garden garden

a comparison of native and traditional gardens in Santa Monica

1718 and 1724 Pearl Street, Santa Monica, California 90405

Overview

What is garden\garden?

garden\garden is a demonstration project composed of two adjacent front yards that contrast the benefits of climate-appropriate plantings and efficient water use versus the style of garden that has traditionally been planted in Santa Monica in modern times.

What is the Native Garden?

The native garden component of **garden\garden** features California-native plants, a water-efficient drip irrigation system, a weather-sensitive irrigation controller and a system for capturing storm water runoff for groundwater recharge.

What is the Traditional Garden?

The traditional garden component of **garden\garden** represents the typical front yard garden found in Southern California. It features exotic plants that originate in Northern Europe and the Eastern United States, a standard, user controlled sprinkler irrigation system and no provision for runoff mitigation.

Approximate Costs	Native Garden	Traditional Garden
Construction Cost	$16,700	$12,400
Annual Water Use	14,300 gallons	76,700 gallons
Annual Water Charges	$14	$74
Maintenance Requirement	Monthly	Weekly
Annual Maintenance Charges	$800	$3,000

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Note:

An updated garden\garden brochure will be available in 2005/ Photos in the new brochure will show how the plants have matured in just one year.

garden\garden was designed by Susanne Jett of Jettscapes

Photography by Diedra Walpole of Deidra Walpole Photography

Graphic design by Cowan Communication Arts www.cowcom.com

Printed on recycled paper!

Did You Know?

Santa Monica imports **over 90%** of its water from areas **400 miles away,** such as Northern California and the Colorado River.

Water is a **scarce natural resource**.

Most gardens are watered with more than **5 times the amount needed** for healthy plants.

The average gardener applies **20 times more pesticides than farmers do**.
Environmental Protection Agency

Most commonly used mowers emit **11 times the air pollution** of a new car for each hour of operation.
Environmental Protection Agency

Municipal yard waste accounts for **20% of solid waste** generated each year.
King County Water and Land Resource Division

Drip irrigation systems work perfectly for individual plants. When properly designed and installed, they require **less maintenance** than traditional sprinkler systems.

California-friendly gardens cost as much as **80% less to maintain**.

California-friendly gardens are **more resistant to pests** so toxic pesticides are not needed.

California-friendly plants provide a **full range of color**, blooming times and attract many **beneficial insects**, such as ladybugs and butterflies.

The average house in Santa Monica uses **416 gallons of water each day**, of which **160 gallons** is used outdoors primarily for irrigation and cleaning.

The average house in Santa Monica pays **74¢** for each billing unit of water (**one unit equals 748 gallons**). It costs approximately **89¢** to buy one liter of **bottled water** from a retail store.

Urban runoff, including irrigation water runoff, flowing from the streets through the storm drain system to the ocean, is the **single largest source of pollution** in Santa Monica Bay.
Environmental Protection Agency

To help conserve water and keep our ocean clean, the City enforces a water conservation ordinance (SMMC 7.16.020) that prohibits:

- **irrigation between 10 a.m. & 4 p.m. each day**
- **irrigation water runoff**
- **hosing of paved areas such as driveways, sidewalks, alleys, and patios**

