


THE ECONOMICS CASE FOR GREEN ROOFS

- Ecoroofs: The Nature of Portland's Rooftops.
- Benefits
- Portland's Ecoroof Program
- Local Examples
- Obstacles to Implementation
- Policy Approaches
- Conclusion / Discussion

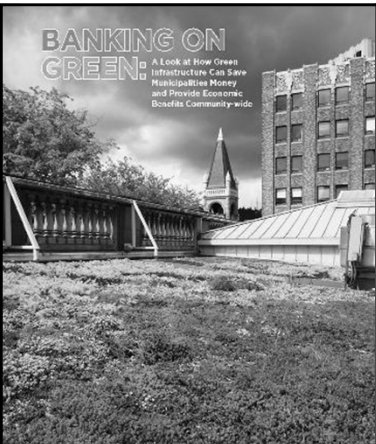


BANKING ON GREEN

A Look at How Green Infrastructure Can Save Municipalities Money and Provide Economic Benefits Community-wide

HOW GREEN ROOFS BENEFIT THE CITY

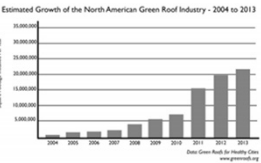
- Absorb Stormwater
- Reduce Heat Island Effect
- Provide Habitat
- Efficient Use of Land
- Create Healthy Places for People to Live and Work
- Keep Portland at the forefront of Green Innovation.
- Provide Jobs and Economic Growth for the Local Economy




GREEN ROOF JOB CREATION

Lux Research Report: \$2B North American Industry by 2017.

Covering even 1% of large buildings in America's medium to large-sized cities with vegetated roofs could create over 190,000 jobs.



Estimated Growth of the North American Green Roof Industry - 2004 to 2013
Data from Green Roofs for Healthy Cities www.greenroofs.org



Walmart Green Roof Groundbreaking, Portland, OR

COLUMBIA GREEN TECHNOLOGIES

A LOCAL ECONOMIC SUCCESS STORY

- Headquartered in Portland, with offices in Philadelphia and D.C.
- Part of a local network of highly specialized vendors in the nursery, specialty soil and landscaping industry.
- Most of our products are manufactured in Washougal, WA.
- Partnered with OregonBest and local research institutions such as Portland State University.
- 2011 U.S. Dept. of Commerce Export Award Winner.
- Experienced 200% Growth over the last several years; Ranked #13 in the Portland Business Journal's list of Fastest Growing Privately Held Companies in Oregon.
- Currently Employ 12 people with strong plans for future growth.
- Recently Received Venture Capital Funding










CEO VANESSA KEITGES


Member of President's Export Council. 27 Companies Report on industry trends and issues.

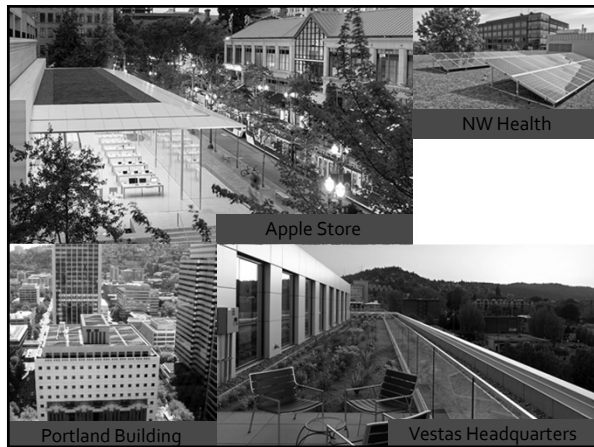
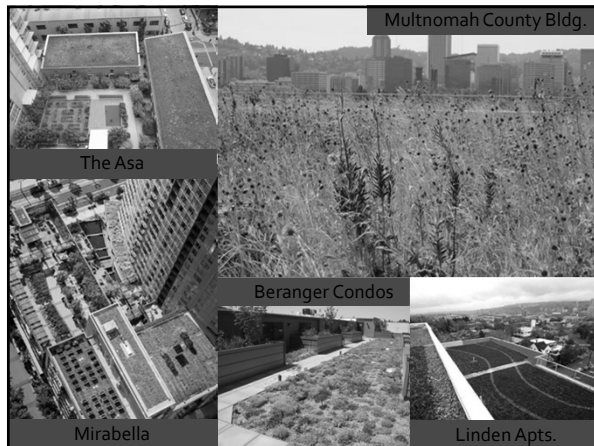
Representing Green Building Industry and Small Business

Council Members Include: CEOs from: Dow, Boeing, Ford, Ebay, Ford, Pfizer, Walt Disney & Lockheed Martin.

