

**Assessment of Roadside Litter, Year Two
Island County, Washington
2006**

W.O. # 1212
Task 1
Final Report

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I. Introduction

This study continued a baseline assessment of roadside litter in Island County begun in 2005 to help the Environmental Health Action Team in targeting and evaluating litter reduction efforts.

We report here on this year's survey results compared with the 2005 surveys.

II. Methods

Litter was collected and tallied at 18 survey sites, 4 on north Whidbey, 5 central Whidbey, 5 south Whidbey, and 4 on Camano Island.

Each survey site was approximately 100 meters long with the length adjusted to visible landmarks to facilitate repeat surveys of the same location. Site width was determined by landscape features that trapped litter. Overall amount of litter at each site was quantified by counting each item. All items counted were collected. Each item was counted only once, i.e., under only one category. Objects greater than 1-inch in diameter were defined as "large" litter in this study and were classified into one of 80 categories. A "Small Item Survey" was conducted on approximately 10% of each survey site. This area was scanned minutely and all visible litter was collected, with items less than 1-inch in diameter defined as "small" and classified into one of 14 separate categories. While collecting larger litter from the rest of each site, workers also collected "small" litter optionally; these items were recorded separately.

For any sites along roadway stretches that are periodically cleaned by Adopt-A-Road or Adopt-A-Highway groups, we ensured that a minimum of four weeks had passed since the site was last cleaned.

The complete survey protocol is described in S. Schmidt, October 31, 2005, *Assessment of Roadside Litter, Island County, Washington, 2005*. That report should be reviewed in conjunction with this one for details of protocol and analysis that are not repeated here. All materials from the

2005 report, including final report, complete data, and maps and descriptive details for each site are on the CD that accompanies this 2006 report.

III. Results

We re-surveyed 18 sites in 2006: four on north Whidbey Island, five each on central and south Whidbey, and four on Camano Island (Table 1). In 2005, although only 16 sites were required, we chose to survey 22 in an effort to establish an adequate range of locations. The four least productive of those sites (NW5, CW6, SW6 and SW7) were dropped from the 2006 survey.

Table 1. Roadside Litter Survey Dates, 2005 and 2006.

	2005	2006
NW1-2nd Ave at OHHS	August 12, 2005	August 22, 2006
NW2-Sleeper Rd	October 21, 2005	August 23, 2006
NW3-Ault Field Rd at Oak Harbor Rd	September 15, 2005	August 23, 2006
NW4-Hwy20 at Frontier Ind.	August 18, 2005	August 22, 2006
NW5-Devries Rd at Green Rd	October 8, 2005	
CW1-Terry Rd at S. Main	October 4, 2005	August 24, 2006
CW2-Terry Rd pkg lot	October 5, 2005	August 24, 2006
CW3-Hwy20 at Parker	August 31, 2005	August 30, 2006
CW4-Wanamaker Rd at Ferry Rd	October 18, 2005	August 24, 2006
CW5 Hwy20 at Cplv Recycle Park	October 19, 2005	August 23, 2006
CW6-North Bluff Rd	October 19, 2005	
SW1-SR525 at Bayview Ctr	August 29, 2005	August 25, 2006
SW2-Maxwelton Rd at SWHS	August 15, 2005	August 14, 2006
SW3-Wahl Rd	October 21, 2005	August 7, 2006
SW4-Ken's Korner #1	August 29, 2005	August 14, 2006
SW5-Ken's Korner #2	August 29, 2005	August 14, 2006
SW6-Campbell Rd at Windfall	September 12, 2005	
SW7-French Rd	October 17, 2005	
CA1-E Camano Dr at Camano Plaza	September 6, 2005	July 20, 2006
CA2-Arrowhead at Elem Sch	September 6, 2005	July 20, 2006
CA3-Elger Bay Rd at Mountain View	September 21, 2005	July 27, 2006
CA4-Firwood Ln at W Camano Dr	September 21, 2005	July 27, 2006

SITE CHARACTERISTICS

Characteristics of each site location can be found on the CD in the Excel file "2006 Survey Site Descriptions" under Task 1/Site Data. Some of the variation among sites is captured in Table 2. Twelve sites were within one mile of a fast food restaurant or convenience store and five near a school. On Camano the school site (CA2) was by an elementary school because older students are bussed to off-island schools. On Whidbey, sites NW1 and SW2 were in proximity to high schools and CW1 and CW2 were across the street from Coupeville middle and high schools.