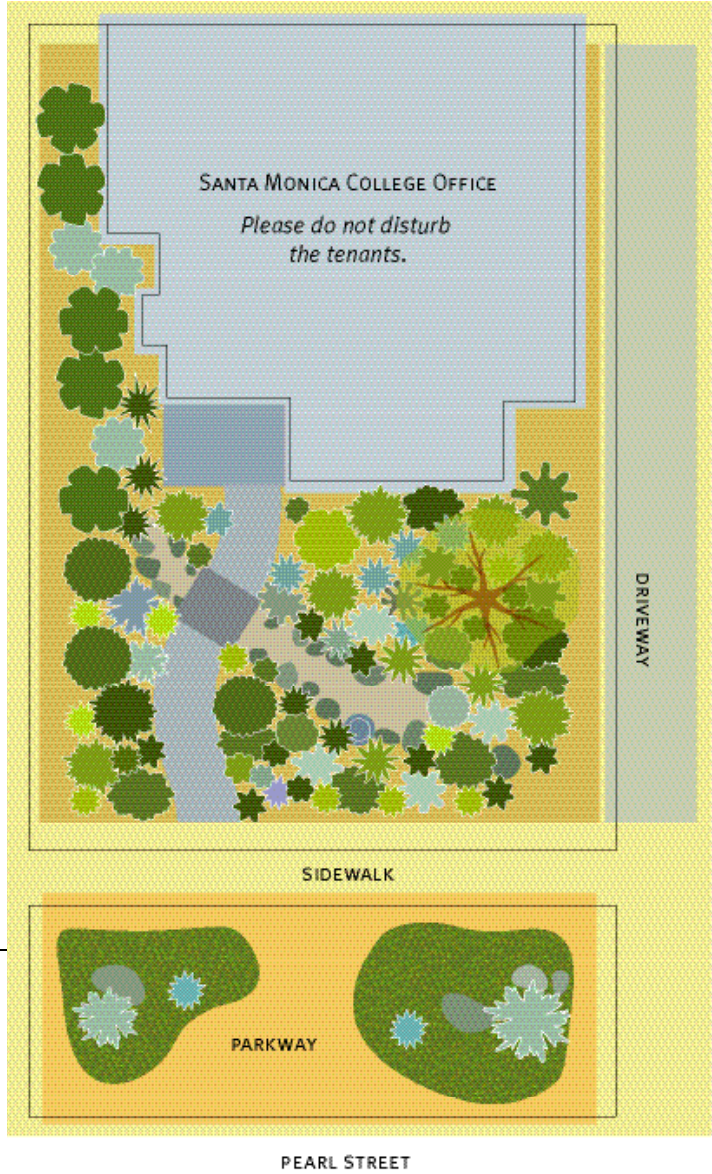
Fines start at $250

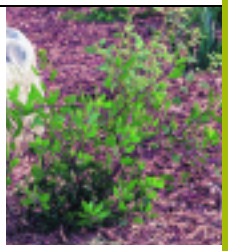
Native Garden

1724 Pearl Street, Santa Monica, California 90405

This garden gives you a glimpse of California's natural landscape. This front yard has been transformed into a California native garden that connects us to our past, while demonstrating landscaping ideas of the future. As natural resources, such as water, become scarce, it is our responsibility to use them wisely today so that they will be available for future generations. This garden is an example of protecting our most precious resource – water. These native plants work perfectly for our climate. They need little water, are resistant to many insect pests and plant diseases, produce little waste and require little maintenance. They also provide food and shelter for many types of birds and butterflies. The design of this landscape incorporates compatible plants with an efficient irrigation system to create a balance of aesthetics, function, and resource availability. Enjoy the sights, sounds and smells of this California-friendly garden.

Please see the map insert at the back of the brochure



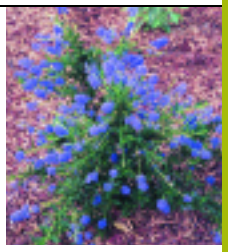


1. Arctostaphylos densiflora 'Howard McMinn'
A moderate size, four to five foot mounding shrub with shiny, green leaves and delicate white to pinkish, urn-shaped flowers and exceptionally attractive smooth, reddish bark.

2. Arctostaphylos uva-ursi 'Point Reyes'
Prostrate groundcover, 18 inches to two feet high with tightly spaced dark green leaves and pinkish flowers.

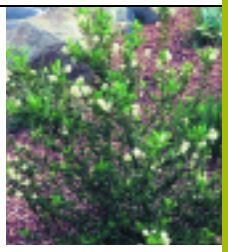
3. Carex praegracilis
A meadow sedge with six to eight inch high, bright green, tufted leaves. This sedge spreads by root running.

4. Carex tumulicola
A sedge with shiny, dark green leaves forming an eighteen inch mound.



5. Ceanothus 'Concha'
A moderate size, four to five foot mounding shrub with medium sized, dark green leaves and spring blooming cobalt blue flowers.

6. Ceanothus 'Dark Star'
A moderate size, four to five foot rigidly mounding shrub with small, tight, dark green leaves and spring blooming dark, violet blue flowers.



7. Ceanothus 'Snowball'
A five to six foot tall, upright shrub with large, bright green leaves and spring blooming white flowers.

8. Deschampsia caespitosa 'Northern Lights'
A cultivated variety of California native grass with bright golden variegations along six to eight inch long, clumping leaf blades.

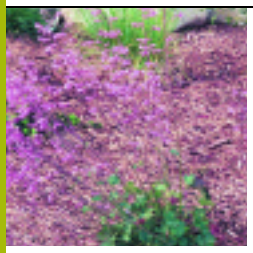
9. Dudleya hassei
A native succulent with clustered, silver and purple tinged, pointed, rounded leaves and tall, thin flower stalk.

10. Dudleya lanceolata
A coastal succulent with dark green, fleshy leaves and yellow or red flowers on long stems.

11. Dudleya pulverulenta
A twelve to fifteen inch wide, coastal succulent rosette of gray, glaucous leaves and a thick flower stalk.

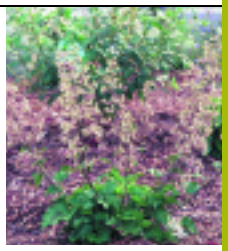
12. Encelia californica
A three foot high shrub with dark green leaves and spring blooming, yellow daisy flowers. Winter deciduous.

