EcoDistricts
PERFORMANCE-BASED URBAN DESIGN

APA WEBINAR
JULY 10, 2015 / 1:00 – 2:30 PM EASTERN
A FOUNDATION FOR THE ECODISTRICT CONCEPT

> **BREWERY BLOCKS** PORTLAND OR
  A Private Sector Initiative / Jill Sherman  PARTNER, GERDING EDLEN

> **THE SW ECODISTRICT** WASHINGTON DC
  A Public Agency Strategy
  Elizabeth Miller  FASLA, AICP, NATIONAL CAPITAL PLANNING COMMISSION
  Otto Condon  AICP, PRINCIPAL, ZGF ARCHITECTS

> **THE ECODISTRICTS PROTOCOL**
  An Organizing Framework / Adam Beck  DIRECTOR OF INNOVATION, ECODISTRICTS

> **Q & A**
The Pearl District
Portland
What is an EcoDistrict?

> An EcoDistrict includes transportation choices and a mix of uses within a neighborhood.

> An EcoDistrict includes connected parks, plazas and open spaces for a vibrant, green, and walkable community.

> In an EcoDistrict, strategies for energy reduction, waste and water use go beyond a single building to develop solutions at the block and district scale.

> In an EcoDistrict, neighbors, community institutions and businesses join with city leaders and utility providers to meet environmental and economic goals through shared implementation of innovative projects.
brewery blocks
ECODISTRICTS / Our Footprint in Portland’s Pearl District

- Brewery Blocks
- Wieden + Kennedy World Headquarters
- Pearl Parking Garage
- Deschutes Brewery
- The Casey Condominiums
- Twelve West
- Meier & Frank Depot / Vestas’ North American Headquarters
- ≈ 4 LEED Platinum Buildings in the Pearl District
BREWERY BLOCKS
BEFORE

CITY BLOCKS:
5

JOBS:
200

HOUSING UNITS:
0

USES:
BREWING
ecodistricts

[our original goals]

- Livability, Community, Connectivity, Sustainability
- All Buildings LEED Silver Certified
- 20% Energy Efficiency
- 20% Water Efficiency
- 75%+ Construction & Demolition Waste Recycling
BREWERY BLOCKS AFTER

CITY BLOCKS: 5

JOBS: 7,000

HOUSING UNITS: 400

USES:
- RETAIL
- HOUSING
- OFFICE
- CULTURE
BREWERY BLOCKS / The Gerding Theater

- Restoration and renovation of historic 1891 Armory into a performing arts center for Portland Center Stage
- First building on National Register of Historic Places to achieve LEED Platinum certification
- First performing arts center to achieve LEED Platinum certification
- 56,000 sq. ft. including 500-seat main stage theater and 200-seat black box theater
Displacement ventilation in the office, theater and lobby areas

Chilled beams connected to central chilled water plant for cooling

Rainwater harvesting and reuse for significant potable water savings

Skylights allow for daylighting into the office areas
• Salvaged key historic elements including: the smokestack, weathervane, historic railings and copper flue

• The 8-story smokestack was preserved using 20-foot-long steel beams that were lowered into it and positioned and embedded with concrete

• All equipment and tanks associated with the former brewery were salvaged to reduce landfill waste
BREWERY BLOCKS / Activating the Streetscape

• New standard for active streetscapes that include wider sidewalks, curb extensions, planters and seating areas

• Benches face the buildings (as opposed to facing the street) with planters anchoring each bench

• Customized canopies and storefronts lend unique character and break up the building face and scale
BREWERY BLOCKS / Our Achievements

- Livability, Community, Connectivity, Sustainability
- LEED: 1 Platinum, 4 Gold, 1 Silver
- Energy Efficiency: 20% in Core & Shell, 30% in Residential, 45% in Theater
- Water Efficiency: 20% in Commercial, 30% in Residential, 40% in Theater
- 90% Construction and Demolition Waste Recycling
The Brewery Blocks: Annual Savings

4.86 million kwh & $340,000
Enough energy to power 443 homes.

661 metric tons of CO$_2$
Equal to taking 135 cars off the road.

