

Sustainability

Sustainability policies are recommended to minimize the environmental impact of park development. Sustainability means meeting the needs of the present without compromising the ability of future generations to meet their needs. A sustainable approach to park design will result in long-term economic and health benefits.

Measures can be undertaken in new construction, site design, and park management. If enclosed facilities are considered for future developments in the park, they should adhere to sustainable design and construction principles. The LEED™ building rating system can be used as a minimum benchmark for enclosed climate-controlled facilities. This system, developed by the United States Green Building Council, offers third party verification of a project's sustainable features. Likewise, the Sustainable Sites Initiative can guide the development of

the non-enclosed park infrastructure. Innovative strategies for site design and management include tree preservation and tree canopy maximization, drought-tolerant landscape design, improved storm water management, and storm water capture for irrigation systems, minimization of impervious land cover, and reduced automobile usage.

One key area where the park can lessen its impact on the environment is by minimizing the urban heat island effect. Many of the design solutions proposed in this Master Plan will address this issue, such as the conversion of surface parking lots and buildings into lawn areas, the preservation of existing tree canopy, and tree planting along existing road beds in advance of park development. Other techniques that would mitigate the urban heat island effect include parking lot tree islands, maintaining tree cover, light colored roofing, and



Constructed wetland at National Museum of the American Indian in Washington, DC



Bioretention system, South Australia Museum

green roofs.

Many of these measures will have the additional benefit of improving the storm water management on the site by reducing the amount of impervious surface in the park. Other techniques that would improve the water quality of the storm water on the site include the use of porous pavements, as proposed for the two parking lots. When porous pavements such as porous concrete, gravel, and porous unit pavers are considered for new developments, the life cycle costs and the accompanying infrastructure should be taken into consideration. Porous pavements may cost more than conventional asphalt or concrete in comparison of material cost, but they may require less infrastructure (storm pipes and catch basins) or less land for detention areas.

Another opportunity for sustainable park development is the use of rain gardens and constructed wetlands to promote infiltration of



Bioretention system, Victoria Park, Zetland Australia



Drought tolerant plants

storm water. The storm water pond will be the most visible water treatment measure in the park, but other measures can be woven into the design of the park, such as rain gardens. Rain gardens are landscaped bio-retention areas that catch and then filter storm water by allowing the water to infiltrate into the soil. Developments in the park are bound by law (National Pollutant Discharge Elimination System NPDES regulations) to control the quantity and quality of the storm water leaving the site. Developments in the park should look beyond fulfilling the basic requirements of this law to explore ways to make storm water management visible to the public. This approach could include taking water that is currently in storm pipes and redirecting it to a natural overland flow to improve water quality and infiltration of storm water. Rain gardens and constructed wetlands can be designed so that the infiltration of storm water is visible to park visitors, rather than screened from view in fenced off detention ponds. Rain gardens can thus become amenities and opportunities for educational signage.

The conversion of the existing road beds into

pedestrian pathways are an excellent opportunity for rain gardens. A linear rain garden can be created on each side of these pathways by converting the asphalt into bio-retention areas. Weirs can be integrated into the rain gardens to promote infiltration. This system would help clean the storm water before the water flows into the existing storm water system. These linear rain gardens would create a dispersed infiltration system that simulates the natural hydrology of the site.

The reuse of these existing road beds highlights another sustainable component of this master plan. In addition to saving money, the reuse of these road beds will limit the amount of demolition waste and new resources that are required for park development.

Naturalistic landscape management can be employed in select areas of the park. With the large area of turf grass in the park there will be limited opportunities for this management technique. Some of the landscape management methods that can be employed include the following:

- Use of native plants to provide habitat and food source for wildlife
- Retaining dead trees or stumps for wildlife habitat (only in areas away from pedestrian paths, after consultation with a licensed arborist)
- Include bird and bat nesting boxes

These landscape management measures must be balanced with the needs of park users, as well as safety and aesthetic considerations.