13. Epilobium californicum
A perennial with gray-green leaves and bright orange to yellow, fall blooming tubular flowers. Hummingbirds love this plant.



14. Heuchera 'Wendy'
A hybrid variety of Heuchera with tall clusters of peachy-pink flowers. All Heucheras are very attractive to hummingbirds.

15. Heuchera maxima
A Channel Islands native perennial with clumping, heart-shaped dark green leaves and tall clusters of small whitish to pinkish flowers from spring into summer.

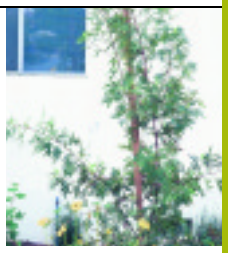


16. Iris 'Pacific Coast Hybrids'
A hybrid of California native iris with dark, evergreen, clumping strap leaves and assorted colors of flowers which bloom in spring.

17. Juncus effusus var. Pacificus 'Quartz Creek'
A Pacific Coast Rush with three to four foot tall, dark green leaves.

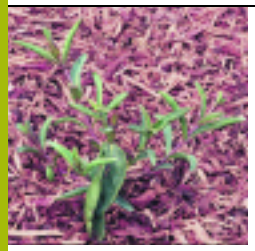
18. Juncus patens 'Elk Blue'
A hybrid variety of Gray Rush. This is a two foot high clump with a distinct bluish tint to the green foliage.

19. Lyonothamnus floribundus asplenifolius
A Channel Islands native twenty to thirty foot tall evergreen tree with scallop-edged leaves and unusual red-brown, shredding bark.



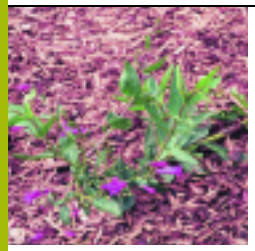
20. Muhlenbergia rigens
A native grass, four feet tall with bright green, clumping leaf blades and six foot tall yellow-purplish flower spikes in the fall.

21. Nasella pulchra
A needle grass with four inch long, silky, golden bristle flower heads which blow gracefully above two foot high, bright green leaf blades. Summer dormant.



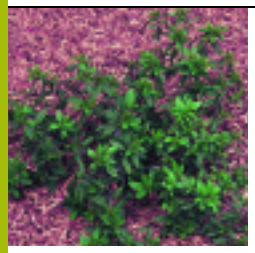
22. Penstemon centranthifolius
A coastal native, three foot tall perennial with gray-green, long-shaped leaves and tall spikes of spring/summer blooming, bright red tubular flowers. Penstemon flowers are a particular favorite of hummingbirds.

23. Penstemon heterophyllus 'Bluespray'
A hybrid variety of the California native; two foot tall perennial with glossy, bluish-green irregular shaped leaves and spikes of reddish purple to deep blue flowers in spring.



24. Penstemon spectabilis
A four foot tall perennial of grayish-green, stem hugging leaves and rose to purplish flowers which bloom in spring and summer.

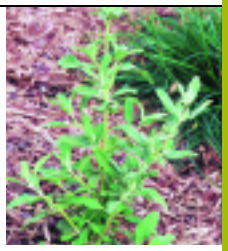
25. Philadelphus lewisii
A five foot tall, fountain shaped shrub with dark green leaves and white blooming flowers in spring. Winter deciduous.



26. Rhamnus californica 'Mound San Bruno'
A hybrid variety of native Coffeeberry is a six foot tall mound of broad, flat, dark green leaves. Flowers are fairly insignificant in summer but large, red berries are a special treat for local bird populations in the fall.

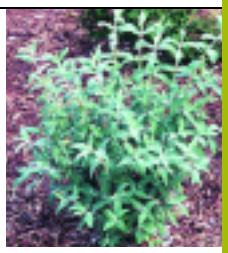
27. Ribes sanguineum glutinosum 'Tranquillon Ridge'
A hybrid variety of native Currant. Ten foot tall, shrub with maple-like, dark green leaves and drooping, deep pink flower clusters in spring and summer. Winter deciduous.

28. Salvia apiana
A four foot tall shrub with extremely aromatic, silvery-gray leaves and spring blooming lavender-tinged white flowers. This sage has been historically used by California Native Americans for sweat lodge ceremonies.



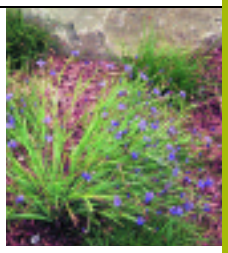
29. Salvia clevelandii 'Whirly Blue'
A hybrid variety of Blue Sage it is a three foot, compact shrub with gray-green, fragrant leaves and dark blue flowers. All California native sages are a bountiful food source for bees and hummingbirds.

