

Natural Environment Issues

Community Goals

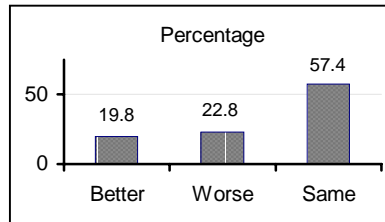
By the Year 2004, the water demand and supply will be in balance (sustainable yield).

By the Year 2004, environmental stewardship will increase within Santa Cruz County.

By the Year 2004, open space, wetlands and protected habitats will be increased and improved.

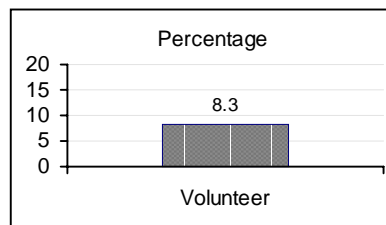
Benchmarks

Water Quality



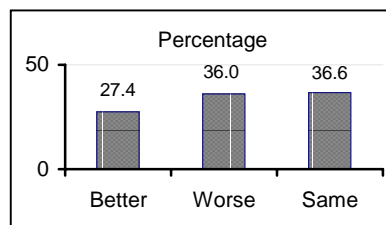
✓ Respondent's views on how county is addressing drinking water quality

Environmental Stewardship



✓ Percent of respondents who indicate they volunteer in environmental organizations and activities
 Note: This data can be found in Social Environment and the appendix.

Open Space



✓ Respondents views on the County's job of preserving open space.

Community Quotes:

“Citizens don’t know about the natural environment and they abuse it.”

“Santa Cruz County is a beautiful place to live. If we take action to protect our ocean and our forests, we can preserve this beauty for generations to come.”

“It is important to realize that our natural resources are limited. We need to foster alternative means of transportation to reduce pollution and preserve our supply of oil.”

Natural Environment Summary

Why do Santa Cruz County residents live in the county? Since the Santa Cruz Community Assessment Project began five years ago, survey respondents have continued to say that the number one factor contributing to their quality of life is the county's scenery, geography, and climate (73%). In fact, since 1996, the percentage of people who feel this way has increased 25%.

Over the past five years, it has been increasingly clear that understanding local issues of the natural environment is linked with efforts to improve our quality of life in the other areas of CAP focus, particularly Economy, Health and Education. In 1999, the Santa Cruz Community Assessment Project (CAP) included Natural Environment for the first time as a new research area of the project.

The 1999 CAP survey indicates that residents do have concerns about the preservation of the natural environment. The top four concerns regarding the natural environment were: air pollution (14.8%); the development of open spaces and the preservation of agricultural land (12.7%); water pollution (11.2%); and lack of the preservation of natural environment and wildlife (8.8%). When asked what detracts from their quality of life, respondents cite the cost of housing, traffic and overcrowding; three issues which each have a direct and indirect impact on the natural environment.

The present first-year scan of the environment reveals both assets and areas of concern. For instance, despite an inflated housing market, population increases, and housing shortages, loss of agricultural and other lands remained at a minimum. Since 1990, only 675 of the county's 286,739 acres have been converted to urban purposes. Since then, agricultural land has also remained largely intact, comprising about 14.4% of the county's land and urban and built up land is also holding steady at about 9.7%. Open space and other kinds of protected lands currently comprise more than 20% of the county, and equal to more than 236.9 acres per 1,000 people.

Water quality continues to be an important issue for the county, particularly concerning the health of our rivers and drinking water. There is evidence of nitrate contamination of monitoring wells, and chloride contamination in some areas has been linked to the over pumping of the Pajaro Valley Aquifer. Increasing sedimentation in county rivers has also contributed to declines in local Coho Salmon populations.

Motor vehicles per capita have also increased slightly since 1990, from 1.13 vehicles per person to 1.26 in 1998. Thankfully, ozone levels remain low, and there were fewer days that exceeded safe standards of ozone at the close of the decade than at the beginning. The county however has seen a marked upward trend in the number of days exceeding safe levels of airborne particulate matter.

Special thanks to Dan Haifley of O'Neil Sea Odyssey for contributing to this summary.

*Quality of Life
Indicator 95*

 **Concern for the Environment**

What one thing concerns you most about the natural environment?

Response	1999
Air pollution (primarily car emissions)	14.8
Development of open space / agricultural land	12.7
Water pollution	11.2
No preservation of natural environment / wildlife	8.3
Pollution	8.0
Water quality	7.4
Overpopulation	5.2
Traffic / Too many cars	4.7
Nothing	4.7
Pesticides / Herbicides	3.6
Cutting down trees / Commercial logging	3.3
Litter	2.4
Water availability / Salt water intrusion	1.8
Noise pollution	0.2
Other	7.8
Don't know	4.0
Total Responses	553

Source: Santa Cruz County Community Assessment Project, Telephone Survey.

*Quality of Life
Indicator 96*

Habitat Preservation

The amount of protected acreage measures how much of the county is reserved for special status plant and animal species, recreation, education, research and is protected from development.

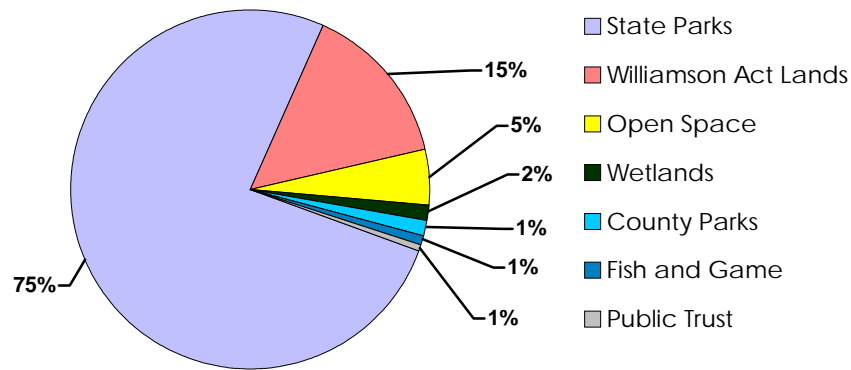
Summary of Protected County Habitat Acres, 1999

	Santa Cruz	Acres Per 1,000 people
Open Space	3,039	12.0
Land Trusts	395	1.6
Wetlands	899	3.6
County Parks	809	3.2
State Parks	45,568	180.3
Williamson Act Lands	8,744	34.6
Fish and Game areas	422	1.7
Total Protected Acres	59,876	236.9
Total Acres in County	286,739	1,134.0
Percent Protected Acres	20.8	--

Source: Santa Cruz Public Land Trust, County Planning Department, Coastal Commission, Department of Fish and Game, University of Santa Cruz, Environmental Studies Department, Department of Finance, 1999.

Note: Fish and Game also administers 853 acres of land in partnership with other public agencies. Calculations per 1,000 people are based on a January 1999 County Population of 252,750.

County Protected Lands by Type and Percent Share



*Quality of Life
Indicator 97*

Open Space

The natural beauty of Santa Cruz County, including open space, is the number one factor that contributes to survey respondents' quality of life.

