



## Appendix "A"

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### Time and Motion Category Descriptions

<b>Region of Niagara</b>
Organic Co-Collection Studies - Fall 2004 - Time and Motion Study Results

### Sample Time and Motion Data Collection Form

Location: <b>1</b>	Date: <b>4</b>
Route: <b>2</b>	Measured by: <b>5</b>
Weather: <b>3</b>	Reading Times: Every 1 minute

Start time: <b>6</b> am	Time finished at day end: <b>17</b> pm	
Time to route in am: <b>7</b> am	Total distance driven: <b>18</b> km	

	1st time			2nd time			3rd time			Km Readings	
										Yard:	Km
Time off-route	<b>8</b>	am/pm			am/pm			am/pm		On route:	<b>20</b> Km
Time to MRF	<b>9</b>	am/pm			am/pm			am/pm		Off route:	<b>21</b> Km
Time dumping C1	<b>10</b>	Min			Min			Min		MRF:	<b>22</b> Km
Time dumping C2	<b>11</b>	Min			Min			Min		On route:	<b>23</b> Km
Time dumping C3	<b>12</b>	Min			Min			Min		Off route:	<b>24</b> Km
Time dumping C4	<b>13</b>	Min			Min			Min		MRF:	<b>25</b> Km
Tonnes collected	<b>14</b>	tonnes			tonnes			tonnes		On route:	<b>26</b> Km
Time going back to route	<b>15</b>	am/pm			am/pm			am/pm		Off route:	<b>27</b> Km
Time back on route	<b>16</b>	am/pm			am/pm			am/pm		MRF:	<b>28</b> Km
										Yard:	<b>29</b> Km

On-route Activities							
Driving between stops	<b>30</b>						
Loading truck							
<i>Materials</i>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">C1</td> <td style="width: 33%; text-align: center;">C2</td> <td style="width: 33%; text-align: center;">C3</td> </tr> <tr> <td style="text-align: center;"><b>31</b></td> <td style="text-align: center;"><b>32</b></td> <td style="text-align: center;"><b>33</b></td> </tr> </table>	C1	C2	C3	<b>31</b>	<b>32</b>	<b>33</b>
C1	C2	C3					
<b>31</b>	<b>32</b>	<b>33</b>					
Getting out of truck	<b>34</b>						
Getting into truck	<b>35</b>						
Picking up setout	<b>36</b>						
Setting down blue box or other container	<b>37</b>						
Decontamination	Cycling the Hopper						
<b>38</b>	<b>39</b>						
Other (note/record on back by number)	Speaking with Public						
<b>40</b>	<b>41</b>						
	Coffee/lunch break						
	<b>42</b>						
Speaking with Management/ Co-work	Tagging						
<b>43</b>	<b>44</b>						
	Drive/Load						
	<b>45</b>						
	Truck/Driver Problems						
	<b>46</b>						
<b>Total Time</b>	<b>47</b>						
<b>Total Ticks</b>	<b>48</b>						

**Sample Time and Motion Data Collection Form - Category Descriptions**

1.	Study Area Location
2.	Route number (ie. _____).
3.	Weather during day of collection (include precipitation and temperature if possible).
4.	Date of collections.
5.	Data Collectors Name
6.	Time when truck leaves yard in morning.
7.	Time when truck arrives at route – this is when the 60 second intervals start.
8.	Time when truck stops collections and prepares to leave route – this is when you stop collecting 60 second interval data.
9.	Time when truck arrives at MRF.
10.	Approximate time to dump the first compartment.
11.	Approximate time to dump the second compartment.
12.	Approximate time to dump the third compartment (if necessary).
13.	Approximate time to dump the fourth compartment (if necessary).
14.	Put in the total tonnes collected using weigh bills.
15.	Time when the truck is leaving MRF after it has already weighed out.
16.	Time when truck arrives back at route – this is when the 60 second intervals start.
17.	Time when truck returns to yard after all collections are complete.
18.	Total distance driven by the truck that day.
19.	Kilometre reading on the odometer when truck leaves yard in morning.
20.	Kilometre reading on the odometer when truck arrives of route for collections.
21.	Kilometre reading on the odometer when truck leaves route to dump materials collected.
22.	Kilometre reading on the odometer when truck arrives arrives at MRF.
23.	Kilometre reading on the odometer when truck arrives back at route for second round of collections.
24.	Kilometre reading on the odometer when truck leaves route to dump materials collected.
25.	Kilometre reading on the odometer when truck arrives arrives at MRF.
26.	Kilometre reading on the odometer when truck arrives back at route for third round of collections (if necessary).
27.	Kilometre reading on the odometer when truck leaves route to dump materials collected (if necessary).
28.	Kilometre reading on the odometer when truck arrives arrives at MRF (if necessary).
29.	Kilometre reading on the odometer when truck returns to yard after all collections are completed.
30.	Operator is in truck and truck is in motion, moving from one stop to the next.
31.	Operator has container/material in hand or lift and is putting material into the truck (Material Stream 1).
32.	Operator has container/material in hand or lift and is putting material into the truck (Material Stream 2).
33.	Operator has container/material in hand or lift and is putting material into the truck (Material Stream 3).
34.	Spike is thrown and operator is exiting vehicle.
35.	Container has been set down and operator is walking back to truck or stepping into truck.
36.	Operator is walking towards setout and picking it up.
37.	Operator has turned away from truck and is putting container back at curbside.
38.	Operator is sorting through contents of container to remove unacceptable materials.
39.	Operator is waiting for hopper to cycle to add more materials.
40.	Keep track on back of page and make specific notes as to what is happening.
41.	Operator is speaking with public advising of proper setouts, etc.
42.	Operator is taking a coffee break, lunch break or stopped to rest and eat and/or drink.
43.	Operator is talking with his supervisor or with co-workers either in person or on radio/phone.
44.	Operator is tagging waste that has been setout improperly, may include calling this into base by house number.
45.	Operator is in truck, truck is in motion, but is also collecting materials (operator may lean out of truck and grab single
46.	Operator may be injured and waiting for replacement or truck may be broken down.
47.	Total time on route – to be calculated at days end.
48.	Total Ticks – sum of all ticks collected in above boxes.



## Appendix "B"

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### Detailed Setout and Participation Data

<b>Region of Niagara</b>
Organic Co-Collection Studies - Fall 2004 - Time and Motion Study Results

**Region of Niagara**  
**Organics Co-Collection Studies**

**Time and Motion Data Collection**

**Monday - Pelham Route**

**Total Households Sampled - Week 1 604**  
**Total Households Sampled - Week 2 586**  
**Total Households Sampled - Week 3 597**  
**Total Households Sampled - Week 4 592**