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The remaining sites were situated along a variety of road types: six along a state highway (CW3, CW5, NW4, SW1, SW4, SW5), two along major arterials (CA1, NW3), four on roads with significant arterial traffic (CA3, CW4, NW2, SW3) and one on a minor rural road (CA4).

Mowing of the grass road verge affected 16 sites. Mowing mulches litter items into many pieces.

Table 2. Characteristics of 18 Survey Sites re-visited in 2006

<u>General Description</u>	<u>Number of sites</u>
Within 1 mile of fast food/convenience store	12
Within 1 mile of a school	8
Visible traffic signal	8
Bus stops present	6
Litter receptacles present	3
Adopted Road/Highway	10
<u>Entrapments that catch litter</u>	
Ditch	6
Fence	7
Bushes/trees	9
Grass/weeds	12
Downslope	1
Upslope	5
<u>Other factors affecting litter collection in survey area</u>	
Road construction	1
Mowed grass/verge	16
Private residence	3
Shopping/strip mall	5
Bus stop	3
<u>Surrounding land use area (visible from site)</u>	
Parking lot	9
Industrial area	2
Residential area	14
Agriculture/farmland	7
Forest	13
Stream/Pond	1
Grocery, fast food or convenience store	7
Retail store	5
School	5
Transfer station	2

LITTER CHARACTERISTICS

In all, 4,677 pieces of litter were collected and catalogued. Of these, 2,714 (58%) were "large" litter items (>1" diameter), 882 (19%) were items <1" diameter collected in the designated "Small Item" survey areas, and 1,081 (23%) were small items picked up in the other 90% of each survey site. The difference between the two categories of small items is that at all 18 sites, the "Small Item Survey" area was searched attentively for all sizes of litter; but over the remaining 90% of each survey site, small items were collected with varying rigor depending on the time, interest and stamina of the worker picking up that site. At least some cigarette filters, though not necessarily all present, were counted outside the "Small Item" area on 10 of the 18 sites. Other small objects commonly picked up on the rest of a site were polystyrene peanuts, straws and bottle caps. See notes on individual surveys (Appendix A) for details. Thus the collection of small items outside the "Small Item Survey" was optional and variable.

As they were gathered, large litter items were classified into one of 80 categories and small items into one of 14 categories. Full results are detailed in the spreadsheet (Appendix B.) For purposes of analysis, subcategories were combined into eight major categories of litter (Table 3).

Table 3. Major categories of litter defined

LARGE ITEMS (>1") (1.01 through 12.18 on survey form)

Beverage Containers: all types of containers sealed by the manufacturer and used for beverages, including aluminum cans, glass and plastic bottles, gable-top containers, foil pouches and aseptic drink boxes.

Non-Beverage Containers: jars, bottles, boxes, cans and lids which are not related to any type of beverage.

One-time/fast-food items: candy, gum, snack packaging; cups, lids, utensils, plates, trays, napkins, and other items associated with food that may be consumed in a vehicle or away from the home. In general these items are disposable and are made of plastic, paper or polystyrene. This category also includes paper food/fast food bags, plastic zipper/sandwich bags, and plastic/polystyrene "clam shell" containers.

Product Packaging: all types of packaging associated with a product when it is removed from the shelf at a retail store.

Outer Packaging: bags or boxes into which items from stores or restaurants are placed. Examples are: corrugated cardboard box, paper retail bag, paper bag other, plastic retail bag and plastic bag other.

Printed Paper Items: newspapers, books, magazines, advertisements, school or business papers, letters, receipts, public notices, business cards and lottery tickets.

Debris Items: roofing, tarpaper, insulation, lumber, construction debris, road debris, vehicle debris, tire pieces, textiles and home and garden items.

Miscellaneous: all items made of paper, paperboard, cardboard, plastic, plastic film, polystyrene foam and glass that cannot be specifically identified.

SMALL ITEMS (<1" diameter) (13.01-13.14 and 14.01-14.14 on survey form)

Cigarettes: cigarette filters. (Tobacco product packaging –cigarette packets, wrappers, tobacco tins – is recorded under the product packaging category.)

Candy/fast-food: candy and gum wrappers, lollipop sticks, straws, bottle caps.

Polystyrene: polystyrene peanuts (mostly) and small pieces of polystyrene.

Paper: pieces of paper.

Plastic: any piece of plastic film (unless a candy wrapper) or hard plastic.