3.52 million gallons of water
Enough water for 175,900 showers.
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<thead>
<tr>
<th>PLANET</th>
<th>PEOPLE</th>
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<tr>
<td><strong>ENERGY</strong></td>
<td><strong>Within 20 Minute Walk</strong></td>
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<tr>
<td>4.8 MIL KWH</td>
<td>Transport: 50 Options</td>
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<tr>
<td>443 homes</td>
<td>Portland Streetcar, Flexcars,</td>
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<td>bus stops and MAX lines</td>
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<td><strong>AIR</strong></td>
<td><strong>Art &amp; Culture: 25 Venues</strong></td>
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<td>1.4 MIL LBS CO₂</td>
<td>Gerding Theater, P.I.C.A.</td>
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<td>135 cars</td>
<td>Portland Art Museum,</td>
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<td><strong>WATER</strong></td>
<td><strong>Education: 22 Schools</strong></td>
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<tr>
<td>3.5 MIL GAL</td>
<td>AI Portland, PSU</td>
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<td>175,945 showers</td>
<td><strong>Restaurants &amp; Retail: 750</strong></td>
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<td>P.F. Changs, Henrys</td>
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<td><strong>LEED</strong></td>
<td><strong>Parks &amp; Gardens: 17</strong></td>
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<td>6 BLDGS.</td>
<td>Washington Park,</td>
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<td>North Park Blocks</td>
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<tr>
<td>1 Platinum, 4 Gold, 1 Silver</td>
<td><strong>PROFIT</strong></td>
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<tr>
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<td>Jobs Created:</td>
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<td>Construction 2,200</td>
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<td>Post-construction 2,200</td>
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<td>(vs. 200 when it was a brewery)</td>
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ECODISTRICTS / Our Achievements: Broader Pearl District

- Ecoroofs, Rainwater Reuse
- Streetscape Improvements, Underground Parking
- Transit Options: Bike Parking, Streetcar & Bus Stops
- District Strategies
- Chilled Water Plant That Also Serves Twelve |West
- Centralized Stormwater Treatment
Jill Sherman
Partner
Jill.Sherman@gerdingedlen.com
SW Ecodistrict: A Vision Plan for a More Sustainable Future
Southwest Ecodistrict
Washington DC

Monumental Core Framework Plan

Southwest Rectangle
Executive Order 13514
Leadership in Environmental, Energy & Economic Performance

• A transformative shift in how the government does business;
• Makes the reduction of greenhouse gas emissions a priority for Federal agencies;
• It sets targets for energy, water, and waste reduction.
SW Ecodistrict
Washington DC

Study Area
SW Ecodistrict
Washington DC

Southwest circa 1955

10th Street, SW
SW Ecodistrict
Washington DC

Mid-Century Modern Character

Wilbur Wright Building
Federal Aviation Administration

James Forrestal Building
Department of Energy

Robert Weaver Building
Department of Housing and Urban Development

Reservation 719 – Banneker Park
National Park Service

HUD Plaza
General Services Administration

Reservation 113
National Park Service
SW Ecodistrict
Washington DC

Vision for the Future

HUD
Banneker Park
USPS
Independence Ave
USDA
National Mall
Smithsonian Castle
THE NEIGHBORHOOD FRAMEWORK

Public Spaces & Cultural Facilities

Land Use

Transportation

Street Network, Function & Character

THE ENVIRONMENTAL FRAMEWORK

Energy

Water

Urban Ecology

Waste
SW Ecodistrict
Washington DC

Neighborhood Frameworks

Transformation to Mixed Use Community
Active Building Frontage
The First 30 Feet
A Sequence of Civic Features and Open Space
Re-Established Street Network
Streets Defined by Character
Multi-Modal Transit
SW Ecodistrict
Washington DC

Energy
Existing Sources and the Goal

- Coal Generated Electricity
- Natural Gas
- Cogeneration Plant (burns natural gas)
- Renewable Energy

SW Ecodistrict Goal
Strive for a zero net energy district as measured in carbon
SW Ecodistrict
Washington DC

Environmental Frameworks
Energy at the District and Block Scale

District Energy – Central Plant, MicroGrids, Ground Source, Sewer Mining and PV

Block Scale Energy Network and Renewables

ENERGY
- Potential Federal/ Mixed Use MicroGrid
- Potential Private MicroGrid
- Central Utility Plant
- Existing System
- Potential Expansion
- Sewer Mining – Heat
SW Ecodistrict
Washington DC

Energy

EXISTING

0% Renewables

CURRENT ENERGY USE:
76.7 KBTU/Year

REDEVELOP

30% Renewables

ATTAINED:
29.7 KBTU/Year

Carbon Emissions 51%
**SW Ecodistrict**
Washington DC

**Water Goals**

**STORMWATER**
Retain/Reuse the rainfall from a 1.7” Storm Event.

- 92.4 million gallons per year

**POTABLE WATER**
Reduce municipal potable water use to 70% of what is used now.

- 22 gallons / sf / yr → 6 gallons / sf / yr
Environmental Frameworks
Water Strategies at the District and Block Scale

District Water Collection and Reuse

Stormwater Collection and Reuse

Optimize Existing Infrastructure

Waste Water Systems
Stormwater Infrastructure Study (Return on Investment)

- Treat stormwater and greywater for non-potable water reuse.
- Tap well water for potable water needs and replenish it with stormwater and greywater.
- The system is feasible and has a reasonable payback period.

