TYPES OF URBANISM

LANDSCAPE URBANISM
What is Urbanism?

Landscape Urbanism
  • What is Landscape Urbanism
  • Landscape Urbanism Criticism

Thought Leaders of Landscape Urbanism
  • Charles Waldheim
  • James Corner

The High Line Park (Case Study)

Relation to concepts of Sustainability
  • Principles of Sustainable Landscaping

Applications for Site Design
  • High Line Sustainable Practice

Relevance to Urban Planning and Design in Doha
  • Aspire Park
  • Qatar University Campus

Literature and Sources
WHAT IS URBANISM?

• Urbanism is generally defined as the study of cities and urban areas, but different fields focus on different aspects.
WHAT IS URBANISM?

• In urban planning and architecture, urban form and structure is the focus.

• In sociology, urbanism may be more about social interaction and community within the context of cities.

• Historians may be particularly interested in historical patterns of urban growth and change.

What all fields have in common is a concern for the created human habitat and the problems – and potential solutions – that habitat inspires.
<table>
<thead>
<tr>
<th>Types of Urbanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Urbanism</td>
</tr>
<tr>
<td>Ecological Urbanism</td>
</tr>
<tr>
<td>Future Urbanism</td>
</tr>
<tr>
<td>Green Urbanism</td>
</tr>
<tr>
<td>Resilient Urbanism</td>
</tr>
<tr>
<td>Infrastructural Urbanism</td>
</tr>
<tr>
<td>Sustainable Urbanism</td>
</tr>
<tr>
<td>Emergent Urbanism</td>
</tr>
<tr>
<td>Participatory Urbanism</td>
</tr>
<tr>
<td>Walkable Urbanism</td>
</tr>
<tr>
<td>Everyday Urbanism</td>
</tr>
<tr>
<td>Real Urbanism</td>
</tr>
<tr>
<td>Clean Urbanism</td>
</tr>
<tr>
<td>Border Urbanism</td>
</tr>
<tr>
<td>Exotic Urbanism</td>
</tr>
<tr>
<td>2nd Rate Urbanism</td>
</tr>
<tr>
<td>Beautiful Urbanism</td>
</tr>
<tr>
<td>Brutal Urbanism</td>
</tr>
<tr>
<td>Denied Urbanism</td>
</tr>
<tr>
<td>Political Urbanism</td>
</tr>
<tr>
<td>Middle Class Urbanism</td>
</tr>
<tr>
<td>Paid Urbanism</td>
</tr>
<tr>
<td>Post-Traumatic Urbanism</td>
</tr>
<tr>
<td>Big Urbanism</td>
</tr>
<tr>
<td>Agricultural Urbanism</td>
</tr>
<tr>
<td>Open Source Urbanism</td>
</tr>
<tr>
<td>Opportunistic Urbanism</td>
</tr>
<tr>
<td>Instant Urbanism</td>
</tr>
<tr>
<td>Unitary Urbanism</td>
</tr>
<tr>
<td>Bricole Urbanism</td>
</tr>
<tr>
<td>Slum Urbanism</td>
</tr>
<tr>
<td>Networked Urbanism</td>
</tr>
<tr>
<td>Bypass Urbanism</td>
</tr>
<tr>
<td>Gypsy Urbanism</td>
</tr>
<tr>
<td>DIY Urbanism</td>
</tr>
<tr>
<td>Integral Urbanism</td>
</tr>
<tr>
<td>Inverted Urbanism</td>
</tr>
<tr>
<td>Vernacular Urbanism</td>
</tr>
<tr>
<td>Pop-Up Urbanism</td>
</tr>
<tr>
<td>Nuclear Urbanism</td>
</tr>
<tr>
<td>New (Sub)Urbanism</td>
</tr>
<tr>
<td>Informal Urbanism</td>
</tr>
<tr>
<td>Behavioral Urbanism</td>
</tr>
<tr>
<td>Temporary Urbanism</td>
</tr>
<tr>
<td>Braided Urbanism</td>
</tr>
<tr>
<td>Trace Urbanism</td>
</tr>
<tr>
<td>Market Urbanism</td>
</tr>
<tr>
<td>Propagative Urbanism</td>
</tr>
<tr>
<td>Radical Urbanism</td>
</tr>
<tr>
<td>Anti-Urbanism</td>
</tr>
<tr>
<td>Disconnected Urbanism</td>
</tr>
</tbody>
</table>
# Types of Urbanism

