Village of Croton-on-Hudson
Refuse Collection Route Study

APPENDIX

A

2010 Refuse Collection Route Study Information Summary

REDOAK CONSULTING
A DIVISION OF MALCOLM PIRNIE

Village of Croton
2010 Refuse Collection Route Study

Date	Day of the Week	Truck Number	Crew Size (drivers; crew)	Type of Waste	Trip to Resco Facility	Tonnage Collected (Tons)	Approx. Volume Collected (cy)	Compacted Waste Density (pounds/cy)	Uncompacted Waste Density (pounds/cy)
11/1/2010	Monday	16	1; 2	Residential and Commercial Garbage	1	8.07	128	646	126
11/1/2010	Monday	16	1; 2	Residential and Commercial Garbage	2	5.58	94.3	446	118
11/2/2010	Tuesday	16	1; 2	Residential and Commercial Garbage	1	7.64	114	611	134
11/2/2010	Tuesday	16	1; 2	Residential and Commercial Garbage	2	7.65	98.9	612	155
11/29/2010	Monday	3	1; 2	Residential and Commercial Garbage	1	9.61	114	769	169
11/29/2010	Monday	3	1; 2	Residential and Commercial Garbage	2	7.78	90.0	622	173
11/30/2010	Tuesday	3	1; 2	Residential and Commercial Garbage	1	10.61	132	849	161
11/30/2010	Tuesday	3	1; 2	Residential and Commercial Garbage	2	6.79	89.7	543	151
12/3/2010	Friday	3	1; 2	Garbage - Second Pickup	1	8.08	113	646	143
12/3/2010	Friday	3	1; 2	Garbage - Second Pickup	2	5.38	74.2	430	145
Average						**7.72**	**105**	**618**	**147**

Date	Day of the Week	Truck Number	Crew Size (drivers; crew)	Type of Waste	Trip to Northern Tier Transfer Station	Tonnage Collected (Tons)	Approx. Volume Collected (cy)	Compacted Waste Density (pounds/cy)	Uncompacted Waste Density (pounds/cy)
11/4/2010	Thursday	16	1; 2	Paper	1	5.60	63.2	448	177
11/18/2010	Thursday	15	1; 1	Commercial Paper	1	6.43	101	514	127
11/19/2010	Friday	15	1; 2	Paper	1	6.44	52.0	515	248
Average						**6.16**	**72.0**	**493**	**184**

Date	Day of the Week	Truck Number	Crew Size (drivers; crew)	Type of Waste	Trip to Northern Tier Transfer Station	Tonnage Collected (Tons)	Approx. Volume Collected (cy)	Compacted Waste Density (pounds/cy)	Uncompacted Waste Density (pounds/cy)
11/5/2010	Friday	16	1; 2	Commingled Recyclables	1	2.75	50.2	220	110
12/2/2010	Thursday	3	1; 2	Commingled Recyclables	1	5.03	71.3	402	141
Average						**3.89**	**60.7**	**311**	**125**

Notes:
1. The disposal information was collected during the 2010 Route Study.
2. Compacted waste density was calculated by dividing the Waste Disposed by 25 cubic yards (CY), which is the compacted volume of all the Village

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
1	1	C	DPW Yard		100%	6										6:58 AM	7:02 AM	0:04	9.00	
2	1	C	Gas Station						2	5						7:06 AM	7:07 AM	0:01	1.24	
3	8	C	Commons	S. Riverside	100%	3					1					7:07 AM	7:12 AM	0:05	4.65	
4	1	C	Half Moon Bay Marina	Elliots Way	50%	3					1					7:15 AM	7:17 AM	0:02	2.40	AIR TANK = 1 Contractor Bag
5	1	C	Croton Yacht Club	Elliots Way	75%	2										7:18 AM	7:23 AM	0:05	2.25	
6	1	C	DPW	Municipal Place	50%	1										7:26 AM	7:30 AM	0:04	0.75	
7	1	C	Dodge	N. Riverside	50%	6										7:31 AM	7:35 AM	0:04	4.50	
8	1	C	Law Office	75 N. Riverside	50%	1										7:36 AM	7:38 AM	0:02	0.75	
9	1	C	Medical Building	N. Riverside	50%	4										7:38 AM	7:41 AM	0:03	3.00	HAVE 4 DUMPSTERS BUT EACH ONLY HALF FULL
10	2	C	Best Web/ Croton Hardware		100%	1										7:41 AM	7:43 AM	0:02	1.50	
11	1	C	Animal Hospital								7					7:44 AM	7:45 AM	0:01	1.05	
12	9	R	Back up Bank Street						3	8	15					7:45 AM	7:50 AM	0:05	4.19	
13	N/A	R	Riverside Ave	From Bank to Farrington						3	4	1				7:50 AM	7:50 AM	0:00	1.23	
14	1	C	Tavern	Riverside Ave					8		10					7:50 AM	7:53 AM	0:03	3.26	
15	N/A	R	Riverside Ave	From Farrington to High				2	6	8	7	6	1		1	7:53 AM	7:56 AM	0:03	5.36	CHAIRS AND PAIL = 3 Contractor Bags
16	1	C	Washington Firehouse		100%	1				1						7:56 AM	7:58 AM	0:02	1.66	
17	1	R	105 Riverside													7:58 AM	7:58 AM	0:00	0.00	
18	N/A	R	Riverside Ave	From Prospect to Stevenson					4	7	12				1	7:58 AM	8:04 AM	0:06	3.86	2 QUEEN MATTRESSES AND RUG = 6 Contractor Bags
19	N/A	R	Riverside Ave	From Stevenson to Wolf					3	2	1	4				8:04 AM	8:05 AM	0:01	1.73	PLANT = 1 Contractor Bag
20	N/A	R	Old Post Road North	From Albany Post to Stevenson					1	2	2					8:05 AM	8:07 AM	0:02	0.84	
21	N/A	R	Stevenson							1					1	8:07 AM	8:08 AM	0:01	0.22	
22	2	R	Wolf Road	From Albany Post to Cook						3	3					8:08 AM	8:10 AM	0:02	0.93	2 DOORS = 3 Contractor Bags
23	15	R	Cook Lane						4	13	5				1	8:10 AM	8:16 AM	0:06	3.77	ENTERTAINMENT CENTER = 5 Contractor Bags
24	22	R	Wolf Road	From Cook to Albany Post					7	17	7	1			1	8:16 AM	8:24 AM	0:08	5.52	2 PAILS = 1 Contractor Bag
25	N/A	R	Old Post	From Stevenson to Prospect					2	10	5				1	8:25 AM	8:29 AM	0:04	2.85	COUCH = 4 Contractor Bags
26	12	R	Prospect Place						6	8	10				4	8:29 AM	8:35 AM	0:06	4.34	PAIL = 1 Contractor Bag
27	11	R	Back up Hillside					1	1	10	3				1	8:35 AM	8:41 AM	0:06	2.63	
28	2	R	Old Post Road North	From Prospect to Loundsbury				2		2						8:42 AM	8:44 AM	0:02	0.92	
29	14	R	Loundsbury Rd	From Old Post to Jasper				1		12	5	1			5	8:44 AM	8:49 AM	0:05	3.42	PLASTIC TABLE = 2 Contractor Bags
30	4	R	Jasper Rd.						1	2	1					8:49 AM	8:50 AM	0:01	0.69	
31	6	R	Aschman Lane					1		2					4	8:53 AM	8:56 AM	0:03	0.86	
32	1	R	Fox Rd.							1					2	8:56 AM	8:57 AM	0:01	0.28	
33	8	R	Giglio Ct.						2	7	3				7	8:57 AM	9:02 AM	0:05	2.43	
34	9	R	Loundsbury Rd	From Giglio to Jasper					1	9						9:02 AM	9:06 AM	0:04	1.66	
35	N/A	R	Old Post Road North	From Loundsbury to Michaels						2	6					9:06 AM	9:07 AM	0:01	1.22	2 QUEEN MATTRESSES AND BED FRAME = 6 Contractor Bags
36	14	R	Michaels Lane						9	13	14				5	9:07 AM	9:15 AM	0:08	6.46	COUCH, 2 CHAIRS AND RUG = 8 Contractor Bags
37	2	R	Old Post Road North	From Michaels to Mt. Green						2					1	9:15 AM	9:17 AM	0:02	0.38	
38	N/A	R	Mt Green Rd.						5	4	11				4	9:17 AM	9:24 AM	0:07	3.63	
39	5	R	Old Post Road North	From Green to Stevenson					2	7	3				3	9:24 AM	9:26 AM	0:02	2.19	
40	15	R	Finney Farm Road (Private Road)					1	2	8	7				3	9:26 AM	9:43 AM	0:17	3.25	TOILET = 1 Contractor Bag
41	N/A	R	Old Post Road North	From Finney Farm to Albany Post						4	25					9:43 AM	9:46 AM	0:03	4.39	
42	N/A	R	Albany Post	From Old Post to Arrowcrest				1		2	12			1	11	9:47 AM	9:52 AM	0:05	3.33	
43	4	R	Indian Summer						5						3	9:53 AM	9:54 AM	0:01	1.28	
44	6	R	Red Maple					2	5	3	11					9:55 AM	9:59 AM	0:04	3.83	10 RUGS = 10 Contractor Bags
45	6	R	Stephanie					2	5	3	9					9:59 AM	10:04 AM	0:05	3.53	
46	3	R	Backup Arrowcrest					2	7	7	13	2				10:04 AM	10:13 AM	0:09	5.51	
47	3	R	Albany Post	From Arrowcrest to Warren					4		3					10:13 AM	10:16 AM	0:03	1.33	
48	3	R	Warren	From Albany Post to Briggs						2						10:16 AM	10:17 AM	0:01	0.32	
49	7	R	Briggs						1	4	4					10:17 AM	10:21 AM	0:04	1.46	
50	9	R	Warren	From Briggs to Dead End					3	9	3					10:21 AM	10:27 AM	0:06	2.55	
51			**Trip to Resco**																	
52	1	R	Albany Post	From Town line to Scenic Dr W							1					10:59 AM	11:05 AM	0:06	0.15	
53	3	C			100%	2					2								3.30	
54	4	R	Scenic Drive West	From Albany Post to Newton Ct				1	2	1	1					11:05 AM	11:07 AM	0:02	1.05	
55	13	R	Newton Court					3	6	6	2					11:07 AM	11:13 AM	0:06	3.48	
56	1	C	Scenic Drive West	From Newton Court to Amber						1						11:13 AM	11:14 AM	0:01	0.16	
57	N/A	R	Scenic Drive Townhouses	Dumpster Area 2	100%	5										11:15 AM	11:21 AM	0:06	7.50	
58	N/A			Dumpster Area 3	100%	5													7.50	
59	N/A			Dumpster Area 1	100%	5					3					11:22 AM	11:26 AM	0:04	7.95	2 DOORS = 3 Contractor Bags
60	20	R	Scenic Drive West	From Baltic to Albany Post				1	11	9	1			2	2	11:27 AM	11:34 AM	0:07	4.92	
61	7	R	Albany Post	From Scenic Dr W to Prospect					3	10	6					11:35 AM	11:44 AM	0:09	3.16	
62	1	C	Burchetta	On Route 9	100%	1										11:44 AM	11:47 AM	0:03	1.50	

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
63	1	R	Brook	From Riverside to Old Post N					6	12	10	2		1	4	11:51 AM	11:57 AM	0:06	5.53	
64	4	C							2	11	8			6	3	11:57 AM	12:02 PM	0:05	5.06	
65	8	R	Old Post North	From Brook to Michaels					3	11	1				2	12:02 PM	12:05 PM	0:03	2.69	
66	1	R	Old Post North	From Michaels to Terrace						1						12:05 PM	12:06 PM	0:01	0.16	
67	8	R	Terrace						1	9	2			1	2	12:08 PM	12:11 PM	0:03	2.33	
68	1	R	Old Post	From Terrace to Brook						1					1	12:11 PM	12:12 PM	0:01	0.22	
69	3	R	Brook	From Old Post to Riverside						6					1	12:12 PM	12:18 PM	0:06	1.02	
70	1	C			100%	2													3.00	
71	34	4M/F; 30R	High Street					1	5	27	32	4			5	12:21 PM	12:32 PM	0:11	11.42	DOOR = 2 Contractor Bags
72	30	R	Hunter						2	24	9				4	12:33 PM	12:41 PM	0:08	5.87	
73	29	R	Palmer						2	28	7				8	12:41 PM	12:51 PM	0:10	6.45	RUG = 2 Contractor Bags
74	1	C	Farrington		100%	1										12:51 PM	1:02 PM	0:11	1.50	
75	35	R							5	29	11				17				8.41	QUEEN MATTRESS = 2 Contractor Bags
76			**Trip to Resco**																	
																		TOTAL	**223**	

Notes:

(1) The total weight of the garbage for that day was equal to (Tons): 13.65 Tons

(2) The number of collected and empty dumpsters and the time are based on the Refuse Collection Route Study, with the data for the Route (16 North) collected during garbage collection routes on November 1, 2010.

With the commercial route set up as presented above:
Dumpsters Collected 49

(3) Equivalent volume for various Containers / Boxes / Bags was assumed to be equal to the following:

Container Type	Equivalent Volume (cy)
96 gal	0.48
60 gal	0.3
45 gal	0.22
Contractor Bags (assumed 30 gal)	0.15
Boxes (assumed)	0.15
Crates	0.15
Pallets	0.25
Kitchen Bags (13 gal)	0.06
32 gal container	0.16

Waste Density Calculations and Assumptions

Truck Size	25	CY
Total Daily Tonnage	13.65	Tons
Number of Trips for Disposal	2	Trips

First Trip

Truck Size	25	CY		
Weight of Disposal	8.07	Tons		
Approx. Volume of Waste Collected	128.40	CY	Approx. Volume of Commercial Waste	36.01
			Approx. Volume of Residential Waste	92.39
Compacted waste density	645.60	lbs/cy		
Uncompacted waste density	125.70	lbs/cy uncompacted		

Second Trip

Truck Size	25	CY		
Weight of Disposal	5.58	Tons		
Approx. Volume of Waste Collected	94.33	CY	Approx. Volume of Commercial Waste	14.52
			Approx. Volume of Residential Waste	79.81
Compacted waste density	446.40	lbs/cy		
Uncompacted waste density	118.31	lbs/cy uncompacted		

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
1	3	C	Veterans Way					1	1		1				4	7:06 AM	7:07 AM	0:01	0.9	
2	5	C		1 Croton Point Ave	100%	1										7:07 AM	7:08 AM	0:01	1.5	
3	1	C	Gulf Gas Station	Croton Point Ave	100%	1										7:10 AM	7:12 AM	0:02	1.5	
4	N/A	C		401 Riverside Ave							6					7:13 AM	7:13 AM	0:00	0.9	
5	1	C	Sonny Abbots								2					7:13 AM	7:13 AM	0:00	0.3	
6	1	C	Kicos Grill	385 Riverside			1									7:13 AM	7:15 AM	0:02	0.5	
7	1	C		383 Riverside							4					7:15 AM	7:16 AM	0:01	0.6	
8	7	R	Benedict Boulevard	From Riverside to Cleveland					2	6						7:16 AM	7:19 AM	0:03	1.4	
9	3	R	Cleveland	From Benedict to Arlington						3	5					7:19 AM	7:21 AM	0:02	1.2	
10	7	R	Arlington					4		12					1	7:21 AM	7:25 AM	0:04	3.2	
11	5	R	Cedar							8	1	1			1	7:26 AM	7:27 AM	0:01	1.6	
12		28R; 3M/F	Nordica						2	14	6			1	8	7:28 AM	7:42 AM	0:14	4.3	
13	16	R	Truesdale	From Nordica to Dead End					1	10	10			2	4	7:42 AM	7:53 AM	0:11	4.1	
14	6	R	Morningside	From Old Post Road S to Dead End					1	6	2					7:54 AM	7:58 AM	0:04	1.5	
15	13	R	Old Post Road S	From Morningside to Truesdale					1	7	7			1	6	7:58 AM	8:04 AM	0:06	3.0	
16	33	R	Truesdale	From Nordica to Benedict					1	24	19	1	1		6	8:05 AM	8:17 AM	0:12	7.6	
17	1	C							4							8:17 AM	8:18 AM	0:01	0.9	
18	7	R	Cleveland	From Benedict to Oneida						6	1					8:18 AM	8:20 AM	0:02	1.1	
19	6	R	Oneida	From Cleveland to Whelan					2	3	3				2	8:20 AM	8:22 AM	0:02	1.5	
20	14	R	Whelan	From Dead End to Benedict					2	14	2				3	8:22 AM	8:28 AM	0:06	3.2	
21	3	R	Truesdale	From Benedict to Franklin						1					1	8:29 AM	8:30 AM	0:01	0.2	
22	24	R	Franklin						2	20					12	8:30 AM	8:38 AM	0:08	4.4	
23	2	R	Cleveland	From Franklin to Piney Point											1	8:39 AM	8:40 AM	0:01	0.1	
24	12	R	Piney Point						1	13	3				5	8:40 AM	8:47 AM	0:07	3.1	
25	2	R	Hill St						1	1						8:47 AM	8:48 AM	0:01	0.4	
26	11	R	Cleveland	From Franklin to Arlington					1	7	5				9	8:49 AM	8:53 AM	0:04	2.6	
27	16	R	Benedict Boulevard	From Cleveland to Young						8	7	3			1	8:54 AM	8:58 AM	0:04	2.8	
28	15	R	Young	From Benedict to Oneida				1	1	16	37	1			2	8:58 AM	9:05 AM	0:07	8.9	
29	4	R	Oneida	From Young to Hastings						1	5					9:05 AM	9:06 AM	0:01	0.9	
30	13	R	Hastings	From Oneida to Crest						22	3				3	9:06 AM	9:12 AM	0:06	4.2	
31	3	R	Crest							8	1				2	9:12 AM	9:15 AM	0:03	1.6	
32	11	R	Young	From Crest to Oneida					3	20	19				7	9:15 AM	9:19 AM	0:04	7.1	
33	3	R							2	3				1		9:20 AM	9:23 AM	0:03	1.2	
34	1	C	Oneida	From Riverside to Young							1				2			0:00	0.3	
35	15	R	Oneida	From Hastings to Weyland				1	2	12	18	1		1	2	9:23 AM	9:29 AM	0:06	5.9	
36	38	R	Pennfield	From Dead End to Devon					7	40	20	1		5	12	9:30 AM	9:49 AM	0:19	13.0	
37	6	R	Devon	From Pennfield to Hastings					1	6	4				2	9:49 AM	9:54 AM	0:05	1.9	
38	30	R	Hastings	From Dead End to Benedict				3	7	13	7	1			3	9:54 AM	10:01 AM	0:07	5.9	
39	19	R	Young	From Benedict to Devon				2	2	5	11				8	10:02 AM	10:07 AM	0:05	4.0	
40	5	R	Devon	From Young to Hastings						3	1				3	10:07 AM	10:08 AM	0:01	0.8	
41	22	R	Hastings	From Benedict to Oneida				1	3	19	4				3	10:08 AM	10:14 AM	0:06	4.8	
42			**Trip to Resco**																	
43	1	C	Atro Collision	Riverside Ave	100%	1										10:56 AM	10:58 AM	0:02	1.5	
44	1	C	LukOil		100%	1								2		10:58 AM	11:01 AM	0:03	2.0	
45	3	R								7.0	6			2	1	11:02 AM	11:11 AM	0:09	2.6	
46	4	C	Clinton Street		100%	5												0:00	7.5	
47	12	R	Wayne					2	2	12	1				1	11:11 AM	11:16 AM	0:05	3.2	
48	1	C	Harmon Fire Dept		100%	1										11:16 AM	11:19 AM	0:03	1.5	
49	1	R	Benedict Boulevard	From Clinton to Riverside						2						11:19 AM	11:20 AM	0:01	0.3	
50	1	C	Oil City	Riverside Ave	100%	1										11:20 AM	11:22 AM	0:02	1.5	
51	7	C	Riverside Ave	From Benedict to Oneida	100%	4			10	2					3	11:22 AM	11:30 AM	0:08	8.7	
52	N/A	C	Riverside Ave	From Clinton to Benedict						3	2		2			11:42 AM	11:45 AM	0:03	1.1	
53	33	R	Morningside	From Truesdale to Sunset					7	22	31	1	2	1	9	11:45 AM	11:57 AM	0:12	10.9	
54	11	R	Sunset Dr	From Morningside to Observatory					1	7	2		2			11:57 AM	12:00 PM	0:03	1.9	
55	20	R	Observatory					2		21	13				8	12:00 PM	12:07 PM	0:07	6.4	
56	1	R	Sunset Dr	From Observatory to Lexington						1						12:07 PM	12:08 PM	0:01	0.2	
57	10	R	Morningside	From Sunset to Old Post S					3	12	9				1	12:08 PM	12:12 PM	0:04	4.0	