<table>
<thead>
<tr>
<th>SITE</th>
<th>70% REDUCTION IN MUNICIPAL WATER</th>
<th>100% REDUCTION IN MUNICIPAL WATER</th>
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<tbody>
<tr>
<td>$1/SRC</td>
<td>11 Years</td>
<td>16 Years</td>
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<tr>
<td>$2/SRC</td>
<td>4 Years</td>
<td>5 Years</td>
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<tr>
<td>$3/SRC</td>
<td>3 Years</td>
<td>3 Years</td>
</tr>
<tr>
<td>$3.50/SRC</td>
<td>2 Years</td>
<td>3 Years</td>
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Value of credits will depend on supply and demand  
RC = DC Stormwater Credit
The Path to Livability and Sustainability

Multiple Development Strategies

- Light rehab
- Full rehab
- Repurpose
- Infill
- Redevelopment
- Park Space
- Central Utility Plant
- Solar canopy
The Path to Livability and Sustainability
Guiding Successful Revitalization
Civilizing Transit

L’Enfant Intermodal Transit
SW Ecodistrict
Washington DC

10th Street SW
A High-Performance Street
10th Street SW
A High-Performance Street
10th Street SW
A High-Performance Street

- An Urban Garden Promenade
- The Linear Garden
10th Street SW
A High-Performance Street

- An Urban Garden Promenade
- A Series of Garden Rooms
Banneker Park
Connecting the Mall to the waterfront
SW Ecodistrict
Washington DC

Banneker Park
Connecting the Mall to the waterfront
Banneker Park
Existing
SW Ecodistrict
Washington DC

Banneker Park
Interim Improvements
A Comparison
Today and in 2030

- Daily Population: 33% Increase (Employees and residents)
- New Peak Hour Trips: 7% Increase (New Metro and auto trips)
- Mixed Use Development: 21% Increase (in GSF, including new residential, hotel, cultural and commercial)
- Energy Use: 62% Reduction
- Potable Water Use: 70% Reduction
- Waste to Landfill: 80% Reduction
- Carbon: 51% Reduction
The Business Case

**investments**
- Sustainability (Buildings / Utilities)
- Open Space and Streetscapes
- Real Estate and New Development

**benefits**
- Revenue from sale of excess land for private development.
- Cost savings from energy, water and waste efficiencies.
- Creation of sustainable, mixed-use neighborhood.
- Enhanced opportunities for federal facilities and cultural destinations.

Public and Private Investment Yields Sustainable Benefits
SW Ecodistrict
A Vision Plan for a More Sustainable Future

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Director, Physical Planning Division
National Capital Planning Commission
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Otto Condon  AICP
Principal
ZGF Architects LLP
otto.condon@zgf.com
The EcoDistricts Protocol
The Challenge

“Many of our urban regeneration challenges involve a diversity of stakeholders, competing forces, entrenched mindsets, institutional agendas, and business-as-usual interests that will often work against positive change.

Making progress will be messy. Failure is guaranteed. The steps we take, both forwards and backwards, need to be within context, and with a common goal of implementation.

We will neither learn, nor improve, unless we implement”.

The EcoDistricts Protocol, 2015
Our Theory of Change

EcoDistricts is defining and promoting a new model of urban regeneration; an approach rooted in authentic collaboration that honors and respects a community’s collective wisdom and demonstrably improves the environmental, economic and social well being of the neighborhood and City.
Target Cities:
- Los Angeles, CA
- Denver, CO
- Atlanta, GA
- Washington D.C.
- Boston, MA
- Cambridge, MA
- Ottawa-Gatineau, ON/QC

8 Cities
10 Projects
The EcoDistricts Protocol is a set of commitments that we must embrace to build just, sustainable and resilient cities and neighborhoods for all.

These commitments help establish the conditions for implementing integrated district-scale sustainable development investments.

To help build momentum around this critical movement, we will reward, celebrate and share the achievements of urban leaders who register their commitment to the Protocol.
There are three commitments

**THE IMPERATIVES, THE OUTCOMES & THE PROCESS**

- **Three EcoDistricts Imperatives**
  - Equitable, climate responsive & resilient neighborhoods are our starting point.

- **Six Priority Areas**
  - Our way of defining sustainable districts and neighborhoods, the Priority Areas articulate a clear set of goals, objectives and metrics.

