CURITIBA & PORTLAND:
TOWARD SUSTAINABLE CITIES

“Turning Policy into Good Urban Form”
Phil Beyl, GBD Architects

First Stop Portland, San Juan, Puerto Rico
25 – 27 March, 2011
FIRST STOP PORTLAND

Connecting global leaders with Portland’s innovators in sustainability

Portland State University
College of Urban and Public Affairs
First Stop Portland is:

Custom Designed Study Tour

Venue to share ‘best practices’ of urban form and design

Access to Portland’s leaders and experts

Enhanced student learning
Since May 2009...
64 Delegations
836 Delegates
6 Conferences
World Bank, Caribbean and Latin American division
February 22nd-25th, 2010
Economists, urban planners, environmental scientists, analysts

- Land use authority, policy, and practice
- Port-city interface
- Municipal finance and governance
- Transit-oriented development
- Sustainable urban infrastructure, and green affordable housing
- Green Energy
UNIVERSIDAD METROPOLITANA, PUERTO RICO

- Transit oriented development
- History, geography, and place-making evolution
- Land use
- Small and emerging economies
- Natural resource and watershed protection
- Role of NGO's in advancing public policy
Waco, Texas
August 18th-20th 2010
Mayor, City Council, key staff

• Place-making
• Transit oriented development
• Bike planning & Systems
PSU Students are researchers, presenters, local experts, ‘authenticators’
Introduction

- GBD Architects
- Important Planning Policies
- 3 Case Studies:
  - Pearl District & Brewery Blocks
  - South WaterFront
  - Oregon Sustainability Center
- EcoDistricts
1969: Project managers left S.O.M.
Office renovations; new office buildings
GBD: Mixed Use

- Brewery Blocks, Portland 1999 - 2003
GBD: Mixed Use

Los Angeles, CA

Bellevue, Washington
GBD: Mixed Use

• South Water Front, Portland
GBD: Sustainability

LEED (Leadership in Energy & Environmental Design)

Site  Water  Energy  Materials  Indoor Environmental Quality
GBD: Sustainability

- 7.2 million sf LEED Certified Buildings
Urban Planning Policies that Matter to Architects:
WHAT MAKES SUSTAINABLE URBAN DESIGN POSSIBLE
Key Policy:

- Urban Growth Boundary
UGB

- Slows development at edge of City
- Makes downtown “in-fill” more valuable
Key Policy:

- Economic Shift
Key Policy:

- Transit
Key Policy: Incentives:

- Oregon Public Utility Commission
Key Policy: Incentives:

- Energy Trust of Oregon
- Business Energy Tax Credit
Public - Private Partnership

• Portland Development Commission
Key Policy: OSD

- Office of Sustainable Development
Urban Planning: Zoning

- Reduce parking requirements
Urban Planning: Zoning

- Require pedestrian friendly design
Urban Planning: Zoning

- Urban Form
CASE STUDY:

PEARL DISTRICT & BREWERY BLOCKS
Pearl District: 1990s
Pearl District: Today
Brewery Blocks – Concept Diagram
Pearl District Whole Foods – Portland, OR
Brewery Blocks – Portland, OR
The Casey – Portland, OR
• 14th & Everett Office Building
  - PV Array will generate 100 kw at peak times
  - High-efficiency glazing; occupancy sensors
  - Projected to exceed Oregon Energy Code by 56%
  - 90% efficient building hot water heater
CASE STUDY:
SOUTH WATERFRONT
SOUTH WATERFRONT – Portland, OR
History of site

- Shipping & Trade
- Timber Industry
- Sawmills
- Shipbuilding
Development Agreement

- Key Goals
- Affordable housing
- Economic development
- Public returns on investment
- Minority / women / emerging small businesses
- Workforce training
- Prevailing wage
- Sustainable development
- Greenway and neighborhoods parks
- Neighborhood improvements and connections
- Transportation system
- Comprehensive revitalization
- Joint risk on return
Part 3: Design + Construction
OHSU Center for Health & Healing

- First commercial project in the district
- OHSU Center for Health & Healing sets standard for entire neighborhood
  - Sustainability
  - Material quality
  - Architectural excellence
- "Front door" for the university
- Public transit nexus
- Neighborhood center and resource
Building Description