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
58	13	R	Old Post Road S	From Morningside to Cleveland						19	2				17	12:12 PM	12:17 PM	0:05	4.4	
59	37	R	Sunset Dr	From Old Post Road S to Lexington				1	5	24	3	1			1	12:17 PM	12:27 PM	0:10	5.9	
60	38	R	Lexington	From Sunset to Sunset					3	27	9	4			6	12:20 PM	12:36 PM	0:16	7.3	
61	8	R	Lexington	From Sunset to Park					3	7	2	1				12:36 PM	12:40 PM	0:04	2.2	
62	6	R	Park						2	6				1	1	12:40 PM	12:43 PM	0:03	1.7	
63	28	R	Lexington	From Park to Morningside				2	2	13	9	1			3	12:43 PM	12:48 PM	0:05	4.8	
64	1	C	ET Equipment Co	Riverside Ave	100%	2										12:50 PM	12:54 PM	0:04	3.0	
65	1	C	Van Cortlandt Manor Historical Society		100%	2					6					12:54 PM	12:58 PM	0:04	3.9	
66	6	C	Shopright		100%	5					22					12:58 PM	1:05 PM	0:07	10.8	
67	1	C	Podiatrist	Riverside Ave						1						1:05 PM	1:06 PM	0:01	0.2	
68	1	C	Franzoso Contracting	Croton Point Ave	100%	1										1:06 PM	1:08 PM	0:02	1.5	
69			**Trip to Resco**																	
																		TOTAL	**213**	

Notes:

(1) The total weight of the garbage for that day was equal to (Tons): 15.29 Tons

(2) The number of collected and empty dumpsters and the time are based on the Refuse Collection Route Study, with the data for the Route (16 South) collected during garbage collection routes on November 2, 2010.

With the commercial route set up as presented above:
Dumpsters Collected 25

(3) Equivalent volume for various Containers / Boxes / Bags was assumed to be equal to the following

Container Type	Equivalent Volume (cy)
96 gal	0.48
60 gal	0.3
45 gal	0.22
Contractor Bags (assumed 30 gal)	0.15
Boxes (assumed)	0.15
Crates	0.15
Pallets	0.25
Kitchen Bags (13 gal)	0.06
32 gal container	0.16

Waste Density Calculations and Assumptions

Truck Size	25	CY		
Total Daily Tonnage	15.29	Tons		
Number of Trips for Disposal	2	Trips		
First Trip				
Truck Size	25	CY		
Weight of Disposal	7.64	Tons		
Approx. Volume of Waste Collected	114	CY	Approx. Volume of Commercial Waste	7.3
Compacted waste density	611.20	lbs/cy	Approx. Volume of Residential Waste	106.66
Uncompacted waste density	134.04	lbs/cy uncompacted		
Second Trip				
Truck Size	25	CY		
Weight of Disposal	7.65	Tons		
Approx. Volume of Waste Collected	99	CY	Approx. Volume of Commercial Waste	43.1
Compacted waste density	612.00	lbs/cy	Approx. Volume of Residential Waste	55.78
Uncompacted waste density	154.69	lbs/cy uncompacted		

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	No. of Blue Recycle Bins (14 gal)	No. of Half Blue Recycle Bins (7 gal)	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
1	15	R	Grand	From Riverside to Old Post N							14	7		2				7:06 AM	7:15 AM	0:09	1.4	
2	2	R	Old Post S	From Grand to Maple								1						7:15 AM	7:16 AM	0:01	0.0	
3	6	R	Ollcott	From Maple to Wells							4	2						7:17 AM	7:18 AM	0:01	0.3	
4	21	R	Wells	From Olcott to Beeckman							14	8		5				7:18 AM	7:24 AM	0:06	1.8	
5	54	R	Beekman							1	30	13		3				7:24 AM	7:35 AM	0:11	2.8	
6	5	R	Ollcott	From Beekman to Wells							5	1						7:35 AM	7:37 AM	0:02	0.3	
7	19	R	Wells	From Olcott to Maple						1	12	3		1				7:37 AM	7:40 AM	0:03	1.1	
8	2	R; C	Old Post S	From Maple to Grand							2			2				7:43 AM	7:44 AM	0:01	0.4	
9	28	R; M/F	Grand	From Old Post S to							21	4		3				7:44 AM	7:52 AM	0:08	1.8	
10	1	C									8	1						7:48 AM	7:49 AM	0:01	0.5	
11	4	R	Batten Rd	From Grand to Eklof							1							7:53 AM	7:54 AM	0:01	0.1	
12	14	R	Eklof								6	3						7:54 AM	7:57 AM	0:03	0.5	
13	16	R	Batten Rd	From Eklof to Townline							9	3		1				7:57 AM	8:02 AM	0:05	0.8	
14	2	R	Route 129	From Batten to Townline							1							8:05 AM	8:06 AM	0:01	0.1	
15	10	R	Route 129	From Townline to Daly							3							8:06 AM	8:08 AM	0:02	0.2	
16	13	R	Daley Drive							3	5							8:08 AM	8:13 AM	0:05	0.8	
17	21	R	Grand	From Daley to Church							12	5		1				8:14 AM	8:19 AM	0:05	1.0	
18	11	R	Church								3	6						8:19 AM	8:24 AM	0:05	0.4	
19	16	R									9	2						8:24 AM	8:27 AM	0:03	0.6	
20	3	C	Grand	From Church to Old Post N							14							8:27 AM	8:29 AM	0:02	0.8	
21	21	R	Grand	From Old Post N to Riverside						2	12	1						8:29 AM	8:36 AM	0:07	1.1	
22	7	R	Hamilton								8							8:38 AM	8:39 AM	0:01	0.5	
23	38	R	Van Wyck	From Deadend to Old Post N						4	25	16		5				8:39 AM	8:51 AM	0:12	3.4	
24	2	R	Old Post N	From Grand to lower N Highland						1	1							8:51 AM	8:53 AM	0:02	0.2	
25	9	R	Lower N Highland	From Old Post N to Ackerman							8							8:53 AM	8:56 AM	0:03	0.5	
26	11	R	Ackerman							1	15	1						8:56 AM	9:00 AM	0:04	1.1	
27	10	R	Old Post N	From N. Highland to Loundsberry							6	1						9:00 AM	9:04 AM	0:04	0.4	
28	18	R	Loundsberry	From Old Post to Jasper							11	3						9:04 AM	9:09 AM	0:05	0.8	
29	4	R	Jasper								1	1						9:09 AM	9:10 AM	0:01	0.1	
30	7	R	Aschman								4							9:11 AM	9:13 AM	0:02	0.2	
31	2	R	Fox								1							9:13 AM	9:14 AM	0:01	0.1	
32	8	R	Giglio								5	2						9:14 AM	9:16 AM	0:02	0.4	
33	8	R	Loundsberry	From Loundsbury to Michaels							6							9:16 AM	9:18 AM	0:02	0.4	
34	1	R	Old Post N	Loundsbury to Michaels							3							9:18 AM	9:20 AM	0:02	0.2	
35	17	R	Michaels							2	10	1		2				9:20 AM	9:24 AM	0:04	1.3	
36	2	R	Old Post N	From Michaels to Brook						1	1							9:24 AM	9:26 AM	0:02	0.2	
37	1	R	Old Post N	From Loundsbury to High							1							9:26 AM	9:27 AM	0:01	0.1	
38	39	R	High Street							1	12	5						9:27 AM	9:33 AM	0:06	1.0	
39	10	R	Mt. Green								3	3						9:37 AM	9:43 AM	0:06	0.3	
40	26	R	Hunter							2	19	5		3				9:43 AM	9:50 AM	0:07	2.1	
41	27	R	Palmer							2	24	6						9:50 AM	9:57 AM	0:07	1.9	
42	35	R	Farrington								24	6						10:00 AM	10:07 AM	0:07	1.6	
43	9	R	Bank								8							10:07 AM	10:09 AM	0:02	0.5	
44	6	C	Riverside	From Bank to Wolf							4	8						10:09 AM	10:17 AM	0:08	0.5	
45	24	R									14	4									1.0	
46	3	R	Wolf	From Riverside to Cook							2							10:17 AM	10:18 AM	0:01	0.1	
47	17	R	Cook								12			1				10:18 AM	10:22 AM	0:04	0.9	
48	26	R	Wolf	From Cook to Riverside						1	13	6		1				10:22 AM	10:27 AM	0:05	1.3	
49	14	R	Old Post N	From Stevenson to Prospect							10	7						10:29 AM	10:32 AM	0:03	0.8	
50	12	R	Prospect							1	15							10:32 AM	10:36 AM	0:04	1.1	
51	11	R	Hillside								7	3						10:36 AM	10:41 AM	0:05	0.5	
52	10	R	Old Post N	Prospect to Finney Farm							9	1						10:42 AM	10:45 AM	0:03	0.6	
53	18	R	Finney Farm (Private Rd)								7	3		1				10:45 AM	10:56 AM	0:11	0.7	
54	3	R	Old Post N	Finney Farm to Albany Post							2	1						10:56 AM	10:58 AM	0:02	0.2	
55	12	R	Albany Post	Old Post to Arrowcrest							11	1		2				10:58 AM	11:02 AM	0:04	1.0	
56	4	R	Indian Summer Drive								2							11:03 AM	11:05 AM	0:02	0.1	
57	3	R	Arrowcrest	to Red Maple Ridge							5	3		3				11:05 AM	11:10 AM	0:05	0.8	
58	6	R	Stephanie								7	2						11:10 AM	11:12 AM	0:02	0.5	
59	6	R	Red Maple								5	2		1				11:12 AM	11:14 AM	0:02	0.5	
60	10	R	Arrowcrest	Red Maple to Albany Post							2	2						11:14 AM	11:16 AM	0:02	0.2	
61	4	R	Albany Post	Arrowcrest to Warren							6	1						11:16 AM	11:19 AM	0:03	0.4	

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	No. of Blue Recycle Bins (14 gal)	No. of Half Blue Recycle Bins (7 gal)	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
62	3	R	Warren	Albany Post to Briggs							2							11:19 AM	11:20 AM	0:01	0.1	
63	8	R	Briggs								5			1				11:20 AM	11:27 AM	0:07	0.5	
64	9	R	Warren	Briggs to Deadend							8	1		1							0.7	
65	3	C	Albany Post	Baltic to Warren							0	0		0				11:27 AM	11:29 AM	0:02	0.0	
66	3	R	Scenic Drive W	Albany Post to Newton							2	1						11:29 AM	11:31 AM	0:02	0.2	
67	15	R	Newton								12	1		2				11:31 AM	11:35 AM	0:04	1.1	
68	34	R	Amber	Scenic to Robin Lane (Townhouses)							15	2		1				11:35 AM	11:37 AM	0:02	1.1	
69	29	R	Amber	Robin to Larke							12	1						11:37 AM	11:41 AM	0:04	0.8	
70	35	R	Larke								8	1		1				11:41 AM	11:44 AM	0:03	0.7	
71	24	R	Oriole								8	3		1				11:44 AM	11:46 AM	0:02	0.7	
72	17	R	Scenic Drive W	Baltic to Albany Post							11	4		2				11:46 AM	11:50 AM	0:04	1.1	
73	6	R	Albany Post	Scenic Drive W to Skyview							0							11:50 AM	11:52 AM	0:02	0.0	
74	1	C	Skyview Home		100%	7												11:52 AM	12:00 PM	0:08	10.5	
75	2	R	Albany Post	Skyview to Old Post						1	6	3		1				12:00 PM	12:04 PM	0:04	0.8	
76	4	R	Old Post	Albany Post to Stevenson							3	1		1				12:04 PM	12:05 PM	0:01	0.4	
77	3	R	Stevenson									1						12:05 PM	12:05 PM	0:00	0.0	
78	1	R	Riverside	Stevenson to Prospect							1							12:05 PM	12:06 PM	0:01	0.1	
																				TOTAL	**63.2**	

Notes:
(1) The total weight of the paper for that day was equal to (Tons): 5.60 Tons

(2) Equivalent volume for various Containers / Boxes / Bags was assumed to be equal to the following:

Container Type	Equivalent Volume (cy)
96 gal	0.48
60 gal	0.3
45 gal	0.22
Contractor Bags (assumed 30 gal)	0.15
Boxes (assumed)	0.15
Crates	0.15
Pallets	0.25
Kitchen Bags (13 gal)	0.06
Recycle Bin (14 gal)	0.06
Half Recycle Bin (7 gal)	0.03
32 gal container	0.16

Waste Density Calculations and Assumptions

Truck Size	25	CY
Total Daily Tonnage	5.60	Tons
Approx. Volume of Waste Collected	63.15	CY
Compacted waste density	448.00	lbs/cy
Uncompacted waste density	177.36	lbs/cy uncompacted