<table>
<thead>
<tr>
<th>New Urbanism</th>
<th>Brutal Urbanism</th>
<th>DIY Urbanism</th>
<th>Magical Urbanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecological Urbanism</td>
<td>Denied Urbanism</td>
<td>Integral Urbanism</td>
<td>Recombinant Urbanism</td>
</tr>
<tr>
<td>Future Urbanism</td>
<td>Political Urbanism</td>
<td>Inverted Urbanism</td>
<td>Guerilla Urbanism</td>
</tr>
<tr>
<td>Green Urbanism</td>
<td>Middle Class Urbanism</td>
<td>Vernacular Urbanism</td>
<td>Dialectical Urbanism</td>
</tr>
<tr>
<td>Resilient Urbanism</td>
<td>Paid Urbanism</td>
<td>Pop-Up Urbanism</td>
<td>Stereoscopic Urbanism</td>
</tr>
<tr>
<td>Infrastructural Urbanism</td>
<td>Post-Traumatic Urbanism</td>
<td>Nuclear Urbanism</td>
<td>Holy Urbanism</td>
</tr>
<tr>
<td>Sustainable Urbanism</td>
<td>Big Urbanism</td>
<td>New (Sub)Urbanism</td>
<td>Retro future Urbanism</td>
</tr>
<tr>
<td>Emergent Urbanism</td>
<td>Agricultural Urbanism</td>
<td>Informal Urbanism</td>
<td>Digital Urbanism</td>
</tr>
<tr>
<td>Participatory Urbanism</td>
<td>Open Source Urbanism</td>
<td>Behavioral Urbanism</td>
<td>Micro Urbanism</td>
</tr>
<tr>
<td>Walkable Urbanism</td>
<td>Opportunistic Urbanism</td>
<td>Temporary Urbanism</td>
<td>Parametric Urbanism</td>
</tr>
<tr>
<td>Everyday Urbanism</td>
<td>Instant Urbanism</td>
<td>Braided Urbanism</td>
<td>Landscape Urbanism</td>
</tr>
<tr>
<td>Real Urbanism</td>
<td>Unitary Urbanism</td>
<td>Trace Urbanism</td>
<td></td>
</tr>
<tr>
<td>Clean Urbanism</td>
<td>Bricole Urbanism</td>
<td>Market Urbanism</td>
<td></td>
</tr>
<tr>
<td>Border Urbanism</td>
<td>Slum Urbanism</td>
<td>Propagative Urbanism</td>
<td></td>
</tr>
<tr>
<td>Exotic Urbanism</td>
<td>Networked Urbanism</td>
<td>Radical Urbanism</td>
<td></td>
</tr>
<tr>
<td>2nd Rate Urbanism</td>
<td>Bypass Urbanism</td>
<td>Anti-Urbanism</td>
<td></td>
</tr>
<tr>
<td>Beautiful Urbanism</td>
<td>Gypsy Urbanism</td>
<td>Disconnected Urbanism</td>
<td></td>
</tr>
</tbody>
</table>
LANDSCAPE URBANISM
Landscape Urbanism is a theory of urban planning arguing that the best way to organize cities is through the design of the city's landscape, rather than the design of its buildings.
WHAT IS LANDSCAPE URBANISM?

- **Landscape urbanism** is a response to the limited understanding or portrayal of project and site context currently employed by both architects and landscape architects. It is also a notion put forth strategically by landscape architects as a means for differentiating their profession among the design professions, particularly architecture, and in response to the superficial role landscape architects increasingly find themselves in.
What is Landscape Urbanism?

- **Landscape Urbanism** describes the ability to produce urban effects traditionally achieved through the construction of buildings simply through the organization of horizontal surfaces.

- The phrase *Landscape Urbanism* first appeared and emerged as a theory in the mid 1990s.

- Since this time, the phrase *Landscape Urbanism* has taken on many different uses, but is most often cited as a Postmodernist or Post-postmodernist response to the "failings" of New Urbanism and the shift away from the comprehensive visions, and demands, for Modern architecture and Urban planning.
Landscape urbanism has been criticized as an idea that is only loosely defined from a set of flashy projects. These are expensive schemes with a commercial and esthetic purpose that satisfy a local or regional ambition to invest in ecology or sustainability without posing a more globally applicable approach.

