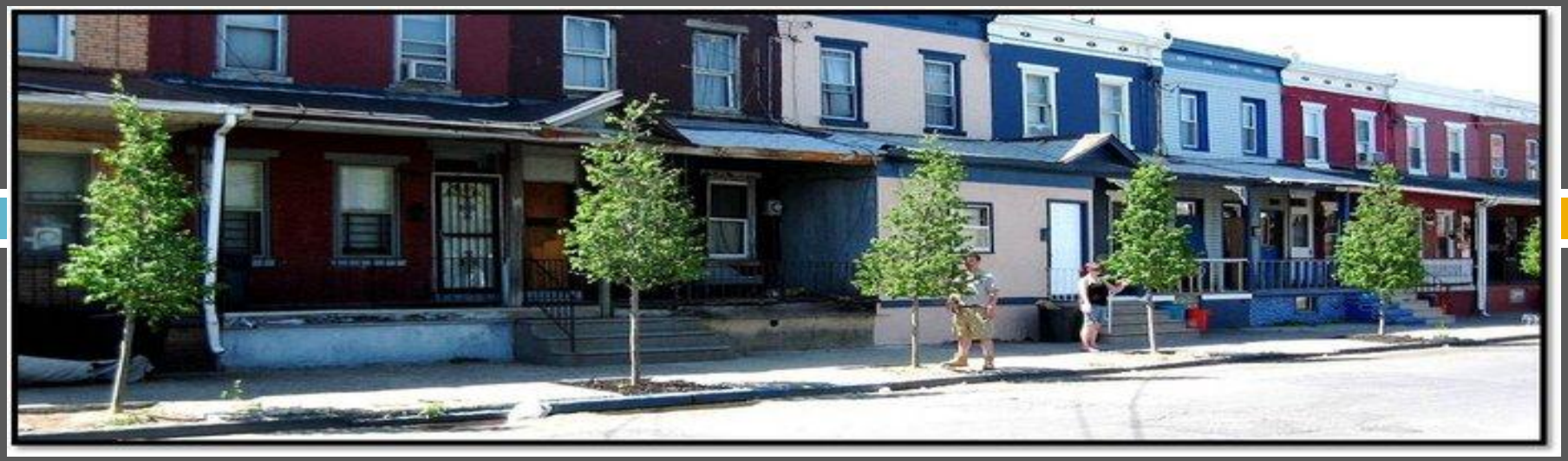


CARBON MARKETS FOR US URBAN FORESTRY: ATTRACTING FUNDS BY OFFERING LOCAL VALUE

Elise Schadler, Cecilia Danks, & Melanie McDermott

AAG Meeting – February 28th, 2012

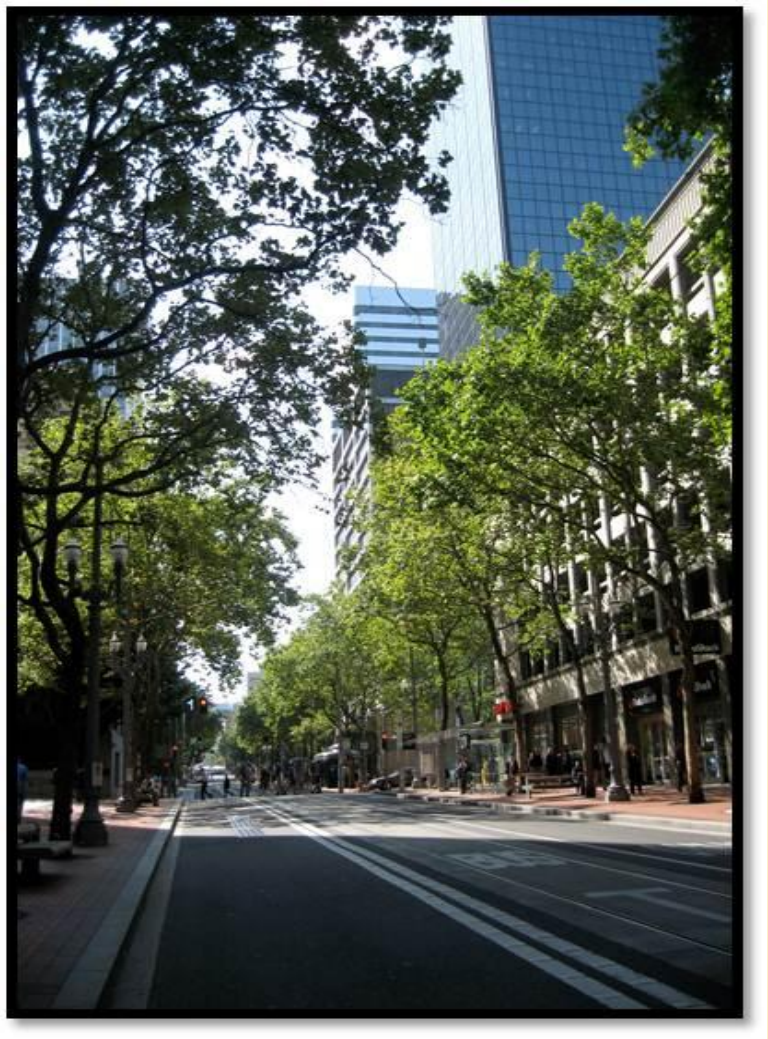
Context

- National Urban and Community Forestry Advisory Council Grant
- Carbon, Trees, & Cities
- Master's research

Definitions

- Urban Forest
- Voluntary Carbon Markets (VCMS)
  - Over-the-Counter (OTC)
- Protocol
  - Chicago Climate Exchange (CCX)
  - Climate Action Reserve (CAR)

Significance



- Emerging Markets for Ecosystem Services
- Laying Foundations
- Scale of Study

The Questions

From a practitioner's perspective –

What are the barriers for urban forestry projects in the US to participate in VCMs?

What are the opportunities for urban forestry projects in the US to participate in VCMs?

Literature

- Barriers
  - Costs of project development, verification, monitoring & concerns about methodologies (Dixon et al. 1994, van Kooten et al. 2002, Labatt & White 2007, Streck et al. 2008, Brooke 2009)
  - Real & Effective offsets (Ruddell et al 2006, Ingerson 2007)
  - Cost-effectiveness (Akrabi 2007, McHale et al. 2007)
  - GHG Emissions associated with Urban Tree Planting & Maintenance (Nowak 2000, Ryan et al. 2010)
  - Urban Tree Mortality and Health; Permanence (Patterson et al. 1980, Miller & Miller 1991, Skiera & Moll 1992)