Stop No.	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	No. of Red Recycle Bins (14 gal)	No. of Half Red Recycle Bins (7 gal)	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
1	C	Animal Hospital	Riverside							2							7:04 AM	7:04 AM	0:00	0.1	
2	C	Kicos								1							7:04 AM	7:05 AM	0:01	0.1	
3	C		383 Riverside							2										0.1	
4	C	CoCo Nails								1							7:05 AM	7:06 AM	0:01	0.1	
5	C	Laundromat							2								7:06 AM	7:07 AM	0:01	0.3	
6	R	Oneida	Riverside to Weyland							9	4						7:07 AM	7:10 AM	0:03	0.7	
7	R	Weyland	Deadend to Oneida							3							7:10 AM	7:11 AM	0:01	0.2	
8	R	Penfield	Deadend to Oneida							6	1						7:11 AM	7:14 AM	0:03	0.4	
9	R	Hastings	Oneida to Crest							7	3						7:14 AM	7:17 AM	0:03	0.5	
10	R	Crest								2	1						7:17 AM	7:17 AM	0:00	0.2	
11	R	Young	Crest to Oneida							9	2						7:17 AM	7:19 AM	0:02	0.6	
12	C	Lukoil	Riverside							1							7:19 AM	7:20 AM	0:01	0.1	
13	R	Clinton								2							7:20 AM	7:21 AM	0:01	0.1	
14	R	Wayne								4	1						7:21 AM	7:23 AM	0:02	0.3	
15	R	Benedict Blvd	Wayne to Cleveland						1	3							7:23 AM	7:24 AM	0:01	0.3	
16	R	Cleveland	Benedict to Arlington								2						7:24 AM	7:26 AM	0:02	0.1	
17	R	Arlington								4	1						7:26 AM	7:27 AM	0:01	0.3	
18	R	Truesdale	Arlington to Cedar							1							7:27 AM	7:27 AM	0:00	0.1	
19	R	Cedar								3	4						7:27 AM	7:29 AM	0:02	0.3	
20	R	Nordica							1	12	9						7:29 AM	7:35 AM	0:06	1.2	
21	R	Morningside	Old Post S to Deadend							3	1						7:36 AM	7:40 AM	0:04	0.2	
22	R	Old Post	Morningside to Truesdale						1	4	2						7:40 AM	7:44 AM	0:04	0.5	
23	R	Truesdale							1	22	15						7:44 AM	7:56 AM	0:12	1.9	
24	R	Cleveland	Truesdale to Oneida							6	2						7:56 AM	7:59 AM	0:03	0.4	
25	R	Oneida	Cleveland to Wheland							7	2						7:59 AM	8:00 AM	0:01	0.5	
26	R	Wheland	Oneida to Cleveland							8	2						8:00 AM	8:02 AM	0:02	0.5	
27	R	Truesdale	Cleveland to Franklin							2							8:02 AM	8:03 AM	0:01	0.1	
28	R	Franklin							2	5	9						8:03 AM	8:07 AM	0:04	0.9	
29	R	Cleveland	Frankin to Piney Point							1	2						8:07 AM	8:08 AM	0:01	0.1	
30	R	Piney Point								11	3						8:08 AM	8:12 AM	0:04	0.8	
31	R	Hill St								1							8:12 AM	8:13 AM	0:01	0.1	
32	R	Cleveland	Franklin to Benedict							5	3						8:13 AM	8:16 AM	0:03	0.4	
33	R	Benedict Blvd	Cleveland to Young							6	2						8:16 AM	8:17 AM	0:01	0.4	
34	R	Young	Benedict to Oneida							11	7						8:17 AM	8:20 AM	0:03	0.9	
35	R	Penfield	Oneida to Devon							15	9						8:21 AM	8:25 AM	0:04	1.2	
36	R	Devon	Pennfield to Hastings							4	2						8:25 AM	8:26 AM	0:01	0.3	
37	R	Hastings	Deadend to Benedict						1	14	9						8:26 AM	8:33 AM	0:07	1.3	
38	R	Young	Benedict to Devon							11	6						8:33 AM	8:37 AM	0:04	0.8	
39	R	Devon	Young to Hastings							4	1						8:37 AM	8:38 AM	0:01	0.3	
40	R	Hastings	Benedict to Oneida							13	2						8:38 AM	8:42 AM	0:04	0.8	
41	R	Morningside	Truesdale to Sunset						1	19	5						8:42 AM	8:52 AM	0:10	1.5	
42	R	Sunset	Morningside to Old Post S							15	14						8:52 AM	9:00 AM	0:08	1.3	
43	R	Lexington	Sunset to Sunset							14	9						9:01 AM	9:05 AM	0:04	1.1	
44	R	Observatory								12	6						9:05 AM	9:09 AM	0:04	0.9	
45	R	Lexington	Sunset to Park							6	4						9:09 AM	9:11 AM	0:02	0.5	
46	R	Park								4	2						9:11 AM	9:12 AM	0:01	0.3	
47	R	Lexington	Park to Morningside							12	8						9:13 AM	9:18 AM	0:05	1.0	
48	R	Morningside	Sunset to Old Post S							8	2						9:19 AM	9:21 AM	0:02	0.5	
49	R	Old Post S	Morningside to Cleveland							6	4						9:21 AM	9:25 AM	0:04	0.5	
50	R	Cleveland	Old Post S to Oneids							2	1						9:25 AM	9:27 AM	0:02	0.2	
51	R	Cleveland	Oneida to Old Post S							8	5						9:27 AM	9:31 AM	0:04	0.6	
52	R	Radnor	Cleveland to Melrose							2	4						9:31 AM	9:33 AM	0:02	0.2	
53	R	Melrose								19	4						9:33 AM	9:39 AM	0:06	1.3	
54	R	Radnor	Melrose to Irving							6							9:39 AM	9:40 AM	0:01	0.4	
55	R	Irving							1	8	7						9:40 AM	9:44 AM	0:04	0.9	
56	R	Radnor	Irving to Emerson							2	1						9:44 AM	9:45 AM	0:01	0.2	
57	R	Emerson							1	10	7						9:45 AM	9:50 AM	0:05	1.0	
58	R	Radnor	Emerson to Thompson							3	2						9:50 AM	9:51 AM	0:01	0.2	
59	R	Thompson							1	13	7						9:51 AM	9:55 AM	0:04	1.2	
60	R	Radnor	Thompson to Olcott						1	5	2						9:55 AM	9:57 AM	0:02	0.5	
61	R	Olcott	Radnor to Van Cortlandt							5	1						9:57 AM	9:59 AM	0:02	0.3	
62	R	Van Cortlandt								5	5						9:59 AM	10:00 AM	0:01	0.5	
63	R	Maple	Van Cortlandt to Olcott								1						10:00 AM	10:01 AM	0:01	0.0	
64	R	Larkin								4							10:01 AM	10:02 AM	0:01	0.2	
65	R	PVC Elementary School		50%	1												10:02 AM	10:04 AM	0:02	0.8	
66	R	Olcott	Larkin to Van Cortlandt							2	1						10:04 AM	10:05 AM	0:01	0.2	
67	R	Olcott	Radnor to Cleveland							6	6						10:05 AM	10:08 AM	0:03	0.5	

Stop No.	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	No. of Red Recycle Bins (14 gal)	No. of Half Red Recycle Bins (7 gal)	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
68	R	Elmore	Oneida to Darby							9	2						10:08 AM	10:12 AM	0:04	0.6	
69	R	Darby								9	5						10:12 AM	10:15 AM	0:03	0.7	
70	R	Elmore	Darby to Radnor							9	5						10:15 AM	10:19 AM	0:04	0.7	
71	R	Radnor	Elmore to Olcott							5	2						10:19 AM	10:20 AM	0:01	0.4	
72	R	Elmore	Radnor to Deadend							4							10:20 AM	10:22 AM	0:02	0.2	
73	R	Radnor	Elmore to Ridge							1	1						10:22 AM	10:23 AM	0:01	0.1	
74	R	Ridge							1	9	6						10:23 AM	10:26 AM	0:03	0.9	
75	R	Bungalow								1	1						10:26 AM	10:27 AM	0:01	0.1	
76	R	Hudson								2							10:28 AM	10:29 AM	0:01	0.1	
77	R	Elm							1	5							10:29 AM	10:32 AM	0:03	0.5	
78	C	Black Cow	Maple						6								10:33 AM	10:34 AM	0:01	1.0	
79	R	Maple	Olcott to Old Post S							14	1						10:34 AM	10:38 AM	0:04	0.9	
80	R	Old Post S	Maple to High School							1							10:38 AM	10:38 AM	0:00	0.1	
81	R	High School		100%	1												10:38 AM	10:40 AM	0:02	1.5	
82	R	Old Post S	High School to Cleveland							1							10:40 AM	10:42 AM	0:02	0.1	
83	R	Peter Biet								1							10:42 AM	10:44 AM	0:02	0.1	
84	R	Alexander Lane								8	2						10:44 AM	10:48 AM	0:04	0.5	
85	R	Cleveland	Alexander to Munson								1						10:48 AM	10:49 AM	0:01	0.0	
86	R	Munson								4							10:49 AM	10:51 AM	0:02	0.2	
87	R	Cleveland	Munson to Hughes							4							10:51 AM	10:52 AM	0:01	0.2	
88	R	Hughes								1	3						10:52 AM	10:52 AM	0:00	0.2	
89	C	CET School									1						10:52 AM	10:54 AM	0:02	0.0	
90	R	Cleveland	Hughes to Gerstein							2							10:54 AM	10:55 AM	0:01	0.1	
91	R	Gerstein	Cleveland to Deadend							2							10:55 AM	10:56 AM	0:01	0.1	
92	R	Gerstein	Cleveland to Wood								1						10:56 AM	10:56 AM	0:00	0.0	
93	R	Wood								2	2						10:56 AM	11:00 AM	0:04	0.2	
94	R	Maple	Grand to Wood							5							11:00 AM	11:01 AM	0:01	0.3	
95	R	Wood								1							11:01 AM	11:02 AM	0:01	0.1	
96	R	Gerstein								1							11:02 AM	11:02 AM	0:00	0.1	
97	R	Cleveland	Gerstein to Kuney								1						11:02 AM	11:03 AM	0:01	0.0	
98	R	Kuney								4	1						11:03 AM	11:05 AM	0:02	0.3	
99	R	Lo Conto								3	1						11:05 AM	11:08 AM	0:03	0.2	
100	R	Cleveland	Lo Conto to Old Post S							2	1						11:08 AM	11:10 AM	0:02	0.2	
101	R	Old Post S	Cleveland to Bari Manor							2							11:11 AM	11:12 AM	0:01	0.1	
102	R	Bari Manor							8								11:12 AM	11:15 AM	0:03	1.3	
103	R	Old Post S	Bari Manor to Maple							3	2						11:15 AM	11:16 AM	0:01	0.2	
104	R	Maple	Old Post S to Grand						1	8	2						11:16 AM	11:19 AM	0:03	0.7	
105	R	Grand	Maple to Niles							8	2						11:19 AM	11:23 AM	0:04	0.5	
106	C	Niles								1							11:23 AM	11:24 AM	0:01	0.1	
107	R	Quaker Bridge							2	2	3						11:24 AM	11:28 AM	0:04	0.5	
108	R	Jacoby								5							11:28 AM	11:30 AM	0:02	0.3	
109	R	Cleveland	Deadend to Gerstein							18	5						11:30 AM	11:37 AM	0:07	1.2	
																			TOTAL	**50.2**	

Notes:

(1) The total weight of the commingled for that day was equal to (Tons): 2.75 Tons

(2) Equivalent volume for various Containers / Boxes / Bags was assumed to be equal to the following:

Container Type	Equivalent Volume (cy)
96 gal	0.48
60 gal	0.3
45 gal	0.22
Contractor Bags (assumed 30 gal)	0.15
Boxes (assumed)	0.15
Crates	0.15
Pallets	0.25
Kitchen Bags (13 gal)	0.06
Recycle Bin (14 gal)	0.06
Half Recycle Bin (7 gal)	0.03
32 gal container	0.16

Waste Density Calculations and Assumptions

Truck Size	25	CY
Total Daily Tonnage	2.75	Tons
Approx. Volume of Waste Collected	50.19	CY
Compacted waste density	220.00	lbs/cy
Uncompacted waste density	109.58	lbs/cy uncompacted

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 32 gal containers	No. of Blue Recycle Bins (14 gal)	No. of Half Blue Recycle Bins (7 gal)	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
1	1	C	DPW Garage		100%	2									7:00 AM	7:02 AM	0:02	3.0	
2	1	C	Gulf Gas Station	Croton Point Ave	100%	1									7:09 AM	7:11 AM	0:02	1.5	
3	1	C	Et Equipment Co	Riverside Ave	100%	1									7:12 AM	7:14 AM	0:02	2.0	One 2 CY Dumpster
4	N/A	C	Shopright	Riverside Ave	100%	3.5									7:14 AM	7:21 AM	0:07	5.3	One Dumpster and Huge Pile (Messy)
5	1	C	Franzosos	Clinton	100%	2									7:23 AM	7:28 AM	0:05	3.0	
6	1	C	Chinese Restaurant	Clinton				2							7:28 AM	7:29 AM	0:01	0.1	
7	1	C	Umami Restaurant	Riverside Ave	50%	1									7:29 AM	7:30 AM	0:01	0.8	Bundled
8	1	C	Atro Collision	Riverside Ave					1						7:30 AM	7:32 AM	0:02	0.0	
9	6	C	Croton Mini Deli	Maple	100%	2.5									7:33 AM	7:38 AM	0:05	3.8	No Dumpsters
10	1	C	Black Cow	Maple	100%	1	1								7:38 AM	7:41 AM	0:03	1.7	One Dumpster and Huge Pile (Messy)
11	1	C	Licquor Store	Maple	100%	2									7:41 AM	7:44 AM	0:03	3.0	No Dumpsters
12	1	C	DOM Gas Station	Riverside Ave	100%	1									7:44 AM	7:46 AM	0:02	1.5	
13	7	C	Croton Commons	Riverside Ave	100%	6									7:46 AM	7:57 AM	0:11	9.0	Five Dumpsters and Piles (Messy)
14	N/A	R	Half Moon Bay	Area 1	100%	2									8:00 AM	8:09 AM	0:09	3.0	
15	N/A	R	Half Moon Bay	Area 2	100%	2									8:09 AM	8:16 AM	0:07	3.0	
16	1	C	Dodge Dealership	Riverside Ave	100%	3									8:19 AM	8:24 AM	0:05	4.5	Two Dumpsters and Pile (Messy)
17	N/A	C	Riverside Professional Center	Riverside Ave	100%	1									8:24 AM	8:26 AM	0:02	1.5	
18	N/A	C	Croton Hardware		100%	2									8:26 AM	8:30 AM	0:04	3.0	One Dumpster and Huge Pile (Messy)
19	N/A	C	Croton Animal Hospital					3							8:30 AM	8:32 AM	0:02	0.2	
20	10	R		Brook Street			1	8	1						8:32 AM	8:36 AM	0:04	0.7	
21	1	C	Conte Electric	Brook Street			1	1										0.2	
22	3	R		Brook Street				7							8:36 AM	8:38 AM	0:02	0.4	
23	4	R		Brook Street				6							8:38 AM	8:46 AM	0:08	0.4	
24	1	C	Nappy	Brook Street	100%	2												3.0	Floor (Huge Bozes)
25	9	R		Terrace				6	2						8:46 AM	8:48 AM	0:02	0.4	
26	1	C	Muncipal Building	Van Wyck	100%	1									8:48 AM	8:53 AM	0:05	2.0	One 2 CY Dumpster
27	N/A	R	Van Wyck Apartments	Grand Street	100%	1		3							8:53 AM	8:57 AM	0:04	1.7	
28		4R; 1C		Grand Street			1	8							8:57 AM	9:00 AM	0:03	0.6	Church
29	1	C	JJs	Old Post Rd S	100%	1									9:00 AM	9:02 AM	0:02	1.5	Back In
30	1	C	Grouchy Gabes	Old Post Rd S	100%	1.5									9:02 AM	9:05 AM	0:03	2.3	
31	N/A	R		Old Post Rd S				2							9:05 AM	9:06 AM	0:01	0.1	
32	1	C	High School		70%	3									9:06 AM	9:11 AM	0:05	3.2	
33	N/A	R	Bari Manor	Area 1	100%	1									9:12 AM	9:14 AM	0:02	1.5	
34	N/A	R	Bari Manor	Area 2	100%	1		1							9:14 AM	9:18 AM	0:04	1.6	
35	2	C	Maple	Old Post Rd S to Wells				3							9:18 AM	9:19 AM	0:01	0.2	
36	23	R						13	5						9:19 AM	9:24 AM	0:05	0.9	
37	1	C	PVC Elementary School		100%	2									9:25 AM	9:29 AM	0:04	3.0	
38	1	C	CET School		100%	1									9:34 AM	9:37 AM	0:03	1.5	
39	1	C	Administrative Building		0%	1									9:38 AM	9:40 AM	0:02	0.0	
40	29	R	Harrison Street				1	21	6						9:41 AM	9:48 AM	0:07	1.6	
41	N/A	R	Sunset	Harrison to Grand			1	5							9:48 AM	9:50 AM	0:02	0.5	
42	10	R	Maple	Grand to Old Post S				16							9:51 AM	9:55 AM	0:04	1.0	
43	1	C	Asbury Chuch					3										0.2	
44															9:55 AM	10:25 AM	0:30	0.0	Men took 30 Minute Break