Glass: pieces of glass

Metal: pieces of metal

Miscellaneous: any other materials not covered in above categories.

At all 18 sites, items in the following categories were found: snacks/candy, tobacco product packaging, other (non-food) plastic packaging, home and garden, and cigarettes. One-time/fast food items ranked first or second in abundance at 15 sites (red and green squares, Appendix B).

The results can be analyzed and interpreted in a multitude of ways. What follows is a sampling of information that can be gleaned from it. The complete database is available on the CD for further analysis.

This report focuses on comparisons between 2005 and 2006 at each of the eighteen sites. Each site is presented three ways: *large* litter only (Tables and Figures 4-7 "a"), *all* litter items (Tables and Figures 4-7 "b") and small litter collected both years in the 10% "*Small survey area*" (Tables 4-7 "c"). The Y-axes in Figures 4-7 were standardized for more accurate comparison among sites. PLEASE NOTE that tables and figures "b", showing *all* items, should be interpreted with care. These are the only analyses that include the small litter collected *outside* the 10% small survey area. This was collected based on the time and interest of the volunteer and has no scientific value. *In Tables "b", blue print indicates occasions when cigarette filters were collected over the whole area; black print when cigarettes were collected only in the "small survey" area. Big differences in cigarette quantities between years may be explained by differences in the area over which they were collected.*

I recommend focusing on Tables "a" and "c" and Figures "a" for more valid comparisons.

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NORTH WHIDBEY SITES

Table 4a. North Whidbey, 2005 and 2006 (4 sites): All LARGE items (>1").
See Figure 4a for visual side-by-side comparison of each site.

	NW1-2nd Ave at High School	NW2-Sleeper Rd	NW3-Ault Field Rd at Oak Harbor Rd	NW4-Hwy20 at Frontier Industries	Total		NW1-2nd Ave at High School	NW2-Sleeper Rd	NW3-Ault Field Rd at Oak Harbor Rd	NW4-Hwy20 at Frontier Industries	Total
2005	NW1	NW2	NW3	NW4	Total	2006	NW1	NW2	NW3	NW4	Total
Beverage container	34	25	4	29	92	Beverage container	6	12	5	12	35
Non-beverage container	3	3	0	7	13	Non-beverage container	2	1	0	5	8
One-time/fast-food items	151	50	36	113	350	One-time/fast-food items	44	19	40	105	208
Product packaging	25	24	38	64	151	Product packaging	27	15	33	113	188
Outer packaging	10	4	3	34	51	Outer packaging	1	1	3	22	27
Printed paper	7	9	9	32	57	Printed paper	10	3	16	34	63
Debris item	10	12	20	82	124	Debris item	12	7	18	50	87
Miscellaneous	50	24	58	218	350	Miscellaneous	31	24	37	117	209
Total	290	151	168	579	1188	Total	133	82	152	458	825

Only large litter items (categories 1.01 through 12.18) were included in this table

Table 4b. North Whidbey, 2005 and 2006 (4 sites): ALL litter collected.
See Figure 4b for visual side-by-side comparison of each site.

	NW1-2nd Ave at High School	NW2-Sleeper Rd	NW3-Ault Field Rd at Oak Harbor Rd	NW4-Hwy20 at Frontier Industries	Total		NW1-2nd Ave at High School	NW2-Sleeper Rd	NW3-Ault Field Rd at Oak Harbor Rd	NW4-Hwy20 at Frontier Industries	Total
2005	NW1	NW2	NW3	NW4	Total	2006	NW1	NW2	NW3	NW4	Total
Beverage container	34	25	4	29	92	Beverage container	6	12	5	12	35
Non-beverage container	3	3	0	7	13	Non-beverage container	2	1	0	5	8
One-time/fast-food items	175	62	60	155	452	One-time/fast-food items	53	22	43	123	241
Product packaging	25	29	43	64	161	Product packaging	29	16	34	113	192
Outer packaging	10	4	3	34	51	Outer packaging	1	1	3	22	27
Printed paper	7	9	9	32	57	Printed paper	10	3	16	34	63
Debris item	12	12	20	82	126	Debris item	12	7	18	50	87
Cigarettes	50	42	547	57	696	Cigarettes	12	35	319	47	413
Miscellaneous	85	38	132	290	545	Miscellaneous	43	25	59	161	288
Total	401	224	818	750	2193	Total	168	122	497	567	1354

All litter items collected, large and small, were included in this analysis.

