APPENDIX F

TOLERANCE AND SUITABILITY OF ENVIRONMENTAL FEATURES TO DEVELOPMENT

Catagory	Feature	Description	Tolerance/Suitability	Development Policies		Methods and Techniques of Implementing Policies
				Permitted Associated Uses	Restrictions on Uses	
Land Soil and Topography	Wet soil	Soil with a high moisture content because of a high water table or poor drainage; often a seasonal problem.	Such soils perform an important water storage function; when septic tanks are used, water supply may be contaminated; foundations settle and crack; stagnant pools may exist during certain periods.	"Floating" or other specially constructed structures may be permitted when supplied with public water and sewerage.	No septic tanks; deep wells permitted but only where development can be tolerated and septic tanks are absent.	Subdivision and sanitary regulations requiring public water supply and sewage disposal.
	Impervious soil	Dense soil inhibiting the free flow of water; such soils usually have a high clay content.	Impermeability of soil may cause septic tanks to overflow and contaminate water supply; unsuitable for development without public water supply and sewerage.	No special development limitation with public water supply and sewerage.		
	Poor Load-bearing soil	Soils unable to support structures such as roads and buildings; usually easily compacted because of moisture content, particle size, or where excessive internal spaces or voids are present; filled lands, mineral or industrial wastepiles often have these characteristics.	Generally unsuitable for intensive development because of difficulty and cost of construction.	Certain types of light or flexible structures; recreation areas; agriculture.	Heavy structures must be anchored in bedrock.	Building code and grading ordinance prescribing development standards.
	Shrink/ swell soil	Soils with the potential to shrink or swell; often have a high clay content.	Generally unsuitable for foundations or beds of permenent structures such as buildings and roads.	Certain types of light or flexible structures; recreation areas; agriculture.	Heavy structures must be anchored in bedrock; replace with stable soils for roadbeds.	Building code and grading ordinance prescribing development standards.
	Flat land	Land with no significant slope; 0 - 2 percent.	Depending upon other conditions, flat land is highly suitable for and tolerant to development.	All uses.	Local code restrictions, pollution control (social, economic, technical, etc.) soil conditions may suggest other limitations.	Pollution control ordinances, land-use controls
	Low slope	Slope generally between 2 and 7 percent.	Fairly tolerant to development although excessive removal of ground cover may cause erosion; generally are good sites for residential development.	Residential development, intensive and extensive recreation, agriculture and grazing.	Densities may be fairly high with grading controls and limitations on vegetation removal and sedimentation.	Grading ordinance limiting terracing, topsoil and vegetation removal, etc.; subdivision controls with appropriate street and utility design standards; zoning to limit density of development.

Catagory	Feature	Description	Tolerance/Suitability	Development Policies		Methods and Techniques of Implementing Policies
				Permitted Associated Uses	Restrictions on Uses	
Land Soil and Topography (continued)	Promontory	A crag or point of high land jutting out over low land, usually associated with a body of water or valley; often associated with scenic views.	May have specific ecological role; may be unsuitable for development.	Selected development may need to be strictly controlled.	View protection	View protection regulations; other land use controls.
	Abrupt relief changes	Lines seperating distinctly different land forms; usually associated with piedmont-plains areas and with significant vertical displacement along fault lines.	Generally no special ecological roles although may be barrier to movement depending on geological formations; sometimes can have visual impact; faulted areas may be subject to earthquakes.	Uses limited to those which heighten the visual effect of the change; such open space uses as a row of trees can be effective (see also weak substructure, below).		Public purchase in fee or purchase of easements.
Land Rock	Area of weak sub structure	Underground formation incapable of supporting heavy loads; often associated with certain types of rock, e.g. cavernous limestone, compressible peats, etc., and dynamic characteristics, e.g. faulting, or with compressible or expansive sedimentary deposits and filled land.	Development may be hazardous because of possible subsidence or other earth movement, especially under eartquake condition.	Limited low-intensity, low-rise development.	Special construction methods to assure stability; areas with earthqualke potential require engineering design anaysis for protection against movement damage; in areas where such potential is great, no development should be permitted.	Zoning for low-density and low-rise development and to exclude areas of assembly and uses which would create serious hazards during earthqualkes; building codes prescribing special construction methods and materials.
Land Minerals	Mineral deposit	Site currently used or potentially available for extraction of minerals, including sand, gravel, limestone, rock, coal, etc.	Source of important mineral resources; other development may preclude extractive operations; however, requires special regulations to ensure compatibility with surroundings during and following completion of operations, and prevention of water-supply contamination.	Reservation for existing extractive operations	Open-pit operations require appropriate screening and performance standards to reduce noise, dust, etc.; cannot interfere with water quality; planned post-mining reclaimations for subsequent reuse.	Natural resource zoning including performance standards to prevent encroachment; performance bond to ensure site rehabilitation; preferential assessment.
Water Surface	Surface water and riparian land	Any body of water including lakes, rivers, streams, and oceans and their shorelines, estuaries (see next page) and tidelands.	Value for water supply, waste dispersion, transportation, recreation, power generation, source of food, scenic beauty; quality and quantity of water needs to be maintained.	Harbors, water/sewage treatment plants, recreation, marinas, water-dependent industry, public access points.	No non-water-dependent development; no development that will produce undersirable changes in surface or subsurface water quality.	Sanitary ordinance regulating use of septic tanks; water quality standards to restrict discharge of pollutants; water zoning to separate incompatible water users; zoning to restrict shoreline development to water-dependent uses; public works planning; PUD controls.