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 32 gal containers	No. of Blue Recycle Bins (14 gal)	No. of Half Blue Recycle Bins (7 gal)	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
45	1	C	Candix	Mt. Airy Road				5							10:29 AM	10:31 AM	0:02	0.3	
46	10	R	Mt. Airy Road	Grand to Mt Airy Woods				10	2						10:31 AM	10:34 AM	0:03	0.7	
47	12	R	Mt. Airy Woods		100%	1									10:34 AM	10:37 AM	0:03	1.5	
48	7	R	Mt. Airy Road	Mt. Airy Woods to Mountain Trail				7	3						10:37 AM	10:42 AM	0:05	0.5	
49	15	R	Mountain Trail					15							10:42 AM	10:47 AM	0:05	0.9	
50	23	R	Park Trail					24	5						10:47 AM	10:57 AM	0:10	1.6	
51	5	R	Brook Trail					4	3						10:57 AM	10:59 AM	0:02	0.3	
52	6	R	Memory Lane					5	3						10:59 AM	11:01 AM	0:02	0.4	
53	4	R	Valley Trail					4							11:01 AM	11:03 AM	0:02	0.2	
54	6	R	N. Ledge Loop					6	1						11:03 AM	11:06 AM	0:03	0.4	
55	3	R	Mt. Airy	Park Tr to King				4							11:07 AM	11:09 AM	0:02	0.2	
56	11	R	King Street					12	5						11:09 AM	11:13 AM	0:04	0.9	
57	15	R	Upper N. Highland	Mt. Airy Rd to O'Reily Ct.				17	5						11:13 AM	11:21 AM	0:08	1.2	
58	8	R	O'Reily Court					8	2						11:21 AM	11:23 AM	0:02	0.5	
59	3	R	Upper N. Highland	O'Reily to Birch				3							11:23 AM	11:25 AM	0:02	0.2	
60	4	R	Birch					4							11:25 AM	11:27 AM	0:02	0.2	
61	1	R	Upper N. Highland					2							11:27 AM	11:28 AM	0:01	0.1	
62	4	R	Mt. Airy	Upper N. Highland to Glengary				6							11:30 AM	11:31 AM	0:01	0.4	
63	17	R	Glengary Rd.				1	7	2						11:31 AM	11:35 AM	0:04	0.6	
64	6	R	Hessian Hills	Glengary to Hixson				9							11:35 AM	11:38 AM	0:03	0.5	
65	6	R	Hixson					7							11:38 AM	11:41 AM	0:03	0.4	
66	10	R	Hessian Hills	Hixson to Deadend				11	2						11:41 AM	11:46 AM	0:05	0.7	
67	1	C	Temple		100%	1									11:46 AM	11:49 AM	0:03	1.5	
68	7	R	Mt. Airy	Glengary to Townline			1	4							11:50 AM	11:54 AM	0:04	0.4	
69	3	R	Mt. Airy	Townline to Georgia				4							11:54 AM	11:56 AM	0:02	0.2	
70	20	R	Georgia Lane				1	24	6						11:56 AM	12:04 PM	0:08	1.8	
71	6	R	Mt. Airy	Georgia to Riverview				6	1						12:04 PM	12:07 PM	0:03	0.4	
72	7	R	Riverview Tr.	Mt. Airy to Sunset				4	1						12:07 PM	12:09 PM	0:02	0.3	
73	3	R	Sunset Tr.	Deadend to Riverview				3							12:09 PM	12:10 PM	0:01	0.2	
74	7	R	Riverview Tr.	Sunset to Deadend				7							12:10 PM	12:13 PM	0:03	0.4	
75	7	R	Sunset Tr.	Riverview to Harrison				5	3						12:13 PM	12:16 PM	0:03	0.4	
76	1	C	Franzosos	Croton Point Ave	100%	3									12:20 PM	12:35 PM	0:15	4.5	One Dumpster and Huge Pile
																	TOTAL	**101.0**	

Notes:

(1) The total weight of the paper for that day was equal to (Tons): 6.43 Tons

(2) Equivalent volume for various Containers / Boxes / Bags was assumed to be equal to the following:

Container Type	Equivalent Volume (cy)
96 gal	0.48
60 gal	0.3
45 gal	0.22
Contractor Bags (assumed 30 gal)	0.15
Boxes (assumed)	0.15
Crates	0.15
Pallets	0.25
Kitchen Bags (13 gal)	0.06
Recycle Bin (14 gal)	0.06
Half Recycle Bin (7 gal)	0.03
32 gal container	0.16

Waste Density Calculations and Assumptions

Truck Size	25	CY
Total Daily Tonnage	6.43	Tons
Approx. Volume of Waste Collected	100.96	CY
Compacted waste density	514.40	lbs/cy
Uncompacted waste density	127.38	lbs/cy uncompacted

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 32 gal containers	No. of Blue Recycle Bins (14 gal)	No. of Half Blue Recycle Bins (7 gal)	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Equivalent Volume (cy)	Total Volume (cy)	Additional Items, Comments & Assumptions
1	N/A	N/A	Veterans Way					1							7:05 AM	7:07 AM	0:02	0.1	0.1	
2	N/A	N/A	2 Croton Point Ave					1										0.1	0.1	
3	N/A	N/A	4 Croton Point Ave					2										0.1	0.1	
4	3	C	Riverside	Croton Point Ave to Benedict Blvd				6	2						7:08 AM	7:10 AM	0:02	0.4	0.4	
5	1	R	Benedict Blvd	Wayne to Croton Point Ave				1							7:10 AM	7:10 AM	0:00	0.1	0.1	
6	12	R	Wayne					5							7:10 AM	7:13 AM	0:03	0.3	0.3	
7	4	R	Clinton						1						7:13 AM	7:14 AM	0:01	0.0	0.0	
8	4	C	Riverside	Clinton to Oneida				2							7:14 AM	7:14 AM	0:00	0.1	0.1	
9	1	C	Oneida					3							7:14 AM	7:15 AM	0:01	0.2	0.2	
10	13	R	Oneida	Riverside to Penfield				11	4						7:15 AM	7:18 AM	0:03	0.8	0.8	
11	10	R	Penfield	Deadend to Oneida			1	6	2						7:18 AM	7:20 AM	0:02	0.6	0.6	
12	7	R	Oneida	Penfield to Wheland				5	1						7:20 AM	7:21 AM	0:01	0.3	0.3	
13	5	R	Wheland	Deadend to Oneida				5	2						7:21 AM	7:23 AM	0:02	0.4	0.4	
14	13	R	Hasting	Oneida to Crest				11	3						7:23 AM	7:25 AM	0:02	0.8	0.8	
15	3	R	Crest					3	1						7:25 AM	7:26 AM	0:01	0.2	0.2	
16	27	R	Young	Crest to Benedict			1	21	6						7:26 AM	7:32 AM	0:06	1.6	1.6	
17	8	R	Benedict Blvd	Riverside to Cleveland				3							7:32 AM	7:33 AM	0:01	0.2	0.2	
18	2	C						5							7:33 AM	7:34 AM	0:01	0.3	0.3	
19	32	R	Cleveland	Benedict to Peter Beet			2	15	6						7:34 AM	7:41 AM	0:07	1.4	1.4	
20	1	R	Peter Beet					2							7:41 AM	7:42 AM	0:01	0.1	0.1	
21	10	R	Cleveland	Peter Beet to Oneida			1	5							7:42 AM	7:46 AM	0:04	0.5	0.5	
22	7	R	Oneida	Cleveland to Wheland				4	1						7:46 AM	7:47 AM	0:01	0.3	0.3	
23	11	R	Wheland	Oneida to Benedict			1	9	4						7:47 AM	7:49 AM	0:02	0.8	0.8	
24	10	R	Benedict Blvd	Wheland to Young				7	1						7:49 AM	7:51 AM	0:02	0.5	0.5	
25	17	R	Young	Benedict to Devon				14	3						7:51 AM	7:54 AM	0:03	0.9	0.9	
26	5	R	Devon	Young to Hasting				3	1						7:54 AM	7:55 AM	0:01	0.2	0.2	
27	36	R	Hastings	Deadend to Oneida				32	9						7:55 AM	8:04 AM	0:09	2.2	2.2	
28	32	R	Penfield	Oneida to Devon			2	21	6						8:04 AM	8:10 AM	0:06	1.8	1.8	
29	5	R	Devon	Penfield to Hastings				7							8:10 AM	8:11 AM	0:01	0.4	0.4	
30	18	R	Cleveland	Benedict to Franklin				12	5						8:12 AM	8:16 AM	0:04	0.9	0.9	
31	2	R	Franklin	Cleveland to Deadend				4							8:16 AM	8:17 AM	0:01	0.2	0.2	
32	2	R	Cleveland	Franklin to Piney Point				2							8:17 AM	8:18 AM	0:01	0.1	0.1	
33	15	R	Piney Point					10	2						8:18 AM	8:22 AM	0:04	0.7	0.7	
34	1	R	Hill St	Piney Point to Franklin			1	2							8:22 AM	8:23 AM	0:01	0.3	0.3	
35	17	R	Franklin	Truesdale to Cleveland				16	5						8:23 AM	8:29 AM	0:06	1.1	1.1	
36	10	R	Arlington					11	1						8:29 AM	8:32 AM	0:03	0.7	0.7	
37	7	R	Cedar					5	1						8:32 AM	8:34 AM	0:02	0.3	0.3	
38	27	R	Nordica					21	7						8:34 AM	8:44 AM	0:10	1.5	1.5	
39	15	R	Truesdale	Nordica to Deadend				13	3						8:44 AM	8:50 AM	0:06	0.9	0.9	
40	6	R	Morningside	Deadend to Old Post S				7	1						8:50 AM	8:55 AM	0:05	0.5	0.5	
41	14	R	Old Post S	Morningside to Truesdale				11	2						8:55 AM	8:58 AM	0:03	0.7	0.7	
42	25	R	Truesdale	Old Post S to Arlington			3	24	4						8:58 AM	9:05 AM	0:07	2.0	2.0	
43	2	R	Truesdale	Cleveland to Morningside				2							9:06 AM	9:06 AM	0:00	0.1	0.1	
44	35	R	Morningside	Truesdale to Sunset			1.0	28	4						9:06 AM	9:15 AM	0:09	2.0	2.0	
45	7	R	Sunset	Morningside to Observatory				7	2						9:15 AM	9:17 AM	0:02	0.5	0.5	
46	20	R	Observatory					17	2						9:17 AM	9:22 AM	0:05	1.1	1.1	
47	1	R	Sunset	Lexington to Observatory				1							9:22 AM	9:23 AM	0:01	0.1	0.1	
48	N/A	R	Morningside	Sunset to Old Post S				11							9:23 AM	9:26 AM	0:03	0.7	0.7	
49	N/A	R	Old Post S	Morningside to Cleveland				12	2						9:26 AM	9:30 AM	0:04	0.8	0.8	
50	29	R	Sunset	Old Post S to Lexington				30	3						9:30 AM	9:39 AM	0:09	1.9	1.9	
51	34	R	Lexington	Sunset to Sunset			1	24	5						9:39 AM	9:45 AM	0:06	1.8	1.8	
52	8	R	Lexington	Sunset to Park				11	2						9:45 AM	9:48 AM	0:03	0.7	0.7	
53	7	R	Park					8							9:48 AM	9:51 AM	0:03	0.5	0.5	
54	23	R	Lexington	Park to Morningside				25	3						9:51 AM	9:57 AM	0:06	1.6	1.6	
55	3	R	Truesdale	Morningside to Cleveland				2							9:57 AM	9:58 AM	0:01	0.1	0.1	
56	7	R	Radnor	Cleveland to Melrose				5	2						10:00 AM	10:02 AM	0:02	0.4	0.4	
57	26	R	Melrose					21	8						10:02 AM	10:09 AM	0:07	1.5	1.5	
58	6	R	Radnor	Melrose to Irving				5	1						10:09 AM	10:10 AM	0:01	0.3	0.3	
59	24	R	Irving					19	5						10:10 AM	10:16 AM	0:06	1.3	1.3	
60	3	R	Radnor	Irving to Emerson				3							10:16 AM	10:18 AM	0:02	0.2	0.2	
61	20	R	Emerson					13	6						10:18 AM	10:24 AM	0:06	1.0	1.0	
62	5	R	Radnor	Emerson to Thompson				5	1						10:24 AM	10:25 AM	0:01	0.3	0.3	
63	27	R	Thompson					24	10						10:25 AM	10:33 AM	0:08	1.7	1.7	
64	7	R	Radnor	Thompson to Olcott			1	5	3						10:33 AM	10:35 AM	0:02	0.6	0.6	
65	7	R	Olcott	Radnor to Van Cortlandt				5	1						10:35 AM	10:36 AM	0:01	0.3	0.3	
66	13	R	Van Cortlandt					16	2						10:36 AM	10:39 AM	0:03	1.0	1.0	
67	3	R	Maple	Van Cortlandt to Olcott				1							10:39 AM	10:40 AM	0:01	0.1	0.1	
68	4	R	Larkin					3							10:40 AM	10:42 AM	0:02	0.2	0.2	
69	5	R	Olcott	Larkin to Van Cortlandt				3	3						10:42 AM	10:44 AM	0:02	0.3	0.3	
70	16	R	Olcott	Radnor to Cleveland				10	7						10:44 AM	10:48 AM	0:04	0.8	0.8	
71	14	R	Elmore	Oneida to Darby				13	7						10:48 AM	10:52 AM	0:04	1.0	1.0	
72	16	R	Darby					12	2						10:52 AM	10:57 AM	0:05	0.8	0.8	
73	19	R	Elmore	Darby to Deadend				14	4						10:57 AM	11:02 AM	0:05	1.0	1.0	
74	6	R	Radnor	Elmore to Olcott			1	5	1						11:02 AM	11:03 AM	0:01	0.5	0.5	
75	2	R	Radnor	Elmore to Ridge				2							11:03 AM	11:04 AM	0:01	0.1	0.1	
76	15	R	Ridge					12	5						11:04 AM	11:09 AM	0:05	0.9	0.9	

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 32 gal containers	No. of Blue Recycle Bins (14 gal)	No. of Half Blue Recycle Bins (7 gal)	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Equivalent Volume (cy)	Total Volume (cy)	Additional Items, Comments & Assumptions
77	6	R	Bungalow				1	2	2						11:09 AM	11:11 AM	0:02	0.3	0.3	
78	6	R	Elm					9							11:12 AM	11:15 AM	0:03	0.5	0.5	
79	5	R	Hudson					3							11:15 AM	11:17 AM	0:02	0.2	0.2	
80	18	R	Maple	Olcott to Old Post S				17	4						11:18 AM	11:24 AM	0:06	1.1	1.1	
81	3	R	Old Post S	Maple to Cleveland				2							11:24 AM	11:26 AM	0:02	0.1	0.1	
82	8	R	Old Post S	Cleveland to Maple				6	1						11:26 AM	11:28 AM	0:02	0.4	0.4	
83	17	R	Maple	Old Post S to Wood				11	5						11:28 AM	11:33 AM	0:05	0.8	0.8	
84	4	R	Wood	Maple to Gerstein				2							11:33 AM	11:34 AM	0:01	0.1	0.1	
85	3	R	Gerstein	Wood to Deadend				3							11:34 AM	11:36 AM	0:02	0.2	0.2	
86	5	R	Gerstein	Deadend to Wood				4							11:36 AM	11:37 AM	0:01	0.2	0.2	
87	4	R	Wood	Gerstein to Grand				1	1						11:37 AM	11:38 AM	0:01	0.1	0.1	
88	11	R	Grand	Wood to Niles				9	5						11:38 AM	11:43 AM	0:05	0.7	0.7	
89	1	R	Niles					0							11:43 AM	11:44 AM	0:01	0.0	0.0	
90	N/A	R	Quaker Bridge					6	1						11:44 AM	11:48 AM	0:04	0.4	0.4	
91	5	R	Jacoby					2							11:48 AM	11:50 AM	0:02	0.1	0.1	
92	15	R	Cleveland	Jacoby to Deadend				17	3						11:50 AM	11:56 AM	0:06	1.1	1.1	
93	16	R	Cleveland	Jacoby to Kuney				15	2						11:55 AM	12:01 PM	0:06	1.0	1.0	
94	5	R	Kuney					6							12:01 PM	12:03 PM	0:02	0.4	0.4	
95	6	R	Hughes					2	2						12:03 PM	12:05 PM	0:02	0.2	0.2	
96	6	R	Lo Conto					9							12:05 PM	12:07 PM	0:02	0.5	0.5	
97	2	R	Cleveland	Lo Conto to Munson				2							12:07 PM	12:08 PM	0:01	0.1	0.1	
98	7	R	Munson					6	1						12:08 PM	12:10 PM	0:02	0.4	0.4	
99	1	R	Cleveland	Munson to Alexander				2							12:10 PM	12:13 PM	0:03	0.1	0.1	
100	1	C	Library					12										0.7	0.7	
101	10	R	Alexander				1	8	1						12:13 PM	12:17 PM	0:04	0.7	0.7	
102	8	R	Cleveland	Alexander to Gerstein			1	6							12:17 PM	12:20 PM	0:03	0.5	0.5	
103	1	C	Luk Oil					3							12:25 PM	12:26 PM	0:01	0.2	0.2	
104	N/A	C	1 Croton Point Ave					3	1						12:26 PM	12:27 PM	0:01	0.2	0.2	
																	TOTAL	**52.0**	**52.0**	

Notes:
(1) The total weight of the paper for that day was equal to (Tons): 6.44 Tons

(2) Equivalent volume for various Containers / Boxes / Bags was assumed to be equal to the following:

Container Type	Equivalent Volume (cy)
96 gal	0.48
60 gal	0.3
45 gal	0.22
Contractor Bags (assumed 30 gal)	0.15
Boxes (assumed)	0.15
Crates	0.15
Pallets	0.25
Kitchen Bags (13 gal)	0.06
Recycle Bin (14 gal)	0.06
Half Recycle Bin (7 gal)	0.03
32 gal container	0.16

Waste Density Calculations and Assumptions

Truck Size	25	CY
Total Daily Tonnage	6.44	Tons
Approx. Volume of Waste Collected	52.0	CY
Compacted waste density	515.20	lbs/cy
Uncompacted waste density	247.64	lbs/cy uncompacted