30. Salvia clevelandii 'Winifred Gilman'
A hybrid variety of native Blue Sage is a three foot arching shrub of gray-green, toothed, very aromatic foliage and dark violet-blue whorls of flowers in summer.



31. Salvia leucophylla 'Frankensense'
A hybrid variety of native prostrate Gray Sage, it has gray leaves and pinkish-purple flowers in spring.

32. Salvia spathacea
An eighteen inch high, mat-forming perennial of large, fuzzy, dark green leaves and eight to twelve inch spikes of purplish-blue flowers in spring. More shade tolerant than other sages. Extremely attractive to hummingbirds.



33. Sisyrinchium bellum and Californicum
A California native, one foot high, grassy perennial with bluish green leaves and either purplish-blue or yellow flowers on tall stems. Naturalizes – Freely colonizes itself through seed.

34. Sphaeralcea 'La Luna'
A white flowering cultivar of native perennial Mallow with gray-green, scalloped, fuzzy leaves and a classic apple blossom shaped white flower.

Plants

Selection

When considering the installation of a new garden, decide how it will be used. Whatever the intended use, proper design, plant selection, installation and maintenance will ensure a healthy garden and reduced costs for years to come.

California has the richest flora of any state in the nation. Native California plants have adapted over thousands of years to thrive in conditions that exotic plants in traditional gardens must overcome with fertilizer, additional water and constant care. But California natives aren't the only California-friendly plants. Many plants from other Mediterranean climates such as Southern Europe, North Africa, Chile, South Africa, and Australia, also grow well here.

For this garden only California native plants were selected. California native and friendly plants can be found at some local nurseries as well as the Theodore Payne Foundation, and Rancho Santa Ana Botanic Garden (see Resources inserts in the back of this brochure). As demand for these plants continues, more nurseries will stock them.

Planting

The optimum time to plant California-friendly and native plants is in late fall so they utilize the winter rainfall to grow healthy roots and leaves that will help them survive summer heat and drought. They can be planted through winter and spring and should be installed with adequate spacing to accommodate mature plant growth and provide a natural appearance.

Unlike the traditional plants featured in the adjacent garden (mostly native to the East Coast of the United States), most California-friendly plants grow during the fall, winter and spring and take a rest or become dormant during the summer.

Mulch, a mixture of shredded tree barks, is added to the native garden to retain moisture in the soil, reduce weed growth and provide cover for the irrigation tubing.

Maintenance

Maintenance in this garden consists of seasonal hand pruning on selective plants approximately two to three times per year after twelve months. Monthly maintenance includes checking the irrigation system controller, removing trash, and monitoring the health of the plants. Additional mulch may need to be added every 2 to 3 years.

Irrigation

General

The water efficient irrigation system in this garden is plant-specific. It uses low-volume irrigation, including drip and microspray devices, to deliver the appropriate amount of water to each plant. The system consists of an underground network of pipes that bring the water from control valves to flexible surface-mounted tubing networks in each planting bed.

By providing water in precise amounts, and only to where the garden requires moisture, excessive plant and weed growth can be avoided. Recent advances in irrigation technology allow for precise delivery of water with very little waste. Drip and micro-spray systems are cost-effective when evaluated against water restrictions and rising water costs.

Equipment

Low-flow control valves with individual pressure regulators are used for each plant type. Separate valves are provided for deep, medium and shallow rooted plants.

Drip irrigation is used for all the plants except the carex groundcover in the parkway. From each riser, flexible tubing is laid out on the surface of the soil and routed to the appropriate plants. Drip emitters built into the tubing deliver a specified amount of water to each individual plant.

Microspray irrigation is used for the groundcover in the parkway. Microsprays are very similar to traditional sprinklers except they apply the water at a much slower rate.

This equipment can be purchased at home centers and irrigation supply stores (look in the yellow pages under “Sprinkler – garden/lawn; parts/supplies”).

Application Rate

Low-volume irrigation systems, like this one, are designed to apply water at the rate the soil can absorb it (0.2–0.8 inches of water per hour compared to 1.6–4.0 inches per hour for traditional sprinkler systems). Because the water application rate is matched to the soil intake rate, runoff from the garden into the street is eliminated. Runoff is an important concern because of our close proximity to Santa Monica Bay.

Controller

This irrigation system uses a weather-sensitive controller located above the control valves on the east side of the house. Each day, the controller receives a signal via satellite from a network of weather stations and adjusts its watering schedule for current weather conditions.

Maintenance

All irrigation systems require maintenance. When drip and microspray systems are properly designed and installed, little maintenance is required. The drip irrigation tubing is flushed out once a year. Drip systems have a filter screen which must be cleaned twice a year.