A true merger of landscape architecture with the field of Urban Ecology lacks.

From this criticism, Frederick Steiner introduced landscape ecological urbanism as an approach that can include the field of urban ecology.
• **Wybe Kuitert** has shown how such integrative planning and management of the city should rely on analysis. Discerning the potential quality of wild nature in the city is a first step to see how new urban ecology might be developed. Potential vegetation maps for a city are the tool to this end.

• One opponent to Landscape Urbanism is New Urbanism, led by Andres Duany, which promotes walkable communities and smart growth with its Transit Oriented Development (TOD) and Traditional Neighborhood Design (TND). In response to landscape urbanism’s focus on expansive green space in urban development, Duany stated that “density and urbanism are not the same.” Further, “unless there is tremendous density, human beings will not walk.” The result is patches of green sprawl that lose connectivity to the greater network.
• **People who actively write about the theories of landscape urbanism:**
  - James Corner
  - Stan Allen
  - Alex Wall
  - Charles Waldheim

• **People who have contributed the most descriptive and actionable/practicable writings about landscape urbanism:**
  - Chris Reed
  - Christopher Gray
  - Peter Connolly
  - Richard Weller
  - Jusick Koh
• **Charles Waldheim** is Chair of the Department of Landscape Architecture at the Graduate School of Design at Harvard University.

• Waldheim’s research focuses on landscape architecture in relation to contemporary urbanism. He coined the term “landscape urbanism” to describe emerging landscape design practices in the context of North American urbanism. He is author of Constructed Ground, and volume editor of The Landscape Urbanism Reader and CASE: Lafayette Park Detroit.

• Charles Waldheim, has organized the first Landscape Urbanism exhibition in Chicago in 1997.
• **Charles Waldheim** is the volume editor of the Landscape Urbanism Reader book.

• The Landscape Urbanism Reader is the latest in a trickle of publications that may well turn into a stream, as landscape urbanism is definitely a fountainhead of new thinking in urban landscape architecture. Eight of the fourteen authors collected in the book are landscape architecture academics or practitioners (many are both) and the remainder are architecture academics who draw their inspiration from process-based approaches to design and urban organization.
James Corner
LANDSCAPE ARCHITECT
JAMES CORNER FIELD OPERATIONS
James Corner is a landscape architect and theorist whose works exhibit a focus on "developing innovative approaches toward landscape architectural design and urbanism."

His designs of note include Fresh Kills Park on Staten Island and the High Line in Manhattan, both in New York City.

Corner is a professionally registered landscape architect and the principal of James Corner Field Operations, a landscape architecture and urban design practice based in New York City.
THE HIGH LINE PARK (CASE STUDY)

THE HIGH LINE PARK, NEW-YOUR CITY
The High Line is a public park built on a historic freight rail line elevated above the streets on Manhattan’s West Side.
THE HIGH LINE PARK (CASE STUDY)

THE HIGH LINE PARK, NEW-YOUR CITY
THE HIGH LINE PARK (CASE STUDY)

THE HIGH LINE PARK, NEW-YOUR CITY

- Designer: James Corner Field Operations
- New York, USA – Urban Park/ Industrial Reclamation
- Previous Use: Elevated Freight Rail
- Size: 6.73 Acres / 1.45 linear miles
- Construction Cost : $152 million
- Design Fee: $15.2 million
- Completed: 2009
NYC’s High Line is a project that exemplifies effective adaptive urban re-use in a city that is littered with structures and spaces that have since reached the end of their useful life. By turning an abandoned, elevated freight train track into a public park, this project has redefined the New York experience, affording never-before seen views of the city’s surrounding natural landscape as well as an expansive and intimate look into one of the world’s most dynamic urban environments.
THE HIGH LINE PARK (CASE STUDY)

THE HIGH LINE PARK, NEW-YOUR CITY

BEFORE / AFTER
THE HIGH LINE PARK (CASE STUDY)

THE HIGH LINE PARK, NEW-YOUR CITY

MAP
LOCATION & SITE PLAN

[Map of the High Line Park, New York City]
THE HIGH LINE PARK (CASE STUDY)

THE HIGH LINE PARK, NEW-YOUR CITY

SECTION
THE HIGH LINE PARK (CASE STUDY)

