



## Summary of Co-permittee Street Sweeping Activities - FY 2004-2005

Municipality	Miles of Paved Streets	Total Miles Swept	Volume of Material Collected	Removal Rate Vol./ Mile	Leaf Litter Collected <sup>20</sup>
City of Cupertino <sup>1,2</sup>	308	8,795	2,400 yd <sup>3</sup>	0.27 yd <sup>3</sup> /miles	
City of Los Altos	108	7,682	1,772 yd <sup>3</sup>	0.23 yd <sup>3</sup> /miles	1,110 yd <sup>3</sup>
City of Los Altos Hills <sup>2,3,4</sup>	57	280			
City of Milpitas <sup>5,6</sup>	126	13,775	3,019 yd <sup>3</sup>	0.22 yd <sup>3</sup> /miles	
City of Mountain View	340	9,783	4,922 yd <sup>3</sup>	0.50 yd <sup>3</sup> /miles	721 yd <sup>3</sup>
City of Palo Alto	419	21,718	12,774 yd <sup>3</sup>	0.59 yd <sup>3</sup> /miles	2,205 <sup>7</sup> tons
					9,667 <sup>8</sup> tons
City of San Jose <sup>9,10,11,17</sup>	5,306	61,214	26,181 yd <sup>3</sup>	0.43 yd <sup>3</sup> /miles	145,712 tons
City of Santa Clara <sup>12</sup>	247	27,202	6,888 yd <sup>3</sup>	0.25 yd <sup>3</sup> /miles	2,183 yd <sup>3</sup>
City of Sunnyvale <sup>13</sup>	734	14,768	7,842 yd <sup>3</sup>	0.53 yd <sup>3</sup> /miles	3,942 yd <sup>3</sup>
West Valley Communities					
City of Campbell <sup>1,14</sup>	149	7,073	2,321 yd <sup>3</sup>	0.33 yd <sup>3</sup> /miles	6,782 tons
Town of Los Gatos <sup>1,14</sup>	110	10,333	2,690 yd <sup>3</sup>	0.26 yd <sup>3</sup> /miles	7,735 tons
City of Monte Sereno <sup>1,14</sup>	28	217	65 yd <sup>3</sup>	0.30 yd <sup>3</sup> /miles	1,020 tons
City of Saratoga	275	3,495	705 yd <sup>3</sup>	0.20 yd <sup>3</sup> /miles	10,939 <sup>14</sup> tons
					24 <sup>15</sup> yd <sup>3</sup>
County of Santa Clara <sup>2</sup>	232	12,053	3,403 yd <sup>3</sup>	0.28 yd <sup>3</sup> /miles	
Santa Clara Valley Water District <sup>16</sup>					
<b>TOTALS<sup>18</sup></b>	<b>8,439 miles</b>	<b>198,108 miles</b>	<b>74,982 yd<sup>3</sup></b> <b>(28,118 tons)<sup>19</sup></b>		<b>184,060 tons</b>
					<b>7,980 yd<sup>3</sup></b>
<b>TOTAL MILES</b>		<b>198,388 miles</b>			
<b>AVERAGE<sup>18</sup></b>		<b>15,239 miles</b>	<b>5,768 yd<sup>3</sup></b>	<b>0.38 yd<sup>3</sup>/miles</b>	