		Garbage			Organics				Recycling				Leaf and Yard					Bulk		
		Setout	Container		Setout	Container			Setout	Container			Setout	Container				Setout		
			Bags	Cans		O. Bin	Can	Plastic Bags		Paper Bags	Bags	Blue Boxes		Bundles	Can	Plastic Bags	Paper Bags		Bundles	
<b>Total Setouts</b>																				
Week 1		342	184	179	145	142	1	2	0	0	0	0	0	73	0	73	0	0	0	0
Setout Rate - Week 1		56.6%	n/a	n/a	24.0%	n/a	n/a	n/a	n/a	0.0%	n/a	n/a	n/a	12.1%	n/a	n/a	n/a	n/a	n/a	0.0%
Week 2		469	256	255	219	219	1	0	0	416	24	402	33	44	1	43	0	0	0	1
Setout Rate - Week 2		80.0%	n/a	n/a	37.4%	n/a	n/a	n/a	n/a	71.0%	n/a	n/a	n/a	7.5%	n/a	n/a	n/a	n/a	n/a	0.2%
Week 3		483	269	234	203	171	2	31	0	360	36	338	4	28	0	28	0	0	0	0
Setout Rate - Week 3		80.9%	n/a	n/a	34.0%	n/a	n/a	n/a	n/a	60.3%	n/a	n/a	n/a	4.7%	n/a	n/a	n/a	n/a	n/a	0.0%
Week 4		458	243	244	216	197	0	20	0	347	15	330	29	13	3	9	0	1	0	0
Setout Rate - Week 4		77.4%	n/a	n/a	36.5%	n/a	n/a	n/a	n/a	58.6%	n/a	n/a	n/a	2.2%	n/a	n/a	n/a	n/a	n/a	0.0%
Setout Rate - Average		73.7%	n/a	n/a	33.0%	n/a	n/a	n/a	n/a	63.3%	n/a	n/a	n/a	6.6%	n/a	n/a	n/a	n/a	n/a	0.0%
<b>Total Containers</b>																				
Week 1		n/a	245	216	n/a	142	1	3	0	n/a	0	0	0	n/a	0	87	0	0	0	0
Average Containers/Setout - Week 1		n/a	1.33	1.21	n/a	1.00	1.00	1.50	0.00	n/a	0.00	0.00	0.00	n/a	0.00	1.19	0.00	0.00	0.00	0.00
Week 2		n/a	351	317	n/a	227	3	0	0	n/a	32	515	34	n/a	1	94	0	0	0	1
Average Containers/Setout - Week 2		n/a	1.37	1.24	n/a	1.04	3.00	0.00	0.00	n/a	1.33	1.28	1.03	n/a	1.00	2.19	0.00	0.00	0.00	1.00
Week 3		n/a	377	285	n/a	174	2	33	0	n/a	47	440	6	n/a	0	35	0	0	0	0
Average Containers/Setout - Week 3		n/a	1.40	1.22	n/a	1.02	1.00	1.06	0.00	n/a	1.31	1.30	1.50	n/a	0.00	1.25	0.00	0.00	0.00	0.00
Week 4		n/a	336	310	n/a	198	0	20	0	n/a	23	447	32	n/a	3	12	0	1	0	0
Average Containers/Setout - Week 4		n/a	1.38	1.27	n/a	1.01	0.00	1.00	0.00	n/a	1.53	1.35	1.10	n/a	1.00	1.33	0.00	1.00	0.00	0.00
Average Containers/Setout		n/a	1.37	1.23	n/a	1.01	1.25	0.89	0.00	n/a	1.04	0.98	0.91	n/a	0.50	1.49	0.00	0.25	0.25	0.25
<b>Frequency of Setout</b>																				
Week 1																				
1 Container		n/a	123	142	n/a	142	1	1	0	n/a	0	0	0	n/a	0	71	0	0	0	0
2 Containers		n/a	61	37	n/a	0	0	1	0	n/a	0	0	0	n/a	0	1	0	0	0	0
3 Containers		n/a	0	0	n/a	0	0	0	0	n/a	0	0	0	n/a	0	0	0	0	0	0
4 Containers		n/a	0	0	n/a	0	0	0	0	n/a	0	0	0	n/a	0	0	0	0	0	0
>4 Containers		n/a	0	0	n/a	0	0	0	0	n/a	0	0	0	n/a	0	1	0	0	0	0
Week 2																				
1 Container		n/a	172	196	n/a	211	0	0	0	n/a	17	314	32	n/a	1	26	0	0	0	1
2 Containers		n/a	74	56	n/a	8	0	0	0	n/a	6	66	1	n/a	0	4	0	0	0	0
3 Containers		n/a	9	3	n/a	0	1	0	0	n/a	1	19	0	n/a	0	5	0	0	0	0
4 Containers		n/a	1	0	n/a	0	0	0	0	n/a	0	3	0	n/a	0	2	0	0	0	0
>4 Containers		n/a	0	0	n/a	0	0	0	0	n/a	0	0	0	n/a	0	6	0	0	0	0
Week 3																				
1 Container		n/a	166	185	n/a	168	2	29	0	n/a	28	251	3	n/a	0	27	0	0	0	0
2 Containers		n/a	100	48	n/a	3	0	2	0	n/a	6	75	0	n/a	0	0	0	0	0	0
3 Containers		n/a	1	0	n/a	0	0	0	0	n/a	1	10	1	n/a	0	0	0	0	0	0
4 Containers		n/a	2	1	n/a	0	0	0	0	n/a	1	1	0	n/a	0	0	0	0	0	0
>4 Containers		n/a	0	0	n/a	0	0	0	0	n/a	0	1	0	n/a	0	1	0	0	0	0
Week 4																				
1 Container		n/a	163	183	n/a	196	0	20	0	n/a	10	238	26	n/a	3	7	0	1	0	0
2 Containers		n/a	68	57	n/a	1	0	0	0	n/a	2	72	3	n/a	0	1	0	0	0	0
3 Containers		n/a	11	3	n/a	0	0	0	0	n/a	3	17	0	n/a	0	1	0	0	0	0
4 Containers		n/a	1	1	n/a	0	0	0	0	n/a	0	2	0	n/a	0	0	0	0	0	0
>4 Containers		n/a	0	0	n/a	0	0	0	0	n/a	0	1	0	n/a	0	0	0	0	0	0
Average																				
1 Container		n/a	65.5%	77.4%	n/a	98.4%	75.0%	94.3%	0.0%	n/a	73.3%	75.0%	92.4%	n/a	100.0%	85.6%	0.0%	100.0%	100.0%	100.0%
2 Containers		n/a	31.8%	21.7%	n/a	1.6%	0.0%	5.7%	0.0%	n/a	18.7%	19.9%	6.1%	n/a	0.0%	3.9%	0.0%	0.0%	0.0%	0.0%
3 Containers		n/a	2.2%	0.7%	n/a	0.0%	25.0%	0.0%	0.0%	n/a	6.7%	4.3%	1.5%	n/a	0.0%	3.9%	0.0%	0.0%	0.0%	0.0%
4 Containers		n/a	0.4%	0.2%	n/a	0.0%	0.0%	0.0%	0.0%	n/a	1.3%	0.6%	0.0%	n/a	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%
>4 Containers		n/a	0.0%	0.0%	n/a	0.0%	0.0%	0.0%	0.0%	n/a	0.0%	0.2%	0.0%	n/a	0.0%	5.2%	0.0%	0.0%	0.0%	0.0%

**Region of Niagara**  
**Organics Co-Collection Studies**

Total Households Sampled - Week 1 554  
Total Households Sampled - Week 2 557  
Total Households Sampled - Week 3 562  
Total Households Sampled - Week 4 575

