Green Infrastructure:
A Blueprint for Climate Resilient Communities

March 4, 2019
Materials will be available at:  www.eesi.org/030419asla

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ASLA - Green Since 1899
ASLA Blue Ribbon Panel on Climate Change and Resilience

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Smart Policies for a Changing Climate: Report of the Blue Ribbon Panel on Climate Change and Resilience

- Core principles
- Key design and planning approaches for creating healthy, climate-smart, and resilient communities
- Public policy recommendations to support those approaches
Policies should:

- Use incentives whenever feasible
- Promote holistic planning and provide multiple benefits
- Address environmental justice and racial and social equity
- Reflect meaningful community engagement
- Be regularly evaluated, including for unintended consequences
- Address regional as well as local and site-specific goals/issues
The report addresses:

- Natural Systems
- Community Development
- Vulnerable Communities
- Transportation
- Agriculture
Maximize use of green infrastructure in urban and suburban settings
- Green roofs and cisterns
- Street-level stormwater planters, bioswales
- Green Street technologies
- Increased tree canopy
- Community parks and open space
Emphasis on designing with natural systems

Green Infrastructure

- Maintain and enhance existing natural systems
  - Wetlands
  - Critical water sources
  - Wildlands and natural forest
  - Biohabitats
  - Greenways and wildlife corridors
Benefits of Green Infrastructure

- Manages stormwater and reduces flooding
- Reduces water pollution
- Cools and cleans the air
- Provides biohabitat
- Costs less than “gray” stormwater infrastructure
**Smart Policies Policy Recommendation to Promote Green Infrastructure**

- Provide dedicated funding for Green Infrastructure
- Provide incentives for:
  - Infiltrating precipitation on site
  - Planting regionally appropriate, pollinator-friendly vegetation
  - Protecting existing green space
- Adopt a national urban and suburban tree planting strategy and tree canopy goals
Land and Water Conservation Fund
Living Shorelines Act

Living Breakwater Design, Staten Island, NY
Firm: SCAPE
Environmental Justice
ASLA Blue Ribbon Panel Report
www.asla.org/climatepolicies

Continue the conversation at:
https://climate.asla.org
We create places that prove human potential.
Climate risks are not new for Boston, but they will continue to increase as the global climate changes.
Sea level Rise – Boston, MA
October 2016 - King Tide Flooding

Jan- March 2018 - Nor’easter with "100 Year" Flooding
Sea levels in Boston will continue to rise

Relative sea level rise in feet (above 2000)

- 2000: 0' (4"
- 2030: 8" (possible 10.5')
- 2050: 1.5'
- 2070: 3.1'
- 2100: 7.4'

1 - Likely under all emission scenarios
2 - Likely under moderate to high emission scenarios
3 - Low probability under high emission scenario

American Society of Landscape Architects
Sea level rise isn’t the only concern

Coastal and Riverine Flooding

- Flooding risks will increase

Stormwater Flooding

- Rainfall from storms will increase

Extreme Temperatures

- Number of very hot days will increase
South Boston Flood Progression
21" Sea Level Rise
2050s-2100s
South Boston Flood Progression
36" Sea Level Rise 2070s Onward
IF NOTHING IS DONE, THIS IS WHERE HIGH TIDE COULD BE IN 2100
Flood Resiliency
Designed to Flood

Normal Water Pool

Record Flood - February 2018
Cleaned and re-opened within 1 week
Deployable Details
Minimize Damage and Ease Recovery

The park was cleaned and re-opened within 1 week of the February 2018 flood.
Chicago Riverwalk
Chicago Department of Transportation | Chicago, IL
Memphis – Shelby County, TN
REGIONAL ANALYSIS: SOUTH CYPRESS CREEK WATERSHED AND JOB PROXIMITY

SOUTH CYPRESS CREEK WATERSHED HAS “HIGH SENSITIVITY”
8,400 ACRES
18.5% IMPERVIOUS SURFACE
EROSION FROM 2011 FLOODS

SOUTH CYPRESS CREEK RESIDENTS LIVE IN CLOSE PROXIMITY TO JOB CENTERS
42% RESIDENTS WITHIN 1 MILE OF WEAVER PARK COMMUTE EAST TO WORK

PROXIMITY TO JOB CENTERS COULD SUPPORT ALTERNATE MODES OF TRANSIT
34% COMMUTING EAST TRAVEL LESS THAN 10 MILES

GREENPRINT FOR RESILIENCE
Shelby County, Tennessee
WEST JUNCTION
NEIGHBORHOOD
ACTION PLAN
VACANT LOT RE-USE URBAN DESIGN PRINCIPLES