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Table 4c. North Whidbey, 2005 and 2006 (4 sites): SMALL items (<1") from designated 10% area.

	NW1-2nd Ave at High School	NW2-Sleeper Rd	NW3-Ault Field Rd at Oak Harbor Rd	NW4-Hwy20 at Frontier Industries		NW1-2nd Ave at High School	NW2-Sleeper Rd	NW3-Ault Field Rd at Oak Harbor Rd	NW4-Hwy20 at Frontier Industries		
2005	NW1	NW2	NW3	NW4	Total	2006	NW1	NW2	NW3	NW4	Total
Cigarettes	8	1	51	57	117	Cigarettes	12	9	39	47	107
Candy/fast-food items	14	4	2	9	29	Candy/fast-food items	4	2	1	8	15
Polystyrene pellets/pcs	1	0	15	7	23	Polystyrene pellets/pcs	1	0	0	10	11
Paper	3	2	11	8	24	Paper	2	0	0	12	14
Plastic items	11	3	5	14	33	Plastic items	2	0	3	5	10
Glass	16	0	1	0	17	Glass	0	0	0	0	0
Metal	3	0	0	1	4	Metal	0	0	0	1	1
Miscellaneous	2	0	0	2	4	Miscellaneous	1	0	0	1	2
TOTALS	58	10	85	98	251	TOTALS	22	11	43	84	160

Only litter in the 10% "Small Item" area (categories 14.01-14.14) is included in this table.

CENTRAL WHIDBEY SITES

Table 5a. Central Whidbey, 2005 and 2006: All LARGE items (>1"). See Figure 5a for visual side-by-side comparison of each site.

	CW1-Terry Rd at South Main	CW2-Terry Rd parking bt	CW3-Hwy20 at Parker	CW4-Wanamaker Rd at Ferry Rd	CW5-Hwy20 at Cpv1 Recycle Park		CW1-Terry Rd at South Main	CW2-Terry Rd parking bt	CW3-Hwy20 at Parker	CW4-Wanamaker Rd at Ferry Rd	CW5-Hwy20 at Cpv1 Recycle Park		
2005	CW1	CW2	CW3	CW4	CW5	Total	2006	CW1	CW2	CW3	CW4	CW5	Total
Beverage container	3	27	6	23	7	66	Beverage container	1	2	7	6	11	27
Non-beverage container	1	3	4	1	5	14	Non-beverage container	6	4	0	0	5	15
One-time/fast-food items	89	209	37	25	27	387	One-time/fast-food items	68	70	24	5	44	211
Product packaging	23	48	42	10	44	167	Product packaging	24	32	43	7	52	158
Outer packaging	0	5	12	2	5	24	Outer packaging	1	1	5	1	7	15
Printed paper	12	24	30	0	20	86	Printed paper	9	11	16	0	44	80
Debris item	12	7	28	6	26	79	Debris item	24	10	30	3	38	105
Misc.	28	53	77	13	65	236	Misc.	32	18	44	5	74	173
Total	168	376	236	80	199	1059	Total	165	148	169	27	275	784

Only large litter items (categories 1.01 through 12.18) were included in this table.

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Table 5b. Central Whidbey, 2005 and 2006 (5 sites): ALL litter collected.
See Figure 5b for visual side-by-side comparison.

	CW1-Terry Rd at South Main	CW2-Terry Rd parking lot	CW3-Hwy20 at Parker	CW4-Wanamaker Rd at Ferry Rd	CW5-Hwy20 at Cpl Recycle Park		CW1-Terry Rd at South Main	CW2-Terry Rd parking lot	CW3-Hwy20 at Parker	CW4-Wanamaker Rd at Ferry Rd	CW5-Hwy20 at Cpl Recycle Park		
2005	CW1	CW2	CW3	CW4	CW5	Total	2006	CW1	CW2	CW3	CW4	CW5	Total
Beverage container	3	27	6	23	7	66	Beverage container	1	2	7	6	11	27
Non-beverage container	1	3	4	1	5	14	Non-beverage container	6	4	0	0	5	15
One-time/fast-food items	147	337	52	26	34	596	One-time/fast-food items	103	106	26	5	49	289
Product packaging	40	59	44	11	46	200	Product packaging	35	34	44	9	53	175
Outer packaging	0	5	12	2	5	24	Outer packaging	1	1	5	1	7	15
Printed paper	12	24	30	0	20	86	Printed paper	9	11	16	0	44	80
Debris item	12	7	28	6	26	79	Debris item	26	11	30	3	38	108
Cigarettes	265	79	12	23	40	419	Cigarettes	200	60	19	28	47	354
Misc.	115	120	205	17	193	650	Misc.	108	58	205	6	178	555
Total	595	661	393	109	376	2134	Total	489	287	352	58	432	1618

All litter items collected, large and small, were included in this analysis

Table 5c. Central Whidbey, 2005 and 2006 (5 sites): SMALL items (<1") from designated 10% area.