**Time and Motion Data Collection**

**Monday - Pelham Route**

		Garbage			Organics				Recycling				Leaf and Yard				Bulk		
		Setout	Container		Setout	Container			Setout	Container			Setout	Container				Setout	
			Bags	Cans		O. Bin	Can	Plastic Bags		Paper Bags	Bags	Blue Boxes		Bundles	Can	Plastic Bags	Paper Bags		Bundles
<b>Total Setouts</b>																			
	Week 1	278	111	179	232	229	2	1	0	397	26	387	4	169	7	161	2	6	0
	Setout Rate - Week 1	50.2%	n/a	n/a	41.9%	n/a	n/a	n/a	n/a	71.7%	n/a	n/a	n/a	30.5%	n/a	n/a	n/a	n/a	0.0%
	Week 2	334	164	188	232	231	0	1	0	399	8	394	26	95	2	94	0	0	0
	Setout Rate - Week 2	60.0%	n/a	n/a	41.7%	n/a	n/a	n/a	n/a	71.6%	n/a	n/a	n/a	17.1%	n/a	n/a	n/a	n/a	0.0%
	Week 3	0	0	0	248	241	0	8	0	425	36	413	6	89	0	89	0	4	0
	Setout Rate - Week 3	0.0%	n/a	n/a	44.1%	n/a	n/a	n/a	n/a	75.6%	n/a	n/a	n/a	15.8%	n/a	n/a	n/a	n/a	0.0%
	Week 4	470	308	200	272	257	2	14	0	445	4	442	16	9	0	8	0	1	1
	Setout Rate - Week 4	81.7%	n/a	n/a	47.3%	n/a	n/a	n/a	n/a	77.4%	n/a	n/a	n/a	1.6%	n/a	n/a	n/a	n/a	0.2%
	Setout Rate - Average	64.0%	n/a	n/a	43.7%	n/a	n/a	n/a	n/a	74.1%	n/a	n/a	n/a	16.2%	n/a	n/a	n/a	n/a	0.0%
<b>Total Containers</b>																			
	Week 1	n/a	147	224	n/a	237	3	1	0	n/a	34	613	5	n/a	12	681	9	8	0
	Average Containers/Setout - Week 1	n/a	1.32	1.25	n/a	1.03	1.50	1.00	0.00	n/a	1.31	1.58	1.25	n/a	1.71	4.23	4.50	1.33	0.00
	Week 2	n/a	224	240	n/a	246	0	3	0	n/a	10	511	31	n/a	2	290	0	0	0
	Average Containers/Setout - Week 2	n/a	1.37	1.28	n/a	1.06	0.00	3.00	0.00	n/a	1.25	1.30	1.19	n/a	1.00	3.09	0.00	0.00	0.00
	Week 3	n/a	0	0	n/a	243	0	11	0	n/a	49	651	6	n/a	0	220	0	4	0
	Average Containers/Setout - Week 3	n/a	0.00	0.00	n/a	1.01	0.00	1.38	0.00	n/a	1.36	1.58	1.00	n/a	0.00	2.47	0.00	1.00	0.00
	Week 4	n/a	436	240	n/a	265	2	17	0	n/a	4	607	17	n/a	0	77	0	2	1
	Average Containers/Setout - Week 4	n/a	1.42	1.20	n/a	1.03	1.00	1.21	0.00	n/a	1.00	1.37	1.06	n/a	0.00	9.63	0.00	2.00	1.00
	Average Containers/Setout	n/a	1.03	0.93	n/a	1.03	0.63	1.65	0.00	n/a	1.23	1.46	1.13	n/a	0.68	4.85	1.13	1.08	0.25
<b>Frequency of Setout</b>																			
	Week 1																		
	1 Container	n/a	80	134	n/a	222	1	1	0	n/a	20	211	3	n/a	4	44	1	4	0
	2 Containers	n/a	27	45	n/a	6	1	0	0	n/a	4	133	1	n/a	1	28	0	2	0
	3 Containers	n/a	3	0	n/a	1	0	0	0	n/a	2	37	0	n/a	2	22	0	0	0
	4 Containers	n/a	1	0	n/a	0	0	0	0	n/a	0	5	0	n/a	0	18	0	0	0
	>4 Containers	n/a	0	0	n/a	0	0	0	0	n/a	0	1	0	n/a	0	49	1	0	0
	Week 2																		
	1 Container	n/a	118	142	n/a	221	0	0	0	n/a	6	299	22	n/a	2	36	0	0	0
	2 Containers	n/a	40	42	n/a	9	0	0	0	n/a	2	81	3	n/a	0	22	0	0	0
	3 Containers	n/a	2	3	n/a	0	0	1	0	n/a	0	9	1	n/a	0	13	0	0	0
	4 Containers	n/a	2	0	n/a	0	0	0	0	n/a	0	4	0	n/a	0	3	0	0	0
	>4 Containers	n/a	2	1	n/a	1	0	0	0	n/a	0	1	0	n/a	0	20	0	0	0
	Week 3																		
	1 Container	n/a	0	0	n/a	239	0	5	0	n/a	23	220	6	n/a	0	46	0	4	0
	2 Containers	n/a	0	0	n/a	2	0	3	0	n/a	13	158	0	n/a	0	15	0	0	0
	3 Containers	n/a	0	0	n/a	0	0	0	0	n/a	0	26	0	n/a	0	5	0	0	0
	4 Containers	n/a	0	0	n/a	0	0	0	0	n/a	0	8	0	n/a	0	5	0	0	0
	>4 Containers	n/a	0	0	n/a	0	0	0	0	n/a	0	1	0	n/a	0	18	0	0	0
	Week 4																		
	1 Container	n/a	201	161	n/a	249	2	11	0	n/a	4	299	15	n/a	0	5	0	0	1
	2 Containers	n/a	93	38	n/a	8	0	3	0	n/a	0	124	1	n/a	0	1	0	1	0
	3 Containers	n/a	11	1	n/a	0	0	0	0	n/a	0	17	0	n/a	0	0	0	0	0
	4 Containers	n/a	2	0	n/a	0	0	0	0	n/a	0	1	0	n/a	0	0	0	0	0
	>4 Containers	n/a	1	0	n/a	0	0	0	0	n/a	0	1	0	n/a	0	2	0	0	0
	Average																		
	1 Container	n/a	68.4%	77.1%	n/a	97.2%	75.0%	70.8%	0.0%	n/a	71.6%	62.9%	88.5%	n/a	66.7%	37.2%	50.0%	72.7%	100.0%
	2 Containers	n/a	27.4%	22.0%	n/a	2.6%	25.0%	25.0%	0.0%	n/a	25.7%	30.3%	9.6%	n/a	11.1%	18.8%	0.0%	27.3%	0.0%
	3 Containers	n/a	2.7%	0.7%	n/a	0.1%	0.0%	4.2%	0.0%	n/a	2.7%	5.4%	1.9%	n/a	22.2%	11.4%	0.0%	0.0%	0.0%
	4 Containers	n/a	0.9%	0.0%	n/a	0.0%	0.0%	0.0%	0.0%	n/a	0.0%	1.1%	0.0%	n/a	0.0%	7.4%	0.0%	0.0%	0.0%
	>4 Containers	n/a	0.5%	0.2%	n/a	0.1%	0.0%	0.0%	0.0%	n/a	0.0%	0.2%	0.0%	n/a	0.0%	25.3%	50.0%	0.0%	0.0%