Adaptability

Low-volume irrigation systems are very adaptable, because the flexible tubing can be easily moved to accommodate new or relocated plants.

Soil

A soil test of this garden revealed that the soil type was sandy loam (moderate permeability), poor in organic matter and highly compacted from decades of turf. The test also indicated high alkalinity and high levels of heavy metals including zinc and copper.

Preparation of the soil before planting included aeration with pumice, tilling to a depth of approximately 15 inches throughout all planting areas, and addition of non-deactivated sludge composted organic matter. Non-deactivated sludge is a safer compost alternative to the deactivated sludge found in most pre-packaged compost. Ask your local nursery for details.

General Soil Information

Healthy soils grow healthy plants. Well drained soil, generally defined as a permeable soil that can absorb 1/2 inch of water or more per hour, creates a good environment for plants and trees to set deep roots, and take advantage of deep water and nutrients. But not all soil is created equal.

Soil amendments, such as compost, can help a soil drain faster or slower while providing nutrients. Soil testing should be done prior to adding any amendment. The test provides information on the pH (acidity or alkalinity) level, existing nutrient level, and soil permeability. The results indicate which nutrients are lacking in addition to how much compost or other organic material should be added. Soil laboratories provide the analysis (refer to your local yellow pages – “Laboratories–testing/soil”).

Clay

Clay soil is dense. The soil particles are packed tightly together leaving little to no space for air and water movement. Water drainage is very slow in clay soil.

Sand

Sandy soil is loose. Sand particles are relatively large and irregularly rounded. The rounded shape provides ample pore space for air and water movement. Water drainage is very fast in sandy soil.

Loam

Loam soil is considered to be ideal for most plants. Clay, sand and silt particles combine in fairly equal amounts. The sand particles prevent the clay particles from packing together and the silt particles adhere to the clay/sand particles providing organic matter to the mix. Drainage in loam soil is adequate to enable plant roots to absorb water and nutrients while allowing excess water to travel away from plant roots.

Urban Runoff

Hazardous and toxic substances like fertilizers, pesticides, automotive fluids, pet wastes and trash are washed into our storm drain system and into Santa Monica Bay by rain, and dry weather flow from hosing paved areas and excessive irrigation. This liquid waste, called urban runoff, is the single largest source of water pollution in the Bay, and it is a major threat to the health and safety of our residents, visitors, businesses and the marine ecosystem.

Santa Monica is committed to keeping our City and Bay healthy. This garden is an example of how we can make a difference. This garden's drip irrigation system eliminates irrigation runoff. Rain is captured on site for re-use in irrigation or returned to the underground aquifer.

Rain gutters are installed on the east side of the roof. A rain-chain attached to the end of the gutter channels the roof water runoff into a decorative ceramic urn and then through a drainpipe under the creek bed into an infiltration pit located near the center of the garden.

The creek bed, constructed with local Malibu boulders and rock, rubble and pebbles from the San Diego area, is permeable. Permeable areas, such as the dry creek bed, the decomposed granite paving and the GravelPave^2 surfaces on the access ramp and driveway, allow water to return to the groundwater supply instead of running off the property, into the street and into the Bay.

Resources

Native Garden

Item	Name/Model	Brand/Source	Address
Planting			
Trees, Shrubs, and Groundcover	California Native*	Theodore Payne Foundation	www.theodorepayne.org
		FK Nursery, Inc.	FK sells to the trade only. See your landscape professional for details.
Mulch	Xerimulch	Kellogg Supply	www.kelloggarden.com
Dry Creek			
Boulders	Malibu	Bourget Brothers	www.bourgetbros.com
Gravel	Del Rio Aggregate	Bourget Brothers	www.bourgetbros.com
Decomposed Granite		Bourget Brothers	www.bourgetbros.com
Accessway			
Paving	GravelPave^2	Invisible Structures	www.invisiblestructures.com
Bridge Decking	ChoiceDek II	Advanced Environmental RecyclingTechnologies, Inc.	www.choicedek.com

*To get your California-friendly garden started, contact the resources listed below. The staff and volunteers at these organizations can provide you with information and materials to make your garden a success.