1. LEVERAGE EXISTING CHURCHES AND SCHOOLS
2. MAKE EXISTING PARKS VISIBLE FROM THE STREET
3. FOCUS REDEVELOPMENT IN NEIGHBORHOOD CORE
4. AVOID DEVELOPMENT WEST OF ANDERSON ROAD

GREENPRINT FOR RESILIENCE
Shelby County, Tennessee

Figure 3.10
GREENPRINT FOR RESILIENCE
Shelby County, Tennessee

Figure 3.11
GREENPRINT FOR RESILIENCE
Shelby County, Tennessee

Figure 3.12
Activity 3: South Cypress Creek

- Buyout of existing homes and replace with greenspace, wetlands, and other flood storage to accommodate water flow
- Better protection for nearby LMI homes
- Create affordable infill or rehabilitation nearby for displaced residents
- Creation of multi-purpose trails
- Local food production
- Development of vacant lot program
Many buildings in fair condition, interspersed with many vacant lots, and some buildings in good, excellent, or poor condition.
VACANT LOT RE-USE TYPOLOGIES

HOME LOT
EXPANDED LOT
FLOOD LOT
COMMUNITY LOTS
NATURE LOT

GREENPRINT FOR RESILIENCE
Shelby County, Tennessee
Ownership transferred to residents in floodplain with unmet need from 2011 floods (11 properties)

PRECEDENTS
Shelby County Landbank, Memphis, TN
Genesee County Landbank, Flint, MI

POTENTIAL LOCAL PARTNERS
Shelby County Landbank
HUD
Habitat for Humanity
GREENPRINT FOR RESILIENCE
Shelby County, Tennessee

Ownership transferred to willing adjacent owner

PRECEDENTS
Shelby County Landbank, Memphis, TN
Detroit BLIGHTS program, Detroit, MI
Genesee County Landbank, Flint, MI

POTENTIAL LOCAL PARTNERS
Shelby County Landbank
Designed to treat stormwater, absorb floodwater

PRECEDES
Detroit Future City, Detroit, MI
Future Ground, New Orleans, LA

POTENTIAL LOCAL PARTNERS
City of Memphis Division of Engineering
City of Memphis Stormwater Master Plan
Army Corps of Engineering
Cypress Creek Watershed Alliance

GREENPRINT FOR RESILIENCE
Shelby County, Tennessee

Chart 3.8
COMMUNITY LOT

GREENPRINT FOR RESILIENCE
Shelby County, Tennessee

Designed for recreation, event plazas, markets, or urban agriculture

PRECEDENTS
Detroit Future City, Detroit, MI
LandCare Program, Philadelphia, PA

POTENTIAL LOCAL PARTNERS
Mitchell High School - Mitchell Community Center
City of Memphis Parks & Neighborhoods Department
UT Agriculture Extension - 4H Clubs
Root Memphis - Boys & Girls Clubs
GREENPRINT FOR RESILIENCE
Shelby County, Tennessee

Chart 3.10

NATURE LOT

Designed as urban forest or urban meadow

PRECEDENTS
Detroit Future City, Detroit, MI
LandCare Program, Philadelphia, PA
Nashville Tree Foundation, Nashville, TN
Hantz Woodlands, Detroit, MI

POTENTIAL LOCAL PARTNERS
TN Department of Environment and Conservation
We create places that prove human potential.
Green Infrastructure: Maryland’s Green Streets

- Prince George’s County
  - Decatur Avenue in Edmonston, MD

- Montgomery County
  - Dennis Avenue
  - Forest Estates
Edmonston, MD
Green Street: Decatur Street
Prince George's County, MD
Wind-powered LED lighting. Native trees will provide shade and reduce heat.

“Bump-outs” will make streets narrower, resulting in slower traffic speeds.

Rain gardens will reduce runoff from storms. Lighter colored pavements will reduce heat. Permeable concrete will be installed, allowing water to move through to the soil below.
Decatur Street Before
Bioretention Garden

- Mulch
- Clean Out
- Perforated Underdrain
  - Connects to Storm Drain
- Gravel
- Pea Gravel
- Bioretention Planting Soil
- Subgrade
- Plantings

Image: Bioretention garden design with layers of mulch, gravel, and plantings.
Forest Estates Before Green Infrastructure
Forest Estates After Green Infrastructure
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Smart Policies for a Changing Climate
The Report and Recommendations of the ASLA Blue Ribbon Panel on Climate Change and Resilience

ASLA Blue Ribbon Panel Report
www.asla.org/climatepolicies

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