**Notes:**

1. Leaf litter included in material removed.
2. No leaf removal program other than routine street sweeping.
3. The selected streets were swept on a monthly basis. The trash swept from the streets were tree leaves and branches.
4. Los Altos Hills does not quantify street sweeping data.
5. Street sweeping totals for November 2004 are not included.
6. The volume of material collected does not include leaves. Leaf removal program is effective in November and December 2004. The City of Milpitas does not keep track of the volume of leaves removed since leaf bags are picked up by solid waste garbage trucks.
7. This figure is a combined figure that includes the weight of the material tabulated above PLUS the leaves collected by our autumn leaf pushing and pickup program. Since all of the material (both street sweeping and debris and leaves gathered by leaf pusher trucks) is combined and hauled to the landfill in garbage compactor trucks, there is no way to provide a separate figure for leaf removal.
8. This figure is the total weight of the material collected by the City of Palo Alto Yard Trimmings Pickup Program. Material collected includes leaves, grass clippings, tree trimmings, etc. The City of Palo Alto does not have the ability to separate out the weight or volume of leaves alone.
9. Starting July 1, 2004, the City of San Jose started reporting the yard trimmings collected by the City's Yard Trimmings Program. Leaf litter is co-mingled within yard trimmings. As a result, the Yard Trimmings Program is keeping a large amount of leaves out of the storm drain system.
10. The percentage of leaves within yard trimmings during quarters 1, 3 and 4 ranges from 15 to 20 percent. However, the percentage of leaves within yard trimmings during quarter 2 (heavy leaf drop period) is estimated at 65 percent.
11. Approximately seven days of street sweeping were cancelled due to rain.
12. Leaf litter is removed by leaf vacuum crews. A total of 1,373 curb miles were completed during FY 04-05.
13. Street sweeping frequency is increased during heavy leaf drop season. The frequency is returned to a reduced schedule during other seasons.
14. Residents and businesses are provided large yard waste receptacles for leaves and other yard waste. This figure is the total weight of yard waste collected within each city during FY 04-05. The weight or volume of leaves is included in the total weight.
15. Volume of leaves collected from an extra leaf drop cleanup conducted in December 2004. Leaf litter was collected without a street sweeper.
16. Does not conduct street sweeping.
17. The City of San Jose collects and reports the amount of material removed in tons rather than cubic yards. During FY 04-05, the City removed 9,818 tons of material. To determine the total volume of material removed in cubic yards, it is necessary to convert tons to cubic yards. It is estimated that the average density of street sweeping material is 750 pounds per cubic yard (0.375 tons per cubic yard) assuming equal volume of materials are collected during dry and wet weather (Source: Woodward Clyde Consultants, August 1993, *Street Sweeping Status and Recommendation (Draft Report)* Prepared for Santa Clara Valley Nonpoint Source Control Program). As a result, a value of 26,181 cubic yards is calculated when 9,818 tons is converted over to cubic yards (9,818 tons \* 1 cubic yard/.375 tons= 26,181 cubic yards).
18. Total and average does not include 280 miles swept by the Town of Los Altos Hills.
19. A value of 28,118 tons is calculated when 74,982 cubic yards is converted over to tons (74,982 cubic yards \* .375 tons/cubic yard= 28,118 tons).
20. Includes total weight of yard trimmings collected by individual Co-permittees. Leaf litter is co-mingled with yard trimmings. Co-permittees do not have the ability to separate the weight or volume of leaves from this waste stream.

## Summary of Co-permittee Street Sweeping Activities and Estimated Mean Pollutant Load Reduction for Copper and Nickel - FY 2004-2005

Municipality	Miles of Paved Streets	Miles Swept				Volume of Material Collected (Cubic Yards)				Estimated Mean Pollutant Load Reduction (Pounds)								
										Copper <sup>10</sup>				Nickel <sup>11</sup>				
		Res.	Com.	Ind.	Total	Res.	Com.	Ind.	Total	Res.	Com.	Ind.	Total	Res.	Com.	Ind.	Total	
City of Cupertino <sup>1</sup>	308	6,682	2,113		8,795	1,526	874		2,400	27	15	---	42			30	---	30
City of Los Altos	108	5,100	2,582		7,682	1,156	616		1,772	20	11	---	31	40	21	---		62
City of Los Altos Hills <sup>2,3</sup>	57	280			280					---	---	---	---	---	---	---	---	---
City of Milpitas <sup>4,5</sup>	126	6,371	7,404		13,775	1,479	1,540		3,019	26	27	---	53	52	53	---		105
City of Mountain View	340	4,248	1,964	3,571	9,783	2,137	989	1,796	4,922	38	17	168	223	74	34	33		141
City of Palo Alto	419	14,216	4,982	2,520	21,718	11,094	1,315	365	12,774	196	23	34	253	387	45	7		439
City of San Jose <sup>6,9</sup>	5,306	35,016	26,198		61,214	14,601	11,580		26,181	257	202	---	459	509	400	---		908
City of Santa Clara	247	21,454	248	5,500	27,202	5,423	64	1,401	6,888	96	1	131	228	189	2	25		217
City of Sunnyvale <sup>7</sup>	734	10,478	4,290		14,768	6,069	1,773		7,842	107	31	---	138	212	61	---		273
West Valley Communities																		
City of Campbell <sup>1</sup>	149	5,454	1,619		7,073	1,327	994		2,321	23	17	---	41	46	34	---		81
Town of Los Gatos <sup>1</sup>	110	6,913	3,420		10,333	1,748	942		2,690	31	16	---	47	61	32	---		93
City of Monte Sereno <sup>1</sup>	28	217			217	65			65	1	---	---	1	2	---	---		2
City of Saratoga	275	3,495			3,495	705			705	12	---	---	12	25	---	---		25
County of Santa Clara	232	554	11,499		12,053	156	3,247		3,403	3	57	---	59	5	112	---		117
Santa Clara Valley Water District <sup>8</sup>																		
<b>TOTALS</b>	<b>8,439</b>	<b>120,478</b>	<b>66,319</b>	<b>11,591</b>	<b>198,388</b>	<b>47,486</b>	<b>23,934</b>	<b>3,562</b>	<b>74,982</b>	<b>837</b>	<b>417</b>	<b>333</b>	<b>1588</b>	<b>1602</b>	<b>826</b>	<b>64</b>		<b>2492</b>