Rancho Santa Ana Botanic Garden	www.rsabg.org
Theodore Payne Foundation	www.theodorepayne.org
Tree of Life Nursery	www.treeoflifenursery.com
California Native Plant Society	www.cnps.org

Item	Name/Model	Brand/Source	Address
Furniture			
Concrete Bowl	Garden Maker	San Marcos Growers	www.smgrowers.com
Solar Fountain	Pond Island	Smart Solar/GAIAM	www.gaiam.com
Pottery planters and urns		World of Pottery	626/961-4768
Plastic lumber for sign post	Trex	Trex Company	www.trex.com
Plastic lumber for sign placard	Codemo	Priema Plastics	www.codemo.com
Rain Catchment			
Infiltration Pit	D-Raintank	Atlantis Water Management	www.atlantiscorp.com.au
Rain Chain	Copper Rain Chain	Susan Herbert Imports	503/248-0886
Irrigation Equipment			
Controller	WeatherTRAK	Hydropoint Data Systems	www.hydropoint.com
Master Pressure Regulator	Model 600	Wilkins	www.zurn.com
Master Filter	T-007C-XXX-E	API	www.agproducts.com
Valves	PGV-101A	Hunter Industries	www.hunterindustries.com
Zone Pressure Regulator	PRV075	Bermad	www.bermad.com/irrigation.asp
Microspray Heads / Nozzles	1806 / O-Jet	Rain Bird / Olson Industries	www.rainbird.com www.olsonirrigation.com
Drip Tubing	SFPC-BR-7212-01	Agrifim	www.agrifim.com
Drip Tubing Connectors	Easy Fit	Rain Bird	www.rainbird.com

Additional Resources

City of Santa Monica	www.smped.org	garden incentives
Metropolitan Water District	www.bewaterwise.com	virtual garden tours

garden\garden was designed by Susanne Jett of Jettscapes.

Photography by Diedra Walpole of Deidra Walpole Photography

Graphic design by Cowan Communication Arts www.cowcom.com

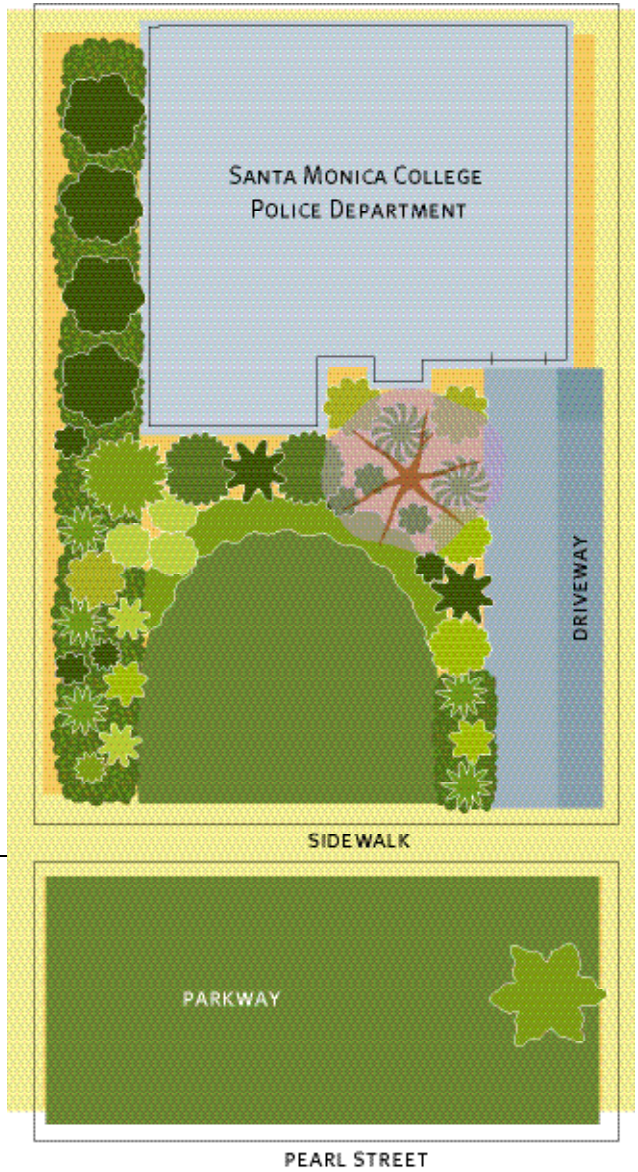
Printed on recycled paper!

Traditional Garden

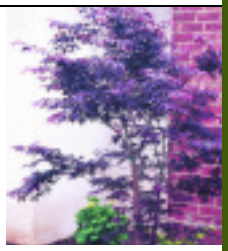
1718 Pearl Street, Santa Monica, California 90405

This front yard features a layer of bright green turf and flowering annual plants. Although this is the type of landscaping traditionally planted in Southern California, none of these plants are naturally equipped to survive our climate. Traditional gardens require tremendous resources, including water and fertilizer, to keep the plants alive in our semi-arid environment. Each month this garden will require thousands of gallons of water, weekly mowing and weeding, soil additives and pesticides. As our natural resources, such as water, become scarce, it is our responsibility to use them more wisely today so that they will be available for future generations. Visit this garden to learn how transforming traditional gardens into native gardens provide a balance of aesthetics, function and resource availability.