Water use is a vital concern today in Metro Atlanta, and will continue to be an important consideration in the future. Rainwater harvested from roofs and paved areas can also be used as a source of irrigation water. The storm water pond could be used as a potential source of irrigation water for the site. The best way to minimize water use in the landscape is through design that uses drought tolerant plants, groups plants with similar needs, and considers micro-climates. If irrigation is required for areas, water efficient irrigation technologies such as rain sensors and drip irrigation should be utilized. Drip

irrigation can be used in place of traditional spray rotary heads to limit the amount of water used.

Additionally, energy-consuming devices such as lights and pumps should be selected for low power consumption in addition to meeting performance requirements. LED streetlights, for instance, use up to 50% less energy than standard streetlights, reducing both energy use and operating costs. These efforts can be further enhanced by seeking opportunities for small-scale distributed power generation such as wind and PV solar.

The park's location along the BeltLine will facilitate transit, bicycle, and walking access. Use of these alternatives modes of transit will lessen the amount of traffic and the amount of land area dedicated to parking. The extensive network of pathways in the park will promote walking and bicycling. Automobiles will be a primary means of transport to the park, especially for those transporting supplies for the landscape; picnics or other events; the disabled, etc.; but given the limited land available and the desire to minimize the ecological footprint of the park, efforts should be made through user groups to encourage the use of alternative modes of transportation.

Operation and Maintenance

The Historic 4th Ward park has been planned in such a way to minimize maintenance requirements. The plant palette in Appendix A is developed to encourage the use of native and adaptive species to minimize inputs for water and overall maintenance.



Drip irrigation installation



Figure 05 - Phase I development program

Design Guidelines

The park's visual quality, user-friendliness and sense of place will benefit from a consistent approach to materials, site furniture, landscaping, lighting, and signage.

Material Palette

A simple palette of low-maintenance, durable materials should be utilized in the park, including the following: asphalt, concrete, and granite.

Rough granite ashlar stone walls should be a primary building material for wall construction in the park. Granite is a local material that is relatively economical and links the park with the regional landscape.



Granite random ashlar wall

Site Furnishings

In order to create a unique park experience, a design competition should be sponsored for the benches to be installed in specific areas of the park such as the sunken garden. Custom designed site furnishings would reinforce the sense of place. The standard guidelines of durable, functional, low maintenance materials should be employed in the evaluation of custom designed features.

Standard BeltLine furnishings should be used throughout the remainder of the park.

Lighting

The same lighting fixtures that are used throughout the BeltLine should be used in the park.

Signage

A consistency of design and materials for all public realm signage should be maintained. The signage should allow the opportunity for an expression of the specific character of the park while providing useful guidance in park visitor wayfinding. These signs should be limited in both size and quantity to prevent visual clutter in all areas of the park. The locations of these signs should primarily be at the major park entrances - Ralph McGill, Angier Connection, and North Avenue.

Additional signs should include interpretive and wayfinding signs that highlight the unique character of the park, identify the primary circulation routes and provide orientation, and interpret the natural systems employed for the treatment of storm water and the site's heritage as the former location of Clear Creek.

Planting Design

Plant palettes

A range of plants suitable to wetland areas, arboretum plantings, and general landscape areas are outlined in Appendix A. There are two themes common to these plant palettes: plants that require minimal maintenance and irrigation are to be used, and no invasive plants are recommended. Invasive plants, such as English Ivy (*Hedera helix*), Privet (*Ligustrum sinensis*), and Elaeagnus (*Elaeagnus pungens.*), have a deleterious impact on native ecosystems within the park and should be avoided. Plants that require ongoing care and excessive maintenance throughout their life span should not be used. It is not sustainable for the park's maintenance budget or the region's water resources for plants that require long term water and care to be used.

The Atlanta BeltLine Arboretum, formed through Trees Atlanta will be a primary source for much of the larger landscape materials, such as trees and shrubs. Various areas along the BeltLine have been selected as locations for nursery stock as well as arboretum specimen plantings.

Planting Design

Three guidelines apply to all landscape plantings

- Plants should be massed to create a bold appearance.
- Avoid using trees and shrubs with low branches where visibility is important, such as path and sidewalk areas. Large shrubs should not be planted next to walkway areas, so that pedestrian views are obscured. Good visibility is important for safety
- Use well defined layers of plants