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
1	14	R	Grand	From Old Post N to Riverside				6	5	12	2				3	7:09 AM	7:16 AM	0:07	3.5	
2	18	R	Grand	From Riverside			1		6	15	8				4	7:18 AM	7:23 AM	0:05	5.6	
3	20	MF	Van Wyck Apt		150%	2		1		1						7:23 AM	7:25 AM	0:02	6.2	Two 2 CY Dumpsters
4	1	C	Pediatric Dental						2							7:25 AM	7:27 AM	0:02	0.4	
5	2	R	Old Post N	From Grand to Lower N Highland				1		5	1					7:27 AM	7:28 AM	0:01	1.0	
6	9	R	Lower N Highland					2	3	8	7				3	7:28 AM	7:34 AM	0:06	3.2	
7	11	R	Ackerman				1	3	8	6	5					7:34 AM	7:41 AM	0:07	4.0	
8	5	R	Van Wyck							4	7					7:41 AM	7:44 AM	0:03	1.7	
9	1	C	Municipal Building		100%	1										7:44 AM	7:46 AM	0:02	1.5	
10	3; 25	C; R	Van Wyck						14	32	4				3	7:46 AM	7:58 AM	0:12	9.0	
11	3	R	Barton					1		3						7:55 AM	7:55 AM	0:00	0.5	
12	8	R	Hamilton					3	2	5	2				1	7:58 AM	8:01 AM	0:03	1.6	
13	2	R	Grand	From Old Post N to Old Post S				1	3	1	2				2	8:01 AM	8:03 AM	0:02	1.2	
14	2	C	Asbury Church and J&J's Deli	Old Post S	100%	2										8:03 AM	8:06 AM	0:03	3.0	
15	1	C	Grouchy Gabes	Old Post S	100%	1										8:06 AM	8:08 AM	0:02	2.0	2 CY Dumpster
16	1	C	Holy Name Church	Old Post S	100%	1										8:08 AM	8:09 AM	0:01	1.5	
17	1	C	Pharmacy	Old Post S							5				4	8:09 AM	8:10 AM	0:01	1.0	
18	5	C			100%	1	4		8	6	6				2	8:10 AM	8:29 AM	0:19	7.2	
19	26	R	Grand	From Old Post S to Maple			1	1	10	28	15				7				9.8	
20	18	R	Grand	From Harrison to Church				4	2	19	10				11	8:30 AM	8:38 AM	0:08	5.6	
21	13	R	Church					3	7	13	12				3	8:38 AM	8:44 AM	0:06	5.6	
22	12	R	Grand	From Church to Mt Airy						1						8:44 AM	8:45 AM	0:01	0.2	
23	2	C			50%	1				4						8:45 AM	9:00 AM	0:15	1.4	
24	33	R	Harrison						16	22	18				6				10.1	
25	15	R	Sunset Trail	From Harrison to Deadend				2	2	8	7				4	9:01 AM	9:06 AM	0:05	3.0	
26	17	R	Riverview Trail	From Deadend to Mt Airy					2	10	3				3	9:06 AM	9:14 AM	0:08	2.7	
27	4	R	Mt Airy	From Riverview to King					1	2					1	9:14 AM	9:15 AM	0:01	0.6	
28	11	R	King St						1	8	9				4	9:15 AM	9:21 AM	0:06	3.1	
29	13	R	Mt Airy Woods		100%	1										9:21 AM	9:23 AM	0:02	2.0	2 CY Dumpster
30	1	R								1						9:24 AM	9:27 AM	0:03	0.2	
31	2	C	Mt Airy	From Mt Airy Woods to	115%	2													3.5	One 2 CY Dumpster
32	18	R							7	17	25				3	9:27 AM	9:41 AM	0:14	8.2	
33	9	C	Grand	From Mt Airy Rd to				2	5	14	3				7				4.2	
			Trip to Resco																	
34	16	R	Mt Airy	From Grand to Mountain Trail				1	4	19	8				3	10:19 AM	10:28 AM	0:09	5.3	
35	14	R	Mountain Trl						2	10	4				1	10:28 AM	10:34 AM	0:06	2.7	
36	23	R	Park Trl					1	3	17	7				3	10:34 AM	10:43 AM	0:09	4.6	
37	2	R	Memory Lane	From Park to Brooke Trail						1						10:43 AM	10:45 AM	0:02	0.2	
38	3	R	Brooke Trl					2		2					1	10:45 AM	10:47 AM	0:02	0.4	
39	5	R	Memory Lane	From Brooke Trl to Valley Trl				1		9	2				1	10:47 AM	10:49 AM	0:02	1.8	
40	4	R	Valley Trail							4	2					10:49 AM	10:51 AM	0:02	0.9	
41	5	R	N. Ledge Loop						2	6					2	10:51 AM	10:55 AM	0:04	1.5	
42	18	R	Upper N. Highland	From Mt Airy to O'Reilly Ct			1	2	7	5	9				1	10:56 AM	11:03 AM	0:07	4.2	
43	8	R	O'Reilly Ct					4	3	5	9				1	11:03 AM	11:06 AM	0:03	2.9	
44	3	R	Upper N. Highland	From O'Reilly to Birch						7	2					11:06 AM	11:09 AM	0:03	1.4	
45	4	R	Birch Ct						1	4						11:09 AM	11:10 AM	0:01	0.9	
46	1	R	Backup Upper N. Highland to Deadend						2							11:10 AM	11:13 AM	0:03	0.4	
47	4	R	Mt Airy	From Upper N. Highland to Glengarry						4	3				1	11:13 AM	11:15 AM	0:02	1.2	
48	19	R	Glengarry					1	3	13	5				2	11:15 AM	11:21 AM	0:06	3.6	
49	8	R	Hessian Hills Rd	From Glengarry to Hixson					3	8	1					11:21 AM	11:23 AM	0:02	2.1	
50	6	R	Hixson					3	2	4	6				1	11:23 AM	11:27 AM	0:04	2.0	
51	9	R	Hessian Hills Rd	From Hixson to Deadend					5	7					1	11:27 AM	11:35 AM	0:08	2.3	
52	1	C	Temple of Israel	Hessian Hills Rd	100%	1										11:35 AM	11:37 AM	0:02	1.5	
53	7	R	Mt Airy	From Glengarry to Townline				1	2	4					2	11:38 AM	11:41 AM	0:03	1.2	
54	3	R	Mt Airy	From Townline to Georgia Lane							5					11:41 AM	11:43 AM	0:02	0.8	
55	21	R	Georgia Lane					3	13	18	5				2	11:43 AM	11:53 AM	0:10	6.6	
56	4	R	Mt Airy	From Georgia to Upper N. Highland				1	2	2	1					11:53 AM	11:56 AM	0:03	0.9	
57	2	C	Old Post N	From Grand to Maple				1	4	4	1					11:58 AM	12:00 PM	0:02	1.7	
58	N/A	R	Barry Manor Apts		100%	6										12:01 PM	12:08 PM	0:07	9.0	
59	42	R	Wells					1	13	38	22				11	12:09 PM	12:25 PM	0:16	12.9	
60	55	R	Beekman Ave					5	22	40	24					12:25 PM	12:42 PM	0:17	14.8	
61	11	R	Olcott	From Beekman to Maple					2	10	1				1	12:43 PM	12:48 PM	0:05	2.3	
62			**Trip to Resco**																	
																		TOTAL	**204**	

Notes:

(1) The total weight of the garbage for that day was equal to (Tons): 17.39 Tons

(2) The number of collected and empty dumpsters and the time are based on the Refuse Collection Route Study, with the data for the Route (3 North) collected during garbage collection routes on November 29, 2010

With the commercial route set up as presented above:
Dumpsters Collected 19

(3) Equivalent volume for various Containers / Boxes / Bags was assumed to be equal to the

Container Type	Equivalent Volume (cy)
96 gal	0.48
60 gal	0.3
45 gal	0.22
Contractor Bags (assumed 30 gal)	0.15
Boxes (assumed)	0.15
Crates	0.15
Pallets	0.25
Kitchen Bags (13 gal)	0.06
32 gal container	0.16

Waste Density Calculations and Assumptions

Truck Size 25 CY
Total Daily Tonnage 17.39 Tons
Number of Trips for Disposal 2 Trips

First Trip
Truck Size 25 CY
Weight of Disposal 9.61 Tons

Approx. Volume of Waste Collected 114.1 CY

Approx. Volume of Commercial Waste 34.6

Approx. Volume of Residential Waste 79.4

Compacted waste density 768.80 lbs/cy
Uncompacted waste density 168.52 lbs/cy uncompacted

Second Trip
Truck Size 25 CY
Weight of Disposal 7.78 Tons

Approx. Volume of Waste Collected 90.0 CY

Approx. Volume of Commercial Waste 3.2

Approx. Volume of Residential Waste 86.9

Compacted waste density 622.40 lbs/cy
Uncompacted waste density 172.83 lbs/cy uncompacted

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
1	1	C	DPW		100%	4										6:55 AM	7:04 AM	0:09	6.0	
2	6	R	Elm St						2	6	1					7:05 AM	7:11 AM	0:06	1.6	
3	4	R	Hudson					2		6	3								2.0	
4	6	C	Mini Deli	Maple St	100%	2										7:11 AM	7:16 AM	0:05	4.0	Two 2 CY Dumpsters
5	31	R	Maple	Van Cortlandt to Old Post S				6	5	19	30					7:16 AM	7:24 AM	0:08	10.4	
6	1	R	Old Post S	Maple to High School						8						7:24 AM	7:26 AM	0:02	1.3	
7	1	C	High School		100%	3										7:26 AM	7:29 AM	0:03	4.5	
8	N/A	R	Bari Manor		100%	2										7:29 AM	7:32 AM	0:03	3.0	Six Dumpsters
9	2	R	Old Post S	Bari Manor to Cleveland				1		1						7:32 AM	7:33 AM	0:01	0.5	
10	8	R	Radnor	Cleveland to Melrose						5	1					7:33 AM	7:35 AM	0:02	1.0	
11	27	R	Melrose						6	30	10				2	7:35 AM	7:45 AM	0:10	7.7	
12	5	R	Radnor	Melrose to Irving					2	4						7:45 AM	7:46 AM	0:01	1.1	
13	25	R	Irving					3	1	20	9				7	7:46 AM	7:53 AM	0:07	6.1	
14	4	R	Radnor	Irving to Emerson					2	3	8				1	7:53 AM	7:55 AM	0:02	2.2	
15	24	R	Emerson						8	32	4				3	7:55 AM	8:04 AM	0:09	7.7	
16	5	R	Radnor	Emerson to Thompson					1	4					1	8:04 AM	8:06 AM	0:02	0.9	
17	23	R	Thompson						4	29	21				3	8:06 AM	8:17 AM	0:11	8.9	
18	13	R	Radnor	Thompson to Elmore				1	5	12	5					8:17 AM	8:21 AM	0:04	4.1	
19	5	R	Elmore	Radnor to Deadend						6						8:21 AM	8:24 AM	0:03	1.0	
20	16	R	Ridge	Deadend to Radnor					3	15	2				2	8:24 AM	8:30 AM	0:06	3.5	
21	2	R	Radnor	Ridge to Elmore						1	1					8:30 AM	8:31 AM	0:01	0.3	
22	7	R	Elmore	Radnor to Darby					3	10	7				1	8:31 AM	8:35 AM	0:04	3.4	
23	17	R	Darby					4	3	14	1				3	8:35 AM	8:40 AM	0:05	4.4	
24	16	R	Elmore	Darby to Cleveland					3	12	8				6	8:40 AM	8:46 AM	0:06	4.1	
25	27	R	Cleveland	Oneida to Radnor					4	14	8				4	8:46 AM	8:55 AM	0:09	4.6	
26	10	R	Cleveland	Radnor to Oneida						8	3				2	8:55 AM	8:58 AM	0:03	1.9	
27	34	R	Olcott	Cleveland to Larkin				2	6	39	3				8	8:59 AM	9:10 AM	0:11	9.1	
28	4	R	Larkin							4						9:10 AM	9:11 AM	0:01	0.6	
29	1	C	PVC Elementary School													9:11 AM	9:15 AM	0:04	0.0	
30	1	R	Olcott	PVC to Maple						1	1					9:15 AM	9:16 AM	0:01	0.3	
31	27	R	Maple	Old Post S to Wood				1	2	19	11				9	9:16 AM	9:23 AM	0:07	6.0	
32	2	R	Wood	Maple to Gerstein					1	2						9:23 AM	9:24 AM	0:01	0.5	
33	2	R	Gerstein	Wood to Cleveland						3						9:24 AM	9:25 AM	0:01	0.5	
34	1	R	Gerstein	Cleveland to Wood						1						9:25 AM	9:25 AM	0:00	0.2	
35	1	R	Wood	Gerstein to Maple					1	1						9:25 AM	9:26 AM	0:01	0.4	
36	18	R	Maple	Grand to Old Post S					3	17	7				3	9:26 AM	9:31 AM	0:05	4.6	
37	3	C	Blue Pig and Children's Space and Doctors Office	Maple	100%	1		1	1	4	1					9:31 AM	9:34 AM	0:03	2.8	
38	31	R	Maple	Old Post S to Van Cortlandt					7	26	2				1	9:34 AM	9:41 AM	0:07	6.1	
39	13	R	Van Cortlandt Place						5	9	10				2	9:41 AM	9:45 AM	0:04	4.2	
40	6	R	Bungalow Road							5					2	9:45 AM	9:46 AM	0:01	0.9	
41			**Trip to Resco**																	
42	1	R	Pieter Beet							0						10:34 AM	10:35 AM	0:01	0.0	
43	1	C	Cemetary							4	2					10:35 AM	10:35 AM	0:00	0.9	
44	13	R	Alexander Lane						1	20	9					10:35 AM	10:42 AM	0:07	4.8	
45	2	R	Cleveland	Alexander to Munson					1	1						10:42 AM	10:43 AM	0:01	0.4	
46	6	R	Munson					1		8					2	10:43 AM	10:46 AM	0:03	1.7	
47	3	R	Cleveland	Munson to Loconto					2	4						10:46 AM	10:47 AM	0:01	1.1	
48	6	R	Loconto						1	11					1	10:47 AM	10:51 AM	0:04	2.0	
49	6	R	Hughes						2	4	2				1	10:51 AM	10:53 AM	0:02	1.4	
50	1	C	CET Elementary School		75%	4										10:53 AM	10:58 AM	0:05	4.5	
51	1	R	Cleveland	Hughes to Kuney						1						10:58 AM	10:58 AM	0:00	0.2	
52	6	R	Kuney							8	7					10:58 AM	11:02 AM	0:04	2.3	
53	2	R	Cleveland	Kuney to Gerstein					2							11:02 AM	11:03 AM	0:01	0.4	
54	5	R	Gerstein	Cleveland to Deadend					4	3	2				1	11:03 AM	11:05 AM	0:02	1.7	
55	1	C	District Office (Schools)		100%	1										11:05 AM	11:07 AM	0:02	1.5	
56	4	R	Cleveland	Gerstein to Old Post S						5						11:07 AM	11:08 AM	0:01	0.8	
57	1	C	Library				5			1	2					11:08 AM	11:12 AM	0:04	2.9	
58	8	R	Old Post S	Cleveland to Maple					4	4	3					11:13 AM	11:18 AM	0:05	2.0	
59	6	R	Grand	Wood to Batten				1	1	2	1				1	11:18 AM	11:20 AM	0:02	1.1	
60	3	R	Batten	Grand to Eclof					1	3					1	11:20 AM	11:22 AM	0:02	0.8	
61	13	R	Eclof					2	5	13	5				5	11:22 AM	11:27 AM	0:05	4.8	
62	14	R	Batten	Eclof to Townline				2	1	14					1	11:27 AM	11:36 AM	0:09	3.1	

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
63	2	R	Grand	Batten to Wood						2					3	11:36 AM	11:38 AM	0:02	0.5	
64	4	R	Wood	Gerstein to Grand					1	5						11:38 AM	11:39 AM	0:01	1.0	
65	6	R	Grand	Batten to Townline				1	1	6	1					11:39 AM	11:44 AM	0:05	1.6	
66	9	R	Grand	Townline to Daly					3	2	4				2	11:44 AM	11:49 AM	0:05	1.7	
67	14	R	Daley Dr					2		20	5					11:49 AM	11:55 AM	0:06	4.6	
68	1	C	Niles							2						11:55 AM	11:56 AM	0:01	0.3	
69	7	R	Quakerbridge	Niles to Townline					1	8					4	11:56 AM	12:00	0:04	1.7	
70	7	R	Quakerbridge	Niles to Grand						7					1	12:00	12:03	0:03	1.2	
71	5	R	Jacoby	Grand to Cleveland						5					2	12:03	12:05	0:02	0.9	
72	14	R	Cleveland	Jacoby to Deadend				1	4	13	4				1	12:05	12:11	0:06	3.9	
73	15	R	Cleveland	Jacoby to Gerstein				1	1	18	15				3	12:11	12:18	0:07	5.8	
74	N/A	R	Half Moon Bay Condos	Area 1	100%	9										12:23	12:34	0:11	16.0	Five 2 CY Dumpsters
75	N/A	R	Half Moon Bay Condos	Area 2	100%	8										12:34	12:40	0:06	12.0	
																		TOTAL	222	

Notes:

(1) The total weight of the garbage for that day was equal to (Tons): 17.40 Tons

(2) The number of collected and empty dumpsters and the time are based on the Refuse Collection Route Study, with the data for the Route (3 South) collected during garbage collection routes on November 30, 2010

With the commercial route set up as presented above:
Dumpsters Collected 34

(3) Equivalent volume for various Containers / Boxes / Bags was assumed to be equal to

Container Type	Equivalent Volume (cy)
96 gal	0.48
60 gal	0.3
45 gal	0.22
Contractor Bags (assumed 30 gal)	0.15
Boxes (assumed)	0.15
Crates	0.15
Pallets	0.25
Kitchen Bags (13 gal)	0.06
32 gal container	0.16

Waste Density Calculations and Assumptions

Truck Size	25	CY		
Total Daily Tonnage	17.40	Tons		
Number of Trips for Disposal	2	Trips		
First Trip				
Truck Size	25	CY		
Weight of Disposal	10.61	Tons		
Approx. Volume of Waste Collected	132.0	CY	Approx. Volume of Commercial Waste	17.3
Compacted waste density	848.80	lbs/cy	Approx. Volume of Residential Waste	114.7
Uncompacted waste density	160.75	lbs/cy uncompacted		
Second Trip				
Truck Size	25	CY		
Weight of Disposal	6.79	Tons		
Approx. Volume of Waste Collected	89.7	CY	Approx. Volume of Commercial Waste	10.1
Compacted waste density	543.20	lbs/cy	Approx. Volume of Residential Waste	79.6
Uncompacted waste density	151.39	lbs/cy uncompacted		