	CW1-Terry Rd at South Main	CW2-Terry Rd parking lot	CW3-Hwy20 at Parker	CW4-Wanamaker Rd at Ferry Rd	CW5-Hwy20 at Cpl Recycle Park		CW1-Terry Rd at South Main	CW2-Terry Rd parking lot	CW3-Hwy20 at Parker	CW4-Wanamaker Rd at Ferry Rd	CW5-Hwy20 at Cpl Recycle Park		
2005	CW1	CW2	CW3	CW4	CW5	Total	2006	CW1	CW2	CW3	CW4	CW5	Total
Cigarettes	265	79	12	0	9	365	Cigarettes	200	60	19	2	4	285
Candy/fast-food items	46	129	9	0	2	186	Candy/fast-food items	39	35	2	1	3	80
Polystyrene pellets/pcs	1	6	20	0	18	45	Polystyrene pellets/pcs	2	1	24	0	10	37
Paper	5	25	15	0	3	48	Paper	17	12	12	0	0	41
Plastic items	21	30	24	0	6	81	Plastic items	29	15	4	0	3	51
Glass	49	3	0	0	0	52	Glass	1	0	1	0	0	2
Metal	6	0	3	0	3	12	Metal	11	1	1	0	0	13
Miscellaneous	5	0	3	0	1	9	Miscellaneous	4	1	0	0	0	5
Total	398	272	86	0	42	798	Total	303	125	63	3	20	514

Only litter in the 10% "Small Item" area (categories 14.01-14.14) was included in this analysis

SOUTH WHIDBEY SITES

Table 6a. South Whidbey, 2005 and 2006 (5 sites): All LARGE items (>1").
See Figure 6a. for visual side-by-side comparison of each site.

	SW1-SR525 at Bayview Center	SW2-Maxwelton Rd at SWHS	SW3-Wahl Rd	SW4-Ken's Lorne #1	SW5-Ken's Kroner #2	Total		SW1-SR525 at Bayview Center	SW2-Maxwelton Rd at SWHS	SW3-Wahl Rd	SW4-Ken's Lorne #1 DogPark	SW5-Ken's Kroner #2	Total
2005	SW1	SW2	SW3	SW4	SW5	Total	2006	SW1	SW2	SW3	SW4	SW5	Total
Beverage container	7	14	13	10	14	58	Beverage container	6	19	2	11	8	46
Non-beverage container	4	8	1	1	0	14	Non-beverage container	8	0	0	0	0	8
One-time/fast-food items	48	60	16	26	26	176	One-time/fast-food items	41	107	10	25	22	205
Product packaging	23	20	11	14	20	88	Product packaging	46	22	12	29	13	122
Outer packaging	6	3	4	4	11	28	Outer packaging	5	4	0	3	4	16
Printed paper	14	78	1	9	14	116	Printed paper	10	37	6	8	9	70
Debris item	13	10	8	6	11	48	Debris item	15	10	6	5	4	40
Miscellaneous	65	79	17	32	26	219	Miscellaneous	173	57	37	12	36	315
Total	180	272	71	102	122	747	Total	304	256	73	93	96	822

Only large litter items (categories 1.01 through 12.18) were included in this table.

Table 6b. South Whidbey, 2005 and 2006 (5 sites): ALL litter collected.
See Figure 6b for visual side-by-side comparison of each site.