**Region of Niagara**  
**Organics Co-Collection Studies**

Total Households Sampled - Week 1 663

**Time and Motion Data Collection**

Total Households Sampled - Week 2 704

**Wednesday - Niagara Falls**

		Garbage			Organics				Recycling				Leaf and Yard				Bulk		
		Setout	Container		Setout	Container			Setout	Container			Setout	Container				Setout	
			Bags	Cans		O. Bin	Can	Plastic Bags		Paper Bags	Bags	Blue Boxes		Bundles	Can	Plastic Bags	Paper Bags		Bundles
<b>Total Setouts</b>																			
	Week 1	430	340	110	175	149	8	19	0	520	21	504	50	9	0	9	0	0	0
	Setout Rate - Week 1	64.9%	n/a	n/a	26.4%	n/a	n/a	n/a	n/a	78.4%	n/a	n/a	n/a	1.4%	n/a	n/a	n/a	n/a	0.0%
	Week 2	434	292	173	199	185	0	11	3	577	37	553	2	8	0	8	0	0	1
	Setout Rate - Week 2	61.6%	n/a	n/a	28.3%	n/a	n/a	n/a	n/a	82.0%	n/a	n/a	n/a	1.1%	n/a	n/a	n/a	n/a	0.1%
	Setout Rate - Average	63.3%	n/a	n/a	27.3%	n/a	n/a	n/a	n/a	80.2%	n/a	n/a	n/a	1.2%	n/a	n/a	n/a	n/a	0.1%
<b>Total Containers</b>																			
	Week 1	n/a	554	145	n/a	151	8	22	0	n/a	33	616	64	n/a	0	10	0	0	0
	Average Containers/Setout - Week 1	n/a	1.63	1.32	n/a	1.01	1.00	1.16	0.00	n/a	1.57	1.22	1.28	n/a	0.00	1.11	0.00	0.00	0.00
	Week 2	n/a	459	212	n/a	191	0	12	4	n/a	51	781	7	n/a	0	8	0	0	1
	Average Containers/Setout - Week 2	n/a	1.57	1.23	n/a	1.03	0.00	1.09	1.33	n/a	1.38	1.41	3.50	n/a	0.00	1.00	0.00	0.00	1.00
	Average Containers/Setout	n/a	1.60	1.27	n/a	1.02	0.50	1.12	0.67	n/a	1.47	1.32	2.39	n/a	0.00	1.06	0.00	0.00	0.50
<b>Frequency of Setout</b>																			
	Week 1																		
	1 Container	n/a	172	77	n/a	147	8	17	0	n/a	13	403	37	n/a	0	8	0	0	0
	2 Containers	n/a	139	32	n/a	2	0	1	0	n/a	5	91	12	n/a	0	1	0	0	0
	3 Containers	n/a	22	0	n/a	0	0	1	0	n/a	2	9	1	n/a	0	0	0	0	0
	4 Containers	n/a	3	1	n/a	0	0	0	0	n/a	1	1	0	n/a	0	0	0	0	0
	>4 Containers	n/a	4	0	n/a	0	0	0	0	n/a	0	0	0	n/a	0	0	0	0	0
	Week 2																		
	1 Container	n/a	147	134	n/a	179	0	10	2	n/a	26	353	1	n/a	0	8	0	0	1
	2 Containers	n/a	133	40	n/a	6	0	1	1	n/a	9	173	0	n/a	0	0	0	0	0
	3 Containers	n/a	10	0	n/a	0	0	0	0	n/a	1	26	0	n/a	0	0	0	0	0
	4 Containers	n/a	1	0	n/a	0	0	0	0	n/a	1	1	0	n/a	0	0	0	0	0
	>4 Containers	n/a	2	0	n/a	0	0	0	0	n/a	0	0	1	n/a	0	0	0	0	0
	Average																		
	1 Container	n/a	50.5%	74.6%	n/a	97.6%	100.0%	90.0%	66.7%	n/a	67.2%	71.5%	73.1%	n/a	0.0%	94.1%	0.0%	0.0%	100.0%
	2 Containers	n/a	43.0%	25.4%	n/a	2.4%	0.0%	6.7%	33.3%	n/a	24.1%	25.0%	23.1%	n/a	0.0%	5.9%	0.0%	0.0%	0.0%
	3 Containers	n/a	5.1%	0.0%	n/a	0.0%	0.0%	3.3%	0.0%	n/a	5.2%	3.3%	1.9%	n/a	0.0%	0.0%	0.0%	0.0%	0.0%
	4 Containers	n/a	0.6%	0.4%	n/a	0.0%	0.0%	0.0%	0.0%	n/a	3.4%	0.2%	0.0%	n/a	0.0%	0.0%	0.0%	0.0%	0.0%
	>4 Containers	n/a	0.9%	0.0%	n/a	0.0%	0.0%	0.0%	0.0%	n/a	0.0%	0.0%	1.9%	n/a	0.0%	0.0%	0.0%	0.0%	0.0%