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 32 gal containers	No. of Red Recycle Bins (14 gal)	No. of Half Red Recycle Bins (7 gal)	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
1	1	C	DPW			1										6:55 AM	7:00 AM	0:05	0.0	
2	1	C	Doms Gas					2								7:02 AM	7:03 AM	0:01	0.3	
3	1	C	Croton Animal Hospital						1							7:04 AM	7:04 AM	0:00	0.1	
4		15R; 1C	Brook Street	Riverside to Terrace				3	7	1						7:04 AM	7:07 AM	0:03	0.9	
5	8	R	Terrace						6	2						7:07 AM	7:08 AM	0:01	0.4	
6	5	R	Old Post N	Terrace to Michaels					3							7:08 AM	7:09 AM	0:01	0.2	
7	20	R	Michaels Lane					2	6	3						7:09 AM	7:12 AM	0:03	0.8	
8	3	R	Old Post N	Loundsbury to Brook					2							7:13 AM	7:14 AM	0:01	0.1	
9	3	R	Brook Street	Old Post N to Terrace					3	2						7:14 AM	7:16 AM	0:02	0.2	
10		2C;1R	Brook Street	Terrace to Old Post N					2							7:16 AM	7:17 AM	0:01	0.1	
11	9	R	Lower N. Highland						8	1						7:17 AM	7:19 AM	0:02	0.5	
12	12	R	Ackerman						9	2						7:19 AM	7:22 AM	0:03	0.6	
13	30	R	Van Wyck					5	20	11						7:22 AM	7:30 AM	0:08	2.3	With Barton (4R)
14	1	C	B&B	Van Wyck				2											0.3	
15	9	R	Hamilton						2	4						7:30 AM	7:31 AM	0:01	0.2	
16	2	R	Grand	Hamilton to Riverside					2	1						7:31 AM	7:33 AM	0:02	0.2	
17		1A; 1C; 20 R	Grand	Riverside to Old Post N				4	8	5					1	7:33 AM	7:39 AM	0:06	1.3	
18	21	R	Grand	Old Post N to Hamilton				2	10	4						7:39 AM	7:45 AM	0:06	1.0	
19	6	R	Grand	Old Post N to Old Post S				2	6							7:45 AM	7:47 AM	0:02	0.7	
20		1R; 1C	Old Post S	Grand to Maple					2							7:47 AM	7:48 AM	0:01	0.1	
21		18R; 3C	Maple	Old Post S to Wells				1	12	3					5	7:48 AM	7:53 AM	0:05	1.3	5 Bins Commercial
22	42	R	Wells						20	11					1	7:53 AM	8:01 AM	0:08	1.6	
23	57	R	Beekman					1	29	16					1	8:01 AM	8:09 AM	0:08	2.4	
24	9	R	Olcott	Beekman to Maple					4	3						8:09 AM	8:11 AM	0:02	0.3	
25	3	R	Batten	Grand to Eklof					1	1						8:13 AM	8:14 AM	0:01	0.1	
26	13	R	Eklof						9	4					1	8:14 AM	8:17 AM	0:03	0.7	
27	14	R	Batten	Eklof to Townline					6	6						8:17 AM	8:20 AM	0:03	0.5	
28	7	R	Grand	Townline to Daly					5	1						8:24 AM	8:26 AM	0:02	0.3	
29	12	R	Dailey					3	6	2						8:26 AM	8:31 AM	0:05	0.9	
30	7	R	Grand	Harrison to Maple					8	4						8:33 AM	8:34 AM	0:01	0.6	
31	13	R	Maple	Grand to Old Post S					14	2						8:34 AM	8:37 AM	0:03	0.9	
32	2	C	Old Post S	Maple to Grand					3							8:37 AM	8:38 AM	0:01	0.2	
33		27R; 1C	Grand	Old Post S to Maple				6	18	10						8:38 AM	8:44 AM	0:06	2.3	
34	11	R	Grand	Maple to Harrison				1	3	4						8:46 AM	8:48 AM	0:02	0.5	
35	26	R	Harrison					5	16	8						8:48 AM	8:54 AM	0:06	2.0	
36	13	R	Church					3	9	2						8:54 AM	8:57 AM	0:03	1.1	
37	1	R	Grand	Church to Mt Airy					1							8:57 AM	8:58 AM	0:01	0.1	
38	8	R	Mt Airy	Grand to Mt Airy Woods				2		4						8:58 AM	9:00 AM	0:02	0.4	
39	13	R	Mt Airy Woods													9:00 AM	9:02 AM	0:02	0.0	
40	5	R	Mt Airy	Mt Airy Woods to King					1	1						9:02 AM	9:03 AM	0:01	0.1	
41	11	R	King						5	3						9:03 AM	9:06 AM	0:03	0.4	
42	7	R	Mt Airy	King to Mountail Trl					5	3						9:06 AM	9:09 AM	0:03	0.4	
43	14	R	Mountain Trail					1	3	6						9:09 AM	9:14 AM	0:05	0.5	
44	5	R	Mt Airy	Mountain Trl to Grand					3	2						9:14 AM	9:16 AM	0:02	0.2	
45	19	R	Park Trail						12	4						9:18 AM	9:24 AM	0:06	0.8	
46	2	R	Memory Lane	Park to Brook Trail					2							9:24 AM	9:25 AM	0:01	0.1	
47	3	R	Brook Trail						3	1						9:25 AM	9:26 AM	0:01	0.2	
48	5	R	Memory Lane	Brook to Valley Trail					3	1						9:26 AM	9:27 AM	0:01	0.2	
49	4	R	Valley Trail						4							9:27 AM	9:28 AM	0:01	0.2	
50	4	R	North Ledge Loop						4	1						9:28 AM	9:31 AM	0:03	0.3	
51	17	R	Upper N. Highland	Mt Airy to O'Reilly Court					10	5					2	9:33 AM	9:36 AM	0:03	0.9	
52	9	R	O'Reilly Court						4	1					6	9:36 AM	9:38 AM	0:02	0.6	
53	3	R	Upper N. Highland	O'Reilly Court to Birch				1	3							9:38 AM	9:39 AM	0:01	0.3	
54	4	R	Birch						1	1					7	9:39 AM	9:40 AM	0:01	0.5	
55	1	R	Upper N. Highland	Birch to Gate					2							9:40 AM	9:41 AM	0:01	0.1	
56	4	R	Mt Airy	Upper N Highland to Glengarry					2	1						9:42 AM	9:43 AM	0:01	0.2	
57	15	R	Glengarry					3	7	2						9:43 AM	9:46 AM	0:03	1.0	
58	9	R	Hessian Hills	Glengary to Hixson					6							9:46 AM	9:48 AM	0:02	0.4	
59	6	R	Hixson Hills						6						1	9:48 AM	9:50 AM	0:02	0.4	
60	8	R	Hessian Hills	Hixson to Deadend					4	2						9:50 AM	9:52 AM	0:02	0.3	
61	7	R	Mt Airy	Glengary to Townlline				2	2	1						9:56 AM	9:58 AM	0:02	0.5	
62	3	R	Mt Airy	Townline to Georgia					2	2						9:58 AM	10:00 AM	0:02	0.2	
63	20	R	Georgia Lane					4	16	6					1	10:00 AM	10:06 AM	0:06	1.8	
64	4	R	Mt Airy	Georgia to Upper N Highland					1	1						10:06 AM	10:08 AM	0:02	0.1	
65	11	R	Sunset Trail	Harrison to Deadend				1	4	6						10:08 AM	10:12 AM	0:04	0.6	
66	5	R	Riverview	Sunset to Deadend					3	1						10:12 AM	10:16 AM	0:04	0.2	
67	6	R	Riverview	Sunset to Mt Airy					4							10:16 AM	10:18 AM	0:02	0.2	
68		1C; R	Grand	Mt Airy to Old Post N				1	15	4					2	10:18 AM	10:23 AM	0:05	1.3	
69	5	R	Old Post N	Grand to Terrace				1	4	1					1	10:23 AM	10:26 AM	0:03	0.5	
70	14	R	Loundsbury	Old Post N to Jasper					8	5						10:27 AM	10:30 AM	0:03	0.6	
71	4	R	Jasper						2							10:30 AM	10:31 AM	0:01	0.1	
72	8	R	Loundsbury	Jasper to Fox					5	1						10:31 AM	10:34 AM	0:03	0.3	
73	4	R	Fox						3							10:34 AM	10:35 AM	0:01	0.2	
74	5	R	Aschman					1	1	2						10:35 AM	10:36 AM	0:01	0.3	
75	8	R	Giglio Court						2	1					1	10:37 AM	10:38 AM	0:01	0.2	
76	1	R	Old Post N	Loundsbury to Mt Green						1						10:38 AM	10:39 AM	0:01	0.0	

Stop No.	No. of Type	Type	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 32 gal containers	No. of Red Recycle Bins (14 gal)	No. of Half Red Recycle Bins (7 gal)	Contractor Bags	Boxes	Crates	Pallets	Kitchen Bags	Time Stop	Time Start	Productive Time per Stop	Total Volume (cy)	Additional Items, Comments & Assumptions
77	11	R	Mt Green				3		6	3					1	10:39 AM	10:44 AM	0:05	0.5	
78	9	R	Old Post N	Mt Green to Stevenson					5	2					2	10:44 AM	10:46 AM	0:02	0.5	
79	3	R	Stevenson							1						10:46 AM	10:47 AM	0:01	0.0	
80	3	R	N. Riverside	Stevenson to Wolf				1		1						10:47 AM	10:48 AM	0:01	0.2	
81	3	R	Wolf	N. Riverside to Cook					1	1						10:48 AM	10:48 AM	0:00	0.1	
82	13	R	Cook						6	7						10:48 AM	10:51 AM	0:03	0.6	
83	23	R	Wolf	Cook to N. Riverside					5	9					2	10:51 AM	10:54 AM	0:03	0.7	
84	3	R	N. Riverside	Wolf to Stevenson					1	1						10:54 AM	10:55 AM	0:01	0.1	
85	4	R	Old Post N	Stevenson to Albany Post					2	1						10:56 AM	10:57 AM	0:01	0.2	
86	3	R	Old Post N	Albany Post to Finney Farm						1						10:57 AM	10:58 AM	0:01	0.0	
87	18	R	Finney Farm						6	4						10:58 AM	11:07 AM	0:09	0.5	
88	13	R	Old Post N	Finney Farm to Prospect					8	2						11:07 AM	11:09 AM	0:02	0.5	
89	14	R	Prospect					1	10	4					3	11:09 AM	11:13 AM	0:04	1.1	
90	11	R	Hillside					1	5	3						11:13 AM	11:15 AM	0:02	0.6	
91	2	R	Old Post N	Prospect to High						2						11:16 AM	11:17 AM	0:01	0.1	
92	29	R	High St						14	10					8	11:17 AM	11:24 AM	0:07	1.6	
93	6	R	Bank St						4	3					2	11:24 AM	11:25 AM	0:01	0.5	
94		12R; 1C	N. Riverside	Bank to Prospect					20	7					5	11:25 AM	11:30 AM	0:05	1.7	
95	27	R	Hunter					3	10	11						11:31 AM	11:36 AM	0:05	1.4	
96	30	R	Palmer				1	2	15	11					1	11:36 AM	11:40 AM	0:04	1.6	
97	34	R	Farrington						18	10						11:41 AM	11:46 AM	0:05	1.4	
98	1	C	Oceanhouse Restaurant						4						3				0.4	
99	6	R	N. Riverside	Prospect to Wolf				1	3	1					1	11:47 AM	11:49 AM	0:02	0.4	
100	14	R	Albany Post	Old Post N to Arrowcrest					5	3						11:50 AM	11:53 AM	0:03	0.4	
101	4	R	Indian Summer Dr						1	1					1	11:53 AM	11:54 AM	0:01	0.2	
102	4	R	Arrowcrest	Golf Course to Red Maple Ridge					2	2						11:55 AM	11:57 AM	0:02	0.2	
103	6	R	Stephanie						5	1						11:57 AM	11:59 AM	0:02	0.3	
104	6	R	Red Maple Ridge					1	6							11:59 AM	12:01 PM	0:02	0.5	
105	15	R	Arrowcrest	Red Maple Ridge to Albany Post					6	3						12:01 PM	12:04 PM	0:03	0.5	
106	5	R	Albany Post	Arrowcrest to Scenic Dr W					3	1						12:04 PM	12:05 PM	0:01	0.2	
107	7	R	Scenic Drive W	Albany Post to Newton Ct					2	1						12:05 PM	12:07 PM	0:02	0.2	
108	15	R	Newton Court						8	3					2	12:07 PM	12:09 PM	0:02	0.7	
109	97	R	Scenic Drive Townhouses						34	13					3	12:10 PM	12:20 PM	0:10	2.6	
110	18	R	Scenic Drive W	Baltic to Albany Post					7	8					3	12:20 PM	12:26 PM	0:06	0.8	
111	3	R	Warren	Albany Post to Briggs					1							12:26 PM	12:27 PM	0:01	0.1	
112	7	R	Briggs						3	2						12:27 PM	12:29 PM	0:02	0.2	
113	9	R	Warren	Briggs to Deadend					6						2	12:29 PM	12:31 PM	0:02	0.5	
114	14	R	Albany Post	Warren to Prospect				1	8	3					1	12:31 PM	12:36 PM	0:05	0.8	
115	N/A	R	Half Moon Bay	Area 1	100%	2										12:40 PM	12:44 PM	0:04	3.5	One 2 CY Dumpster
116	N/A	R	Half Moon Bay	Area 2	100%	2										12:44 PM	12:49 PM	0:05	3.0	
																		TOTAL	**71.3**	

Notes:

(1) The total weight of the commingled for that day was equal to (Tons): 5.03 Tons

(2) Equivalent volume for various Containers / Boxes / Bags was assumed to be equal to the following:

Container Type	Equivalent Volume (cy)
96 gal	0.48
60 gal	0.3
45 gal	0.22
Contractor Bags (assumed 30 gal)	0.15
Boxes (assumed)	0.15
Crates	0.15
Pallets	0.25
Kitchen Bags (13 gal)	0.06
Recycle Bin (14 gal)	0.06
Half Recycle Bin (7 gal)	0.03
32 gal container	0.16

Waste Density Calculations and Assumptions

Truck Size	25	CY
Total Daily Tonnage	5.03	Tons
Approx. Volume of Waste Collected	71.3	CY
Compacted waste density	402.40	lbs/cy
Uncompacted waste density	141.19	lbs/cy uncompacted

