

# Reducing Supply Chain Embodied Greenhouse Gas Emissions with Local Economic Benefits: The Urban Wood Project

March 16, 2020

12:00 – 1:00 PM ET



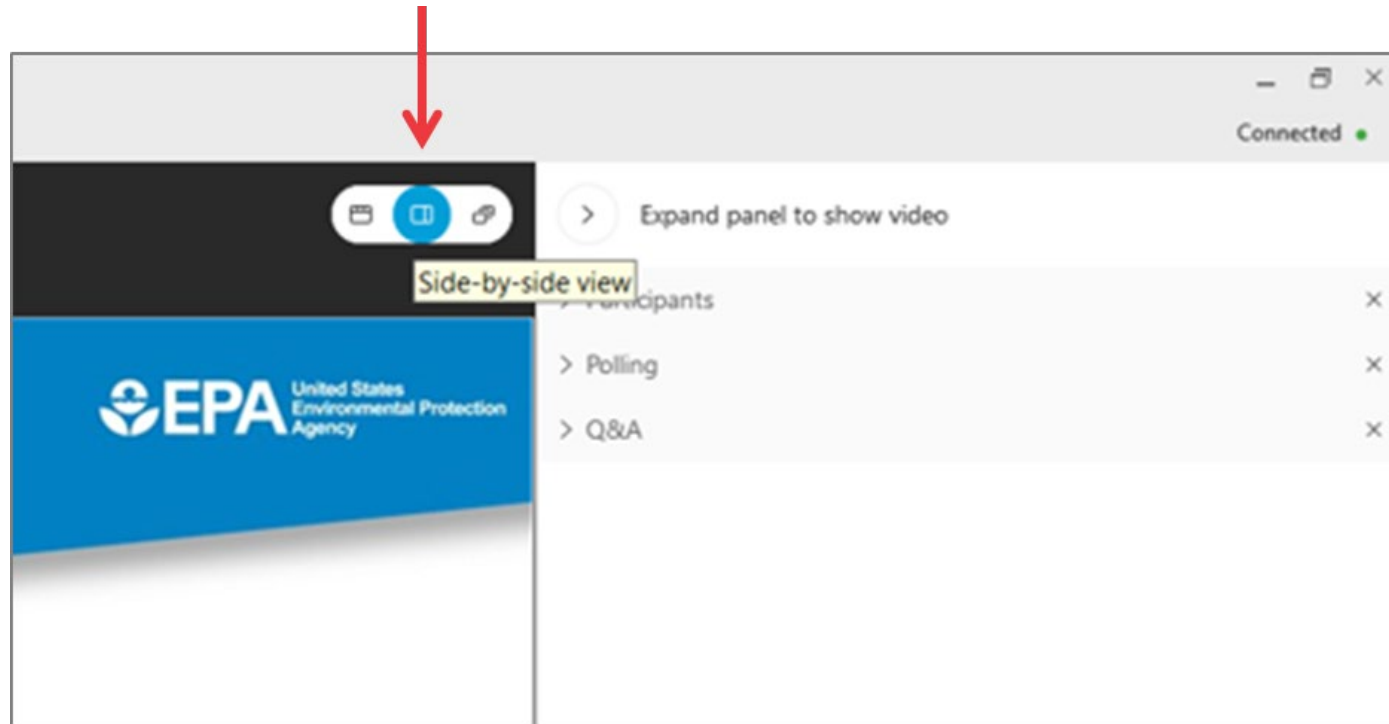
# Webinar Audio

Three audio options:

- 1) Call me feature
- 2) Listen via computer
- 3) Call in to 1-415-655-0002 or 1-855-797-9485  
Event number: 645 596 613