✓ **Benchmark Indicator**

Acres of Open Space*

Park Name	Total Acres
Aptos Village County Park	12.5
Bert Scott Estate	31.5
Freedom Lake	34
Greyhound Rock	70
Highlands Park	26
ONeil Ranch	83
Pinto Lake County Park	113
Quail Hollow Ranch	300
Schwann Lagoon	92
Scott Creek Beach and Bluffs	39
Seascape Benchlands	10
Long Ridge	471
Arana Gulch	63
DeLaveaga	565
Harvey West	55
Moore Creek (Bombay)	249
Neary Lagoon	44
Pogonip	640
San Lorenzo Park	13
Lodato Park	49
Sky Park	22
Pinto Lake City Park	25
Ramsay Park	32
Total Open Space Acres in County	3,039
Total Acres in County	286,739
Percent Open Space Acres	1.1
Open Space Acres per 1,000 residents	12.0

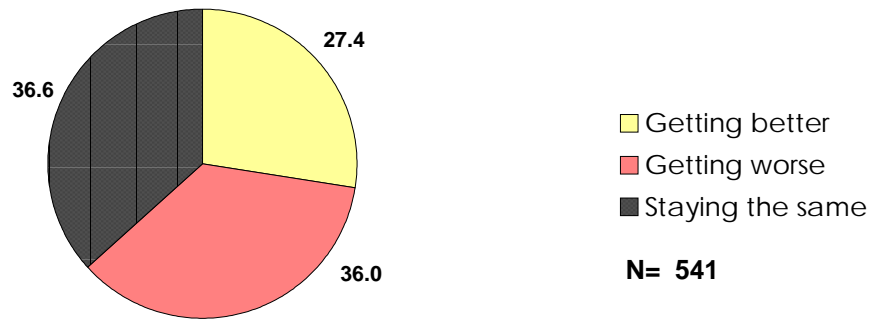
Source: University of California Santa Cruz, Environmental Studies Department, 1999.

Open Space is defined by Professor Press (UCSC) as “parks and open space that are owned and administered by the local government.”.

*Quality of Life
Indicator 97*

📞 Open Space (Continued)

How are we doing as a County to preserve open space?



Demographic Comparisons

Percent of respondents who think the County is getting better at preserving open space:

Demographics	1999
Caucasian	26.0
Latino	35.2
North County	26.6
South County	31.7
San Lorenzo Valley	22.0
18-24	17.7
25-44	29.1
45-64	26.7
65 and older	34.2
Male	29.0
Female	25.9
Under \$15,000 per year	31.3
\$15,000 - \$34,999 per year	30.2
\$35,000 - \$64,999 per year	32.4
Over \$65,000 per year	19.5
Total Respondents	541

Source: Santa Cruz County Community Assessment Project, Telephone Survey.

*Quality of Life
Indicator 98*

Land Trust Lands

Land Trusts allow for the private conservation of land.

Land held by Land Trust of Santa Cruz County

Location	1999
Adams Ranch (Santa Cruz summit)	45
Alfadel Road (Soquel)	2.5
Antanelli Pond/ Moore Creek Corridor (wetlands)	18.5
Bear Creek Road (conservation easement)	4.5
Corrolitos Mountains	322
Green Space (neighborhood park- Soquel)	0.25
Swanton Road (conservation easements)	2
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Total Land Trust Acres in County	394.75
Total Acres in County	286,739
Percent Land Trust Acres	0.1
Land Trust Acres per 1,000 residents	1.6

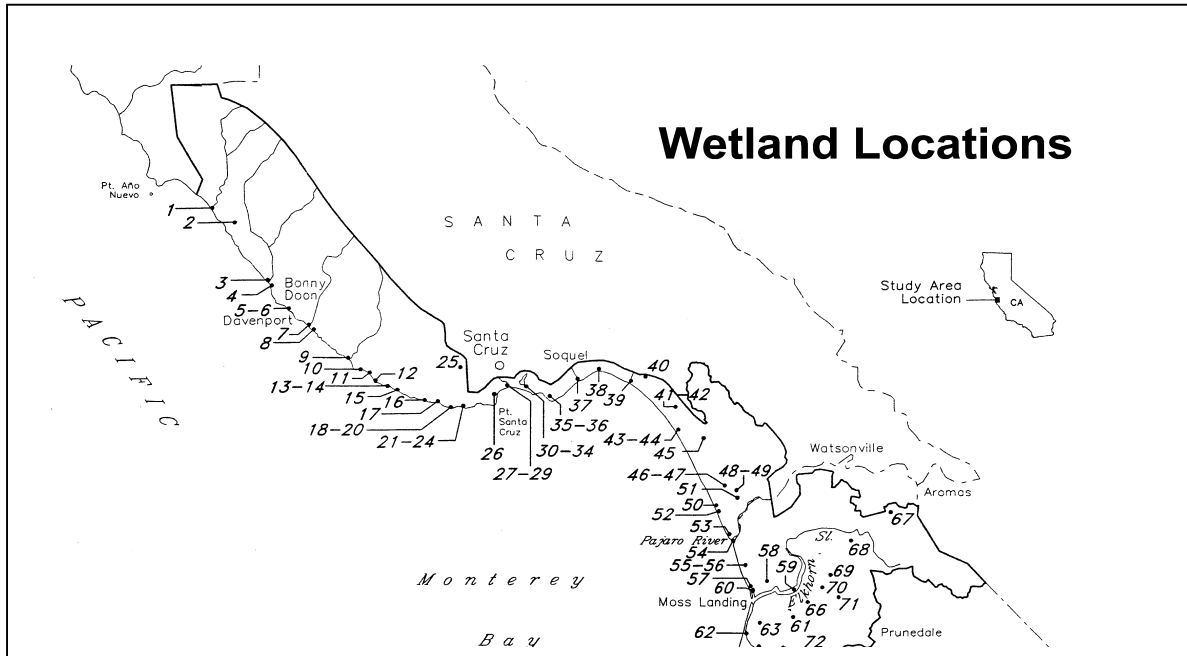
Source: Land Trust of Santa Cruz County, 1999.

Note: Land Trusts provide a way for private parties to purchase, acquire through donation, and/ or permanently protect land through conservation easements (although not all Land Trust lands are easements). Placing an easement on a parcel of land requires adding restrictions to the deed that protect it from being developed in the future. Such land may be sold, donated, or otherwise change hands further, but the conservation easement status is permanently attached to the deed.

Quality of Life
Indicator 99

Wetlands

Wetlands inventory, monitoring and preservation is vital given their role in aquatic and terrestrial ecosystems, flood control, ground water recharge, and maintenance of water quality.



1	Waddell Creek Marsh And Estuary	15	Lombardi Gulch	28	Jessie St. Marsh	41	Bonita Drive Creek
2	Last Chance Road Marsh	16	Old Dairy Gulch Marsh	29	Seabright Cove Drainage Outlet	42	Seascape Pond
3	Scott Creek Marsh	17	Wilder Creek	30	Arana Gulch Marsh	43	Las Barrancas Drainage Outlet
4	Molino Creek Marsh	18	Younger Lagoon	31	Schwann's Lagoon	44	Manresa Drainage Outlet
5	Davenport Landing Marsh	19	Terrace Point Lower Ponds	32	Black's Pond	45	Ellicot Station Pond
6	Silverking Ponds	20	Terrace Point Upper Pond	33	Bonita Lagoon	46	Galligahn Slough
7	Sa Vicente Creek	21	De Anza Pond	34	Sunny Cove Drainage Outlet	47	Harkin's Slough
8	Liddell Creek	22	Natural Bridges Lagoon	35	Corcoran Lagoon	48	Hanson Slough
9	Laguna Creek	23	Antonelli Pond	36	Moran Lake	49	W. Branch Struve Slough
10	Sand Hill Bluff Marsh And Pond	24	Monarch Pond	37	Soquel Lake	50	Sunset Beach FW Marsh
11	Majors Creek	25	UCSC Inclusion Area 4, Seasonal Wetlands	38	Borregas Creeek	51	Upper Watsonville Slough
12	Table Rock Wetland	26	Neary's Lagoon	39	Aptos Creek	52	Shorebird Pond
13	Baldwin Creek Marsh	27	San Lorenzo River	40	Valencia Lagoon	53	Lower Watsonville Slough
14	Four-Mile Beach					54	Pajaro River

Total Wetland Acres in County	899.16
Total Acres in County	286,739
Percent Wetland Acres	0.3
Wetland acres per 1,000 residents	3.6

Source: California Coastal Commission, ReCAP Pilot Project Findings and Recommendations, 1999.