Stop No.	Name/Description of Business	Address	1.5 yard Container Capacity (%)	No. of 1.5 yard containers	No. of 96 gal containers	No. of 60 gal containers	No. of 45 gal containers	No. of 32 gal containers	Contractor Bags	Boxes	Crates	Pallets	Time Stop	Time Start	Productive Time per Stop	Equivalent Volume (cy)	Total Volume (cy)	Additional Items, Comments & Assumptions
1	DPW Garage		100%	4									6:53 AM	6:58 AM	0:05	0.0	6.0	
2	Croton Point Associates	1 Croton Point Ave	100%	1									7:04 AM	7:06 AM	0:02	0.0	1.5	
3	Franzosos								2				7:06 AM	7:08 AM	0:02	0.3	0.3	
4	Gulf Gas Station	Croton Point Ave	100%	1									7:08 AM	7:10 AM	0:02	0.0	1.5	"Exxon"
5	e/t Equipment Company		100%	2									7:11 AM	7:13 AM	0:02	0.0	3.0	Bar bent on dumpster
6	Hudson Valley Historical Society		100%	2									7:14 AM	7:16 AM	0:02	0.0	3.0	
7	Croton Enterprises	Shop Right	100%	4					16				7:18 AM	7:24 AM	0:06	2.4	8.4	20 Contractor Bags on the ground (not picked up); 1 Broken dumpster
8	Kicos Grill	Riverside Ave	100%	1									7:25 AM	7:26 AM	0:01	0.0	1.5	
9	Mexigo		100%	1									7:27 AM	7:29 AM	0:02	0.0	2.0	One 2 CY Dumpster
10	Umami		100%	1									7:30 AM	7:31 AM	0:01	0.0	1.5	
11	Atro Collision		100%	1									7:31 AM	7:33 AM	0:02	0.0	1.5	11 Tires
12	Antons		100%	0									7:33 AM	7:34 AM	0:01	0.0	0.0	
13	Luk Oil		100%	1									7:34 AM	7:35 AM	0:01	0.0	1.5	"JE Sunoco"
14	Japanese & Sushi Restaurant	352 S. Riverside	100%	1					2				7:36 AM	7:38 AM	0:02	0.3	1.8	"Samura"
15	Salumeria		100%	1					1				7:38 AM	7:40 AM	0:02	0.2	1.7	
16	Franzosos Apt	S. Riverside	100%	2					1				7:40 AM	7:43 AM	0:03	0.2	3.2	
17	Fire Department												7:43 AM	7:44 AM	0:01	0.0	0.0	
18	Caprecio and New Chinese Restaurant II		100%	1									7:46 AM	7:50 AM	0:04	0.0	1.5	Mini Deli not on billing list
19	Croton Commons		100%	4									7:50 AM	7:58 AM	0:08	0.0	6.5	1 Broken dumpster (not picked up); One 2 CY Dumpster
20	Half Moon Bay Marina		25%	1									8:04 AM	8:05 AM	0:01	0.0	0.4	
21	Croton Yacht Club		100%	1									8:06 AM	8:08 AM	0:02	0.0	1.5	Have 2 dumpsters (second was empty)
22	Half Moon Bay	Area 1	100%	8									8:11 AM	8:17 AM	0:06	0.0	14.0	Four 2 CY Dumpsters and Four 1.5 CY Dumpsters
23	Half Moon Bay	Area 2	100%	5									8:19 AM	8:26 AM	0:07	0.0	7.5	
24	Croton Auto Park	Jeep Dealership	100%	5									8:29 AM	8:33 AM	0:04	0.0	7.5	"Kayson"
25	Riverside Professional Center	75 Riverside	100%	1									8:34 AM	8:36 AM	0:02	0.0	1.5	"ET Cycle" and Hilpert Law
26	Hudson Valley Ventures	35 S. Riverside Ave	100%	3									8:36 AM	8:39 AM	0:03	0.0	4.5	Former Croton Watch Co.; one dumpster broken
27	Croton Hardware/ Best Web	25 S. Riverside Ave	100%	1									8:39 AM	8:40 AM	0:01	0.0	2.0	One 2 CY Dumpster
28	Croton Animal		0%	1									-	-	-	0.0	0.0	
29	Hudson View Automotive	N. Riverside						4	3				8:40 AM	8:42 AM	0:02	1.1	1.1	
30	Tavern	41 N. Riverside					4	4	2				8:42 AM	8:44 AM	0:02	1.8	1.8	
31	Oceanhouse	49 N. Riverside	100%	1									8:44 AM	8:45 AM	0:01	0.0	1.5	
32	Washington Engine FD	81 N. Riverside	100%	1									8:45 AM	8:47 AM	0:02	0.0	1.5	
33	Croton Country Gardens		50%	1									8:50 AM	8:51 AM	0:01	0.0	0.8	
34	Matra (Coldwell Banker)	1392 Albany Post	100%	1									8:53 AM	8:55 AM	0:02	0.0	1.5	
35	Scenic View Townhouses	Area 3	75%	4									8:57 AM	9:00 AM	0:03	0.0	4.5	
36	Scenic View Townhouses	Area 2	100%	5									9:00 AM	9:04 AM	0:04	0.0	7.5	
37	Scenic View Townhouses	Area 1	100%	5									9:04 AM	9:08 AM	0:04	0.0	7.5	
38	**Trip to Resco**																	
39	F.A. Burchetta	1 Senasqua Road	100%	1									9:37 AM	9:39 AM	0:02	0.0	1.5	
40	DPW @ Skatepart								2				9:40 AM	9:43 AM	0:03	0.3	0.3	
41	Nappy Auto		100%	2		1	2	1	1				9:45 AM	9:48 AM	0:03	1.1	4.1	Nappy Auto not on billing list
42	Municipal Building	Van Wyck	100%	2									9:49 AM	9:52 AM	0:03	0.0	3.0	
43	Van Wyck Apts		100%	1									9:53 AM	9:55 AM	0:02	0.0	1.5	Only 2 Dumpsters
44	Asbury Church		50%	2									9:56 AM	9:59 AM	0:03	0.0	1.5	100%
45	JJs		100%	1												0.0	1.5	
46	Grouchy Gabes/ Bella Paula		100%	1		1		2	3				10:00 AM	10:02 AM	0:02	1.1	2.6	
47	Holy Name and Mary Church		100%	3									10:02 AM	10:09 AM	0:07	0.0	4.5	1 Broken dumpster (was picked up); wheels need greese
48	Croton High School		100%	5									10:09 AM	10:14 AM	0:05	0.0	7.5	
49	Bari Manor	Area 1	75%	4									10:14 AM	10:19 AM	0:05	0.0	4.5	1 Dumpster not filled
50	Bari Manor	Area 2	100%	4									10:19 AM	10:22 AM	0:03	0.0	6.0	
51	Robbins Pharmacy				6								10:23 AM	10:24 AM	0:01	2.9	2.9	
52	Croton Deli						1	2	2				10:24 AM	10:25 AM	0:01	0.8	0.8	
53	Manhattan Mortgage							1	1							0.3	0.3	
54	Groovy on Grand	119 Grand							2				10:25 AM	10:26 AM	0:01	0.3	0.3	
55	Blue Pig		0%	1									-	-	-	0.0	0.0	
56	Children's Space				1			3					10:27 AM	10:28 AM	0:01	1.0	1.0	
57	PVC School		100%	5									10:28 AM	10:33 AM	0:05	0.0	7.5	
58	CET School		100%	7									10:36 AM	10:43 AM	0:07	0.0	10.5	
59	Administrative Building												-	-	-	0.0	0.0	Truck didn't stop at Administrative Building
60	Grandstand	Grand St	100%	1									10:45 AM	10:46 AM	0:01	0.0	1.5	
61	Laundrymat	Grand St					3						10:46 AM	10:48 AM	0:02	0.7	0.7	
62	Mt. Airy Woods		100%	1									10:49 AM	10:50 AM	0:01	0.0	1.5	
63	Justin Thyme		100%	2								7	10:51 AM	10:55 AM	0:04	1.7	4.7	
64	Grand FD		100%	1									10:55 AM	10:57 AM	0:02	0.0	1.5	
65	Hunan Wok	125 Grand					9		2				10:57 AM	11:00 AM	0:03	2.3	2.3	
66	Shoe Repair	119 Grand					1		1				11:00 AM	11:01 AM	0:01	0.4	0.4	
															TOTAL	**19**	**187**	

Notes:

(1) The total weight of the garbage for that day was equal to (Tons): 13.46 Tons

(2) The number of collected and empty dumpsters and the time are based on the Refuse Collection Route Study, with the data for the Route

With the commercial route set up as presented above:
Dumpsters Collected 116

(3) Equivalent volume for various Containers / Boxes / Bags was assumed to be equal to the following:

Container Type	Equivalent Volume (cy)
96 gal	0.48
60 gal	0.3
45 gal	0.22
Contractor Bags (assumed 30 gal)	0.15
Boxes (assumed)	0.15
Crates	0.15
Pallets	0.25
Kitchen Bags (13 gal)	0.06
32 gal container	0.16

Waste Density Calculations and Assumptions

Truck Size 25 CY
Total Daily Tonnage 13.46 Tons
Number of Trips for Disposal 2 Trips

First Trip
Truck Size 25 CY
Weight of Disposal 8.08 Tons

Approx. Volume of Waste Collected 112.84 CY
Approx. Volume of Commercial Waste 68.69
Approx. Volume of Residential Waste 44.2

Compacted waste density 646.40 lbs/cy
Uncompacted waste density 143.22 lbs/cy uncompacted

Second Trip
Truck Size 25 CY
Weight of Disposal 5.38 Tons

Approx. Volume of Waste Collected 74.25 CY
Approx. Volume of Commercial Waste 62.25
Approx. Volume of Residential Waste 12.0

Compacted waste density 430.40 lbs/cy
Uncompacted waste density 144.92 lbs/cy uncompacted

Village of Croton-on-Hudson
Refuse Collection Route Study

APPENDIX

B

Village Estimated Cost of Solid Waste and Disposal Services (June 1, 2009 – May 31, 2010)

REDOAK CONSULTING
A DIVISION OF MALCOLM PIRNIE

Appendix B

Village Estimated Cost of Solid Waste and Disposal Services

(June 1, 2009 - May 31, 2010)

Activity Description:	Total Budget	Administration	Disposal	Residential and Commercial Garbage Collection (1)	Residential and Commercial Recycling Services (1)	Yard Waste
				42%	42%	17%
Salaries/Wages						
Regular / Part-Time (1)	482,672	53,988		178,618	178,618	71,447
Overtime (1)	115,132			47,972	47,972	19,189
Benefits (2)						
State retirement	54,803	6,361		20,184	20,184	8,074
Social security	29,853	3,274		11,075	11,075	4,430
Life insurance	261	44		90	90	36
Medicare	7,001	783		2,591	2,591	1,036
Health insurance	106,290	8,499		40,746	40,746	16,299
Debt Interest						
Capital						
Equipment (3)	0					
Depreciation -Assets	0					
Non-Capital O&M Costs						
Contractual Expenses	8,268			3,445	3,445	1,378
Supplies	12,930			5,388	5,388	2,155
Vehicle Maintenance Supplies	12,388			5,162	5,162	2,065
Equipment Repair	3,801			1,584	1,584	634
Vehicle Repairs/ Equipment	26,426			11,011	11,011	4,404
Fuel	15,435			6,431	6,431	2,573
Garbage Disposal			96,119			
Recycling Disposal			33,764			
Non-Capital General Costs						
Workers' compensation (1)	61,121	6,836		22,619	22,619	9,048
Non-Capital Assignable Direct Costs						
Indirect Costs						
Sub-Total Cost	936,381	79,785	129,883	356,915	356,915	142,766
% of Total Operating Budget (including Personnel)	100.00%	8.52%	13.87%	38.12%	38.12%	15.25%
Total Solid Waste Generation (4)	7,815	7,815	3,820	3,820	1,204	2,332
Average Cost per Ton	**$119.82**	**$10.21**	**$34.00**	**$93.43**	**$296.44**	**$61.22**
Total Households Served (5)	3,123					
Average Cost per HH Per Month	**$24.99**	**$2.13**	**$3.47**	**$9.52**	**$9.52**	**$3.81**
Revenue Sources						
Refuse & Garbage Revenue	$88,975			$88,975		
Scrap Metal Recovery Revenues	$8,879				$8,879	
Recycling Reimbursements	$0				$0	
Total Revenues	$97,854	$0	$0	$88,975	$8,879	$0
TOTAL COST MINUS REVENUES	$838,527	$79,785	$129,883	$267,940	$348,036	$142,766
Adjusted Average Cost Per Ton	**$107.30**	**$10.21**	**$34.00**	**$70.14**	**$289.07**	**$61.22**
Adjusted Average Cost Per HH Per Month	**$22.38**	**$2.13**	**$3.47**	**$7.15**	**$9.29**	**$3.81**
Notes:						

1. The total budget for the activities was divided between the residential and commercial garbage collection (42%) and the residential and commercial recycling service (42%) and the yard waste (17%), based on the number of trips per week made for each service.

2. The administration salaries are approximately 11% of the salaries for the Department of Public Works personnel.
Administration % = Administration salary / (Regular/ Part-Time Salary + Overtime Salary)
The administration benefits and worker's compensation are not based on a percentage, but from amounts in the Fiscal Year Budget.

3. Based on information provided, the Village has budgeted $140,000 for the purchase of a new garbage truck during the Fiscal Year 2012-2013, and $148,000 for the Fiscal Year 2015-2016.

4. Waste quantities are based on the period from January to December 2009.

5. Total Households Served represents the total occupied and unoccupied households in the Village, and is from the 2010 Census.

Appendix B2
Breakdown of Employee Salary and Benefits

Title	Type of Employee	Percentage Garbage	Salary (Including Vacation & Longevity)	Health Insurance	Life Insurance	State Retirement	Social Security	Medicare	Disability Insurance	Workers' Compensation	Unemployment Insurance	Total
Supt. of Public Works	Admin	5%	$130,410	$19,035	$453	$19,953	$6,622	$1,891	$0	$16,514	$0	$194,878
General Foreman	Admin	10%	$95,584	$17,586	$31	$10,801	$5,926	$1,386	$0	$12,104	$0	$143,418
Asst. General Foreman	Admin	10%	$87,009	$17,586	$31	$9,832	$5,395	$1,262	$0	$11,018	$0	$132,133
Intermediate Typist	Admin	50%	$58,416	$8,060	$31	$6,601	$3,622	$847	$0	$7,397	$0	$84,974
Motor Equip Operator	Collection	100%	$73,147	$17,586	$31	$8,266	$4,535	$1,061	$0	$9,263	$0	$113,889
Motor Equip Operator	Collection	40%	$72,647	$17,586	$31	$8,209	$4,504	$1,053	$0	$9,199	$0	$113,229
Motor Equip Operator	Collection	100%	$72,397	$17,586	$31	$8,181	$4,489	$1,050	$0	$9,168	$0	$112,902
Laborer	Collection	40%	$56,948	$8,060	$31	$6,435	$3,531	$826	$0	$7,211	$0	$83,042
Laborer	Collection	100%	$56,948	$17,586	$31	$6,435	$3,531	$826	$0	$7,211	$0	$92,568
Laborer	Collection	100%	$56,948	$17,043	$31	$6,435	$3,531	$826	$0	$7,211	$0	$92,025
Laborer	Collection	100%	$56,948	$8,060	$31	$6,435	$3,531	$826	$0	$7,211	$0	$83,042
Laborer	Collection	20%	$56,948	$8,060	$31	$6,435	$3,531	$826	$0	$7,211	$0	$83,042
Laborer	Collection	100%	$49,069	$8,060	$31	$5,545	$3,042	$712	$0	$6,214	$0	$72,673

Title	Type of Employee	Percentage Garbage	Salary Based on Percentage Garbage	Health Insurance Based on Percentage Garbage	Life Insurance Based on Percentage Garbage	State Retirement Based on Percentage Garbage	Social Security Based on Percentage Garbage	Medicare Based on Percentage Garbage	Disability Insurance Based on Percentage Garbage	Workers' Compensation Based on Percentage Garbage	Unemployment Insurance Based on Percentage Garbage	Total
Supt. of Public Works	Admin	5%	$6,521	$952	$23	$998	$331	$95	$0	$826	$0	$9,744
General Foreman	Admin	10%	$9,558	$1,759	$3	$1,080	$593	$139	$0	$1,210	$0	$14,342
Asst. General Foreman	Admin	10%	$8,701	$1,759	$3	$983	$540	$126	$0	$1,102	$0	$13,213
Intermediate Typist	Admin	50%	$29,208	$4,030	$16	$3,301	$1,811	$424	$0	$3,699	$0	$42,487
Motor Equip Operator	Collection	100%	$73,147	$17,586	$31	$8,266	$4,535	$1,061	$0	$9,263	$0	$113,889
Motor Equip Operator	Collection	40%	$29,059	$7,034	$12	$3,284	$1,802	$421	$0	$3,680	$0	$45,292
Motor Equip Operator	Collection	100%	$72,397	$17,586	$31	$8,181	$4,489	$1,050	$0	$9,168	$0	$112,902
Laborer	Collection	40%	$22,779	$3,224	$12	$2,574	$1,412	$330	$0	$2,884	$0	$33,217
Laborer	Collection	100%	$56,948	$17,586	$31	$6,435	$3,531	$826	$0	$7,211	$0	$92,568
Laborer	Collection	100%	$56,948	$17,043	$31	$6,435	$3,531	$826	$0	$7,211	$0	$92,025
Laborer	Collection	100%	$56,948	$8,060	$31	$6,435	$3,531	$826	$0	$7,211	$0	$83,042
Laborer	Collection	20%	$11,390	$1,612	$6	$1,287	$706	$165	$0	$1,442	$0	$16,608
Laborer	Collection	100%	$49,069	$8,060	$31	$5,545	$3,042	$712	$0	$6,214	$0	$72,673
TOTAL			**$482,672**	**$106,290**	**$261**	**$54,803**	**$29,853**	**$7,001**	**$0**	**$61,121**	**$0**	**$742,002**
ADMIN TOTAL			**$53,988**	**$8,499**	**$44**	**$6,361**	**$3,274**	**$783**	**$0**	**$6,836**	**$0**	

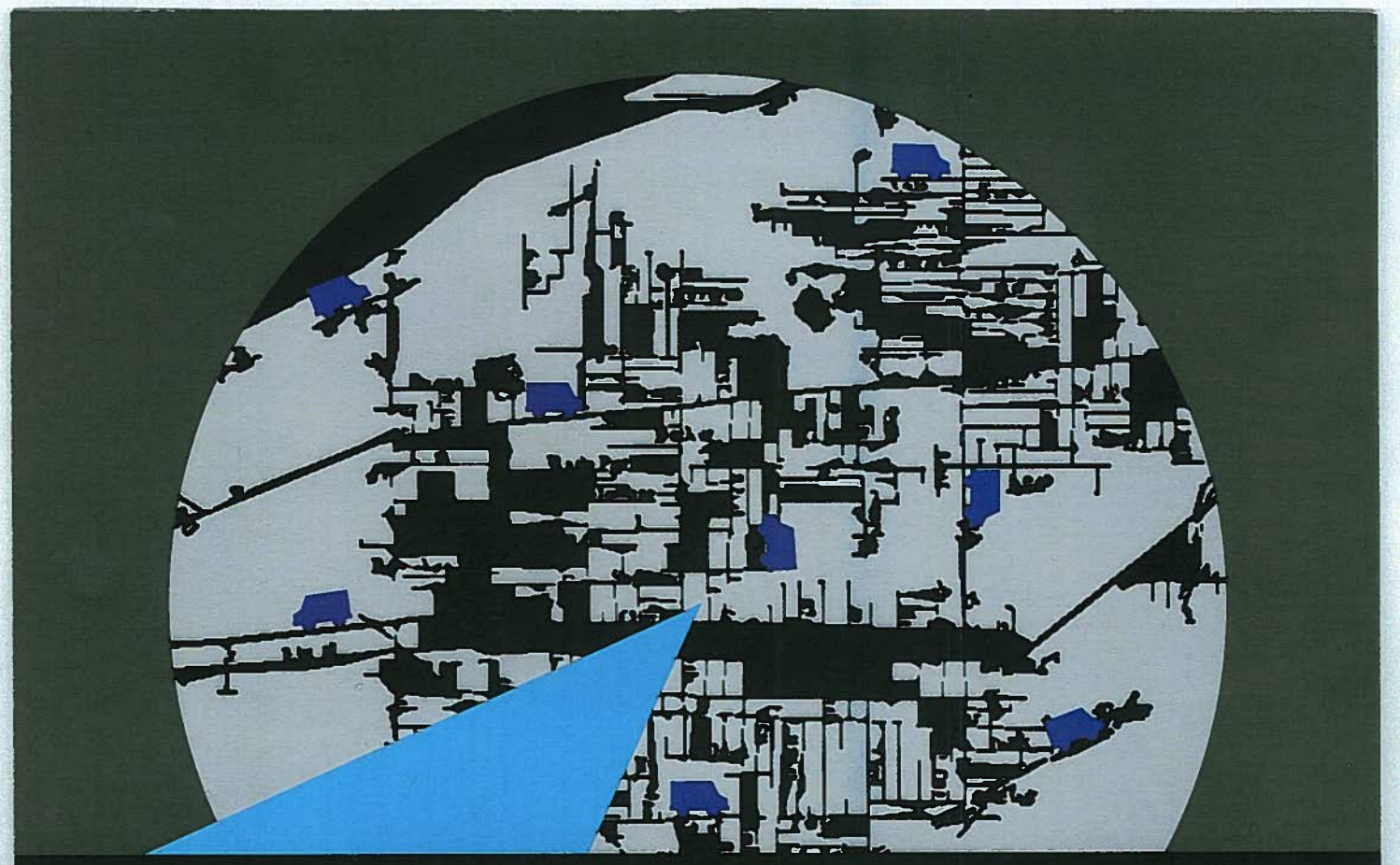
Village of Croton-on-Hudson
Refuse Collection Route Study

APPENDIX

C

Example of an Automated Vehicle Location and Mobile Data System

REDOAK CONSULTING
A DIVISION OF MALCOLM PIRNIE



Radio Satellite Integrators, Inc.

