMF to Lumsden	45	0.75	
Lumsden to Cape Freels North	12	0.2	
Cape Freels North to New-Wes-Valley(a)	23	0.38	(a) 160 Houses
New Wes Valley to LWMF	28	0.46	<b>Day 1 = 10.0 hrs</b>
LWMF to New-Wes-Valley (b)	28	0.46	(b) 550 Houses
New Wes Valley to LWMF	28	0.46	<b>Day 2 = 10.0 hrs</b>
LWMF to New-Wes-Valley (c)	28	0.46	(c) 456 Houses
New Wes Valley to LWMF	28	0.46	<b>Day 3 = 8.8 hrs</b>
LWMF to Hare Bay	27	0.47	
Hare Bay to Dover (d)	4	0.07	(d) 70 Houses
Dover to LWMF	24	0.4	<b>Day 4 = 10.0 hrs</b>
LWMF to Dover (e)	24	0.4	(e) 200 Houses
Dover to Centreville-Wareham-Trinity (f)	21	0.35	(f) 325 Houses
Centreville-Wareham-Trinity to LWMF	6	0.1	<b>Day 5 = 9.8 hrs</b>
LWMF to Centreville-Wareham-Trinity (g)	6	0.1	(g) 194 Houses
Centreville-Wareham-Trinity to Indian Bay	5	0.09	
Indian Bay to Greenspond	36	0.65	
Greenspond to LWMF	34	0.6	<b>Day 6 = 9.8 hrs</b>
<b>TOTAL</b>	<b>407</b>	<b>6.86</b>	

**Table 3: Total Cost**

Item	Weekly Time Required (hr)	Cost of Truck (\$)/Hr	Weekly Collection Cost	Yearly Collection Cost
Loading Time	50.6			
Travel Time	6.86			
Unloading Time	1			
<b>TOTAL</b>	<b>58.4</b>	<b>\$47.00</b>	<b>\$2,745.27</b>	<b>\$142,754.04</b>

# Terra Nova Regional

## Collection Using Compactor Trucks - Terra Nova Regional

**Table 1: Required Collection Time**

Name	Type	Population (2001)	Number of Households	Type of Collection Vehicle	Time to Collect (hr)
Glovertown	Town	2,163	910	Compactor	15.17
Traytown	Town	272	144	Compactor	2.40
Sandringham	Town	262	109	Compactor	1.82
Eastport	Town	509	299	Compactor	4.98
Sandy Cove	Town	152	83	Compactor	1.38
Gambo	Town	2,084	859	Compactor	14.32
Happy Adventure	Town	245	143	Compactor	2.38
Terra Nova	Town	30	15	Compactor	0.25
Terra Nova National Park	Park	-	200	Compactor	3.33
Salvage	Town	203	100	Compactor	1.67
St. Brendan's	Town	251	139	Compactor	2.32
Division No. 7, Subd. D* (Burnside - St. Chad's)	-	224	83	Compactor	1.38
Division No. 7, Subd. N* (No Community)	-	15	6	Compactor	0.10
<b>Total</b>		<b>6,410</b>	<b>2,890</b>	-	<b>51.50</b>

**Table 2: Required Travel Time**

Name	Distance to LWMF (km)	Time (hr)	
LWMF to St. Brendan's	38	1.5	
St. Brendan's to Burnside St. Chad's	0	0.83	
Burnside St. Chad's to Salvage	19	0.32	
Salvage to Sandy Cove	12	0.2	
Sandy Cove to LWMF	30	0.5	<b>Day 1: 10.2 hrs</b>
LWMF to Happy Adventure	22	0.37	
Happy Adventure to East Port	2	0.03	
East Port to Sandringham	6	0.1	
Sandringham to LWMF	13	0.22	<b>Day 2: 10.0 hrs</b>
LWMF to Gambo (a)	26	0.3	(a) 550 houses
Gambo to LWMF	26	0.3	<b>Day 3: 10.0 hrs</b>
LWMF to Gambo (b)	26	0.3	(b) 309 houses
Gambo to Glovertown (c)	23	0.28	(c) 241 houses
Glovertown to LWMF	10	0.17	<b>Day 4: 10.0 hrs</b>
LWMF to Glovertown (d)	10	0.17	(d) 550 houses
Glovertown to LWMF	10	0.17	<b>Day 5: 9.7 hrs</b>
LWMF to Glovertown (e)	10	0.17	(e) 119 houses
Glovertown to Traytown	6	0.12	
Traytown to Terra Nova	37	0.5	
Terra Nova to Park	25	0.4	
Park to LWMF	12	0.2	<b>Day 6: 9.6 hrs</b>
<b>TOTAL</b>	<b>363</b>	<b>7.15</b>	

**Table 3: Total Cost**

Item	Weekly Time Required (hr)	Cost of Truck (\$)/Hr	Weekly Collection Cost	Yearly Collection Cost	Ferry Cost	Total Annual Collection Cost
Loading Time	51.5					
Travel Time	7.15					
Unloading Time	1					
<b>TOTAL</b>	<b>59.7</b>	<b>\$47.00</b>	<b>\$2,803.55</b>	<b>\$145,784.60</b>	<b>\$2,756.00</b>	<b>\$148,540.60</b>