*Quality of Life
Indicator 100*

Park Lands

State parks ensure that the biodiversity of county lands is protected through public trust while also allowing for regulated recreational use by visitors.

Acres of State Park Lands

Park	1996
Henry Cowell	1,737
Fall Creek	2,522
Nisene Marks	10,062
Manresa	138
Santa Cruz Mission	2
Natural Bridges	53
New Brighton	166
Rio/ Seacliff	87
Palm/ Sunset	302
Twin Lakes	94
Wilder Ranch	6,805
Big Basin	20,000
Castle Rock	3,600
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Total Park Acres	45,568
Total Acres in County	286,739
Percent Park Acres	15.9
Park acres per 1,000 residents	180.28

Source: California State Parks, 1999.

*Quality of Life
Indicator 101*

Miles of Trails

A measure of available mileage for non-motorized outdoor recreation.

Recreation Trails by Location and Length in Miles

Park	1996
Henry Cowell	17
Fall Creek	19
Nisene Marks	22
Manresa	4
Santa Cruz Mission	0.1
Natural Bridges	1
New Brighton	2
Rio/ Seacliff	2
Palm/ Sunset	2
Twin Lakes	2
Wilder Ranch	25
Big Basin	83
Castle Rock	35
Total Miles	213

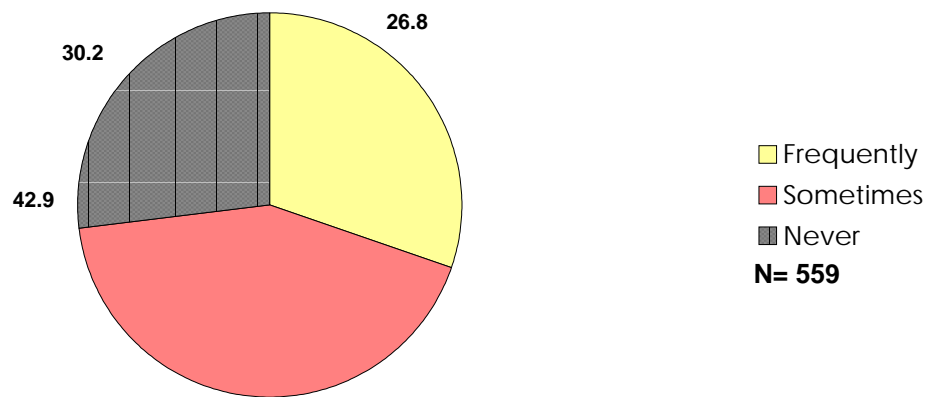
Source: California State Parks, 1999.

Note: Recreational Trails are those for hiking, biking, horse, etc. Totals may not add due to independent rounding.

*Quality of Life
Indicator 102*

☎ Park Use

How often do you or your family members use neighborhood parks?



Source: Santa Cruz County Community Assessment Project, Telephone Survey.

*Quality of Life
Indicator 102*

** Park Use (Continued)
Demographic Comparisons**

Percent of respondents (or respondent's family) that uses neighborhood parks "frequently":

Demographics	1999
Caucasian	28.1
Latino	42.7
North County	30.4
South County	30.1
San Lorenzo Valley	30.0
18-24	25.6
25-44	40.7
45-64	26.4
65 and older	14.8
Male	30.0
Female	30.2
Under \$15,000 per year	30.4
\$15,000 - \$34,999 per year	27.7
\$35,000 - \$64,999 per year	33.3
Over \$65,000 per year	28.9
Total Respondents	559

Source: Santa Cruz County Community Assessment Project, Telephone Survey.

*Quality of Life
Indicator 103*

Farmland Acreage

Farmland in Santa Cruz County provides both revenue and open space for residents. Changes to agricultural land, including conversion to urban uses, is monitored by the California Department of Conservation.

Farmland Acreage by Type of Production

	1994	1995	1996	1997	1998	% Change
Berries	4,594	4,563	4,563	4,815	4,286	-11.0
Tree and Fruit Vines	4,028	4,077	4,077	3,842	3,654	-4.9
Vegetables	11,606	11,766	12,590	12,726	10,955	-13.9
Nursery and Ornamental Crops	993	1,320	1,296	1,422	1,422	0.0
Field Crops	8,700	8,700	8,700	8,700	8,600	-1.1
Total Acres	29,921	30,426	31,226	31,787	28,917	-9.0

Source: County Agricultural Commissioner, Santa Cruz County Crop Report, 1999.

Definitions of Farmland

Prime Farmland is land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods.

Farmland of Statewide Importance is land other than Prime Farmland which has a good combination of physical and chemical characteristics for the production of crops.

Unique Farmland is land which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, and that has been used for the production of specific high economic value crops.

Farmland of Local Importance is either currently producing crops, or has the capability of production. This is land other than the three definitions above.

Grazing Land is land on which the existing vegetation whether grown naturally or through management is suitable for grazing or browsing of livestock. The minimum mapping unit is 40 acres.

*Quality of Life
Indicator 103*

Farmland Acreage

Conversion of Santa Cruz County Land, by Category

Type of Land	1990	1992	1994	1996	Acres + / - 1990-96
Total Important Farmland:	25,371	25,551	25,254	25,186	-185
- Prime Farmland	17,392	17,401	17,262	17,194	-198
- Statewide Importance	3,082	3,124	3,114	3,072	-10
- Unique	4,251	4,334	4,160	4,202	-49
- Local Importance	646	692	718	718	72
Grazing Land	16,818	16,791	16,615	16,187	-631
Total Agricultural Land	42,189	42,342	41,869	41,373	-816
% of county land	14.7	14.8	14.6	14.4	--
Urban and Built Up Land	27,205	27,504	27,585	27,708	503
% of county land	9.5	9.6	9.6	9.7	--
Other Land	215,696	215,244	215,804	216,177	481

Source: California Department of Conservation, Farmland Conversion Reports, 1999

Conversion of Agricultural Land to Urban Uses, in Acres

	1990-1992	1992-1994	1994-1996	Total
Farmland acres to Urban	39	20	78	137
Other Land	283	210	45	538
Total Land acres to Urban*	322	230	123	675

Source: Farmland Conversion Reports, California Department of Conservation, 1999.

*Quality of Life
Indicator 104*

Health of County Waterways

Watershed profiles provide an indication of the amount of human activity occurring within the watershed and the implicit health of the system.