- **Four Phases to Implementation**
  - Formation, Roadmap, Action and Stewardship – our approach to realizing integrated district and neighborhood scale sustainable development.
The Protocol & an Ecosystem of Resources

Toolkits
• Phase 1 Collaborative Governance
• Phase 2 District Assessment
• Phase 3 District Financing

Templates
• District Assessment x7

Case Studies
• Engagement Technologies

Guides:
• Living Infrastructure
Toolkits & Guides

- Collaborative Governance
- District Assessment
- District Financing
- Living Infrastructure
- Net Zero Districts
- Development Without Displacement
EcoDistricts Policy Toolkit

- Helping City governments establish the conditions favorable for district scale sustainability policy-making
- Strategies to promote internal capacity-building
- Library of policy best practices
Think_Do_Tanks

- Development Without Displacement
- Creative Financing
- District Energy
- Green Infrastructure
- Tactical Urbanism
START

• Our Plan to Change Our Cities
• A New Model for Urban Regeneration
• How the EcoDistricts Protocol Can Help

COMMIT

• Download the Protocol
• Register your commitment to embrace it, report and verify against it

LEAD

• Profile of Committed Projects
• Performance Dashboard Disclosure
• Register of Verified Projects
• EcoDistricts Award Scheme
• Practitioners Register

LEARN

• Articles, Interviews & Profiles
• Toolkits, Guides & Templates
• Policy Marketplace
• Webinars, Video's & Courses
• Thought Leadership Studio
The EcoDistricts Imperatives

**Equity**
- Process Equity: Project planning is community driven
- Distributional Equity: Ensures that burdens don’t bear disproportionately
- Transgenerational: Use the precautionary principle approach by reducing uneven, enduring impacts

**Climate Protection**
- We encourage a pathway to climate positive, which see’s our districts and communities generate more energy than they consume

**Resilience**
- Thriving in the face of social, technological, economic, environmental and political stresses.
  - Risk – focusing on high risks (shocks) as a priority
  - Resiliency strategy – jointly prepared with the City
  - Networks – building them strong, and often
The Priority Areas

**HEALTH & WELLNESS**
- Active Living
- Wellness
- Food Systems

**LIVABILITY**
- Engagement
- Housing
- Culture & Identity
- Place

**MOBILITY & CONNECTIVITY**
- Complete Streets
- Information Networks

**ECOSYSTEM STEWARDSHIP**
- Air, Water & Land Quality
- Habitat Health
- Connection with Nature

**CLIMATE PROTECTION & RESOURCE EFFICIENCY**
- Climate Protection & Energy
- Efficiency
- Water Efficiency
- Solid Waste Management

**PROSPERITY**
- Education
- Employment
- Innovation
The Four Phases

The EcoDistricts approach to urban redevelopment involves four phases of action, that help build the conditions for implementing district-scale strategies in an integrated way that have the Imperatives and Priority Areas embedded.

**PHASE 1: FORMATION**
A critical first step, that involves community asset mapping, undertaking strategic engagement, and building a collaborative governance model among key stakeholders who will help deliver projects.

**PHASE 2: ROADMAP**
Identifying opportunities within the district or neighborhood to deliver strategies that meet a shared vision and an ambitious set of targets, and documented within an EcoDistricts Roadmap.

**PHASE 3: ACTION**
Building a pipeline of fundable and implementable strategies that are both short term and catalytic in nature, as well as long term impact making.

**PHASE 4: STEWARDSHIP**
Establishing a monitoring, reporting and governance framework that allows the community to continually improve and prosper over time.
The four phases will be presented as a dashboard, to allow self assessment of progress and performance.

Project teams will report their performance, disclosing the dashboard.

The dashboard will have trigger points, indicating when verification can be attained.
Phase 2: ROADMAP Templates

Context
Set Targets
Roadmap
<table>
<thead>
<tr>
<th>PHASE 2</th>
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<tbody>
<tr>
<td>TEMPLATE 2</td>
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<td>TARGET SETTING</td>
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<tr>
<th>PRIORITY AREA</th>
<th>CITY GOALS/TARGETS</th>
<th>BASELINE</th>
<th>POTENTIAL/STRETCH TARGET</th>
<th>POTENTIAL STRATEGIES</th>
<th>FINAL TARGET</th>
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<td>HEALTH + WELLNESS</td>
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<td>SUSTAINABLE ECONOMY</td>
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<td>ECO FUTURES</td>
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<td>WELFARE</td>
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<td>RECREATION</td>
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**Example notes:**
- **Sustainable Economy:** Develop a plan for sustainable economic growth.
- **Eco Futures:** Implement eco-friendly technologies and practices.
## Strategy Gap Analysis

### Phase 2

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<th>Template</th>
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### EcoDistricts

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
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### Prosperity

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### Health + Wellness

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### Mobility + Connectivity

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### Ecosystem Stewardship

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### Climate Protection + Resource Efficiency

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Cambridge, MA

Kendall Square
"A RESOLUTION declaring the City of Seattle will support the Capitol Hill EcoDistrict as a framework and agent for advancing City sustainability goals within the EcoDistrict boundaries."
EcoDistricts
PERFORMANCE-BASED URBAN DESIGN

APA WEBINAR
JULY 10, 2015 / 1:00 – 2:30 PM EASTERN

Q&A

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