	SW1-SR525 at Bayview Center	SW2-Maxwelton Rd at SWHS	SW3-Wahl Rd	SW4-Ken's Lorne #1	SW5-Ken's Kroner #2	Total		SW1-SR525 at Bayview Center	SW2-Maxwelton Rd at SWHS	SW3-Wahl Rd	SW4-Ken's Lorne #1 DogPark	SW5-Ken's Kroner #2	Total
2005	SW1	SW2	SW3	SW4	SW5	Total	2006	SW1	SW2	SW3	SW4	SW5	Total
Beverage container	7	14	13	10	14	141	Beverage container	6	19	2	11	8	46
Non-beverage container	4	8	1	1	0	14	Non-beverage container	8	0	0	0	0	8
One-time/fast-food items	54	101	19	30	47	259	One-time/fast-food items	47	130	10	30	23	240
Product packaging	26	21	12	15	23	102	Product packaging	48	25	12	32	13	130
Outer packaging	6	3	4	4	11	34	Outer packaging	5	4	0	3	4	16
Printed paper	14	78	1	9	14	120	Printed paper	10	37	6	8	9	70
Debris item	13	10	8	6	11	52	Debris item	18	10	6	5	4	43
Cigarettes	33	39	4	29	15	129	Cigarettes	227	10	21	23	7	288
Miscellaneous	116	138	28	56	48	433	Miscellaneous	111	56	13	44	44	268
Total	273	412	90	160	183	1284	Total	480	291	70	156	112	1109

All litter items collected, large and small, were included in this analysis

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Table 6c. South Whidbey, 2005 and 2006 (5 sites): SMALL items (<1") from designated 10% area.

	SW1-SR525 at Bayview Center	SW2-Maxwelton Rd at SWHS	SW3-Wahl Rd	SW4-Ken's Lorne #1	SW5-Ken's Kroner #2	Total		SW1-SR525 at Bayview Center	SW2-Maxwelton Rd at SWHS	SW3-Wahl Rd	SW4-Ken's Lorne #1 DogPark	SW5-Ken's Kroner #2	Total
2005	SW1	SW2	SW3	SW4	SW5	Total	2006	SW1	SW2	SW3	SW4	SW5	Total
Cigarettes	33	9	1	29	15	87	Cigarettes	42	10	3	23	7	85
Candy/fast-food items	8	18	0	1	5	32	Candy/fast-food items	6	17	0	5	0	28
Polystyrene pellets/pcs	10	4	0	3	1	18	Polystyrene pellets/pcs	7	0	0	0	0	7
Paper	7	28	0	2	0	37	Paper	3	8	0	1	2	14
Plastic items	13	10	2	5	5	35	Plastic items	8	6	0	0	1	15
Glass	3	0	0	0	0	3	Glass	0	0	0	0	0	0
Metal	2	1	0	0	1	4	Metal	1	2	0	0	0	3
Miscellaneous	2	0	0	2	0	4	Miscellaneous	2	0	0	0	0	2
Total	78	70	3	42	27	220	Total	69	43	3	29	10	154

Only litter in the 10% "Small Item" area (categories 14.01-14.14) was included in this analysis

CAMANO ISLAND SITES

Table 7a. Camano Island, 2005 and 2006 (4 sites): All LARGE items (>1"). See Figure 7a for visual side-by-side comparison of each site.

	CA1-E Camano Dr at Camano Plaza	CA2-Arrowhead at Elem. School	CA3-Elger Bay Rd at Mountain View	CA4-Firwood Ln at W Camano Dr	TOTALS		CA1-E Camano Dr at Camano Plaza	CA2-Arrowhead at Elem. School	CA3-Elger Bay Rd at Mountain View	CA4-Firwood Ln at W Camano Dr	TOTALS
2005	CA1	CA 2	CA 3	CA 4	TOTALS	2006	CA1	CA 2	CA 3	CA 4	TOTALS
Beverage container	8	3	5	14	30	Beverage container	11	9	1	7	28
Non-beverage container	9	0	2	0	11	Non-beverage container	6	2	3	1	12
One-time/fast-food items	26	14	36	13	89	One-time/fast-food items	26	19	34	29	108
Product packaging	27	4	36	8	75	Product packaging	15	12	43	9	79
Outer packaging	4	1	4	4	13	Outer packaging	6	1	2	2	11
Printed paper	13	4	14	1	32	Printed paper	16	7	15	1	39
Debris item	32	4	9	14	59	Debris item	17	2	18	3	40
Miscellaneous	36	18	41	8	103	Miscellaneous	45	12	48	3	108
TOTALS	155	48	147	62	412	TOTALS	142	64	164	55	425

Only large litter items (categories 1.01 through 12.18) were included in this analysis

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Table 7b. Camano Island, 2005 and 2006 (4 sites): ALL litter collected.
See Figure 7b for visual side-by-side comparison of each site.