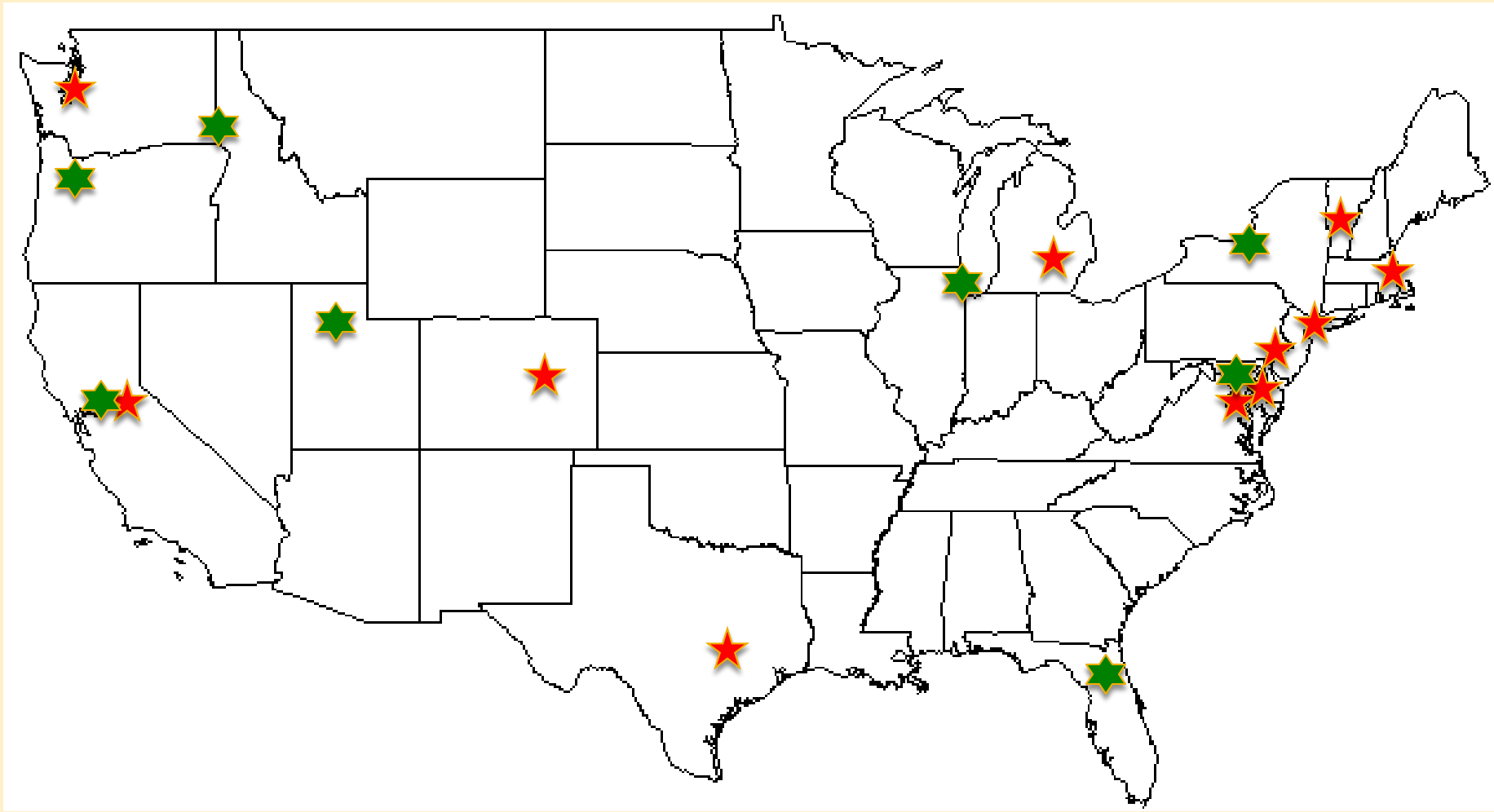
Literature

- Opportunities
  - Tools/Technologies available (Myeong et al. 2006, McHale et al. 2007)
  - Managerial/Technical Capacity of City governments (Poudyal et al. 2010)
  - Potential space for Tree Planting/Carbon Sequestration (Nowak & Crane 2002, Pataki et al. 2006, McPherson 2007, Escobedo et al. 2010)
  - Co-Benefits (Bayon et al. 2009, Brooke 2009, Hamilton et al. 2010)
  - Local Sustainability (Poudyal et al. 2011)

Methods: Scoping & Interviews

- Who?
  - Urban Forestry Practitioners (28), Carbon Market Experts (3), Municipal Employees & Others (12)
  - Project Participant (23) or not (20)
- Where?
  - U.S.
- How?
  - In-person (17), phone (23), email (2)
  - Semi-structured, open-ended

Methods



Urban Forestry Case Studies

- **Sacramento Tree Foundation & Harbison-Mahoney-Higgins Builders**

  - ✓ *Local business pays non-profit to offset specific emissions through private tree planting program*

Photos courtesy of the Sacramento Tree Foundation

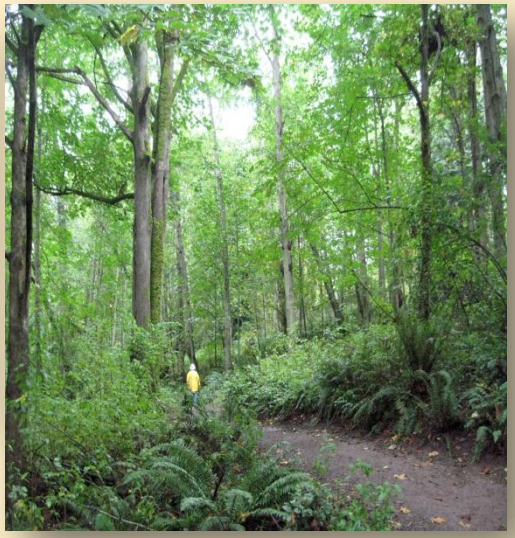
Urban Forestry Case Studies

- **Michigan State University & the Chicago Climate Exchange**
  - ✓ *Carbon sequestered by campus trees used internally to help meet institution's climate commitments*

Image from Google Earth

Urban Forestry Case Studies

- **Forterra's (previously the Cascade Land Conservancy) Carbon Mitigation Program**
  - ✓ *Donors pay non-profit to carbon mitigation that finances restoration of municipal forests*

