GI Landscape Design and Maintenance Considerations

SCVURPPP GI Workshop
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Outline of Presentation

- Sustainable Landscape Principles
- Role of Plants and Top Ten GI Plant List
- Plant Spacing and Location
- Tree Planting and Minimum Soil Volumes
- Biotreatment Soil Media and Mulch
- Irrigation Considerations
- Maintenance Guidance
- Examples and Resources
Sustainability Principles

- Design Local - Climate & Plants
- Construct Smart - Recycle & Buy Recycled
- Reduce Energy - Lighting & Buy Local
- Smart Irrigation - Controller & Emitters
- Restore the Soil - Compost & Mulch
- Work with Nature - IPM & Avoid Invasives
- Increase Habitat - Food & Pollinators
- Use Resources - Graywater & Solar
- Protect Air/Water - Trees & Reduce Runoff
Role of Plants

- Plant roots penetrate soil creating flow paths
- Feed soil organisms
- Nutrient, metal uptake & volatilization
- Provide habitat & food
- Restore soil
- Evapotranspiration

Slide credit: Megan Stromberg, WRA, Inc.
Desired Plant Characteristics

- Drought Tolerant
- Tolerate well-drained soils AND flooding
- Native or adapted to CA climate
- No synthetic fertilizer
- Drip irrigation
Right Plant – Right Place

- Plant Lists: Top 10 List, C3 Handbook
- Rushes, sedges, bunch grasses, fescues and some California natives.
- Identification tip:
  Sedges have edges
  Rushes are round
- Consider north and south sides (Sun)
- Basin, banks or upland planting area
Top Ten List

- Tough, low-maintenance hardy plants
- Many can survive without irrigation depending on the local climate and some even stay green during a drought
- Do not require frequent trimming when properly placed and designed
- Perennials that do not need to be replanted every year
- California natives or climate appropriate
#10 – Seaside Daisy
Erigeron glaucus
#8 - Deer Grass
Muhlenbergia rigens
#7 - Meadow Sedge
Carex pansa
#6 - Douglas Iris
Iris douglasiana
#5 - Orange Sedge
Carex testacea
#4 - Blue Fescue
Festuca glauca
#3 - Gray Rush
Juncus patens
#1 - Small Cape Rush
Chondropetalum tectorum
Plant Spacing

- Appendix D of the SCVURPPP C3 Handbook* provides guidance and lists of plants for LID and GI systems.
- Recommended spacing of plants depends on the spread of the plant at maturity.
- Plants should be spaced so that trimming is minimized (adjacent surfaces) and crowding with other plants is avoided.

* www.scvurppp-w2k.com/nd_wp.shtml
GI Planting Locations

- The SCVURPPP C3 Handbook Plant list divides planting locations into three zones:
  - Basin
  - Banks
  - Upland

- Plants are identified for these zones based on water needs and acceptability of “wet feet”.

Trees should only be planted in bioretention systems when the tree species is appropriate for sandy soils and sufficient soil volumes and space are provided for the tree to reach mature size without causing problems with surrounding infrastructure.

The design and tree species should be carefully considered for future irrigation needs (especially with large tree species.)
Minimum Soil Volumes

- Minimum soil volumes should be provided based on the size of the tree species at maturity with recommended minimums of 600, 900 and 1200 cubic feet of soil volume per tree for small, medium and large species respectively.

- Soil volumes can be provided using open areas, suspended pavement systems (such as Silva Cells) and structural soils.
**Small Tree**
Volume Requirements: 600 cubic feet

**Medium Tree**
Volume Requirements: 1,000 cubic feet

**Large Tree**
Volume Requirements: 1,500 cubic feet

Greening DC Streets • Chapter 2
Biotreatment Soil Media (BSM)

- BSM is a mix of 30-40% compost and 60-70% sand.
- Check the SCVURPPP website for the most up-to-date BSM specifications, guidance, vendor lists and product verification checklists.

www.scvurppp-w2k.com/nd_wp.shtml
Mulch and Compost!!!!

• Reduces weeds
• Regulate soil temperature

• Add organic matter
• Attenuate heavy metals and moisture
Mulch and Compost!!!!

Every 1-2 years, or as needed, add:

- 1-3” of compost & then
- 2-3” of aged, shredded tree trimmings or
- 2-3” of rock mulch
Irrigation Considerations

- Comply with your local or state Water Efficient Landscape Ordinance (WELO).
- Group plants and corresponding irrigation systems into hydrozones – see Appendix D of the SCVURPP C3 Handbook.
- Bay-Friendly Rated Landscapes automatically comply with the WELO.
Maintenance Considerations
Maintaining Plant Health: Grasses

Juncus (Rushes):
• Do not benefit from cutting back regularly
• If pruning regularly: comb through, clip at base.

• Do not prune to a ball - impenetrable to new growth.
• Every 3-4 years, prune to 1” in Fall only, vulnerable to heat

Slide credit: Megan Stromberg, WRA, Inc.
Muhlenbergia rigens (Deer grass)

- Thrives on minimal care
- Cut back only slumping plants in late winter to 6” height
- 2-3 years thatch builds up
- Other smaller species of bunch grasses can be cut to 3”
Maintaining Plant Health: Perennials

- Deadheading or cut off spent flower stocks at base
- Refresh aged raggedy perennials by dividing root mass during winter
- Winter pruning: Many non-woody species can be cut to 2-3” once every few years to refresh

Slide credit: Megan Stromberg, WRA, Inc.
Warning Signs

Unhealthy Vegetation:
• Drainage problems
• Reduced infiltration

• Irrigation failure
• Infiltration rate too high
• Standing water

Slide credit: Megan Stromberg, WRA, Inc.
Warning Signs and Actions

Bare Spots:
- <75% cover
- Replant
- Mulch and compost
- Consider compost tea
- Consider different plants

Slide credit: Megan Stromberg, WRA, Inc.
Dead vegetation & Weeds:
• Remove thatch when more than 10% cover
• Remove weeds, invasive versus unwanted
• Replant if weeds more than 25%

Slide credit: Megan Stromberg, WRA, Inc.
Trimming and Mowing (or Not)
NO MOW ZONE
No cortar el césped

AREA MAINTAINED BY THE CITY OF CAMPBELL
FOR MORE INFORMATION CALL: (408) 866-2145
Trash/Litter

Richmond
Leaf Buildup
Design Example - Emeryville

- Stormwater Curb Extension
- Constructed and maintained by Pixar
- Contaminated soil
- Lined
- Irrigated with reclaimed water from EBMUD
- Bay-Friendly Landscaped
- High Visibility - across from City Hall
- 2010
RECLAIMED WATER
DO NOT DRINK
NO TOME
Resources

- Bay Area Eco Gardens
  http://bayareaecogardens.org/
- Santa Clara Valley Green Gardeners
  www.mywatershedwatch.org/residents/green-gardener-program/
- Bay-Friendly Landscaping Coalition
  (now a program of ReScape California)
  www.rescapeca.org
Resources Continued…

- Santa Clara County Master Gardeners
  http://mgsantaclara.ucanr.edu/
- Santa Clara County Master Composters
  http://cesantaclara.ucanr.edu/Home_Composting_Education/
- Santa Clara Valley California Native Plant Society and Going Native Garden Tour
  http://www.cnps-scv.org/
Questions?

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