	CA1-E Camano Dr at Camano Plaza	CA2-Arrowhead at Elem. School	CA3-Elger Bay Rd at Mountain View	CA4-Firwood Ln at W Camano Dr	TOTALS		CA1-E Camano Dr at Camano Plaza	CA2-Arrowhead at Elem. School	CA3-Elger Bay Rd at Mountain View	CA4-Firwood Ln at W Camano Dr	TOTALS
2005	CA1	CA 2	CA 3	CA 4	TOTALS	2006	CA1	CA 2	CA 3	CA 4	TOTALS
Beverage container	8	3	5	14	30	Beverage container	11	9	1	7	28
Non-beverage container	9	0	2	0	11	Non-beverage container	6	2	3	1	12
One-time/fast-food items	48	22	59	15	144	One-time/fast-food items	39	25	37	32	133
Product packaging	30	4	38	11	83	Product packaging	17	12	43	11	83
Outer packaging	4	1	4	4	13	Outer packaging	6	1	2	2	11
Printed paper	13	4	14	1	32	Printed paper	16	7	15	1	39
Debris item	38	4	10	14	66	Debris item	17	2	18	3	40
Cigarettes	101	64	56	33	254	Cigarettes	17	12	34	21	84
Miscellaneous	98	26	60	20	204	Miscellaneous	74	22	65	5	166
TOTALS	349	128	248	112	837	TOTALS	203	92	218	83	596

All litter items collected, large and small, were included in this analysis

Table 7c. Camano Island, 2005 and 2006 (4 sites): SMALL items (<1") from designated 10% area.

	CA1-E Camano Dr at Camano Plaza	CA2-Arrowhead at Elem. School	CA3-Elger Bay Rd at Mountain View	CA4-Firwood Ln at W Camano Dr	TOTALS		CA1-E Camano Dr at Camano Plaza	CA2-Arrowhead at Elem. School	CA3-Elger Bay Rd at Mountain View	CA4-Firwood Ln at W Camano Dr	TOTALS
2005	CA1	CA 2	CA 3	CA 4	TOTALS	2006	CA1	CA 2	CA 3	CA 4	TOTALS
Cigarettes	25	12	11	13	61	Cigarettes	16	11	0	0	27
Candy/fast-food items	4	1	7	2	14	Candy/fast-food items	5	2	0	0	7
Polystyrene pellets/pcs	20	0	0	0	20	Polystyrene pellets/pcs	2	0	0	0	2
Paper	5	0	4	5	14	Paper	4	0	0	0	4
Plastic items	7	1	2	6	16	Plastic items	6	2	0	0	8
Glass	1	0	0	1	2	Glass	0	1	0	0	1
Metal	2	0	1	0	3	Metal	4	0	0	0	4
Miscellaneous	5	1	0	0	6	Miscellaneous	0	1	0	0	1
TOTALS	69	15	25	27	136	TOTALS	37	17	0	0	54

Only litter in the 10% "Small Item" area (categories 14.01-14.14) were included in this analysis

BEVERAGE CONTAINERS

It is commonly assumed that beer bottles and cans, along with cigarette filters, comprise the bulk of roadside litter. However, the majority of beverage containers we found were from *non-alcoholic* drinks (soda, water, juice, etc.): 59% in 2005 (n=265) and 57% in 2006 (n=105). In addition, in 2006 we added a new category and collected 24 "plastic bottle labels" which originated on water and soda bottles.

III. Discussion

Several years of data would be required to determine whether overall quantity of roadside litter in Island County is increasing or decreasing. Some sites had less litter in 2006 than in 2005, but others had more. However, the major *types* of litter found at each site in 2006 were similar to that in 2005. Overwhelmingly, other than cigarette filters, major contributors to roadside litter are one-time/fast-food items, product packaging, debris and miscellaneous items. Wrappers and bags from candy, gum, cookies, chips and other snacks comprise most of the one-time food items. Plastic non-food packaging and tobacco products – especially cigarette packs and plastic wrappers – are the major contributors in the product packaging category. The majority of debris items are paper towels/napkins/tissue, miscellaneous plastic film, and miscellaneous paper. Home and garden items are the largest component of the debris category.

For further discussion on interpretation of these surveys, please review last year's report.

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Additional Attachments (in files on disc)

- Adopt-a-Highway information acquired for Task 2
- Adopt-a-Road information acquired for Task 2
- Spreadsheets containing Site Descriptions, Survey Data, and Data Analysis