San Lorenzo- Soquel Watershed

	1997
Average Precipitation per year, in inches	39.9
Naturally Occurring Waterways, in miles	508
Percentage of Free-Flowing River Miles	82%
Number of Dams	11
Near-stream roads, in miles	358
Number of Stream Crossings	622
Total Watershed acres	234,839
Percent of Protected lands in Watershed	17%
Percentage of River Miles in Protected Lands	16%
Number of Special Status Species	26

Pajaro Watershed

	1997
Average Precipitation per year, in inches	19.8
Naturally Occurring Waterways, in miles	1,970
Percentage of Free-Flowing River Miles	92%
Number of Dams	16
Near-stream roads, in miles	790
Number of Stream Crossings	1,787
Total Watershed acres	838,326
Percentage of River Miles in Protected Lands	4%
Percent of Protected lands in Watershed	3%
Number of Special Status Species	29

Source: California Resources Agency, 1997 California Rivers Assessment.

Notes: Human activity within watersheds can have detrimental effects on water quality. The integrity of riparian areas is perhaps the best indicator of watershed health. Roads and crossings are a source of disturbance to wildlife, a source of non-point source pollution, and break the continuity of riparian habitat.

The two primary watersheds in the county extend into other neighboring counties.

*Quality of Life
Indicator 104*

Health of County Waterways (Continued)

An inventory of major county waterways that are monitored by the California Regional Water Quality Control Board and the degree to which they are impaired by pollutants.

Percent Impairment of County Waterways

Name	Coho Salmon Habitat?	Total Size	% Impairment			
			1989	1994	1998	% Change
Aptos Creek	Yes	10 miles	12.5	50.0	40.0	-20.0
Carbonera Creek	No	10 miles	100.0	100.0	100.0	0.0
Lompico Creek	Yes	5 miles	100.0	100.0	100.0	0.0
Pajaro River	No	49 miles	0.0	* 0.0	100.0	100.0
San Lorenzo River	Yes	25 miles	20.0	60.0	100.0	66.7
San Lorenzo River Estuary	No	20 acres	100.0	100.0	100.0	0.0
Shingle Mill Creek	No	2 miles	100.0	100.0	100.0	0.0
Schwan Lake	No	32 acres	100.0	100.0	100.0	0.0
Soquel Lagoon	No	2 acres	100.0	100.0	100.0	0.0
Valencia Creek	No	7 miles	100.0	100.0	100.0	0.0
Waddell Creek (East Branch)	Yes	4 miles	100.0	100.0	75.0	-25.0
Watsonville Slough	No	300 acres	100.0	100.0	100.0	0.0

Source: California Environmental Protection Agency, State Water Resources Control Board, California 303 (d) List and TMDL Priority Schedule, 1998.

Note: The State has used three categories to assess the health of local waterways; good, intermediate, and impaired. "Good" waters support and enhance designated use with minor or no known impairment of water quality. "Intermediate" waters support designated use with minor or moderate impairment of water quality. "Impaired" waters do not support designated uses with moderate to severe impairment of water quality.

Percentages above are for those waterways that have a portion or all of its area/length listed as "impaired". In 1994, the entire Pajaro River was giving signs of increasing pollution; water quality was listed as "intermediate", but not yet "impaired". By 1998, 100% of the river was officially impaired.

*Quality of Life
Indicator 104*

Health of County Waterways (Continued)

Inventory of Impaired County Waterways, 1998

Name	Pollutant	Source	Priority
Aptos Creek	Pathogens	Urban runoff, storm sewers	Low
	Sedimentation	Disturbed sites (land development), channel erosion	Medium
Carbonera Creek	Nutrients	Nonpoint source	High
	Pathogens	Urban runoff, storm sewers, nonpoint source	Medium
	Sedimentation	Construction/ land development	High
Lompico Creek	Nutrients	Septage disposal	High
	Pathogens	Septage disposal, natural sources, nonpoint source	Medium
	Sedimentation	Construction/ land development, natural sources	High
Pajaro River	Nutrients	Agricultural runoff, removal of riparian vegetation, urban runoff/storm sewers, waste water/ land disposal, etc	High
	Sedimentation	Agricultural runoff, removal of riparian vegetation, streambed modification, surface mining, range land, etc.	Medium
San Lorenzo River	Nutrients	Septage disposal, nonpoint source	High
	Pathogens	Urban runoff, storm sewers, nonpoint source	High
	Sedimentation	Silviculture, construction / land development, urban runoff and sewers	High
San Lorenzo River Estuary	Pathogens	Urban runoff/ storm sewers, natural sources	Medium
	Sedimentation	Hydromodification	High
Shingle Mill Creek	Nutrients	Septage disposal,	High
	Sedimentation	Agriculture, construction, development.	High
Schwan Lake	Nutrients	Nonpoint source	Low
	Pathogens	Urban run-off, storm sewers, natural sources	Low
Soquel Lagoon	Nutrients	Septage disposal, nonpoint source	Low
	Pathogens	Urban runoff, storm sewers, nonpoint source, natural sources	Low
	Sedimentation	Construction, land development	Low
Valencia Creek	Pathogens	Agriculture, septage disposal	Low
	Sedimentation	Agriculture, land development and construction	Medium
Waddell Creek (East Branch)	Nutrients	Municipal point source	Medium
Watsonville Slough	Metals	Agriculture, urban runoff, storm sewers	Medium
	Oils and grease	Urban runoff, storm sewers, nonpoint source	Medium
	Pathogens	Urban runoff, storm sewers, nonpoint source, unknown source	Medium
	Pesticides	Agriculture/ runoff, irrigated crop production, nonpoint source	Medium
	Sedimentation	Agriculture/ runoff, irrigated crop production, nonpoint source	Medium

Source: California Environmental Protection Agency, State Water Resources Control Board, California 303 (d) List and TMDL Priority Schedule, 1998.

*Quality of Life
Indicator 105*

Water Quality

An inventory of the ground water sources in the county and their degree of quality and potability.

✓ **Benchmark Indicator**

Quality Ranking of County Ground Water

Name	Sq. Miles	1989	1994	Comments
Ano Nuevo	2	Intermediate	Unknown	-
Pajaro Valley	120	Intermediate	Intermediate	Severe overdrafting Nitrate problems Drinking water impairment
Scotts Valley	60	Impaired	Impaired/ Unknown	Drinking water impairment Excessive nitrate concentrations Industrial solvents contamination
Soquel valley	7	Unknown	Unknown	-
West Santa Cruz	6	Unknown	Unknown	-

Source: California Environmental Protection Agency, State Water Resources Control Board, California 303 (d) List and TMDL Priority Schedule, 1998.