# Screen View

- There are several layout options
- We recommend the side-by-side view



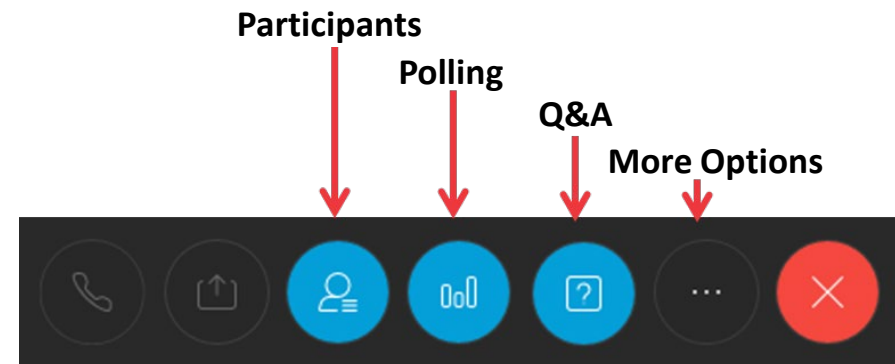
# Webinar Panels

## We'll use two panels

- Participants, and Question & Answer (Q&A)
- Use the arrow to expand or collapse the panels

## Adding Panels

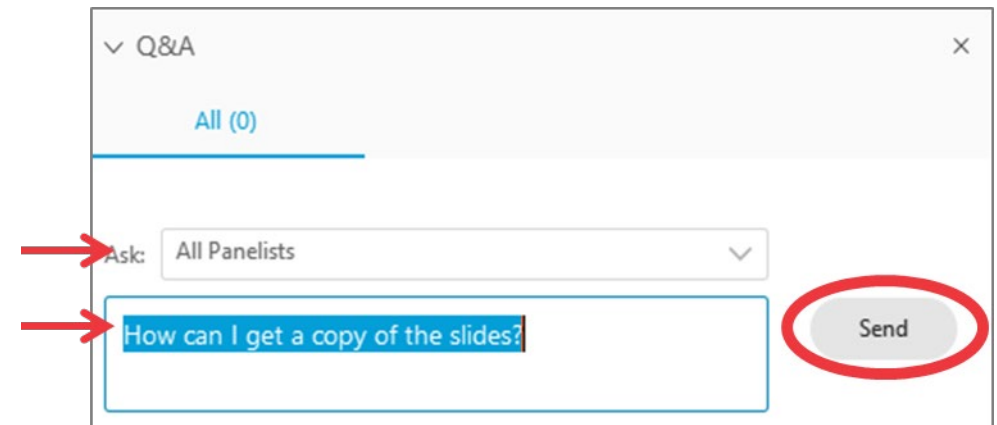
- If some panels don't appear, hover over the bottom of the screen and select the desired panels
- Select More Options (...) for additional panels
- Blue icons indicate active panels





# Q&A

- Participants are muted
- Questions will be moderated at the end
- To ask a question:
  1. Select “All Panelists” from the drop-down menu
  2. Enter your question in the Q&A box
  3. Hit “Send”



The screenshot shows a Q&A interface with a title bar that says "Q&A" and a close button. Below the title bar, it says "All (0)". There is a drop-down menu labeled "Ask:" with "All Panelists" selected. Below the menu is a text input box containing the question "How can I get a copy of the slides?". To the right of the input box is a "Send" button, which is circled in red. Two red arrows point to the "Ask:" label and the text input box.



# Today's Agenda

- **Verena Radulovic**, Lead, Center for Corporate Climate Leadership (CCCL), U.S. Environmental Protection Agency (EPA)
- **Morgan Grove**, Research Scientist and Team Leader, United States Department of Agriculture (USDA) Forest Service - Baltimore Field Station
- **Jeff Carroll**, Vice President, Humanim
- **Steve Freeman**, Vendor Resource Manager, Room & Board
- Question and Answer Session



# Introduction

**Verena Radulovic**

Lead, Center for Corporate  
Climate Leadership

U.S. EPA

## EPA Center for Corporate Climate Leadership

CONTACT US

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[Learn How](#) to Measure and Lower GHG Emissions Throughout an Organization's Supply Chain



### What's New:

- [Events and Conferences Guidance](#)
- [Low Emitter Guidance and Calculator Updated!](#)
- [Updates to Supply Chain Guidance](#)
- [GHG Emission Factors Hub](#)

EPA's Center for Corporate Climate Leadership serves as a resource center for all organizations looking to expand their work in the area of greenhouse gas (GHG) measurement and management.