Please see the map insert at the back of the brochure

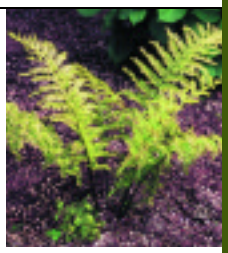


1. Acer palmatum 'Atropurpureum'
A native of Japan and Korea, small scale tree to 20 feet with purplish-bronze to bronze leaves. Insignificant flower, winged seed capsule. Winter deciduous.



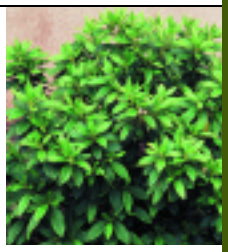
2. Alstromeria hybrid
Evergreen varieties of 18 to 24 inch high perennials with light green leaves and lily-like flowers of many colors.

3. Asplenium bulbiferum
A native fern from the rainforest regions of Australia and New Zealand with finely cut, light green fronds to four feet long.



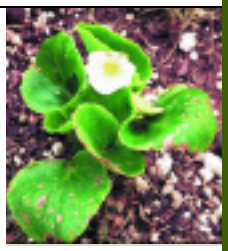
4. Astilbe x arendsii
Short lived perennial with finely cut, bright green leaves and long-stemmed plumes of small pink, white or red flowers. Winter dormant.

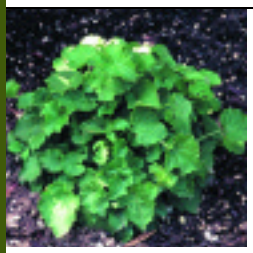
5. Azalea 'Fielders White'
A Southern Indica Hybrid which is more sun-tolerant than the original Belgian Indica Hybrids of the east coast regions. 'Fielders White' has white flowers.



6. Azalea 'Formosa'
A Southern Indica Hybrid which is more sun-tolerant than the original Belgian Indica Hybrids of the east coast regions. 'Formosa' has rose- colored flowers

7. Begonia 'semperflorens'
Six to eight inch high fibrous flowering bedding plants with very soft leaf, stem and flower in colors ranging from deep maroon to white. Bedding Begonias are treated as annual (seasonal) plants, which are replaced two to three times a year.





8. Campanula poscharskyana
A spreading, eight inch high perennial ground cover with deep green leaves and star shaped lilac-blue, lavender or white flowers in spring and summer. Spreads by root runners to cover soil.

9. Eucalyptus globulus

10. Fuchsia x hybrida
An evergreen hybrid variety of soft-woody, two foot high, loose shaped shrub with dark green leaves and pinkish- violet bell shaped flowers.

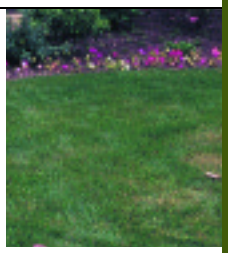
11. Gardenia augusta 'August Beauty'
A hybrid variety of a native shrub from China and Japan, growing to five feet high with shiny green leaves and highly fragrant white flowers in summer.

12. Hemerocallis (hybrids)
An evergreen, tuberous, clustering, perennial with 18 inch high green strap leaves and various colored lily-like flowers on tall stems.

13. Hydrangea macrophylla 'Nikko Blue'
A hybrid variety of the native shrub from Japan, it grows to six feet high with large toothed green leaves and large white to lavender blue flower clusters which bloom in the summer and fall. Winter deciduous.

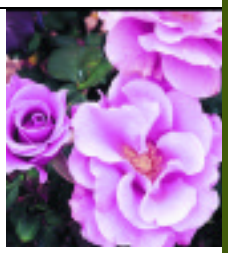
14. Impatiens (Bedding)
Annual plant, six to 15 inches high with soft, fibrous green leaves and stems and various colors of flower during summer. Plant typically looks very poor in winter.

15. Marathon #1 Turf



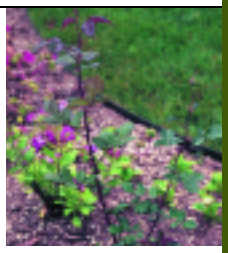
16. Rhododendron
A hybrid variety of a six foot high shrub with large, thick, dark green leaves and large clusters of white to rose-red flower clusters throughout spring and summer.

17. Rosa 'Angel Face'
A lavender flowering Floribunda variety.



18. Rosa 'Iceberg'
An evergreen white flowering Floribunda variety

19. Rosa 'Queen Elizabeth'
A pink-blend Grandiflora variety



20. Syringa vulgaris 'Lavender Lady'(Lilac)
An Eastern Europe native, ten to 15 feet tall shrub with roundish green leaves and vertical clusters of pinkish to lavender, highly fragrant flowers in spring. Winter deciduous.

Plants

Selection

This garden includes a selection of plants that are commonly planted in Santa Monica and other areas of Southern California.