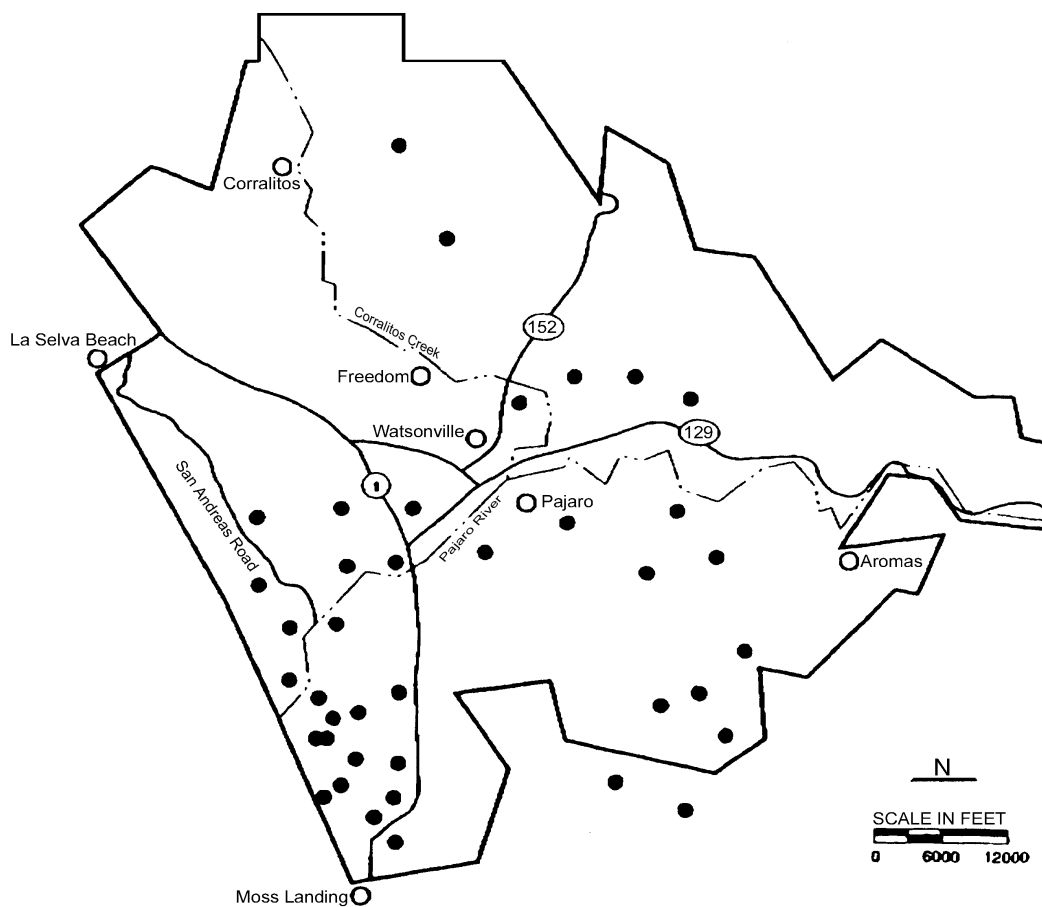
Note: The State has used four categories to catalogue the health of local waterways; good, intermediate, impaired, and unknown. Percentages above reflect the extent to which are for those waterways have a portion or all of its area/length listed as “impaired”.

In 1994, all of Pajaro Valley’s 120 square miles of water were moderately impaired, earning a ranking of “intermediate”.

*Quality of Life
Indicator 105*

Water Quality (Continued)

Location of Monitoring Wells exceeding Nitrate Drinking Water Standards, 1993



Source: Pajaro Valley Water Management Agency, 1999

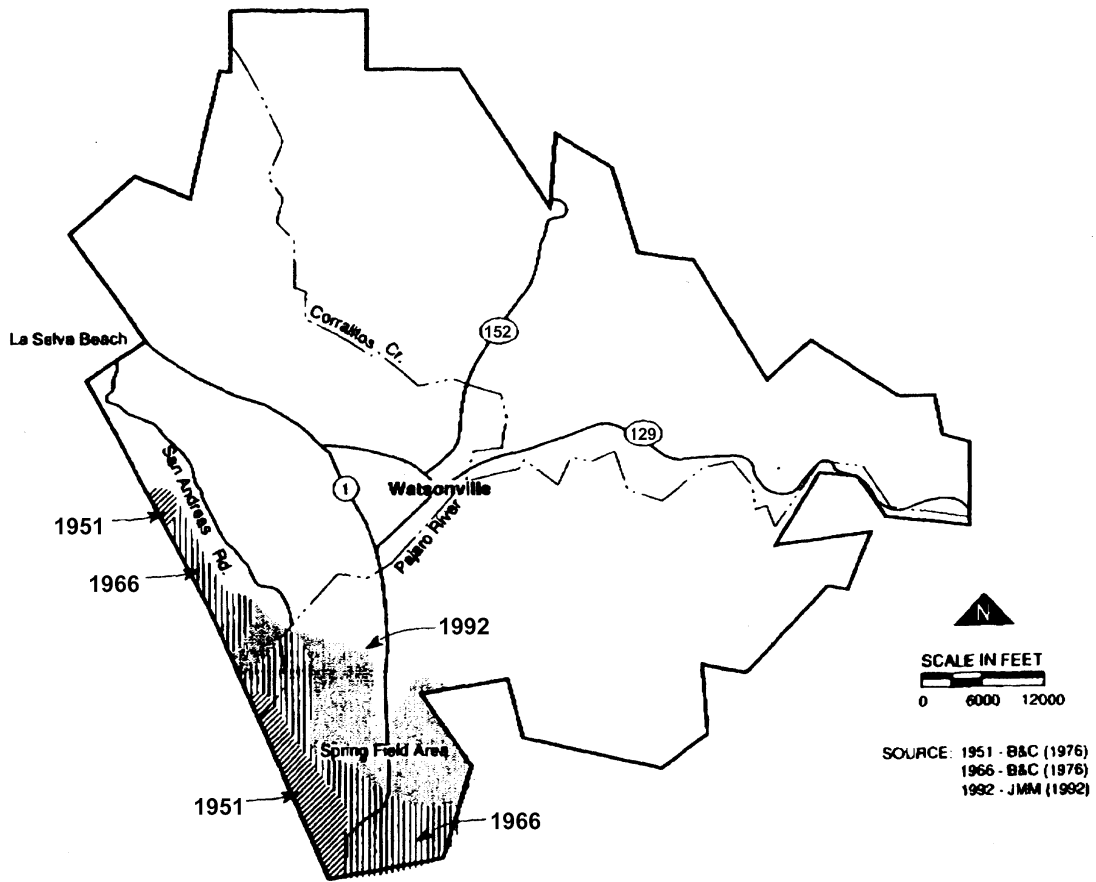
Note: Any presence of nitrates greater than 45 mg/liter exceeds state standards, and can be detrimental to health. Nitrates are most often due to septic tanks, fertilizer and wastewater runoff.

The PVWMA's boundaries consists of approximately 120 square miles. Of that area, two-thirds is in Santa Cruz County, and about one third lies in Monterey County. A small corner in the Aromas area also falls into San Benito county.

*Quality of Life
Indicator 105*

Water Quality (Continued)

Areas of Elevated Chloride Levels, 1993



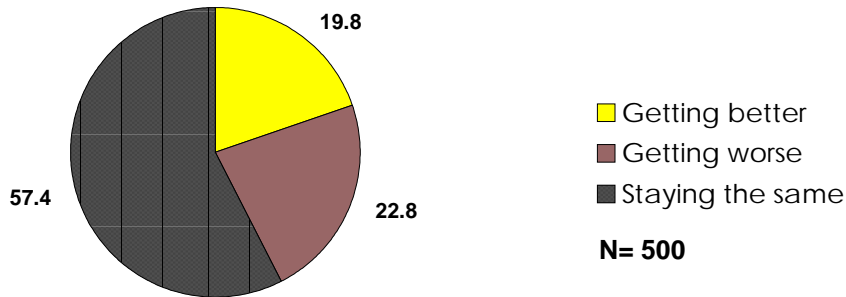
Source: Pajaro Valley Water Management Agency, 1999.

Note: Chloride contamination is a proxy indicator for a condition known as seawater intrusion. If an area is pumping more water than is being recharged (i.e., being over pumped), the inland water table drops to below sea level. Over time, seawater begins to displace the areas once filled by ground water; this action is known as seawater intrusion. Elevated chloride levels serve as one of the indicators of seawater intrusion. When conditions continue unabated, wells will have to be bored deeper and in severe cases, new sources of water will need to be brought in.