Automatic Vehicle Location and Mobile Data Systems

THE COMPANY

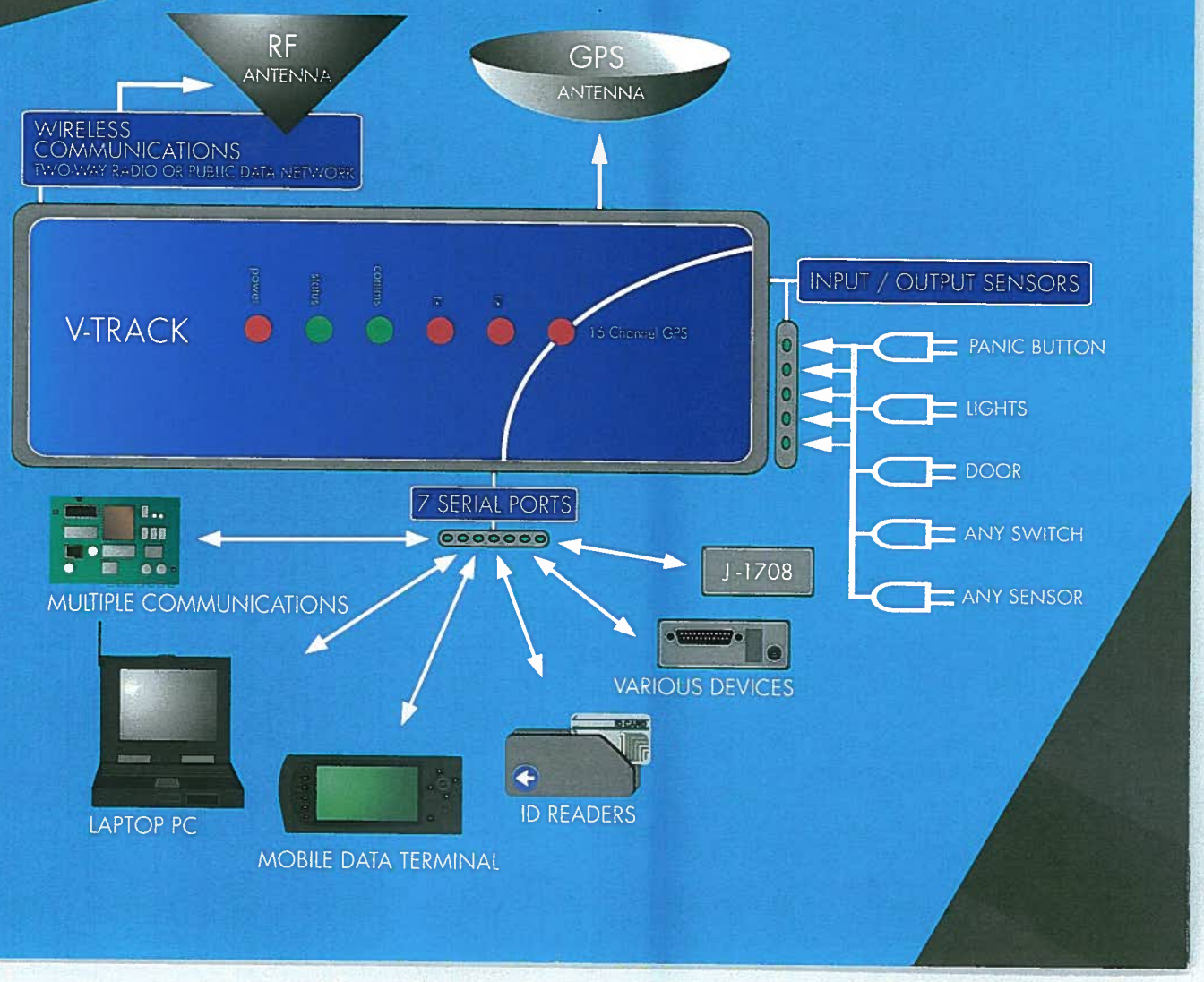
Radio Satellite Integrators, Inc. designs and manufactures vehicle tracking and mobile data systems. Founded in 1990, RSI is one of the oldest and most experienced companies in the industry. We have implemented well over 150 systems and thousands of mobile units throughout the world, with a client list that ranges from large corporations to small municipalities.

VEHICLE TRACKING & MOBILE DATA SYSTEMS

Automatic Vehicle Location (AVL) Systems provide real-time vehicle tracking by integrating GPS, wireless communications, and GIS mapping software. RSI's AVL systems utilize wireless communications technologies to send GPS, mobile data and other vehicle status information to your dispatch where you can view your fleet's location on GIS-based AVL software. Our systems can be configured to range from very simple to highly sophisticated, depending on your specific needs and desires.

OUR APPROACH

Throughout RSI's experience we have developed a versatile core technology that is tailored for each customer at a cost effective price. RSI products are modularly designed to allow for limitless options and customization to both the in-vehicle equipment and back-end integration at your dispatch. The result is a state-of-the-art vehicle tracking and mobile data system made to your organization's specifications. When experience and capability count, RSI is the clear choice!





HOW AVL WORKS

By integrating our V-Track™ mobile unit with wireless communications and on-board sensors, the system enables you to monitor your fleet's activities in real-time. The RSI AVL system can utilize virtually any type of wireless communications including:

- Two-Way Radio: UHF/VHF, 800/900MHz, 220MHz, etc.
- Public Data Network: GPRS/EDGE, CDMA/1xRTT, Nextel, Cellular, etc.
- Multiple networks simultaneously including satellite

All vehicle data is collected and stored at your facilities in a relational database, where it is accessed by the GIS-based mapping software clients. This open-ended approach allows for various base configurations and complete integration to other back-end systems such as Computer Aided Dispatch or Work Order Management software. If desired, the RSI AVL system can be configured to use a Web browser over the Internet or your own Intranet.

IN YOUR VEHICLES

The in-vehicle V-Track™ unit contains GPS, wireless communications, and sensor technologies, with the option to interface to Mobile Data Terminals, or other devices such as laptop PC's (MDC's). The V-Track™ unit is responsible for reporting vehicle location and status information, in addition to acting as a transparent wireless gateway between your dispatch and any in-vehicle device. The mobile equipment can be interfaced to any variety of:

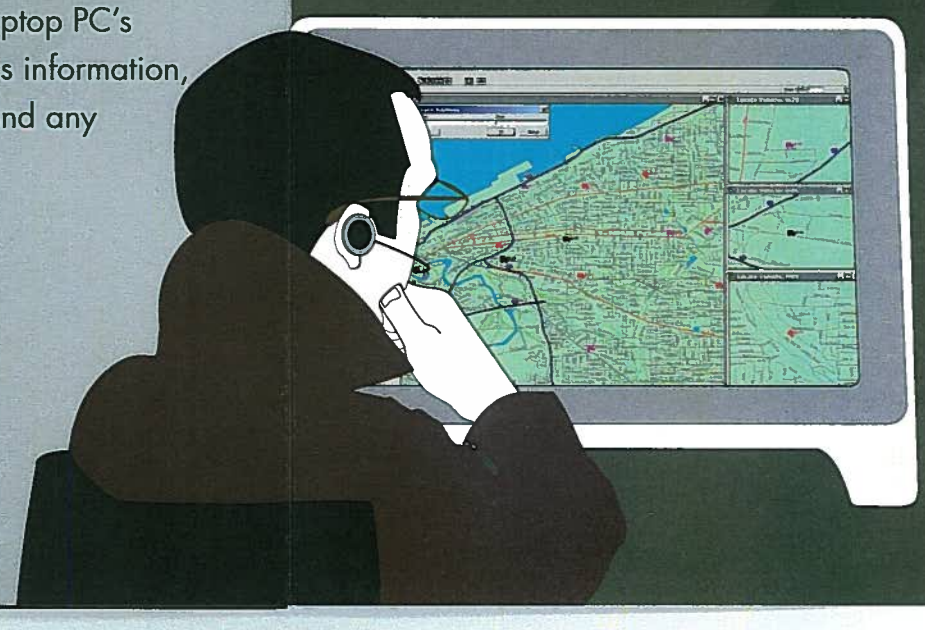
- Mobile Data Terminals or Laptop Computers
- Sensors: doors, lights, etc.
- ID/Card Readers
- Panic Buttons
- J-1708 Data Bus
- Virtually any device on the vehicle

AT YOUR DISPATCH

At your base location we install server and database software that manages all the data communications and distribution within your AVL system. From here, we integrate the base server system with our GIS mapping software as well as any third party application such as Computer Aided Dispatch, Work Order Management Systems, Fleet Maintenance, etc.



Our customized ESRI-based Mapping and Reporting software provides you the tools to view real-time and historical vehicle data in any imaginable way based on location, ID, group, status, sensors, address, etc. The layered mapping software allows you to pan, zoom, and search for all data including vehicles, addresses, and other elements in configurable map windows.



SPECIFICATIONS

Communications Options

2-Way Radio:
UHF/ VHF, 800MHz, 900MHz, 220MHz, conventional/trunked
Public Data Networks:
GPRS/EDGE, CDMA/1xRTT, Nextel/iDen, GSM, analog cellular, satellite
Hybrid Solutions:
V-Track™ can support up to 3 communications technologies simultaneously
In-Vehicle Computing Options:
Mobile Data Terminals, Laptop PC, Tablet PC, PDA, Windows CE device, etc.
In-Vehicle Device Options:
RF ID reader, card reader (Magnetic or SmartCard), printer, barcode reader, any serial device
In-Vehicle Sensor Options:
Emergency Panic Button, lights, doors

V-Track™ Physical Characteristics

Size:
6.5" L x 10.25" W x 2.4" H (16.5 cm x 26 cm x 6 cm)
Weight:
2.25 lbs. (1.02 kg)

Environmental Characteristics

Operating Temp:
-40 degrees C to +85 degrees C
-22 degrees F to +185 degrees F
Storage Temp:
-60 degrees C to +85 degrees C
-76 degrees F to +185 degrees F
Humidity:
95% non-condensing at 65 degrees C
Altitude:
less than 60,000 feet
Vibration:
1.7g 2/Hz @ 20 Hz
Enclosure:
The standard all aluminum enclosure is dustproof and splash proof.

Technical Specifications

Power:
9-32 VDC w/ PolySwitch fuse protection
Normal Draw:
210 mA @ 12 VDC
Sleep Mode:
8 mA @12 VDC
Controller:
Intel 386 EX microprocessor
GPS:
L1 Frequency, C/A Code, 16 Channel Continuous Tracking
All-in-view tracking and positions solution, WAAS capable
Position Update Rate:
Maximum – 4 per second
Minimum – infinitely programmable
Time to First Fix:
<5 seconds (typical)
Accuracy:
2.5 meters CEP
Maximum Velocity:
950 mph
Maximum Acceleration:
2 g

Specifications subject to change.

Contact us:
info@radsat.com
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Torrance, California
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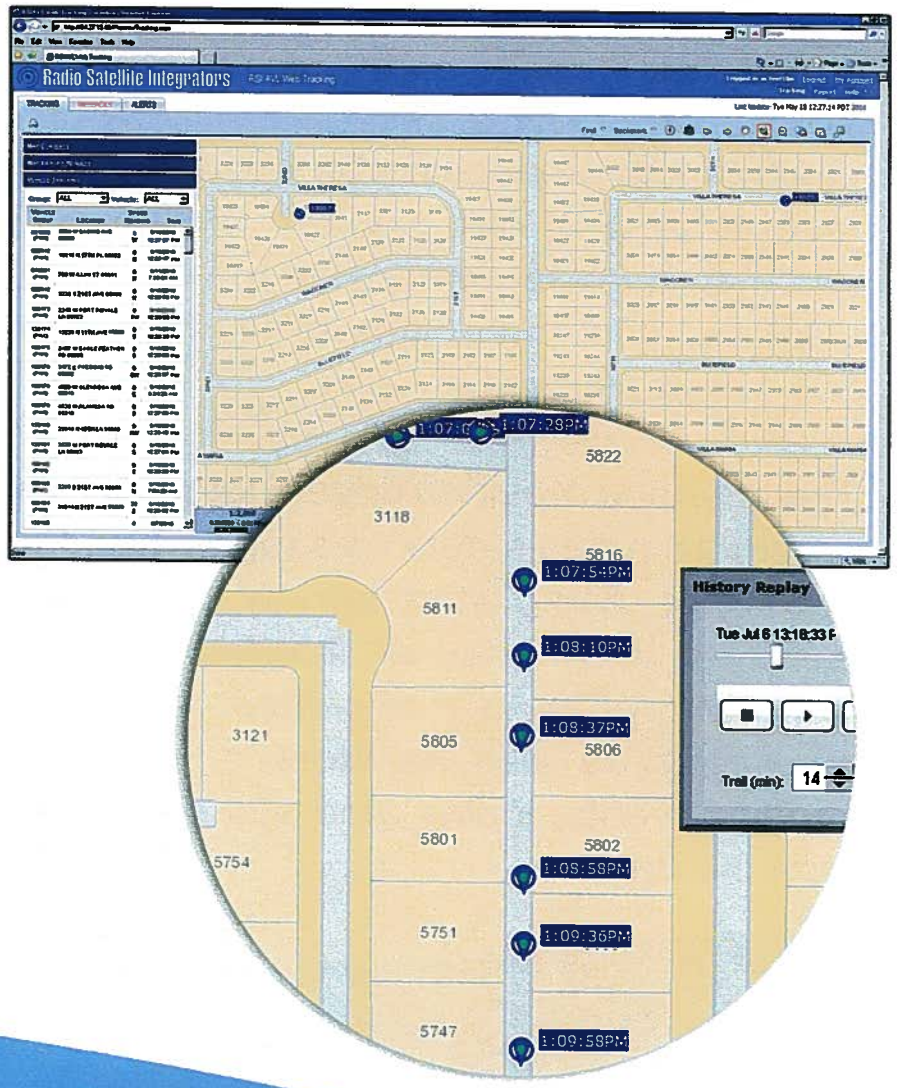
High Performance AVL Using ESRI ArcGIS

ESRI Technology
AUTHORIZED BUSINESS PARTNER

Web Based GPS Vehicle Tracking

The RSI AVL Vehicle Tracking system is based on ESRI ArcGIS Server and allows users to track their vehicle fleet on their actual ESRI GIS map data. Combining our GPS units, cellular technology, and customized GIS interface, RSI AVL systems are the ultimate fleet management tool. Track, report, and analyze your vehicle fleet- all related to your own map layers and infrastructure on YOUR actual ESRI GIS data.

Our enterprise AVL systems are ideal for municipalities and other local government agencies such as public works, solid waste, water & sewer, public safety, & public transportation.



Radio Satellite Integrators, Inc.

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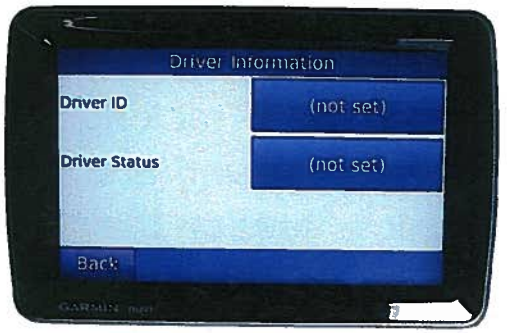
AVL Systems with Custom In-Vehicle Messaging & Navigation

GARMIN
AUTHORIZED PARTNER

Driver Generated Status & Events

The optional RSI customized Garmin unit adds function and productivity by way of a driver interface to the RSI AVL system. We program the touch-screen Garmin device to act as a Mobile Data Terminal in addition to the built-in navigation functions.

The interface provides driver login, customizable preprogrammed status messages, free form text messages, and custom turn by turn routes. The RSI AVL Web browser interface enables the dispatcher/office user to send and receive these messages as well as store and analyze the various events, logins, and status updates sent from the drivers.







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