Xeriscape & Green Technologies

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Xeriscape

Definition – Place based landscaping that meets the needs of today’s world, without diminishing the ability of future generations to meet their needs.

Background

• Whole Systems Approach
  – Limit Waste / Recycle Materials
  – Origin of Materials - Costs
  – Life Cycle Costs

Xeriscape and Green Technologies

• Site Protection
  – Layout and Organization
  – Land Use
  – Site Circulation
  – Hydrozoning and Oasis Concepts

Agenda

• Background
• Xeriscape and Green Technologies
• Public Ordinances / Laws
• The Costs of Xeriscape
• Case Studies
  – MESA
  – I-25
  – Pavilions
  – High Desert
• Questions and Answers
Xeriscape and Green Technologies

- Land Forming Devices
  - Hilltop
  - Swale
  - Slope
  - Flat Terrain
- Watershed & Drainage

Xeriscape and Green Technologies

- Water Harvesting
  - Arroyos, Swales and Drainageways
  - Dams / Ponding and Storage
    - Check Dams
    - Porous Dams
    - De-Sedimentation Wells
- Check Dams
- Porous Dams
- De-Sedimentation Wells

Xeriscape and Green Technologies

- Wicking Systems
- Cisterns
- Site Hydrology

Xeriscape and Green Technologies

- Plant Layering
- Re-vegetation
  - Re-seeding (crimp, imprinting, etc.)
  - Waterless landscaping
- Landscaping (irrigated)
  - Dry Land Plants
  - Higher Water Plants

Xeriscape and Green Technologies

- Remediation of Water Pollution
- Sound Attenuation
- Protection of Night Skies

Public Ordinances/Laws

- Local
  - Typical Landscape Regulations
    - Stormwater Management
    - Water Waste / Xeriscape Ordinance
Public Ordinances/Laws

- Federal Guidelines
  - Energy Consumption (DOE)
  - Environmental Quality (EPA)
  - Stormwater (FEMA (NEPA))
  - LEED

LEED

- Erosion and Sediment Control
- Urban / Brownfield Redevelopment
- Reduced Site Disturbance
- Stormwater Management
- Design to Reduce Heat Islands

Xeriscape Steps

<table>
<thead>
<tr>
<th>Step</th>
<th>New Xeriscape</th>
<th>Non-Conversion</th>
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<td>Maintenance Audits</td>
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Cost Comparisons

- Costs
  - Reclamation - $2,000.00/acre
  - Re-vegetation - $5.00 to $14.00/sf
  - Xeriscape - Primarily Mulch, Gravel
    - $1.00 to $2.00/sf
  - Xeriscape - Mulch/Gravel
    - Alternative Turfs - $1.75 to $2.50/sf
  - Traditional Landscapes $1.00 to $3.00/sf

The Cost of Xeric Conversions

- Payback Period
  - 3 to 6 years
- Water Savings
  - Cost cut by ½ to ¾
- Savings of Other Resources
  - Fertilizer
  - Gasoline
  - Labor
- Maintenance Costs
The Cost of Xeric Conversions

- Maintenance Costs
  - Traditional Landscape - $1,300 to $2,600 /acre/mo.
  - Heavily Planted Xeriscape - $900 to $1,700 /acre/mo.
  - Moderate Xeriscape - $500 to $900 /acre/mo.
  - Natural Landscape - $150 to $300 /acre/mo.

Case Studies

- MESA (Microsystems and Engineering Sciences Applications)/Sandia Labs
  - 125 Project
  - Pavilions
  - High Desert

MESA Characteristics

- Uses a Previously Developed Site
- Relocates Trees/Other Materials
- Reduces Heat Islands
- Uses Native Plants
- Uses Local Materials

MESA Mall Area
MESAS
- Mall Event Space

MESAS
- Interpretive Feature

I25 Project
- Reuses Existing Site
- Uses Native Plants in Traditional Ways
- Use Environmental Graphics

I25 Project
- Pedestrian Orientation
- Use of Local Materials
- Use of Alternative Turfs

Pavilions
- Water Harvesting
- Local Materials
- Native Plants

Pavilions
- Pedestrian Orientation
- Shade to Reduce Heat Islands