**Region of Niagara**  
**Organics Co-Collection Studies**

Total Households Sampled - Week 1 408

**Time and Motion Data Collection**

Total Households Sampled - Week 2 493

**Tuesday - Port Colborne**

		Garbage			Organics				Recycling				Leaf and Yard				Bulk		
		Setout	Container		Setout	Container			Setout	Container			Setout	Container				Setout	
			Bags	Cans		O. Bin	Can	Plastic Bags		Paper Bags	Bags	Blue Boxes		Bundles	Can	Plastic Bags	Paper Bags		Bundles
<b>Total Setouts</b>																			
	Week 1	380	264	138	95	85	6	4	0	327	20	293	54	16	3	11	0	3	0
	Setout Rate - Week 1	93.1%	n/a	n/a	23.3%	n/a	n/a	n/a	n/a	80.1%	n/a	n/a	n/a	3.9%	n/a	n/a	n/a	n/a	0.0%
	Week 2	446	328	166	173	4	162	7	0	311	11	302	0	9	0	9	0	0	4
	Setout Rate - Week 2	90.5%	n/a	n/a	35.1%	n/a	n/a	n/a	n/a	63.1%	n/a	n/a	n/a	1.8%	n/a	n/a	n/a	n/a	0.8%
	Setout Rate - Average	91.8%	n/a	n/a	29.2%	n/a	n/a	n/a	n/a	71.6%	n/a	n/a	n/a	2.9%	n/a	n/a	n/a	n/a	0.4%
<b>Total Containers</b>																			
	Week 1	n/a	452	198	n/a	89	7	4	0	n/a	25	361	94	n/a	14	25	0	3	0
	Average Containers/Setout - Week 1	n/a	1.71	1.43	n/a	1.05	1.17	1.00	0.00	n/a	1.25	1.23	1.74	n/a	4.67	2.27	0.00	1.00	0.00
	Week 2	n/a	604	228	n/a	4	175	7	0	n/a	17	396	0	n/a	0	25	0	0	4
	Average Containers/Setout - Week 2	n/a	1.84	1.37	n/a	1.00	1.08	1.00	0.00	n/a	1.55	1.31	0.00	n/a	0.00	2.78	0.00	0.00	1.00
	Average Containers/Setout	n/a	1.78	1.40	n/a	1.02	1.12	1.00	0.00	n/a	1.40	1.27	0.87	n/a	2.33	2.53	0.00	0.50	0.50
<b>Frequency of Setout</b>																			
	Week 1																		
	1 Container	n/a	151	95	n/a	81	5	4	0	n/a	17	239	37	n/a	2	5	0	3	0
	2 Containers	n/a	71	32	n/a	4	1	0	0	n/a	2	47	8	n/a	0	2	0	0	0
	3 Containers	n/a	26	7	n/a	0	0	0	0	n/a	0	7	5	n/a	0	2	0	0	0
	4 Containers	n/a	7	3	n/a	0	0	0	0	n/a	1	1	0	n/a	0	0	0	0	0
	>4 Containers	n/a	10	1	n/a	0	0	0	0	n/a	0	1	4	n/a	1	2	0	0	0
	Week 2																		
	1 Container	n/a	179	113	n/a	4	150	7	0	n/a	8	223	0	n/a	0	6	0	0	4
	2 Containers	n/a	101	47	n/a	0	13	0	0	n/a	2	70	0	n/a	0	1	0	0	0
	3 Containers	n/a	29	6	n/a	0	0	0	0	n/a	0	9	0	n/a	0	1	0	0	0
	4 Containers	n/a	7	1	n/a	0	0	0	0	n/a	0	2	0	n/a	0	0	0	0	0
	>4 Containers	n/a	13	0	n/a	0	0	0	0	n/a	1	0	0	n/a	0	1	0	0	0
	Average																		
	1 Container	n/a	55.7%	68.4%	n/a	95.5%	92.3%	100.0%	0.0%	n/a	80.6%	77.6%	68.5%	n/a	66.7%	55.0%	0.0%	100.0%	100.0%
	2 Containers	n/a	29.1%	26.0%	n/a	4.5%	8.3%	0.0%	0.0%	n/a	12.9%	19.7%	14.8%	n/a	0.0%	15.0%	0.0%	0.0%	0.0%
	3 Containers	n/a	9.3%	4.3%	n/a	0.0%	0.0%	0.0%	0.0%	n/a	0.0%	2.7%	9.3%	n/a	0.0%	15.0%	0.0%	0.0%	0.0%
	4 Containers	n/a	2.4%	1.3%	n/a	0.0%	0.0%	0.0%	0.0%	n/a	3.2%	0.5%	0.0%	n/a	0.0%	0.0%	0.0%	0.0%	0.0%
	>4 Containers	n/a	3.9%	0.3%	n/a	0.0%	0.0%	0.0%	0.0%	n/a	3.2%	0.2%	7.4%	n/a	33.3%	15.0%	0.0%	0.0%	0.0%

**Region of Niagara**  
**Organics Co-Collection Studies**

Total Households Sampled - Week 1 1,009

**Time and Motion Data Collection**

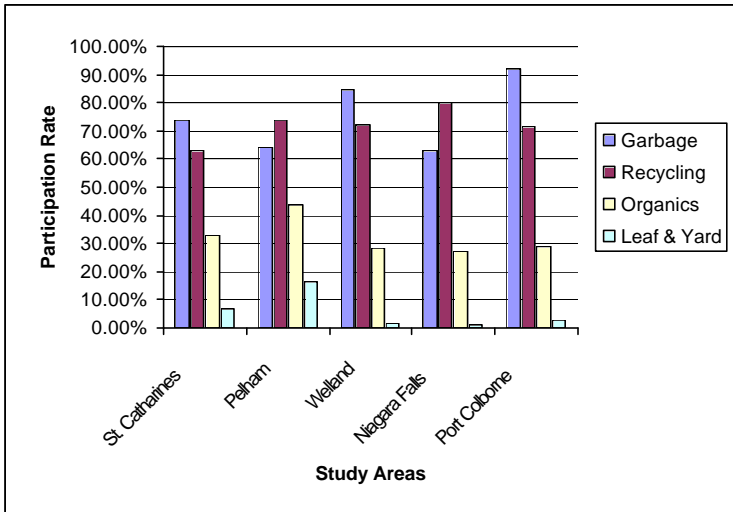
Total Households Sampled - Week 2 791

**Monday - Welland**

		Garbage			Organics				Recycling				Leaf and Yard					Bulk	
		Setout	Container		Setout	Container			Setout	Container			Setout	Container				Setout	
			Bags	Cans		O. Bin	Can	Plastic Bags		Paper Bags	Bags	Blue Boxes		Bundles	Can	Plastic Bags	Paper Bags		Bundles
<b>Total Setouts</b>																			
	Week 1	816	560	310	276	0	250	32	0	676	1	675	13	16	0	16	0	0	9
	Setout Rate - Week 1	80.9%	n/a	n/a	27.4%	n/a	n/a	n/a	n/a	67.0%	n/a	n/a	n/a	1.6%	n/a	n/a	n/a	n/a	0.9%
	Week 2	703	504	265	234	1	181	52	0	615	19	601	0	11	0	11	0	0	12
	Setout Rate - Week 2	88.9%	n/a	n/a	29.6%	n/a	n/a	n/a	n/a	77.7%	n/a	n/a	n/a	1.4%	n/a	n/a	n/a	n/a	1.5%
	Setout Rate - Average	84.9%	n/a	n/a	28.5%	n/a	n/a	n/a	n/a	72.4%	n/a	n/a	n/a	1.5%	n/a	n/a	n/a	n/a	1.2%
<b>Total Containers</b>																			
	Week 1	n/a	801	394	n/a	0	257	47	0	n/a	1	812	13	n/a	0	26	0	0	25
	Average Containers/Setout - Week 1	n/a	1.43	1.27	n/a	0.00	1.03	1.47	0.00	n/a	1.00	1.20	1.00	n/a	0.00	1.63	0.00	0.00	2.78
	Week 2	n/a	720	348	n/a	1	184	59	0	n/a	28	817	0	n/a	0	30	0	0	16
	Average Containers/Setout - Week 2	n/a	1.43	1.31	n/a	1.00	1.02	1.13	0.00	n/a	1.47	1.36	0.00	n/a	0.00	2.73	0.00	0.00	1.33
	Average Containers/Setout	n/a	1.43	1.29	n/a	0.50	1.02	1.30	0.00	n/a	1.24	1.28	0.50	n/a	0.00	2.18	0.00	0.00	2.06
<b>Frequency of Setout</b>																			
	Week 1																		
	1 Container	n/a	357	235	n/a	0	244	26	0	n/a	1	558	13	n/a	0	10	0	0	5
	2 Containers	n/a	180	69	n/a	0	5	5	0	n/a	0	99	0	n/a	0	3	0	0	0
	3 Containers	n/a	13	5	n/a	0	1	0	0	n/a	0	16	0	n/a	0	2	0	0	2
	4 Containers	n/a	6	0	n/a	0	0	0	0	n/a	0	2	0	n/a	0	1	0	0	1
	>4 Containers	n/a	4	1	n/a	0	0	1	0	n/a	0	0	0	n/a	0	0	0	0	1
	Week 2																		
	1 Container	n/a	333	188	n/a	1	180	46	0	n/a	12	414	0	n/a	0	7	0	0	11
	2 Containers	n/a	144	71	n/a	0	1	5	0	n/a	7	164	0	n/a	0	1	0	0	0
	3 Containers	n/a	20	6	n/a	0	1	1	0	n/a	1	23	0	n/a	0	2	0	0	0
	4 Containers	n/a	4	0	n/a	0	0	0	0	n/a	0	1	0	n/a	0	0	0	0	0
	>4 Containers	n/a	3	0	n/a	0	0	0	0	n/a	0	1	0	n/a	0	1	0	0	1
	Average																		
	1 Container	n/a	64.8%	73.6%	n/a	100.0%	98.4%	85.7%	0.0%	n/a	65.0%	76.2%	100.0%	n/a	0.0%	63.0%	0.0%	0.0%	76.2%
	2 Containers	n/a	30.5%	24.3%	n/a	0.0%	1.4%	11.9%	0.0%	n/a	35.0%	20.6%	0.0%	n/a	0.0%	14.8%	0.0%	0.0%	0.0%
	3 Containers	n/a	3.1%	1.9%	n/a	0.0%	0.5%	1.2%	0.0%	n/a	5.0%	3.1%	0.0%	n/a	0.0%	14.8%	0.0%	0.0%	9.5%
	4 Containers	n/a	0.9%	0.0%	n/a	0.0%	0.0%	0.0%	0.0%	n/a	0.0%	0.2%	0.0%	n/a	0.0%	3.7%	0.0%	0.0%	4.8%
	>4 Containers	n/a	0.7%	0.2%	n/a	0.0%	0.0%	1.2%	0.0%	n/a	0.0%	0.1%	0.0%	n/a	0.0%	3.7%	0.0%	0.0%	9.5%