Include cost of Ferry \$53.00/week x 52 weeks **\$2,756.00**

# Direct Haul Region

**Compactor Trucks with Regions -Direct Haul Region**

**Table 1: Required Collection Time**

Name	Type	Population (2001)	Number of Households	Type of Collection Vehicle	Time to Collect (hr)
<b>EASTERN REGION</b>					
Division No. 6, Subd. E (Benton)	-	182	68	Compactor	1.13
Glenwood	Town	845	345	Compactor	5.75
Appleton	Town	576	227	Compactor	3.78
Gander*	Town	9,651	3,993	Compactor	39.93
<b>WESTERN REGION</b>					
Bishop's Falls	Town	3,688	1,390	Compactor	23.17
Norris Arm	Town	843	404	Compactor	6.73
Botwood	Town	3,221	1,335	Compactor	22.25
Peterview	Town	811	274	Compactor	4.57
Grand Falls-Windsor*	Town	13,340	5,253	Compactor	52.53
Badger	Town	906	342	Compactor	5.70
Division No. 6, Subd. D (Norris Arm North)	-	337	125	Compactor	2.08
<b>NORTHERN REGION</b>					
Lewisporte	Town	3,312	1,377	Compactor	22.95
Campbellton	Town	565	281	Compactor	4.68
Baytona	Town	325	122	Compactor	2.03
Birchy Bay	Town	612	251	Compactor	4.18
Comfort Cove-Newstead	Town	510	242	Compactor	4.03
Little Burnt Bay	Town	312	151	Compactor	2.52
Embree	Town	745	322	Compactor	5.37
Division No. 8, Subd. F (Brown's Arm)	-	973	458	Compactor	7.63
<b>Total</b>		<b>41,754</b>	<b>16,960</b>	-	<b>221.03</b>

\* Urban Area

Assumed 650 stops to fill compactor truck and can do 100 households per hour in a urban setting

Assumed 650 stops to fill and can do 60 households per hour in a rural setting

**Table 2: Required Travel Time**

Route	Distance to LWMF (km)	Time (hr)	
<b>EASTERN REGION</b>			
<b>RWMF to Benton</b>	45	0.8	
Benton to Gander (a)	17	0.17	(a) 582 Houses
Gander to <b>RWMF</b>	58	0.61	<b>Day 1: 9.0 hrs</b>
<b>RWMF to Gander (b)</b>	58	0.61	(b) 650 Houses
Gander to <b>RWMF</b>	58	0.61	<b>Day 2: 8.0 hrs</b>
<b>RWMF to Gander (c)</b>	58	0.61	(c) 650 Houses
Gander to <b>RWMF</b>	58	0.61	<b>Day 3: 8.0 hrs</b>
<b>RWMF to Gander (d)</b>	58	0.61	(d) 650 Houses
Gander to <b>RWMF</b>	58	0.61	<b>Day 4: 8.0 hrs</b>
<b>RWMF to Gander (e)</b>	58	0.61	(e) 650 Houses
Gander to <b>RWMF</b>	58	0.61	<b>Day 5: 8.0 hrs</b>
<b>RWMF to Gander (f)</b>	58	0.61	(f) 650 Houses
Gander to <b>RWMF</b>	58	0.61	<b>Day 6: 8.0 hrs</b>
<b>RWMF to Gander (g)</b>	58	0.61	(g) 161 Houses
Gander to Appleton	20	0.2	
Appleton to Glenwood (h)	4	0.08	(h) 120 Houses
Glenwood to <b>RWMF</b>	38	0.72	<b>Day 7: 8.0 hrs</b>
RWMF to Glenwood (i)	38	0.72	(i) 225 Houses
Glenwood to Norris Arm North	40	0.78	
<b>WESTERN REGION</b>			
Norris Arm North to <b>RWMF</b>	2	0.05	<b>Day 8: 7.6 hrs</b>
<b>RWMF to Badger</b>	79	0.84	
Badger to <b>RWMF</b>	79	0.84	<b>Day 9: 7.6 hrs</b>
<b>RWMF to Grand Falls - Windsor (j)</b>	50	0.34	(j) 650 Houses
Grand Falls - Windsor to <b>RWMF</b>	50	0.34	<b>Day 10: 7.5 hrs</b>
<b>RWMF to Grand Falls - Windsor (k)</b>	50	0.34	(k) 650 Houses
Grand Falls - Windsor to <b>RWMF</b>	50	0.34	<b>Day 11: 7.5 hrs</b>
<b>RWMF to Grand Falls - Windsor (l)</b>	50	0.34	(l) 650 Houses
Grand Falls - Windsor to <b>RWMF</b>	50	0.34	<b>Day 12: 7.5 hrs</b>
<b>RWMF to Grand Falls - Windsor (m)</b>	50	0.34	(m) 650 Houses
Grand Falls - Windsor to <b>RWMF</b>	50	0.34	<b>Day 13: 7.5 hrs</b>
<b>RWMF to Grand Falls - Windsor (n)</b>	50	0.34	(n) 650 Houses
Grand Falls - Windsor to <b>RWMF</b>	50	0.34	<b>Day 14: 7.5 hrs</b>
<b>RWMF to Grand Falls - Windsor (o)</b>	50	0.34	(o) 650 Houses
Grand Falls - Windsor to <b>RWMF</b>	50	0.34	<b>Day 15: 7.5 hrs</b>
<b>RWMF to Grand Falls - Windsor (p)</b>	50	0.34	(p) 650 Houses
Grand Falls - Windsor to <b>RWMF</b>	50	0.34	<b>Day 16: 7.5 hrs</b>