**Notes:**

1. Leaf litter included in material removed.
2. The selected streets were swept on a monthly basis. The trash swept from the streets were tree leaves and branches.
3. Los Altos Hills does not quantify street sweeping data.
4. Street sweeping totals for November 2004 are not included.
5. The volume of material collected does not include leaves. Leaf removal program is effective in November and December 2004. The City of Milpitas does not keep track of the volume of leaves removed since leaf bags are picked up by solid waste garbage trucks.
6. Approximately seven days of street sweeping were cancelled due to rain.
7. Street sweeping frequency is increased during heavy leaf drop season. The frequency is returned to a reduced schedule during other seasons.
8. Does not conduct street sweeping.
9. The City of San Jose collects and reports the amount of material removed in tons rather than cubic yards. During FY 04-05, the City removed 9,818 tons of material. To determine the total volume of material removed in cubic yards, it is necessary to convert tons to cubic yards. It is estimated that the average density of street sweeping material is 750 pounds per cubic yard (0.375 tons per cubic yard) assuming equal volume of materials are collected during dry and wet weather (Source: Woodward Clyde Consultants, August 1993, *Street Sweeping Status and Recommendation (Draft Report)*. Prepared for Santa Clara Valley Nonpoint Source Control Program). As a result, a value of 26,181 cubic yards is calculated when 9,818 tons is converted over to cubic yards (9,818 tons\*1 cubic yard/.375 tons = 26, 181 cubic yards).
10. To determine the estimated pollutant load reduction of copper (in pounds), the volume of material collected from each Co-permittee land use type (i.e., residential, commercial and industrial) was multiplied by the mean concentration of trace metal content for street sweeping samples determined in the study entitled *Chemical and Physical Characteristics of Street Sweeping Sediments in Tampa, Florida, May 1999*. In this study, the mean copper concentration for samples collected in residential areas (n=51) was 23.51 mg/kg. In addition the mean copper concentrations for samples collected in commercial (n=17) and industrial (n=7) areas was 23.24 mg/kg and 124.71 mg/kg, respectively. These values were then converted over to pounds and summed to represent the estimated mean pollutant load reduction for copper. A sample calculation is as follows: (1526\*23.51\*2000\*0.375)/(1000\*1000) = 26.91
11. To determine the estimated pollutant load reduction of nickel (in pounds), the volume of material collected from each Co-permittee land use type (i.e., residential, commercial and industrial) was multiplied by the mean concentration of trace metal content for street sweeping samples determined in the study entitled *Chemical and Physical Characteristics of Street Sweeping Sediments in Tampa, Florida, May 1999*. In this study, the mean nickel concentration for samples collected in residential areas (n=51) was 46.47 mg/kg. In addition the mean nickel concentrations for samples collected in commercial (n=17) and industrial (n=7) areas was 46.00 mg/kg and 24.14 mg/kg, respectively. These values were then converted over to pounds and summed to represent the estimated mean pollutant load reduction for nickel. A sample calculation is as follows: (1156\*46.47\*2000\*0.375)/(1000\*1000)= 40.29



## Summary of Co-permittee Street Sweeping Activities and Estimated Mean Pollutant Load Reduction for Lead and Zinc - FY 2004-2005