*Quality of Life
Indicator 105*

☎ Water Quality (Continued)

How are we doing as a County to address drinking water quality?



Percent of respondents who think the county is “getting better” at addressing water quality:

Demographics	1999
Caucasian	16.3
Latino	39.0
North County	14.0
South County	31.8
San Lorenzo Valley	16.1
18-24	29.3
25-44	19.1
45-64	17.9
65 and older	16.2
Male	17.0
Female	21.9
Under \$15,000 per year	33.3
\$15,000 - \$34,999 per year	22.3
\$35,000 - \$64,999 per year	14.6
Over \$65,000 per year	14.6
Total Respondents	500

Source: Santa Cruz County Community Assessment Project, Telephone Survey.

*Quality of Life
Indicator 106*

Non-Agriculture Water Use

A measure of how much water is used per year as well as use per service connection.

Number of Service Connections

Water District	1998-1999
Central (rural Aptos)	797
Lompico	485
San Lorenzo Valley	5,731
Soquel Creek	13,500
City of Santa Cruz	23,000
City of Scotts Valley	3,462
City of Watsonville	12,706
Unincorporated areas	11,184
Santa Cruz County Total	70,865

Annual Usage, in Millions of Gallons

Water District	1998/ 99
Central (rural Aptos)	184,431,666
Lompico	32,000,000
San Lorenzo Valley	557,000,000
Soquel Creek	1,759,595,400
City of Santa Cruz	4,400,000,000
City of Scotts Valley	512,000,000
City of Watsonville	2,324,621,034
Unincorporated areas	3,018,976,929
Santa Cruz County Total	12,788,625,029

Source: Central, Lompico, San Lorenzo Valley, Soquel Creek, City of Santa Cruz, City of Scotts Valley, City of Watsonville Water Districts, County Planning Department, 1999

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Indicator 106*

Non-Agriculture Water Use (Continued)

Daily Usage per Connection, in Gallons

Water District	1998/ 99
Central (rural Aptos)	634.0
Lompico	175.3
San Lorenzo Valley	266.3
Soquel Creek	357.1
City of Santa Cruz	524.1
City of Scotts Valley	405.2
City of Watsonville	501.2
Unincorporated areas	739.5
Santa Cruz County Total	494.4

Source: Central, Lompico, San Lorenzo Valley, Soquel Creek, City of Santa Cruz, City of Scotts Valley, City of Watsonville Water Districts, County Planning Department, 1999.

Notes: To obtain acre feet usage, divide gallons by 325,851. Calculation for usage per day, per connection: annual usage/ total connections/ 365 days. Non-agricultural service connections include single family homes, apartments, businesses, etc.

*Quality of Life
Indicator 107*

Endangered Species

Biodiversity is a sign of the extent to which natural resources, including ecosystems, are protected. The following table is an inventory of the plant and animal species that appear on the Federal list of threatened or endangered species in Santa Cruz County.

Plants

Common Name	Federal Status
Blasdale's Bent Grass	Species of concern
Santa Cruz Manzanita	Species of concern
Schreiber's Manzanita	Species of concern
Pajaro Manzanita	Species of concern
Bonny Doon Manzanita	Species of concern
Marsh Sandwort	Endangered
Swamp Harebell	Species of concern
Ben Lomond Spineflower	Endangered
Monterey Spineflower	Threatened
Scott's Valley Spineflower	Endangered
Robust Spineflower	Endangered
Santa Clara Red Ribbons	Species of concern
Santa Cruz Cypress	Endangered
Coast Wallflower	Species of concern
Santa Cruz Wallflower	Endangered
Sand Gilia	Endangered
Congdon's Tarplant	Species of concern
Santa Cruz Tarplant	Proposed Threatened
Kellogg's Horkelia	Species of concern
Dudley's Lousewort	Species of concern
White-Rayed Pentachaeta	Endangered
Monterey Pine	Species of concern
San Francisco Popcorn-Flower	Species of concern
San Francisco Campion	Species of concern
Santa Cruz Microseris	Species of concern
Caper-Fruited Tropidocarpum	Species of concern

Source: California Department of Fish and Game, Natural Diversity Database, 1999.

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Indicator 107*

Endangered Species (Continued)

Animals

Type	Common Name	Federal Status
Snails	California Brackishwater Snail	Species of concern
Spiders and Relatives	Empire Cave Pseudoscorpion	Species of concern
	Dolloff Cave Spider	Species of concern
Crustaceans	Mackenzie's Cave Amphipod	Species of concern
Beetles	Globose Dune Beetle	Species of concern
	Mount Hermon (=Barbate) June Beetle	Endangered
Butterflies and Moths	Smith's Blue Butterfly	Endangered
Fish	Tidewater Goby	Endangered
	Coho Salmon	Threatened
	Southern Steelhead	Endangered
Amphibians	California Tiger Salamander	Candidate
	Santa Cruz Long-Toed Salamander	Endangered
Reptiles	California Red-Legged Frog	Threatened
	Foothill Yellow-Legged Frog	Species of concern
	Black Legless Lizard	Proposed Endangered
	Western Pond Turtle	Species of concern
	Southwestern Pond Turtle	Species of concern
Birds	San Francisco Garter Snake	Endangered
	Tricolored Blackbird	Species of concern
	Burrowing Owl	Species of concern
	Marbled Murrelet	Threatened
	Western Snowy Plover	Threatened
	Saltmarsh Common Yellowthroat	Species of concern
	California Black Rail	Species of concern
Bank Swallow	Threatened (State)	

Source: California Department of Fish and Game, Natural Diversity Database- 1999.

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Indicator 107*

Endangered Species (Continued)

Sampling for Coho Salmon provides an indication of their population in county rivers. A major cause of decline for Coho salmon in Santa Cruz County has been the unnatural destruction of essential stream habitat.

Juvenile Coho Salmon sampling counts

	1992	1993	1994	1995	1996	1997
Aptos Creek	-	-	-	-	4	0
Gazos Creek*	0	-	9	** 2	33	0
Pescadero Creek*	-	-	-	** 0	-	** 0
San Gregorio Creek*	-	-	-	** 0	0	0
San Lorenzo River	-	-	0	** 0	0	0
San Vicente Creek	-	-	-	-	3	0
Scott Creek	42	-	** 393	223	** 473	** 145
Wadell Creek	**20	**58	0	24	**302	0
Total	62	58	402	249	815	145

Source: Department of Fish and Game, Southern Coho Salmon Restoration Plan, 1998

Note: At the present time, natural self-sustained runs of Coho salmon south of San Francisco Bay are believed to be only in Gazos, Waddell, and Scott creeks. Adult Coho are known to have also entered Pescadero, Aptos and San Vicente creeks and the San Lorenzo river. Historically, however, the salmon were thought to be present in as many as 50 streams and tributaries in the San Mateo and Santa Cruz area.

Streambed sedimentation is a universal contributing factor in the decline of Coho salmon in the above nine streams. Most stream habitat degradation in Santa Cruz county has resulted from watershed disturbances caused by or associated with human activities, such as cropland agriculture, logging, urban development, municipal, industrial, agricultural and domestic water diversions, highway and road construction/maintenance, etc.

- * San Mateo County
- ** sampled twice that year
- data not available
- 0 sampled but no species found.

Quality of Life
Indicator 108

Control of Non-indigenous Plant and Animal Species

Exotic or noxious plant and animal species can quickly offset the balance of the natural ecosystem. The following tables detail some of the known species, as well as county efforts to curb their proliferation.