Route	Distance to LWMF (km)	Time (hr)	
<b>RWMF</b> to Grand Falls - Windsor (q)	50	0.34	(q) 650 Houses
Grand Falls - Windsor to <b>RWMF</b>	50	0.34	
			<b>Day 17: 7.5 hrs</b>
<b>RWMF</b> to Grand Falls - Windsor (r)	50	0.34	(r) 53 Houses
Grand Falls - Windsor to Bishop's Falls (s)	15	0.15	(s) 500 Houses
Bishop's Falls to <b>RWMF</b>	36	0.4	
			<b>Day 18: 10 hrs</b>
<b>RWMF</b> to Bishop's Falls (t)	36	0.4	(t) 550 Houses
Bishop's Falls to <b>RWMF</b>	36	0.4	
			<b>Day 19: 10.1 hrs</b>
<b>RWMF</b> to Bishop's Falls (u)	36	0.4	(u) 340 Houses
Bishop's Falls to Norris Arm (v)	22	0.22	(v) 200 Houses
Norris Arm to <b>RWMF</b>	14	0.2	
			<b>Day 20: 10.2 hrs</b>
<b>RWMF</b> to Peterview	45	0.59	
Peterview to Norris Arm (w)	32	0.39	(w) 204 Houses
Norris Arm to <b>RWMF</b>	14	0.2	
			<b>Day 21: 9.5 hrs</b>
<b>RWMF</b> to Botwood (x)	49	0.65	(x) 500 Houses
Botwood to <b>RWMF</b>	49	0.65	
			<b>Day 22: 10 hrs</b>
<b>RWMF</b> to Botwood (y)	49	0.65	(y) 500 Houses
Botwood to <b>RWMF</b>	49	0.65	
			<b>Day 23: 10 hrs</b>
<b>RWMF</b> to Botwood (z)	49	0.65	(z) 335 Houses
Botwood to <b>RWMF</b>	49	0.65	
			<b>Day 24: 7.0 hrs</b>
<b>NORTHERN REGION</b>			
<b>RWMF</b> to Birchy Bay	57	0.91	
Birchy Bay to Baytona	9	0.17	
Baytona to <b>RWMF</b>	58	0.95	
			<b>Day 25: 9.0 hrs</b>
<b>RWMF</b> to Comfort Cove - Newstead	55	0.89	
Comfort Cove - Newstead to Loon Bay	18	0.32	
Loon Bay to <b>RWMF</b>	46	0.74	
			<b>Day 26: 9.1 hrs</b>
<b>RWMF</b> to Little Burnt Bay	43	0.69	
Little Burnt Bay to Embree	8	0.14	
Embree to <b>RWMF</b>	35	0.56	
			<b>Day 27: 10 hrs</b>
<b>RWMF</b> to Sandy Point	50	0.8	
Sandy Point to Brown's Arm	13	0.22	
Brown's Arm to Stanhope	6	0.12	
Stanhope to <b>RWMF</b>	31	0.49	
			<b>Day 28: 9.0 hrs</b>
<b>RWMF</b> to Campbellton	38	0.6	
Campbellton to Michael's Hr	4	0.08	
Michael's HR to Lewisporte (1)	13	0.22	(1) 150 Houses
Lewisporte to <b>RWMF</b>	27	0.42	
			<b>Day 29: 10 hrs</b>
<b>RWMF</b> to Lewisporte (2)	27	0.42	(2) 550 Houses
Lewisporte to <b>RWMF</b>	27	0.42	
			<b>Day 30: 10.2 hrs</b>
<b>RWMF</b> to Lewisporte (3)	27	0.42	(3) 550 Houses
Lewisporte to <b>RWMF</b>	27	0.42	
<b>RWMF</b> to Lewisporte (4)	27	0.42	(4) 127 Houses
Lewisporte to <b>RWMF</b>	27	0.42	
			<b>Day 31: 3.1 hrs</b>
<b>TOTAL</b>	<b>3161</b>	<b>36.39</b>	



**Table 3: Total Cost**

<b>Item</b>	<b>Weekly Time Required (hr)</b>	<b>Cost of Truck (\$)/Hr</b>	<b>Weekly Collection Cost</b>	<b>Yearly Collection Cost</b>
Loading Time	221.0			
Travel Time	36.39			
Unloading Time	5.27			
<b>TOTAL</b>	<b>262.7</b>	<b>\$47.00</b>	<b>\$12,346.27</b>	<b>\$642,006.21</b>