[GHG Inventory Guidance](#)

[GHG Measurement Tools](#)

[Supply Chain](#)

# The Urban Wood Project: A Systems Framework for Innovation

EPA Center for Corporate Climate Leadership  
March 16, 2020



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Jeff Carroll (Humanim): [jcarroll@details.org](mailto:jcarroll@details.org)  
Steve Freeman (Room & Board): [SFreeman@RoomAndBoard.com](mailto:SFreeman@RoomAndBoard.com)

# Agenda

- Interconnected Problems
- Fresh Cut Wood
- Trifecta of Social Innovation
- Deconstructed Wood
- Scaling & Replication



# PROBLEMS

## Vacant Lots and Homes



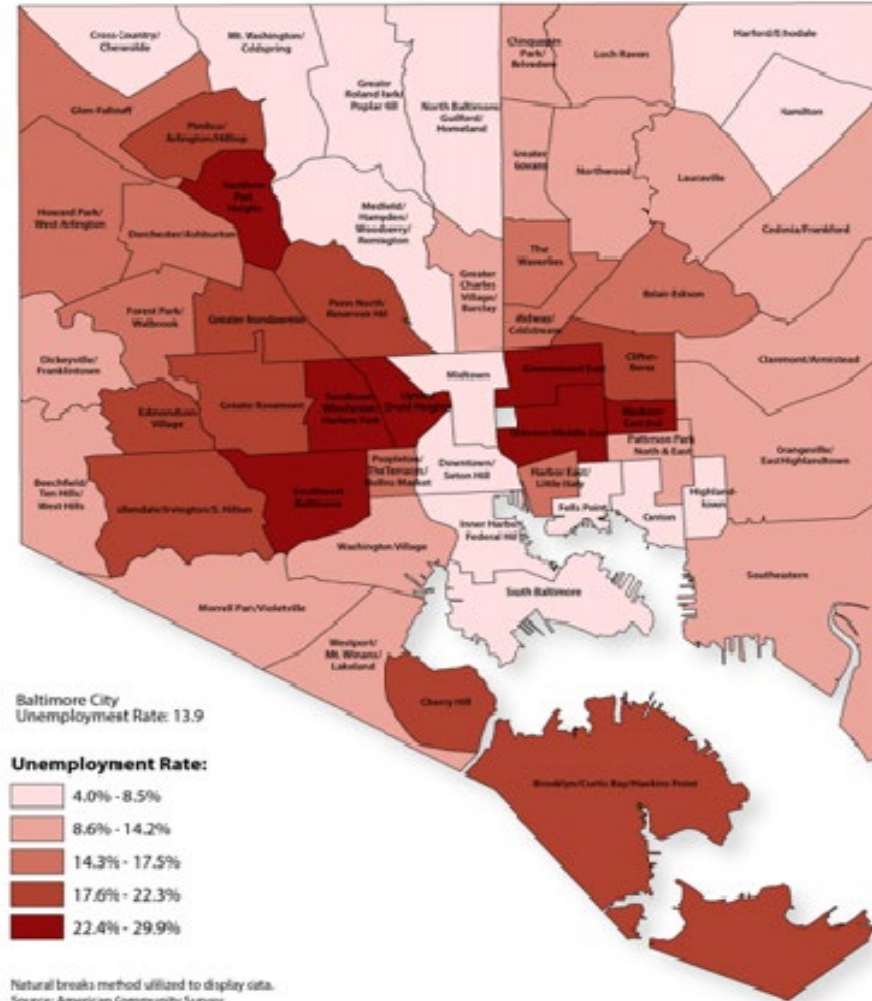
Source: City of Baltimore Department of Housing