**Setout Rate Data**

**Figure C-1: Average Weekly Setout Rates by Waste Stream**

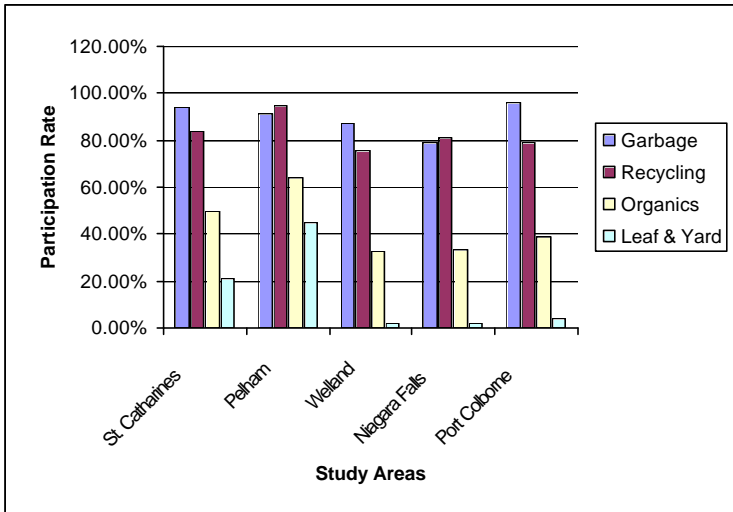


**Average Weekly Setout Rates**

Study Area	Garbage	Organics	Recycling	Leaf & Yard	Bulk
St. Catharines	73.73%	32.97%	63.30%	6.62%	0.04%
Pelham	63.96%	43.74%	74.08%	16.24%	0.04%
Welland	84.87%	28.47%	72.37%	1.49%	1.20%
Niagara Falls	63.25%	27.33%	80.20%	1.25%	0.07%
Port Colborne	91.80%	29.19%	71.62%	2.87%	0.41%

**Participation Rate Data**

**Figure C-2: Participation in Curbside Waste Collection Programs**



**Participation by Study Area and Waste Stream**

Study Area	Garbage	Organics	Recycling	Leaf & Yard	Bulk
St. Catharines	94.00%	49.61%	84.20%	21.01%	0.16%
Pelham	91.25%	64.15%	95.03%	45.11%	0.17%
Welland	87.04%	32.50%	75.77%	2.09%	1.60%
Niagara Falls	78.89%	33.38%	80.91%	2.15%	0.13%
Port Colborne	95.91%	38.63%	78.89%	3.93%	0.65%



## Appendix "C"

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### Detailed Time & Motion Data

<b>Region of Niagara</b>
Organic Co-Collection Studies - Fall 2004 - Time and Motion Study Results

**Time and Motion Study Data - Recycling and Organics Co-Collection**

Location: Pelham

December

	Date:	Dec. 6/04	Dec. 13/04	Average	Average (%)
Measured By:		Cheryl Crawley	Cheryl Crawley		
Weather:		Clear, then Snow	Clear		
<b>Weight (kg)</b>					
Organics:		3,740	1,710	2,725	
Garbage:					
Co-Mingle Recyclable:		1,905		1,905	
Paper Recyclable:			5,415	5,415	
<b>Total:</b>		<b>5,645</b>	<b>7,125</b>	<b>6,385</b>	
<b>Time</b>					
Start Time:		7:14	7:00		
Time Finished:		12:30	12:22		
<b>1st Time</b>					
Time on Route:		7:14	7:02		
Time off Route:		11:14	11:04		
Total Time on Route (min):		240.00	244.00	242	
Time to MRF (min):		31.00	30.00	31	
Time Dumping Recy. (min):		10.00	5.00	8	
Time Dumping Organic (min):		10.00	10.00	10	
Time MRF-Route		20.00	28.00	24.00	
<b>2nd Time</b>					
Time on Route:					
Time off Route:					
Total Time on Route (min):					
Time dumping Recy. (min):					
Time Dumping Organics:					
Time Going Back to Route:					
Time Back on Route:					
<b>Distance (in Kilometres)</b>					
Total Distance Driven:		74	65	70	
Distance On-Route		18	17	18	
Route - Walker Industries (Organics)		20	20	20	
Walker Ind. - Niagara Recycling		18	10	14	
Distance On-Route					
<b>On Route Activities (in Minutes)</b>		<b>Minutes</b>	<b>% of Total</b>	<b>Minutes</b>	<b>% of Total</b>
Driving Between Stops		33	13.75%	62	25.49%
Loading Organics		66	27.50%	41	16.67%
Loading Recyclable		51	21.25%	5	1.96%
Getting Out of Truck		3	1.25%	12	4.90%
Getting Into Truck		3	1.25%	12	4.90%
Picking up Setout		6	2.50%	22	8.82%
Setting Down Container		30	12.50%	45	18.63%
Decontamination		0	0.00%	0	0.00%
Cycling the Hopper		27	11.25%	24	9.80%
Speaking With Public		0	0.00%	10	3.92%
Coffee/Lunch Break		18	7.50%	12	4.90%
Oops Tags		0	0.00%	0	0.00%
Speaking With Management		3	1.25%	0	0.00%
Drive and Load		0	0.00%	0	0.00%
Other - Road Blocked/Stuck		0	0.00%	0	0.00%
Other - Truck Problems		0	0.00%	0	0.00%