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Air	Air corridor	A term describing the path of movement of the air, generally bounded by valley walls; important in terms of microclimatic considerations and air pollution dispersal.	An analytical tool that helps determine development suitability depending on microclimate and location of polluters; may affect urban form, compatibility of uses and orientation of structures.	Depending on wind speed, air direction and other meteorological factors, sources and receptors of pollution should not be permitted in the same corridor; reforestation would help to relieve summer heat and humidity.	Highly restricted development of sources of pollution; preferably stringent source of controls.	Land-use controls restricting locations of pollutors upwind of receptors; source controls; performance standards in zoning ordinances.
Vegetation and Wildlife	Woodland	A tract of land dominated by trees but usually also containing woody shrubs, grasses, and other vegetation.	Where extensive, woodlands are intolerant to intensive development because of their role in the water cycle, oxygen replenishment, wildlife support, recreation, and as a source of raw materials; also have special aesthetic value in urban areas.	Depends largely on water-related role: dense forests can maintain housing of, say, one family per acre but only where abundent; well-managed commercial forestry; recreation.	Very limited development to maintain vital ecological role and aesthetic appearance; limited tree cutting for development or sustained commercial yield.	Forest conservation controls, e.g., zoning and subdivision controls limiting intensity of development, limiting destruction of vegetation, and setting standards for improvements; authorization for limited lumbering.
	Wildlife habitat	The natural environment of an animal species; usually associated with other features such as marshes or woodland.	Tolerance to development depends on species, some habitats should be maintained for scientific, recreational and educational purposes; destruction of habitat may affect other parts of the ecosystem.	Passive recreation including limited hunting and fishing, maintenance in a natural state to minimize disruption of animal communities; outdoor education laboratory.	In managed habitats, no development except access roads and recreation associated strucutres; cabins if widely dispersed.	Public purchase, or purchase of scenic, hunting, fishing easements; zoning limitations on surrounding areas; very low-density zoning for seasonal cottages and restrictions on access roads.
	Prime agricultural land	Fertile cropland producing a high-value yield , often of a generally scarce nature such as vineyards, orchards, and truck farms.	Of limited extent in some areas, development renders such land unsuitable for agriculture.	Agricultural uses only, except where such land is plentiful in a particular area.	Where other developable land is abundent, zoning for exclusive agricultural use (e.g. 25-acre minimum lots) is justifiable.	Exclusive agricultural zoning; preferential farmland tax assessment.
	Pasture land	Land use for grazing of domestic animals.	Depending upon slope, soil and subsurface conditions, this land is often tolerant to and suitable for development.	Development where land is plentiful; where scarce, it should be retained in open space.	No development in urban areas lacking sufficient open space.	Open-space zoning where appropriate.
Cultural and landscape	Unique remnant	Landscape feature of unusual or rare occurance, generally associated with previous epochs, such as stands of redwoods, geological outcrops, natural bridges, meteor craters, everglades, geysers, etc.	While many have no major ecological role, they should be preserved for historic, recreational, educational, and aesthetic reasons.	Low-density recreation; preservation for natural history, ecological education, and aesthetic purposes.	No development which would deteriorate the quality of the feature.	Public or private non-profit purchase; restrictive covenants or other restrictions; zoning and other limitations on surrounding areas.