garden\garden: A Comparison in Santa Monica

Size & Type of Project:
Each residential garden is approximately 1900 square feet in area

Location:
Santa Monica, California

Budget:
$29,100 (for both gardens)

Project Phase:
Completed in March 2004

Project Overview

In 2003, the City of Santa Monica, CA, initiated a project called garden\garden, designed to encourage city residents and the local landscaping community to adopt sustainable garden practices. The city wished to promote practices that would, among other things, conserve water and energy, reduce waste and also decrease urban runoff, the single largest source of pollution in Santa Monica Bay. Although the city had been providing seminars and tours of local sustainable landscapes, as well as a large demonstration garden at City Hall, most residents were not moved to alter their gardening practices. Similarly, members of the landscaping community were still inclined to continue recommending and installing the traditional kinds of non-native plants with which they were most familiar.

The City of Santa Monica's challenge was to persuade both homeowners and landscape professionals that sustainable gardening was not only better for the environment than traditional gardening, but also attractive and made good economic sense. To prove their case, the city created garden\garden-two gardens in adjacent residential front yards, one landscaped in the traditional manner and the other with a climate-appropriate, sustainable design, allowing residents to make a direct comparison. Using garden\garden as a model, the city has since awarded 51 Sustainable Landscape Grants for properties including single-family homes, multi-family buildings, and two schools. Sustainable landscape principles have been taught to more than a hundred residents and more than 120 landscape professionals since 2004. Garden\garden has served as a learning laboratory and working example for all of the workshop attendees, garden tour visitors and for the general public that walk past the garden daily.

Site Context

Southern California's climate is coastal Mediterranean and is dominated by the Pacific Ocean. Average daily temperatures are mild and morning fog is common, with daily afternoon winds. The air tends to be salt laden and the average annual rainfall ranges from 11 to 20 inches. The soils are commonly alkaline and sandy in texture. The side-by-

side bungalows are in an urban residential neighborhood. Each garden is approximately 1900 square feet in area.

garden\garden (Santa Monica, CA) - Traditional garden

Sustainable Practices

Sustainable Practices in the Native Garden (NG)

- No chemical herbicides or insecticides (per Santa Monica City policy).
- Climate-appropriate native California plant palette, designed to replicate the chaparral of the Santa Monica mountains
- Low-volume drip irrigation
- Weather-sensitive irrigation controller
- Dry creek bed and infiltration pit for capturing storm water runoff and groundwater recharge
- Wildlife habitat for local and migratory fauna

Practices in the Traditional Garden (TG)

- No chemical herbicides or insecticides (per Santa Monica City policy) but occasional use of blood meal
- Exotic plants from Northern Europe and the Eastern United States
- Standard, user-controlled sprinkler irrigation system
- No provision for runoff mitigation

Construction Cost

Total site cost of traditional garden (TG): $12,400

Total site cost of native garden (NG): $16,700

- Increase in costs of the native garden is due primarily to the addition of rain gutters that tie into a new underground infiltration pit and construction of a permeable, handicap accessible walkway that replaced a concrete handicap ramp.
- Total site cost of both gardens, as described above, does not take into account the costs and benefits to the larger community. Benefits may include, for example, water conservation, waste reduction, and improvements in human and environmental health. Sustainable practices in NG - such as the use native plants, the no chemicals policy, and groundwater recharge-also reduce certain costs to the larger community by reducing combined sewer overflow, for instance, or improving the quality and quantity of water leaving the site. Ultimately, an in-depth study of the project would be needed to fully assess the true benefits-social, environmental and economic-of sustainable practices.

Monitoring Information

Construction was completed in March 2004. From 2004 to 2008, the city tracked costs, labor hours, plant growth, water consumption, green waste production, and other environmental factors for both gardens. The ever increasing costs of water, maintenance man hours and the transporting costs of green waste disposal required to support a traditional landscape will determine the long-term dollar amount offset of costs for installation.

- Water Use (gallons): Each garden is separately metered. Water consumption was recorded at two-month intervals until November 2004, after which it was recorded monthly.
    - TG = 283,981 gallons/year
    - NG = 64,396 gallons/year
    - Difference = 219,585 gallons/year or 77% less water use for NG
- Green Waste (pounds):
    - TG =647.5 pounds/year
    - NG = 219.0 pounds/year
    - Difference = 428.5 pounds/year or 66% less waste produced from NG
- Maintenance Labor (US dollars):
    - TG = $223.22/year
    - NG = $ 70.44/year
    - Difference = $152.78 dollars/year or 68% less spent on labor for the maintenance required for NG

Maintenance

- When the installing contractor's 90-day maintenance period expired, a landscape maintenance company was hired to maintain both landscapes. In the first year, both gardens were visited weekly. The company was asked to keep separate

records of material cost, labor hours, and green waste production for each garden and to report that data monthly.

- NG: After the 12-month establishment period, the planned and on-going landscape maintenance schedule for the CA native garden is semi-annual, and involves hand pruning of selected plants as needed during particular times of the year. This maintenance schedule has been in effect for the past three years.
- TG: In this climate the traditional garden's exotic plants require considerable water, fertilizers, and pest management. Turf areas are mowed and edged weekly. Annual plants will be replaced two to three times a year. Occasional treatments are required for diseases and insect attack.
- In the third year (2006-2007), organic fertilizer, blood meal and soil conditioner were occasionally applied in the TG.
- Costs of weekly maintenance of the TG (as compared with semi-annual visits for the NG) will eventually offset the TG's lower installation costs.

garden\garden (Santa Monica, CA)

Issues/Constraints of the Site

In both gardens, the soil type was sandy loam (moderate permeability), poor in organic matter, and highly compacted from decades of turf. Tests also indicated high alkalinity and high levels of heavy metals, including zinc and copper. In both properties, the existing landscape was completely removed to create an identical environmental base condition for study, with all waste exported for recycling. Soil amendments were applied as appropriate for the respective plant material. The intent was to bring the soil to a basic

level of balance, facilitate a long-term development of healthy soil life and increased plant health. As public garden sites, both gardens also are exposed to unusually high vehicular traffic and resulting air pollution.

Lessons Learned

Collected site data have validated theories that a south California native landscape would yield significant reductions in resource consumption and waste production as compared to a traditional south California style landscape.

More project details

http://www.smgov.net/epd/residents/Water/gg/gg_index.htm

Project Consultants

Landscape Designer:
Susanne Jett
Jettscapes Landscape

Irrigation Designer:
Bob Galbreath
Santa Monica City/ Water Resources Specialist

Initial Landscape installer:
Live Art Landscapes
Landscape Contractors

Maintenance Contractor:
C&K Landscapes