THE HIGH LINE PARK, NEW-YOUR CITY

SECTION
THE HIGH LINE PARK (CASE STUDY)

THE HIGH LINE PARK, NEW-YOUR CITY

PARK FURNITURE

PEEL-UP TYPOLOGY

PEEL-UP BENCH

PEEL-UP WORKSPACE

PEEL-UP PLANter

PEEL-UP PICNIC

PEEL-UP SEESAW

PEEL-UP WATER
THE HIGH LINE PARK (CASE STUDY)

THE HIGH LINE PARK, NEW-YOUR CITY

MORE PHOTOS

Video: https://www.youtube.com/watch?v=i-yEb4JT-A8
A Sustainable Landscape is based upon a unique set of design principles. These design principles are outlined and reflect the different elements to consider when creating a landscape that minimizes its impact on precious resources like water, but maximizes its potential for creating long lasting beauty and ecological habitat. A well thought out, resource efficient design will reduce maintenance costs by working in concert with natural cycles instead of against them.
RELATION CONCEPTS OF SUSTAINABILITY

Traditional Landscape

- Water: 57,000 Gallons
- Yard Waste: 670 Pounds
- Maintenance Hours: 80 Hours

Sustainable Landscape

- Water: 6,000 Gallons
- Yard Waste: 250 Pounds
- Maintenance Hours: 15 Hours

Consumption for one year based on 2005-2006 data.
RELATION CONCEPTS OF SUSTAINABILITY

PRINCIPLES OF SUSTAINABLE LANDSCAPING

- Minimize Impacts on Air, Water, & Fossil Fuels
- Reduce Pesticide & Chemical Use
- Recycle Materials On-Site
- Source Green Building Materials
- Choose Climate Appropriate Plants
- Use Mulch and Control Weeds
- Create Habitat
- Plant Edibles
- Prepare the Soil Properly
- Use Benign Treatments for Pests and Plant Disease
- Consider Plant Placement and Scale
- Integrate Rain Water Recovery Strategies
- Install Water-Efficient Irrigation
The High Line’s landscape was created in partnership with Netherlands-based planting designer Piet Oudolf. For inspiration, Oudolf looked to the existing landscape that grew on the High Line after the trains stopped running. The plant selection favors native, drought-tolerant, and low-maintenance species, cutting down on the resources that go into the landscape.
SITE-SPECIFIC LANDSCAPE

Varied conditions of light, shade, exposure, wind, and soil depth on the High Line in its out-of-use state let to an incredibly complex variety of growing conditions, or “microclimates.” The current park landscape reflects the original microclimates of the High Line. By basing the planting design on naturally created plant communities, a well-adapted has been created, site-specific landscape, cutting down on water and other resources needed to maintain it.
LOCAL SOURCING

Almost half of the High Line’s plants are native species, and many were produced by local growers. Locally grown plants are better adapted to grow successfully in our climate, reducing the amount of plant failure and replacement costs. The High Line’s ecosystem provides food and shelter for a variety of wildlife species, including native pollinators. Whenever possible, we source materials within a 100-mile radius.
WATERING

In addition to rainwater runoff, supplementary watering has been provided. Though drip irrigation is used throughout on the High Line, the gardeners often rely on hand-watering. This way, they are able to tailor the amount of water based on the needs of individual species and weather conditions, and conserve water. Many of the plants are drought-tolerant and need little supplemental watering.
WATERING

The current park landscape was created to reflect the original microclimates on the High Line. The High Line’s green roof system is designed to allow the plants to retain as much water as possible. In addition, there is an irrigation system installed with options for both automatic and manual watering.
The Erie Street Plaza is a waterfront plaza located in the City of Milwaukee. This space is a large open space that was designed to accommodate everyday activities as well as larger events.

This site is one of many located on the Milwaukee Riverwalk. So this area serves as a rest spot for people walking or biking.
ERIE STREET PLAZA (MILWAUKEE, WISCONSIN)

Stormwater that falls on the plaza is directed into an environmental cycle that adds to the sustainability of the site. This cycle includes sending the water through marshes and wetlands to be cleaned before recharging the groundwater and irrigated other vegetation.

Runoff from the site collects in the marsh, irrigating the wetland plants that live there.

The variegated surface extends into the steel marsh, which collects and cleans stormwater from the site.