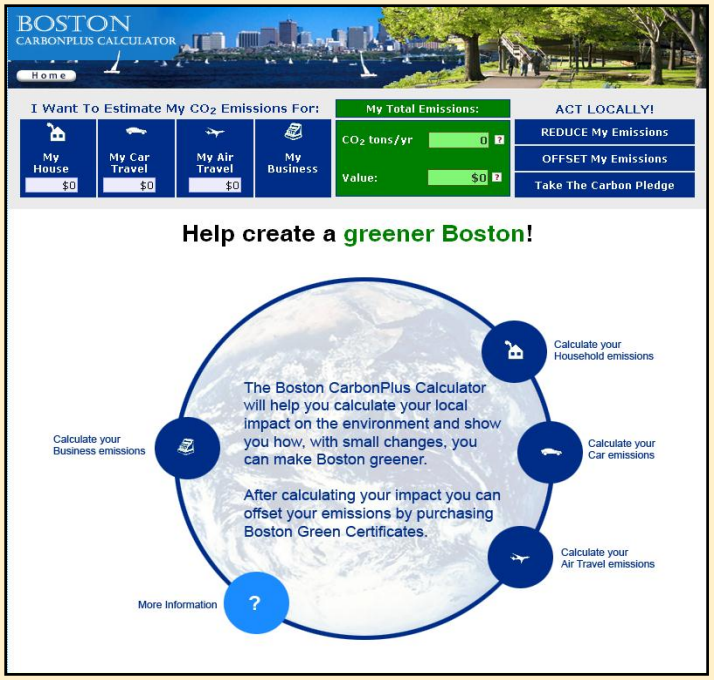


Photos courtesy of Forterra

Urban Forestry Case Studies

- **The CarbonPlus Calculator**

  - ✓ *U.S. Forest Service offers a customized, online carbon calculator to cities to educate users and raise funds for tree planting by local non-profits*



http://carboncalculator.growbostongreener.org/

http://blog.rlove.org/2006_10_01_archive

http://www.nyrp.org/email/newsletter/mtnyc/2009/mar/index

Urban Forestry Case Studies

TreeFolks & the City of Austin

- *Partnership between local government and an established non-profit aligns carbon neutrality goals with the creation of carbon offsets through local greening initiatives*

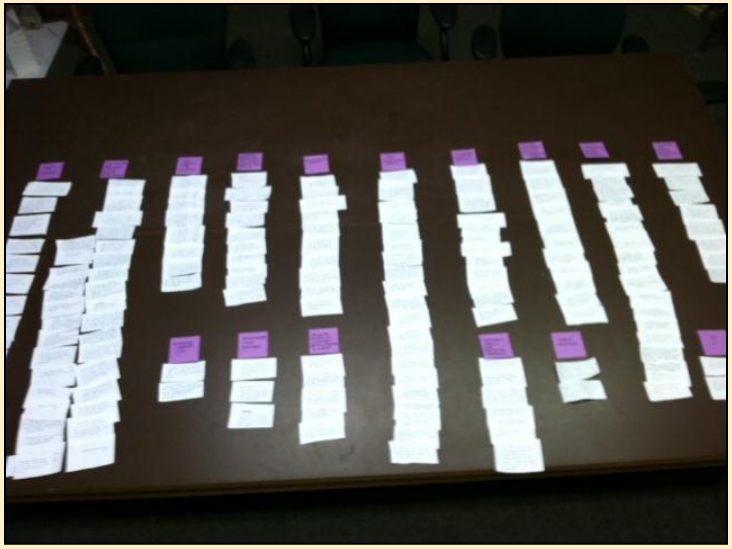
Photo courtesy of the City of Austin

Photo courtesy of TreeFolks

Urban Forestry Case Studies

Case Study Title	Location(s)	Description	Year Project was Launched	Total amount of carbon addressed to date
The CarbonPlus Calculator: Local data to calculate local offsets to support local tree planting projects	Boston, MA, Baltimore, MD, New York, NY, Philadelphia, PA, Vermont, Washington, DC, Westminster, CO	U.S. Forest Service offers a customized, online carbon calculator to cities to educate users and raises funds for tree planting by local non-profits	2007	Approximately 45 tCO_2e
The Sacramento Tree Foundation & HMH Builders, Inc.: Offsetting vehicle emissions through planting trees	Sacramento, CA	Local business pays non-profit to offset specific emission through private tree planting program	2008	2,132 tCO_2e
Michigan State University's Urban Forest Carbon Inventory: carbon accounting and the Chicago Climate Exchange	East Lansing, MI	Carbon sequestered by campus trees used internally to help meet institution's climate commitments with the Chicago Climate Exchange	2009	328.8 tCO_2e subtracted from the university's internal emissions reporting requirements to CCX.
Forterra's (Cascade Land Conservancy) Carbon Mitigation Program: Carbon mitigation through restoration of urban forests	The Puget Sound region, WA	Donors pay non-profit for carbon mitigation that finances restoration of municipal forests	2010	7,000 tCO_2e
Austin, Texas: Exploring urban forestry & carbon offsets	Austin, TX	A partnership between local government and an established non-profit aligns carbon neutrality goals with the creation of carbon offsets through local greening intiatives	The City's offsets project will pilot in 2012	n/a