Municipality	Miles of Paved Streets	Miles Swept				Volume of Material Collected (Cubic Yards)				Estimated Mean Pollutant Load Reduction (Pounds)							
										Lead <sup>10</sup>				Zinc <sup>11</sup>			
		Res.	Com.	Ind.	Total	Res.	Com.	Ind.	Total	Res.	Com.	Ind.	Total	Res.	Com.	Ind.	Total
City of Cupertino <sup>1</sup>	308	6,682	2,113		8,795	1,526	874		2,400	50	73	---	123	67	52	---	119
City of Los Altos	108	5,100	2,582		7,682	1,156	616		1,772	38	51	---	89	51	36	---	87
City of Los Altos Hills <sup>2,3</sup>	57	280			280					---	---	---	---	---	---	---	---
City of Milpitas <sup>4,5</sup>	126	6,371	7,404		13,775	1,479	1,540		3,019	49	128	---	177	65	91	---	156
City of Mountain View	340	4,248	1,964	3,571	9,783	2,137	989	1,796	4,922	70	82	158	310	94	58	130	283
City of Palo Alto	419	14,216	4,982	2,520	21,718	11,094	1,315	365	12,774	364	109	32	506	491	78	26	595
City of San Jose <sup>6,9</sup>	5,306	35,016	26,198		61,214	14,601	11,580		26,181	480	964	---	1444	646	683	---	1329
City of Santa Clara	247	21,454	248	5,500	27,202	5,423	64	1,401	6,888	178	5	123	306	240	4	101	345
City of Sunnyvale <sup>7</sup>	734	10,478	4,290		14,768	6,069	1,773		7,842	199	148	---	347	268	105	---	373
West Valley Communities																	
City of Campbell <sup>1</sup>	149	5,454	1,619		7,073	1,327	994		2,321	44	83	---	126	59	59	---	117
Town of Los Gatos <sup>1</sup>	110	6,913	3,420		10,333	1,748	942		2,690	57	78	---	136	77	56	---	133
City of Monte Sereno <sup>1</sup>	28	217			217	65			65	2	---	---	2	3	---	---	3
City of Saratoga	275	3,495			3,495	705			705	23	---	---	23	31	---	---	31
County of Santa Clara	232	554	11,499		12,053	156	3,247		3,403	5	270	---	275	7	192	---	198
Santa Clara Valley Water District <sup>8</sup>																	
<b>TOTALS</b>	<b>8,439</b>	<b>120,478</b>	<b>66,319</b>	<b>11,591</b>	<b>198,388</b>	<b>47,486</b>	<b>23,934</b>	<b>3,562</b>	<b>74,982</b>	<b>1560</b>	<b>1993</b>	<b>313</b>	<b>3865</b>	<b>2100</b>	<b>1412</b>	<b>257</b>	<b>3769</b>

**Notes:**

1. Leaf litter included in material removed.
2. The selected streets were swept on a monthly basis. The trash swept from the streets were tree leaves and branches.
3. Los Altos Hills does not quantify street sweeping data.
4. Street sweeping totals for November 2004 are not included.
5. The volume of material collected does not include leaves. Leaf removal program is effective in November and December 2004. The City of Milpitas does not keep track of the volume of leaves removed since leaf bags are picked up by solid waste garbage trucks.
6. Approximately seven days of street sweeping were cancelled due to rain.
7. Street sweeping frequency is increased during heavy leaf drop season. The frequency is returned to a reduced schedule during other seasons.
8. Does not conduct street sweeping.
9. The City of San Jose collects and reports the amount of material removed in tons rather than cubic yards. During FY 04-05, the City removed 9,818 tons of material. To determine the total volume of material removed in cubic yards, it is necessary to convert tons to cubic yards. It is estimated that the average density of street sweeping material is 750 pounds per cubic yard (0.375 tons per cubic yard) assuming equal volume of materials are collected during dry and wet weather (Source: Woodward Clyde Consultants, August 1993, *Street Sweeping Status and Recommendation (Draft Report)*. Prepared for Santa Clara Valley Nonpoint Source Control Program). As a result, a value of 26,181 cubic yards is calculated when 9,818 tons is converted over to cubic yards (9,818 tons\*1 cubic yard/.375 tons = 26, 181 cubic yards).
10. To determine the estimated pollutant load reduction of lead (in pounds), the volume of material collected from each Co-permittee land use type (i.e., residential, commercial and industrial) was multiplied by the concentration of trace metal content for street sweeping samples determined in the study entitled *Street Sweeping for Pollutant Removal, Department of Environmental Protection, Montgomery County, Maryland, February 2002*. In this study, the lead concentration for samples collected in residential areas was 43.8 mg/kg. In addition the lead concentrations for samples collected in commercial and industrial areas was 111 mg/kg and 117 mg/kg, respectively. These values were then converted over to pounds and summed to represent the estimated mean pollutant load reduction for lead. A sample calculation is as follows: (1526\*43.8\*2000\*0.375)/(1000\*1000)= 50.13.
11. To determine the estimated pollutant load reduction of zinc (in pounds), the volume of material collected from each Co-permittee land use type (i.e., residential, commercial and industrial) was multiplied by the mean concentration of trace metal content for street sweeping samples determined in the study entitled *Chemical and Physical Characteristics of Street Sweeping Sediments in Tampa, Florida, May 1999*. In this study, the mean zinc concentration for samples collected in residential areas (n=51) was 58.96 mg/kg. In addition the mean zinc concentrations for samples collected in commercial (n=17) and industrial (n=7) areas was 78.65 mg/kg and 96.29 mg/kg, respectively. These values were then converted over to pounds and summed to represent the estimated mean pollutant load reduction for zinc. A sample calculation is as follows: (1526\*46.47\*2000\*0.375)/(1000\*1000)= 67.48