Detail of the steel marsh and plaza edge. Slots cut into the bulkhead wall allow for intermittent flooding of the wetland at the high point of twenty-year lake level cycles.
ERIE STREET PLAZA (MILWAUKEE, WISCONSIN)

The plaza surface is a hybrid plazagreen with pavers and lawn surfaces that allow for both intense activities and more passive uses.
ERIE STREET PLAZA (MILWAUKEE, WISCONSIN)

Landscape Performance Benefits

ENVIRONMENTAL

- Saves 495 gallons of potable water and $220 annually by using river water for irrigation of planted areas.

- Reduces surface temperatures by an estimated 5°F, by replacing 100% of the asphalt on the site with concrete pavers and plantings. The 121 poplar trees will also cool the plaza by providing shade when they reach half-maturity.
Landscape Performance Benefits

SOCIAL

• Transformed a former parking lot into a flexible social space used for strolling, jogging, reading, viewing, biking and kayaking,

• Serves 100 weekend adult patrons of the neighboring Sail loft bar and restaurant by providing an outdoor space for games.
Landscape Performance Benefits

**ECONOMIC**

- **Contributes to the economic development of the expanding Third Ward district**, with 243 condominium units planned and adjacent mixed-use development attracting more than $120 million in investment capital within a previously derelict area.
Geos Net Zero Energy Neighborhood is a residential, mixed-use community that will be built on 23-acres of underutilized industrial land in suburban Denver, Colorado. The project is part of the city’s comprehensive plan to intensify development along an established north-south transit corridor in order to reduce sprawl.
Geos is a vision of sustainable community planning. High-density housing and commercial buildings are laid within a green framework of natural systems, stormwater-fed landscapes, and multi-purpose civic spaces.
Guided by the bold objective of designing a community that produces 100% of its own energy, the architect and landscape architect worked in collaboration to merge high-performance buildings with energy-efficient landscapes. Checkerboard housing arrangements, allow each unit to gain maximum access to sunlight. This energy-efficient layout is optimal for natural day lighting and passive solar heating.
The roof of each house is equipped with photovoltaic solar panels, which help satisfy all electricity needs. **Deciduous tree species are strategically chosen and placed to shade building facades** without blocking the rooftop panels.

**Percolation parks located throughout the site function** as both neighborhood green spaces and stormwater management systems, given they **collect and filter runoff** from streets, sidewalks, and plazas. These areas add beauty to the landscape and help frame outdoor public spaces like the mixed-use promenades, playground, etc.
Social programming integrates nature and agriculture into the fabric of everyday life, empowering residents to take active roles in managing their resources and environment. Fruit tree terraces and community gardens are maintained and harvested by adjacent homeowners, providing a reliable source of local food production.
The coordination and effective use of landscape elements contribute to the overall success of the design. Landscape elements consist of the following:

1. Vegetation
2. Land Forms
3. Water Features
4. Pavement Materials
5. Site Amenities
6. Lighting
7. Signs
Applications for Site Design

1. Vegetation consists of trees, shrubs, ground covers, annuals, perennials, vines, and turf. They serve many of the following functions:

- Visual Enhancement
- Wind Control
- Erosion
- Noise Reduction
- Climate Modifications
- Energy Conservation
- Glare and Reflection Reduction
- Air Purification
- Wildlife Conservation

Select low maintenance indigenous vegetation that is compatible with the natural character of the area. Select native plants or other vegetation that will thrive with little or no supplemental irrigation, fertilization, or pest control.
Native vegetation is an ecologically sound solution. Once established, it requires little or no maintenance and reinforces an installation’s regional character.

Water consumption is a major vegetation selection criterion. Care should be taken to minimize irrigation requirements.
2. Land Forms

Earth berms, terracing, and retaining walls are examples of land form elements. These elements should be in harmony with the site’s natural topography or contrast and respond to the architectural form.

- **Earth Berms** - Provide spatial enclosures, screening of undesirable areas, and reinforce architectural forms.

- **Terracing** - Creates useable areas on a sloped site and reinforces architectural forms.