**Time and Motion Study Data - Garbage and Organics Co-Collection**

Location: St.Catharines		November/December									
Date:		Nov. 25/04	Dec. 2/04	Dec. 9/04	Dec. 16/04			Average (min)	Average (%)		
Measured By:		Cheryl Crawley	Cheryl Crawley	Mary Hepburn	Cheryl Crawley						
Weather:		Snow	Clear		Clear						
<b>Weight (kg)</b>											
Organics:		1580	1700	1530	1360			1543			
Garbage:		4030	4770	5490	6300			5148			
Co-Mingle Recyclable:											
Paper Recyclable:											
Total:		5610	6470	7020	7660			6690			
<b>Time</b>											
Start Time:		7:00	7:00	7:16	7:00						
Time Finished:		13:29	13:39	13:45	13:55						
<b>1st Time</b>	Time on Route:	7:10	7:00	7:18	7:41						
	Time off Route:	11:06	11:20	11:15	11:48						
	Total Time on Route (min):	236.00	399.00	237.00	244.00			279			
	Time to Landfill (min):	28.00	27.00	31.00	26.00			28			
	Time Dumping Garbage. (min):	15.00	20.00	22.00	16.00			18			
	Time Dumping Organic (min):	7.00	10.00	12.00	9.00			10			
	Time Composting Facility-Route	31.00	30.00	30.00	29.00			30.00			
<b>2nd Time</b>	Time on Route:										
	Time off Route:										
	Total Time on Route (min):										
	Time dumping Garbage. (min):										
	Time Dumping Organics:										
	Time Going Back to Route:										
Time Back on Route:											
<b>Distance (in Kilometres)</b>											
Total Distance Driven:		96	97	84	96			93			
Distance On-Route		20	20	18	21			20			
Route - Landfill		31	33	29	31			31			
Landfill - Composting Facility		7	10	6	10			8			
Composting Fac. - Yard											
<b>On Route Activities (in Minutes)</b>											
		Minutes	% of Total	Minutes	% of Total	Minutes	% of Total	Minutes	% of Total	Minutes	% of Total
Driving Between Stops		40	16.95%	84	21.00%	57	23.85%	61	25.00%	60.33	21.70%
Loading Organics		18	7.63%	24	6.00%	24	10.09%	24	9.68%	22.37	8.35%
Loading Garbage		40	16.95%	100	25.00%	46	19.27%	37	15.32%	55.70	19.13%
Getting Out of Truck		4	1.69%	0	0.00%	11	4.59%	0	0.00%	3.72	1.57%
Getting Into Truck		4	1.69%	0	0.00%	11	4.59%	2	0.81%	4.21	1.77%
Picking up Setout		2	0.85%	8	2.00%	50	21.10%	26	10.48%	21.39	8.61%
Setting Down Container		22	9.32%	44	11.00%	7	2.75%	26	10.48%	24.50	8.39%
Decontamination		0	0.00%	0	0.00%	0	0.00%	0	0.00%	0.00	0.00%
Cycling the Hopper		40	16.95%	68	17.00%	15	6.42%	35	14.52%	39.62	13.72%
Speaking With Public		2	0.85%	16	4.00%	0	0.00%	2	0.81%	4.98	1.41%
Coffee/Lunch Break		16	6.78%	28	7.00%	15	6.42%	18	7.26%	19.21	6.86%
Oops Tags		32	13.56%	24	6.00%	2	0.92%	8	3.23%	16.50	5.93%
Speaking With Management		10	4.24%	4	1.00%	0	0.00%	6	2.42%	4.97	1.91%
Drive and Load		4	1.69%	0	0.00%	0	0.00%	0	0.00%	1.00	0.42%
Other - Road Blocked/Stuck		2	0.85%	0	0.00%	0	0.00%	0	0.00%	0.50	0.21%
Other - Truck Problems		0	0.00%	0	0.00%	0	0.00%	0	0.00%	0.00	0.00%

**Time and Motion Study Data - Recycling (Single Stream Compacted Collection)**

Location: St.Catharines		November/December					
	Date:	Nov. 25/04	Dec. 2/04		Average (min)	Average (%)	
	Measured By:	Mary Hepburn	Mary Hepburn				
	Weather:						
<b>Weight (kg)</b>							
	Organics:						
	Garbage:						
	Co-Mingle Recyclable:	3065			3065		
	Paper Recyclable:		4660		4660		
	Total:	3065	4660		3863		
<b>Time</b>							
	Start Time:	7:17	7:14				
	Time Finished:	16:39	13:09				
<b>1st Time</b>							
	Time on Route:	7:19	7:15				
	Time off Route:	15:40	11:54				
	Total Time on Route (min):	350.00	354.00		352		
	Time to MRF (min):	23.00	53.00		38		
	Time dumping Recy. (min):	36.00	5.00		21		
	Time MRF-Route	36.00	17.00				
<b>2nd Time</b>							
	Time on Route:						
	Time off Route:						
	Total Time on Route (min):						
	Time dumping Recy. (min):						
	Time Going Back to Route:						
	Time Back on Route:						
<b>Distance (in Kilometres)</b>							
	Total Distance Driven:	39	35		37		
	Distance On-Route	22	20		21		
	Route - MRF	13	15		14		
	MRF - Route	13	15				
	Distance On-Route						
<b>On Route Activities (in Minutes)</b>							
		Minutes	% of Total	Minutes	% of Total	Minutes	% of Total
	Driving Between Stops	110	31.43%	86	24.22%	97.87	27.82%
	Loading Recyclable	62	17.71%	89	25.00%	75.25	21.36%
	Getting Out of Truck	32	9.14%	19	5.47%	25.68	7.31%
	Getting Into Truck	40	11.43%	22	6.25%	31.06	8.84%
	Picking up Setout	50	14.29%	58	16.41%	54.04	15.35%
	Setting Down Container	12	3.43%	28	7.81%	19.83	5.62%
	Decontamination	7	1.88%	6	1.56%	6.05	1.72%
	Cycling the Hopper	20	5.71%	36	10.16%	27.98	7.94%
	Speaking With Public	2	0.63%	11	3.13%	6.63	1.88%
	Coffee/Lunch Break	9	2.50%	0	0.00%	4.38	1.25%
	Oops Tags	2	0.63%	0	0.00%	1.09	0.31%
	Speaking With Management	5	1.43%	0	0.00%	2.50	0.71%
	Drive and Load	0	0.00%	0	0.00%	0.00	0.00%
	Other - Road Blocked/Stuck	0	0.00%	0	0.00%	0.00	0.00%
	Other - Truck Problems	0	0.00%	0	0.00%	0.00	0.00%

**Time and Motion Summary - Recycling & Organics Co-Collection**

Variables:

1. Truck - Vertical Split 60/40 Side Loading Co-Collection Vehicle
2. 1 Person - Driver/Operator
3. Based on Collection of 100 Setouts

Criteria	Co-Collection	
	Recycling	Organics
Average Weekly Setout Rate	74.08%	43.74%
Average Weight Per 100 Setouts (kg)	878.8	1,137.8
Total Setouts	100.0	100.0
Average Weight/Setout (kg)	8.8	11.4
Program Participation Rate (%)	95.0%	64.2%
<b>Activity Breakdown in Minutes</b>	<b>Minutes</b>	<b>(% of Total)</b>
Driving Between Stops	11.43	19.67%
Loading Organics	12.81	22.04%
Loading Recyclable	6.70	11.53%
Getting Out of Truck	1.80	3.09%
Getting Into Truck	1.80	3.09%
Picking up Setout	3.30	5.69%
Setting Down Container	9.06	15.59%
Decontamination	0.00	0.00%
Cycling the Hopper	6.11	10.52%
Speaking With Public	1.15	1.98%
Coffee/Lunch Break	3.60	6.19%
Oops Tags	0.00	0.00%
Speaking With Management	0.36	0.62%
Drive and Load	0.00	0.00%
Other - Road Blocked/Stuck	0.00	0.00%
Other - Truck Problems	0.00	0.00%
<b>Total Time Spent on-Route:</b>	<b>58.10</b>	<b>100.0%</b>