PORTLAND'S ECOROOF PROGRAM

- Incentives have included:
 - Stormwater Fee Reduction
 - FAR Density Bonus
 - \$5/sf incentive (2008 - 2013)
 - During this 5-year period, 134 Projects covering 362,139sf were constructed.
 - \$1.8M in incentives distributed.
- As of October 2014, Portland has 579 Green Roofs covering more than 1.5M square feet.
- Most green roofs have been implemented in the urban core, including some prominent buildings:





CHALLENGES FOR IMPLEMENTATION

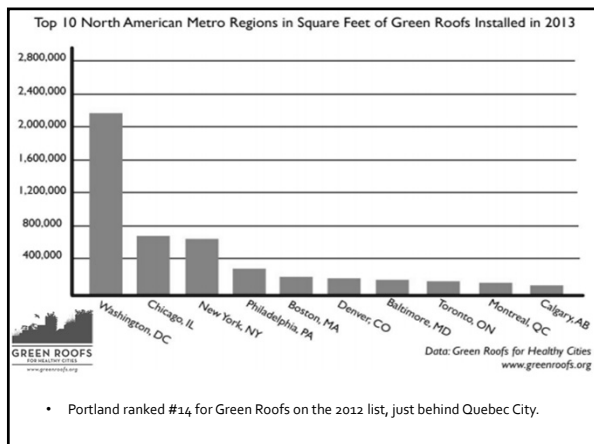
- Stakeholder Education (Public Officials, Private Developers, Owners, Designers, Contractors, etc.)
- Initial up-front Capital Cost (Ranging from \$5-\$25/sf). There are a wide variety of green roofs ranging from low-tech extensive green roofs to complex roof gardens.
- This could be mitigated with low-interest loans, grant programs and awareness about Return on Investment. Costs tend to fall as the market matures.



GREEN ROOF ROI FOR BUILDING OWNERS

Payback period depends on many factors: Studies show anywhere from zero to six years depending on factors.

- Extend life of roof membrane by 2x-3x
- Reduce Stormwater Management Costs
- Attractive Amenity Spaces attract higher rents and less turnover.
- More Efficient Buildings
- Marketability
- Local Policy / Incentives



GREEN ROOF POLICY APPROACHES

- Indirect Incentives**
 - Zoning Codes (Green Area Ratio)
 - Density Bonus, fast-track permitting, Recognition Programs
- Stormwater Incentives**
 - Stormwater BMP guidelines for green roofs; Utility Fee Reductions
- Direct Financial Incentives**
 - Tax Incentives, Grant Programs, Low-Interest Loans
- Regulation**
 - Green Roof Requirement

APPROACH: INDIRECT INCENTIVE

Example: Washington, D.C. #1

- Green Area Ratio- Landscape Zoning Code- Green Roofs are Heavily Weighted

Example: Chicago #2

- Fast-Track Permitting
- FAR density Bonus

Example: Seattle #10

- Green Area Factor- Landscape Zoning Code- Green Roofs are Heavily Weighted

APPROACH: STORMWATER INCENTIVE

Example: Washington, D.C. #1

- Green Roofs included as a BMP
- Clear guidelines for performance and runoff storage calculation sizing
- Stormwater Credit Trading Market

Example: Chicago #2

- Green Roofs included as a BMP
- Reduced Runoff Co-efficient

Example: Nashville #7

- \$20 per sf of green roof, credited against sewer bills.

APPROACH: DIRECT FINANCIAL INCENTIVE

Example: Washington, D.C. #1

- Rebate Program of \$7/sf and up to \$10/sf in targeted sub-watersheds.

Example: New York City #3

- \$6 million dollar Grant Program available for design and construction of green infrastructure.
- \$5-.23 /sf Green Roof Tax Abatement Program, up to \$200,00 per project.

Example: Philadelphia #5

- Business Tax Credit for 25% of all costs incurred to construct a green roof, up to \$100,000.

APPROACH: REQUIREMENT

Example: Toronto #4

- The Green Roof Bylaw requires new building permit applicants for residential, commercial, institutional, and industrial developments to include a green roof.
- Developments are exempt if they have less than 2,000 square meters of Gross Floor Area.
- The required coverage area is dependent on the size of the development and ranges from 20% to 60%.

**PORTLAND ECOROOF POLICY:
WE HAVE A STRONG START**

- ✓ Good Awareness through demonstration projects and community engagement.
- ✓ Excellent resources thanks to BES, We Build Green Cities, Direct Stop Portland, etc.
- ✓ Leverage partnerships with government, academic institutions (such as Portland State's Green Building Research Laboratory), and manufacturers to foster technical research.



**PORTLAND ECOROOF POLICY:
WHAT ELSE CAN WE DO?**

- Implement a combination of Incentives, Zoning Code & Stormwater Policies for rapid implementation. Example: Washington D.C.
- Portland has a trial version of a "Green Area Ratio" zoning program which, if adopted, would strongly incentivize the use of green roofs.
- Green Roofs could be written into the zoning code for certain overlay zones or eco-districts.



Thank you and Happy Holidays!