Noxious Weeds in Santa Cruz County

1997

Bristly Ox-Tongue
Poison Hemlock
Pampas Grass/ Black
Pampas Grass/ White
Wild Radish
Tasmanian Blue Gum (Eucalyptus)
Eucalyptus
Cotoneaster
Yellow Starthistle
Klamathweed
Puncturevine
Acacia
French Broom
English Ivy

Source: California Resources Agency, Natural Resource Projects Inventory-CERPI, 1998.

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Indicator 108*

Control of Non-indigenous Plant and Animal Species (Continued)

Projects controlling Noxious Weeds

Project Name	Purpose
Ellicott Slough National Wildlife Refuge Upland Habitat Restoration Project - Weed Control	To restore upland habitat for the endangered Santa Cruz long-toed salamander.
Poison Hemlock Eradication/Coastal Scrub Restoration at Younger Lagoon	This project attempts eradication of non-native, invasive plants.
Santa Cruz County Klamathweed Biological Control Project (0103)	Biological control of Klamathweed, a noxious weed of rangelands and right-of ways in Santa Cruz County.
Santa Cruz County Puncturevine Biological Control Project (0177)	Biological control of puncturevine, a noxious weed of rangelands and right-of-ways, in Santa Cruz County.
Santa Cruz County Yellow Starthistle Biological Control Project (0037)	Biological control of yellow starthistle, a noxious weed of rangelands and right-of-ways, in Santa Cruz County.
Santa Cruz Tarplant Restoration; French broom & English Ivy Eradication (0465)	To eradicate French Broom and English Ivy, allowing the recovery of the Santa Cruz Tarplant.
Wilder Ranch State Park, Gray Whale Ranch Property, Exotic Plants Removal (0464)	Remove exotic plants such as French Broom, Acacia, Pampas Grass, Eucalyptus and Cotoneaster from the Gray Whale Ranch Property.

Source: California Resources Agency, Natural Resource Projects Inventory- CERPI, 1998.

*Quality of Life
Indicator 109*

Ecological Restoration

Brief descriptions of county efforts to assess, repair or restore at-risk habitat.

Restoration Projects by Location and Purpose

Location	Project Description
Arana Gulch Clean Streams Pilot Project	To train and utilize volunteers to participate in monitoring the health of the Arana Gulch Watershed through water quality sampling, habitat assessment and participation in restoration activities.
Borregas Creek (DWR #Z60014)	Stabilize creek channel and sideslopes. Reestablish a natural, healthy riparian environment by implementing several low-cost, labor-intensive restoration techniques. Education and training of low income community members.
Ellicott Slough National Wildlife Refuge Upland Habitat Restoration Project - Weed Control	To restore upland habitat for the endangered Santa Cruz long-toed salamander.
Fall Creek Fish Habitat Enhancement Program	Improve depth and access for juvenile steelhead, primarily rearing and step pools.
Hanson Aggregates - Felton Plant Revegetation Program	To revegetate completed mining areas, including the establishment of special status plant species.
Martin Road and Bonny Doon Ecological Reserve	Restoration of Areas Degraded by Off-road Vehicles, by revegetating bare soil, close trails, reintroduce native biodiversity to wet meadow.
Poison Hemlock Eradication/Coastal Scrub Restoration at Younger Lagoon	This project attempts eradication of non-native, invasive plants.
San Lorenzo River Total Maximum Daily Load (TMDL) Development	This study will provide more information for the Regional Water Quality Control Board to describe the nature and extent of the impairments. It will result in the development of a sediment TMDL.
Soquel Watershed Group (CRMP) - Clear Streams Project	To train and utilize volunteers to participate in monitoring the health of the Soquel Creek watershed through water quality sampling, habitat assessment, and restoration activities.
Soquel and Hester Creeks (DWR #Z60066)	Control soil erosion problems and reduce potential for downstream log jams associated with a landslide deposit on Hester Creek, a tributary to Soquel Creek. Initiate the development of a streamside trail system within the village of Soquel.
Watsonville Sloughs Watershed	To reduce annual rate of erosion to T as defined by NRCS. Associated benefits include enhanced water quality, enhanced wetland and endangered species habitat.

Source: California Resources Agency, Natural Resource Projects Inventory- CERPI, 1998.

*Quality of Life
Indicator 110*

Air Quality

Measures air quality violations for two pollutants harmful to humans:
Ozone and Particulate Matter.

Summary: Total days exceeding State Air Quality standards

Location	1991	1992	1993	1994	1995	1996	1997	1998
Ozone	3	6	1	0	1	2	0	1
Particulate Matter (PM10)	0	0	11	6	12	13	12	4
Total	3	6	12	6	13	15	12	5

Source: California Air Resources Board, 1999.

Number of days exceeding safe levels of Ozone

Location	1991	1992	1993	1994	1995	1996	1997	1998
Davenport	1	0	0	0	0	0	0	0
Scott Valley (Scotts Valley Dr.)	-	-	-	0	1	2	0	1
Scotts Valley (Vine Hill)	-	6	0	0	-	-	-	-
Watsonville (Airport Blvd)	-	0	1	0	0	0	0	0
Santa Cruz (Bostwick Lane)	2	0	0	0	0	0	--	--
Santa Cruz (Soquel Ave.)	-	-	-	-	-	0	0	0
Total	3	6	1	0	1	2	0	1

Source: California Air Resources Board, 1999.

Note: Exposure to unhealthful levels of ozone can result in chest pain, coughing, nausea, shortness of breath, headaches, congestion and throat irritation. Most at risk during high ozone levels are children, the elderly, pregnant women, and individuals with asthma. Ozone is often produced from vehicle exhaust, while other sources include industrial fuel combustion, pesticides, and waste burning.

The above chart refers only to parts per million exceedance of State Ambient Air Quality Standards (1 hour reading) and does not include exceedances of national standards (8 hour reading). Two monitoring sites closed down and were replaced with a new nearby site; the Scotts Valley Vine Hill site was replaced in 1994 by the Scott's Valley Drive site, and the Santa Cruz Bostwick Lane site was replaced by the Soquel Avenue site.

*Quality of Life
Indicator 110*

Air Quality (Continued)

Number of days exceeding safe levels of Particulate Matter

Location	1991	1992	1993	1994	1995	1996	1997	1998
Davenport	-	-	8	5	12	12	12	4
Scotts Valley (Vine Hill)	-	-	0	0	0	-	-	-
Watsonville (Airport Blvd)	-	0	2	1	0	0	0	0
Santa Cruz (Bostwick Lane)	0	N/a	1	0	0	1	-	-
Santa Cruz (Soquel Ave.)	-	-	-	-	-	-	0	0
Total	0	0	11	6	12	13	12	4

Source: California Air Resources Board, 1999.

Note: The above chart refers only to parts per million exceedance of State Ambient Air Quality Standards, and does not include exceedances of national standards. Two monitoring sites closed down; the Scotts Valley Vine Hill site was replaced in 1994 and was not replaced by a station monitoring Particulate Matter, and the Santa Cruz Bostwick Lane site was replaced by the Soquel Avenue site.

Particulate Matter (PM 10) refers to the mixture of solid particles and liquid droplets found in the air that are less than 10 microns in size. Studies have linked high levels of particulate matter to aggravated asthma and acute respiratory symptoms, chronic bronchitis, decreased lung function, and premature death. The largest sources of PM10 are dust from vehicles driving on paved roads, grinding operations, fuel combustion, agricultural burning, and wood stoves. In Davenport, high PM10 readings are due to the concentration of sea salt in the air.