Methods: Coding



Barriers from Interviews

Category of barrier (frequency)	Sub-categories (frequency)
Lack of organizational capacity to develop, administer, and market a carbon project (48)	- Lack of overall organizational capacity and resources (14) - Inadequate marketing resources (13) - Concerns about accounting and ensuring funds are directed to the right place (9) - Concerns about up-front costs of project development (5) - Lack of technical expertise (3) - Maintaining good relationships with partners (2) - Employee turnover (2)
Market Immaturity (41)	- Lack of models (12) - Lack of federal regulation and leadership (11) - Concerns about existing protocol (8) - Lack of uniform standards (8) - Concerns that early adopters might not be included in future regulation (2)
Uncertainties about offsets and voluntary carbon markets (36)	- The perception that carbon offsets can't cover the costs of urban and community forestry (12) - The limited potential of urban forests to sequester carbon (7) - Uncertainty in the market (6) - View that offsets aren't the answer to climate change (6) - View that a market for carbon offsets needs to be demonstrated (5)
Complexities of developing a high quality carbon offset/project (35)	- Carbon Accounting (8) - Demonstrating additionality(6) - Demonstrating permanence (5) - Monitoring (5) - Clarifying ownership of carbon offsets (4) - Verification (4) - Whether to use the term "offset" or "mitigation" (3)
Challenges of working within a political and bureaucratic system (8)	- Bureaucracy of working within a city sustainability plan; issues around branding, priority, and time (5) - Special interests and opposition to carbon offsets in municipal politics (3)
The Economic crisis of 2008-2009 (8)	- Restricted budgets (4) - Less focus/interest in climate change and carbon (4)

Opportunities from Interviews

Category of opportunity (frequency)	Sub-categories (frequency)
Capitalizing on organizational capacity (33)	- Potential to create new partnerships (9) - Potential to build upon existing partnerships (6) - Potential to utilize existing inventory (4) - Potential to build upon existing volunteer support (4) - Potential to capitalize on general organizational capacity (4) - Potential to leverage funds for urban forestry programs (6)
Localness (27)	- Potential demand for local carbon offsets (13) - Interest in local initiatives that address climate change (10) - Potential for implementing projects in the urban-rural interface, vacant lots, and/or old industrial areas in cities (4)
Institutional sustainability goals and initiatives (23)	- Municipal sustainability and "green image" (14) - Institutions (funders) that want to be more "green" (9)
Co-benefits of urban trees (22)	- Opportunities to highlight co-benefits of urban trees (11) - Education and behavior change around climate change (7) - Opportunities to sell offsets at a premium price, based on value of co-benefits (4)
Interest in pairing carbon markets and urban forestry (17)	- Interview participant has heard others express interest/recognizes general interest (15) - Personal interest of interview participant (2)
Resources are increasingly available for practitioners (15)	- Resources available online, free of charge, such as US Forest Service technical reports (9) - Models beginning to emerge (6)
Market Immaturity (15)	- Without uniform standards, ability to use creativity and flexibility in project design (9) - The pre-compliance market (6) - Small-scale and bottom-up approaches to develop innovative projects to mitigate climate change (6)

Highlights

- 176 comments coded as barriers
- 158 comments coded as opportunities
- Correlation with the literature to an extent, but many new ones as well

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Next steps . . .

- What does an enabling policy environment look like?
  - Technical assistance
  - Regional intermediaries and support systems
  - More guidance on how to show quality
- Further research
  - Expanded study – larger sample, new groups
  - California?
  - Carbon banking? Canopy-level monitoring? Group certification?

Thanks!

- Funding: USDA Forest Service – National Urban & Community Forestry Advisory Council
- Carbon & Communities Research Team
- www.uvm.edu/forestcarbon/

http://www.ci.pittsburg.ca.us/Modules/ShowImage.aspx?imageid=859