- **Retaining Walls** - Preserve vegetation, minimize grading requirements on steep slopes, and create visual interest.
Retaining walls can help preserve existing vegetation. The vines on this wall provide a smooth transition from the hard surface roadway to the natural preserve beyond.
3. Water Features

Water features include ponds, lakes, fountains, and reflective pools. They can be located along green space corridors or in developed plazas. Water features provide the following:

- Visual Enjoyment
- Focal Points
- Auditory Relief
- Micro-Climate Modification
- Native Habitat
- Recreational Opportunities
- Retention Ponds
- Irrigation Reservoirs
APPLICATIONS FOR SITE DESIGN

- Lakes provide visual relief and recreational opportunities.
- Fountains provide enjoyment and mask undesirable noise.
4. Pavement Materials

Different types of pavement materials serve various purposes. They can provide the following:

- **Spatial Definition**
- **Sense of Direction**
- **Spatial Character**
- **Warnings**

Pavement materials provide interest and variety to this building’s entrance.

Pavement patterns and planters direct pedestrian circulation and provide visual interest.
5. Site Amenities

- Site amenities include trash receptacles, dumpsters, benches, tables, mail boxes, vending machines, drinking fountains, telephone booths, bus shelters, kiosks, walls, fences, monuments, memorials, flag poles, gazebos, bike racks, and picnic shelters. With proper planning and design, site amenities become a cohesive link that has a positive effect on the overall appearance of the installation.

- Site amenities need to be compatible with the adjacent architectural features, blend with the overall character of the installation, and serve the functional needs of the user.
APPLICATIONS FOR SITE DESIGN

Achieve visual continuity by selecting site amenities that are compatible in color, materials, and character.

The harmonious coordination of site amenities along with the brick pavers complement the color and style of the adjacent architecture.
Exterior lighting can be categorized as street, architectural, or walkway and parking lot. Through a variety of applications, lighting serves a number of functions, including the following:

- **Street Lighting** - Reinforces street hierarchy by visually differentiating major and minor roads through varied light intensities, fixture types, pole spacing, and height.

- **Architectural Lighting** - Draws attention to the entrance and special features of a facility.

- **Walkway and Parking Lot Lighting** - Provides safety and security, and identifies the routes and intersections.
Applications for Site Design

Lighting can provide orientation, highlight a building entrance, and direct pedestrian movement.

A building’s lighting can create an interesting effect, provide security, and direct attention.

Uplighting a prominent tree can create a dramatic nighttime effect.
7. Signs

A simple but effective sign system provides a means of communicating information without compromising the appearance of the installation. Signs are categorized as follows:

- **Identification** - Identifies entrance gates and, and different facilities.
- **Destination** - Directs visitors to major activities,
- **Regulating** - Controls traffic, parking, maintains security,
- **Informational** - Provides educational information and directional guidance for visitors.
When cities grow, part of their building stock and urban land-use become obsolete, bringing on opportunities to regenerate the city. In the case of Doha, this is especially important. The urban sprawl during the oil boom led to a scattered, low-density, urban landscape, caused by the prevalence of suburban typologies and a large percentage of unbuilt land.
Doha has been going through a rapid development!
Aspire Park is one of Qatar’s finest landscapes. With 880,000 m², it is one of the biggest and most awe-inspiring parks in the Gulf region. Families seek the park for picnics, walking around in harmony with nature, amid the native and exotic trees imported from all around the world. The landscape takes you to a new destination.

The architecture of Aspire Park is unique in its spiral pathways and solar-powered lights in a caring gesture for the environment.
RELEVANCE TO URBAN PLANNING AND DESIGN IN DOHA

QATAR UNIVERSITY CAMPUS

- Soft landscaping scope covers all zones’ green common areas in Qatar University. Different types of plants with a concentration on local Qatari plants have been selected to maximize visual appeal while minimizing maintenance and replantation costs. Irrigation water is currently supplied from filtered water and Treated Sewage Effluent (TSE) network. Irrigation water systems implemented throughout QU are limited to sprinkling, dripping, and manual handheld hose systems.
The Landscape Urbanism Reader, Charles Waldheim


https://placesjournal.org/author/charles-waldheim/

http://www.smgov.net/Departments/OSE/categories/landscape.aspx

https://www.thehighline.org/about/sustainable-practices

www.qu.edu.qa/offices/avp.../_Doc1__FMP_Rev.4.pdf


https://www.wbdg.org/ccb/AF/AFDG/landscape.pdf

http://www.asla.org/sustainablelandscapes/geos.html