*Quality of Life
Indicator 110*

Air Quality (Continued)

Air Quality-related Neighborhood complaints, by Area

Location	1996	1997	1998	% Change
Davenport	9	7	6	-14.3
Bonny Doon	1	2	1	-100.0
Ben Lomond/ Felton/ Boulder Creek	20	24	13	-45.8
Scotts Valley	7	11	4	-63.6
Santa Cruz	54	84	111	32.1
Capitola	4	2	2	0
Soquel	10	9	4	-55.5
Aptos	8	7	4	-42.8
Freedom/ Corrolitos	3	5	0	100.0
Watsonville	26	32	18	-43.8
Total	142	183	163	-10.9

Air Quality-related Neighborhood complaints, by Type

Irritant	1996	1997	1998	% Change
Smoke (open burning, fireplaces)	30	51	43	-15.7
Odor	36	43	97	125.6
Dust	11	17	16	-5.9
Paint	6	10	12	20.0
Phase III/ faulty gas nozzles	8	6	1	-83.3
Other (asbestos, etc)	8	6	5	-16.7
Total	99	133	174	30.8

Source: Monterey Bay Unified Air Pollution Control District, 1999.

Note: Air quality complaints are tallied based on the number of irritants reported by county residents. A single phone call may refer to more than one irritant, and therefore those irritants are counted separately. Beginning in 1999, smoking vehicle complaints will no longer be processed by the MBUAPD, but will be referred to other departments.

Quality of Life
Indicator 111

Motor Vehicle Registrations

Vehicles-per-capita calculations help monitor the number of motor vehicles in relation to changes in the population.

Mode of Transport	1990	1992	1994	1996	1998	% Change
Automobiles	144,601	135,996	135,501	139,927	145,466	4.0
Trucks	51,643	44,060	43,901	45,657	46,889	2.7
Motorcycles	7,436	7,425	6,946	6,860	5,875	-14.4
Total	203,680	187,481	186,348	192,444	198,230	3.0
Population	229,734	233,650	237,800	242,575	249,000	2.6
Vehicles per Capita	1.13	1.25	1.28	1.26	1.26	0.0

Source: Department of Motor Vehicles, Forecasting Division, 1999.

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Indicator 112*

Roadway Congestion


As an indicator of traffic volume, Vehicle Miles Traveled can also be used as a proxy indicator of air quality.

Daily Vehicles Miles Traveled

	1994	1995	1996	1997	% Change
Capitola	120,200	108,900	129,200	135,800	5.1
Santa Cruz	605,400	574,000	576,500	621,900	7.9
Scotts Valley	115,500	106,000	110,200	120,600	9.4
Watsonville	291,000	284,000	290,200	310,700	7.1
Cities Total	1,132,200	1,072,900	1,106,100	1,189,000	7.5
County (unincorporated)	1,269,700	1,235,500	1,251,800	1,328,400	6.1
State Highways	2,589,000	2,500,100	2,529,500	2,577,200	1.9
State Parks and Recreation	13,300	11,100	9,500	15,200	60.0
Total	5,004,200	4,817,600	4,896,900	5,109,800	4.3

Source: CalTrans, 1999.

Note: CalTrans calculates Vehicle Miles Traveled (VMT) by multiplying the length of each given road segment by its traffic volume in a day. VMT also helps planners make decisions about transportation management and county growth.

 **New data not available**

*Quality of Life
Indicator 113*

Alternative Transit Opportunities

Ridership statistics offer an indication of where and to what extent residents rely on alternative forms of transportation.

Annual Alternative Transportation Ridership, by selected types

	93/ 94	94/ 95	95/ 96	96/ 97	97/ 98	% Change
Santa Cruz Metropolitan Transit District (SCMTD)	6,512,168	6,631,042	6,638,512	7,498,951	7,720,577	3.0
Hwy 17 Express Bus	170,000	176,000	177,000	181,000	175,000	-3.3
Lifeline	N/a	N/a	N/a	51,457	66,578	29.4
Total	6,682,168	6,807,042	6,815,512	7,731,408	7,962,155	3.0

Source: Santa Cruz County Regional Transportation Commission, 1999.

Note: Ridership refers to the number of trips taken in a specified time frame. There is currently no data available on the number of people who commute to work using carpool services or bicycles.

Bikeway Miles

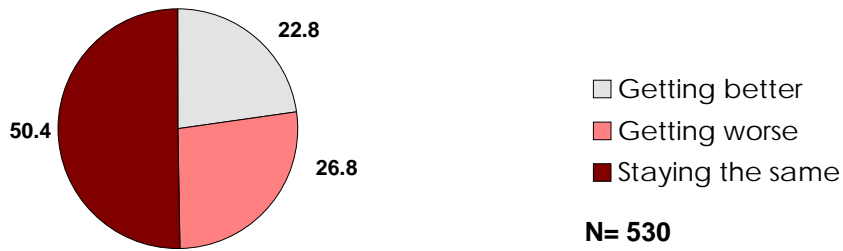
Area	1994	1997	% Change
Capitola	5.8	6.2	6.9
Santa Cruz	28.8	30.9	7.3
Scotts Valley	2.8	4.4	57.1
Watsonville	5.8	5.8	0.0
Unincorporated	24.7	26.4	6.9
Total	69.7	73.3	5.2

Source: Santa Cruz County Regional Transportation Commission, 1999.

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Indicator 113*

Alternative Transportation (Continued)

How are we doing as a County to promote alternative forms of transportation?



Source: Santa Cruz County Community Assessment Project, Telephone Survey.

Quality of Life Indicator 114

Waste Reduction

Waste disposal tables monitor average landfill disposal per person and how much waste is diverted from landfills.

Total Annual Tons of Waste Disposal

	1995	1996	1997	1998	% Change
Capitola	14,802	12,325	12,017	11,554	-3.9
Santa Cruz	72,076	72,546	75,603	71,460	-5.5
Scotts Valley	14,033	12,284	11,549	14,609	26.5
Watsonville	33,648	33,756	34,029	38,771	13.9
Unincorporated areas	101,799	105,544	106,945	111,699	4.4
Santa Cruz County Total	236,358	236,455	240,143	248,093	3.3

Total Annual Tons of Waste Disposal, per Person

	1995	1996	1997	1998	% Change
Capitola	1.4	1.1	1.1	1.1	0.0
Santa Cruz	1.4	1.4	1.4	1.3	-7.1
Scotts Valley	1.5	1.3	1.1	1.4	27.3
Watsonville	1.0	1.0	0.9	1.0	11.1
Unincorporated areas	0.8	0.8	0.8	0.8	0.0
Santa Cruz County Total	1.0	1.0	1.0	1.0	0.0

Waste Diversion Rates

Jurisdiction	1995	1996	% Change
Santa Cruz	35.0	36.0	2.9
Scotts Valley	59.0	62.0	5.1
Watsonville	25.0	26.0	4.0
Unincorporated areas	21.0	20.0	-4.8
Santa Cruz County Total	31.0	33.0	6.5
Statewide	28.0	31.0	10.7

Source: California Integrated Waste Management Board, 1999.

Note: In 1989 the California Integrated Waste Management Board mandated that California cities reduce their generated waste by 25% by 1995, and 50% by 2000. Official Board-approved diversion rates are not available for the city of Capitola, neither are they available for 1997 and 1998 (figures available are preliminary and subject to change). "Tons per Person" figures reflect disposal trends that are adjusted for population growth and are for illustrative purposes only.