**Time and Motion Summary - Garbage & Organics Co-Collection**

Variables:

1. Truck - Vertical Split 70/30 Rear-Packing Co-Collection Vehicle
2. 2 Persons - 1 - Driver, 1 - Collector
3. Based on Collection of 100 Setouts

Criteria	Co-Collection	
	Garbage	Organics
Average Weekly Setout Rate	73.73%	32.97%
Average Weight Per 100 Setouts (kg)	1,175.2	788.0
Total Setouts	100.0	100.0
Average Weight/Setout (kg)	11.8	7.9
Program Participation Rate (%)	94.0%	49.6%
<b>Activity Breakdown in Minutes</b>	<b>Minutes</b>	<b>(% of Total)</b>
Driving Between Stops	13.77	21.62%
Loading Organics	5.11	8.02%
Loading Garbage	12.72	19.96%
Getting Out of Truck	0.85	1.33%
Getting Into Truck	0.96	1.51%
Picking up Setout	4.88	7.67%
Setting Down Container	5.59	8.78%
Decontamination	0.00	0.00%
Cycling the Hopper	9.05	14.20%
Speaking With Public	1.14	1.79%
Coffee/Lunch Break	4.39	6.89%
Oops Tags	3.77	5.91%
Speaking With Management	1.14	1.78%
Drive and Load	0.23	0.36%
Other - Road Blocked/Stuck	0.11	0.18%
Other - Truck Problems	0.00	0.00%
<b>Total Time Spent on-Route:</b>	<b>63.70</b>	<b>100.0%</b>

**Time and Motion Summary - Single Stream Recyclables Collection**

Variables:

1. Truck - Standard Rear-Packing Collection Vehicle
2. 2 Persons - 1 - Driver, 1 - Collector
3. Based on Collection of 100 Setouts

Criteria	Single Stream Recycling	
	Minutes	(% of Total)
Average Weekly Setout Rate	63.30%	
Average Weight Per 100 Setouts (kg)	1,031.8	
Total Setouts	100.0	
Average Weight/Setout (kg)	10.3	
Program Participation Rate (%)	84.2%	
<b>Activity Breakdown in Minutes</b>	<b>Minutes</b>	<b>(% of Total)</b>
Driving Between Stops	26.14	27.78%
Loading Organics	20.10	21.36%
Loading Garbage	6.86	7.29%
Getting Out of Truck	8.30	8.82%
Getting Into Truck	14.44	15.34%
Picking up Setout	5.30	5.63%
Setting Down Container	1.62	1.72%
Decontamination	7.47	7.94%
Cycling the Hopper	1.77	1.88%
Speaking With Public	1.17	1.24%
Coffee/Lunch Break	0.29	0.31%
Oops Tags	0.67	0.71%
Speaking With Management	0.00	0.00%
Drive and Load	0.00	0.00%
Other - Road Blocked/Stuck	0.00	0.00%
Other - Truck Problems	0.00	0.00%
<b>Total Time Spent on-Route:</b>	<b>94.13</b>	<b>100.0%</b>



## Appendix "D"

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### Comparison to Previous Years Data

<b>Region of Niagara</b>
Organic Co-Collection Studies - Fall 2004 - Time and Motion Study Results

**Comparison with Previous Data Sets - Based on Average/100 households**

**Recycling & Organics vs. Garbage & Organics**

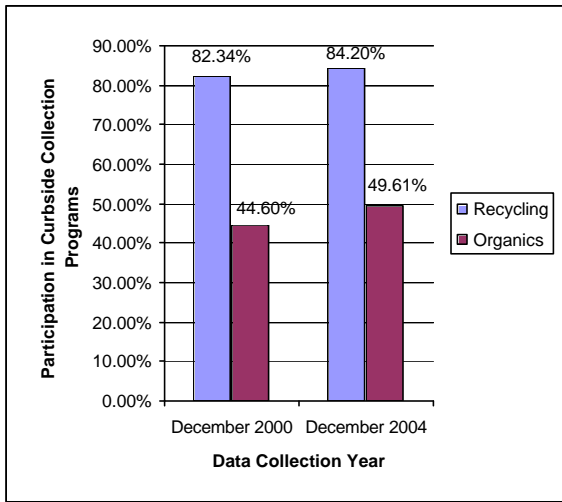
Criteria	St. Catharines 2000/2001 (Recycling/Organics)		St. Catharines 2004 (Garbage/Organics)	
	Recycling	Organics	Garbage	Organics
Average Weekly Setout Rate (December)	70.0%	28.9%	73.7%	33.0%
Average Weight Per 100 Setouts (kg)	691.1	855.1	1,175.2	788.0
Total Setouts	100.0	100.0	100.0	100.0
Average Weight/Setout (kg)	6.9	8.6	11.8	7.9
Program Participation Rate (%) (December)	82.3%	44.6%	94.0%	49.6%
<b>Activity Breakdown in Minutes</b>	<b>Minutes</b>	<b>(% of Total)</b>	<b>Minutes</b>	<b>(% of Total)</b>
Driving Between Stops	15.55	25.40%	13.77	21.62%
Loading Organics	5.00	8.17%	5.11	8.02%
Loading Recyclable or Garbage	13.49	22.03%	12.72	19.96%
Getting Out of Truck	6.09	9.95%	0.85	1.33%
Getting Into Truck	5.11	8.35%	0.96	1.51%
Picking up Setout	0.22	0.36%	4.88	7.67%
Setting Down Container	3.48	5.68%	5.59	8.78%
Decontamination	0.54	0.89%	0.00	0.00%
Cycling the Hopper	1.52	2.49%	9.05	14.20%
Speaking With Public	0.98	1.60%	1.14	1.79%
Coffee/Lunch Break	5.00	8.17%	5.00	6.89%
Oops Tags	0.44	0.71%	3.77	5.91%
Speaking With Management	0.98	1.60%	1.14	1.78%
Drive and Load	0.00	0.00%	0.23	0.36%
Other - Road Blocked/Stuck	2.50	4.09%	0.11	0.18%
Other - Truck Problems	0.33	0.53%	0.00	0.00%
<b>Total Time Spent on-Route:</b>	<b>61.23</b>	<b>100.0%</b>	<b>64.31</b>	<b>100.0%</b>

Notes:

To provide a more equal comparison, Coffee/Lunch Breaks has been set to 5 minutes per 100 setouts

**Comparison with Previous Years Data**

**Figure D-1: Comparison with Previous Years - Curbside Participation**



**Participation Rates - December 2000**

Study Area	Garbage	Organics	Recycling	Leaf & Yard	Bulk
St. Catharines	n/a	44.60%	82.34%	n/a	n/a
Port Colborne	n/a	24.26%	n/a	n/a	n/a

**Participation Rates - 2004**

Study Area	Garbage	Organics	Recycling	Leaf & Yard	Bulk
St. Catharines	94.00%	49.61%	84.20%	21.01%	0.16%
Pelham	91.25%	64.15%	95.03%	45.11%	0.17%
Welland	87.04%	32.50%	75.77%	2.09%	1.60%
Niagara Falls	78.89%	33.38%	80.91%	2.15%	0.13%
Port Colborne	95.91%	38.63%	78.89%	3.93%	0.65%