Planting

Plants installed in the bedding areas are designed to provide a formal and full appearance within a relatively short period of time. The turf provides instant green. The optimum time to install these plants is the Spring. In their native regions, the spring and summer rains help them grow in order to survive the fall and winter when they become dormant.

Maintenance

For these plants to survive in this climate, they require constant care with lots of water, fertilizers and pest management. Lawn areas will require weekly mowing and edging. Annual plants will be replaced two to three times a year. Most plants will require monthly application of soil additives to acidify the soil. Most plants will require treatments for insects, which frequently and severely affect plants, which are not suited to Southern California's climate.

Irrigation

General

Traditional irrigation systems, like the one used in this garden, are designed for area coverage. Sprinklers are placed to evenly cover the entire planting area with water. The system consists of an underground network of pipes which bring the water from control valves to individual sprinklers evenly spaced throughout each planting bed.

Equipment

Sprinkler irrigation is used for all planting areas. Typical anti-syphon valves are used for both shrub and turf zones. The nozzle for each sprinkler is selected by pattern (quarter, half or full circle) and radius to conform as much as possible to the shape of the planting area.

Application Rate

Traditional irrigation systems, like this one, apply water at about two inches per hour. Because the intake rate of most soils is less than half that rate, water must be applied in a series of short cycles in an attempt to eliminate runoff from the garden into the street.

Controller

This irrigation system uses a typical “hybrid” controller located above the control valves on the east side of the house. The watering schedule is manually adjusted every three months to compensate for weather.

Maintenance

All irrigation systems require maintenance. Sprinklers must be adjusted frequently to keep the nozzles free of clogs and the spray confined to the planting bed. Because they are mounted adjacent to hardscape traffic areas, sprinklers often require replacement or repair due to damage by vehicles and vandalism.

Adaptability

Sprinkler irrigation systems are not very adaptable to shrub and tree plantings. As foreground plants mature, they tend to block the spray from other plants further back in the bed. Because sprinklers are fastened to rigid pipes buried in the ground, they are difficult to relocate.

Soil

Soil testing of this garden revealed that the soil type was sandy loam (moderate permeability), poor in organic matter and highly compacted from decades of turf. The test also indicated high alkalinity and high levels of heavy metals including zinc and copper.

Preparation of the soil before planting included aeration with pumice, tilling to a depth of approximately 15 inches throughout bedding areas, and addition of non-deactivated sludge composted organic matter. Turf areas were tilled with pumice and organic matter to a depth of 6 to 8 inches.

See page 14 for a general discussion of soil types.

Urban Runoff

Urban Runoff Mitigation

Runoff in this traditional garden will flow from the roof onto the landscape. Some will percolate into the ground, and some will flow onto the paved driveway and the handicap access ramp into the street.

This garden includes an automatic sprinkler system that, by its typical design and installation, causes over-watering, uneven watering, and urban runoff. Common sprinkler system controllers have a default setting to water each day for 10 minutes, much more than is necessary. Many garden maintenance contractors are not experienced enough to properly maintain irrigation systems.

Below are 6 strategies for eliminating irrigation runoff:

1. If your landscape is composed of individual plants, such as shrubs, rather than continuous groundcover like turf, convert your spray system to drip irrigation.
2. Re-landscape with individual plants (one-gallon size or larger) and convert your spray system to drip irrigation.
3. Replace the plant material with a permeable, non-living groundcover such as gravel or rock mulch or decomposed granite, that will not require irrigation.
4. Install a buffer strip of permeable, non-living groundcover, such as gravel or rock mulch or decomposed granite, between the plant material and the hardscape and move the sprinkler heads inward to the edge of the planting bed. Because of the possibility of wind and misadjustment, this solution is not foolproof.
5. Install a subsurface irrigation system.

See page 15 for a general discussion of urban runoff.

Resources

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Traditional Garden

Item	Name/Model	Brand/Source	Address
Planting			
Trees, Shrubs, and Bedding Plants	Traditional / Seasonal	FK Nursery, Inc.	FK sells to the trade only. See your landscape professional for details.
Sod			
	Marathon I	Southland Sod	www.sod.com
Furniture			
Plastic lumber for sign post	Trex	Trex Company	www.trex.com
Plastic lumber for sign placard	Codemo	Priema Plastics	www.codemo.com
Irrigation Equipment			
Controller	Rain Dial	Irritrol	www.irritrolsystems.com
Pressure Regulator	Model 600	Wilkins	www.zurn.com
Valves	ASV-075	Hunter Industries	www.hunterindustries.com
Sprayheads	1804	Rain Bird	www.rainbird.com

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Photography by Diedra Walpole of Deidra Walpole Photography

Graphic design by Cowan Communication Arts www.cowcom.com

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For more information call **310.458.8972 x1** or visit **www.smepd.org**

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