- 400,000 sf
- 16 stories
- 3 levels underground parking under two blocks
- Program
  - 10 floors outpatient clinics
  - 3 floors research labs
  - 3 floor Wellness Center
    - Gym, Pool, Weight room, day spa
  - Ground floor cafe, lobby
Transit node

- Civic building for district
- Streetcar stop
- Underground parking
- Public spaces in ground floor lobby
- Tram terminal
Sustainability

- 60% more energy efficient than code
- 25% reduction in MEP capital costs
- Capture and use all rainwater onsite
- LEED Platinum
Case Study:
Oregon Sustainability Center
Portland, Oregon
Oregon Sustainability Center (OSC)

- Schematic Design
- Demonstrate leadership
- Catalyst for research, jobs
Oregon Sustainability Center (OSC)

- Oregon University System +
  Oregon Living Building Initiative
- GBD & SERA Architects
Living Building Challenge (LBC)

Beyond LEED: 20 requirements
- Net Zero Energy – on site
- Capture all water – on site
- Treat all waste – on site
- No “Red List” materials
OSC : Energy

- Reduce Energy use by 75%
- Integrated Systems
- Photovoltaic panels
OSC: Energy Efficiency

- Daylight, Space planning efficiency
- Tenant cooperation
- Monitoring & feedback
OSC : Water & Waste

- Rain water for all uses
- ___ gal cistern
- UV filtration/ Chlorine
- Constructed Wetland
OSC Indoor Environment

- 30’ from all desks to window
OSC Materials

- Red List

**COMMONLY USED TOXINS**
- Neoprene
- Adhesives and Sealants
  - Neoprene
  - Silicone
- Coating/Plating
  - Cadmium
  - Aluminium

**GREEN REPLACEMENT OPTIONS**
- Flame Retardant Wire Covering
  - Halogenated
  - Polyolefin
- Lighting
  - Mercury Fluorescent
  - LED/LOW Mercury
Next Stop:
ECODISTRICTS
What is an EcoDistrict?

- Green Building at Neighborhood Scale

- Rain
- Wind
- Sun

- Electric Grid
- Natural Gas
- Transportation fuel

- People, Animals
- Habitat
- Materials

- Storm water runoff
- Emissions
- Sewer waste
- Solid waste

- Ecological
- Health
- Human Health
- Community
- Material Resources
EcoDistrict Systems

- Thermal Energy
- Water Reuse
- Smart Grid
- Green Streets

ZGF Architects
Implementation Plan

Analyze 9 precedent cities:
- Living City Block (Denver, CO)
- Green Impact Zone (Kansas City, MO)
- Oberlin Project (Ohio)
- EcoCity Cleveland (Ohio)
- Bo01 (Malmo, Sweden)
- Ekostaden Augustenborg (Malmo, Sweden)
- Dockside Green (Victoria, Canada)
- Southeast False Creek (Vancouver, Canada)
- Treasure Island (San Francisco, California)
EcoDistricts Framework

- Engagement and Governance
  - Buildings
    - Energy Services
    - Building Retrofits
  - Infrastructure
    - Transportation
    - District Utilities
    - Smart Grid
    - Green Streets
  - Assessment and Road Map/Strategy
    - Community Engagement
    - Demand Management
    - Social Marketing
    - Culture of Sustainability

Hardware

Policy and Finance

Software
EcoDistrict Pilot Projects

Portland EcoDistricts

Gateway

Lloyd District

PSU

South Waterfront

Lents

Step 1: Select Pilots
Step 2: Organization
  - Engagement
  - Governance

Step 3: Feasibility Assessment
  - Screen
  - Deep-dive

Step 4: Projects
  - Selection
  - Funding
  - Implementation

Step 5: Ongoing Performance Monitoring

Year 1  Year 2  Year 3  Beyond
What is an EcoDistrict?

- New development, or retrofit
EcoDistrict Examples

- District Cooling
- District Storm water
- Energy Retrofits
- Bulk Purchases of Solar Systems (PV, Hot water)
CURITIBA & PORTLAND: TOWARD SUSTAINABLE CITIES

"Turning Policy into Good Urban Form"
Phil Beyl, GBD Architects

First Stop Portland, San Juan, Puerto Rico
25 – 27 March, 2011