- ~ 17,000 vacant homes
- ~14,000 vacant lots

# PROBLEMS

Unemployment and  
Poverty

### Unemployment Rate By Community Statistical Area, 2008-2012



Baltimore City  
Unemployment Rate: 13.9

**Unemployment Rate:**

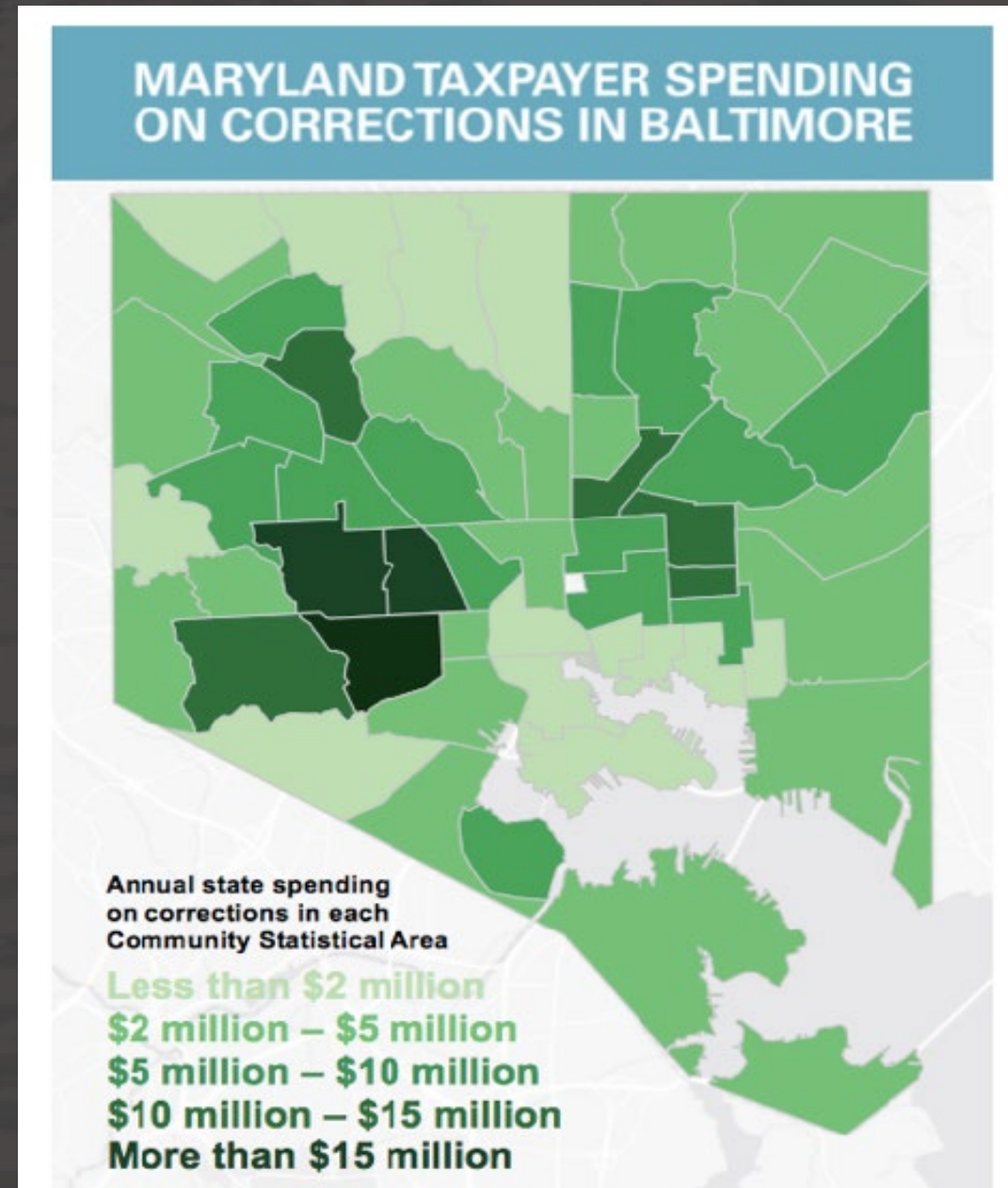
Lightest pink	4.0% - 8.5%
Light pink	8.6% - 14.2%
Medium pink	14.3% - 17.5%
Dark pink	17.6% - 22.3%
Darkest red	22.4% - 29.9%

Natural breaks method utilized to display data.  
Source: American Community Survey  
Map created by BNA-JF1, 2014



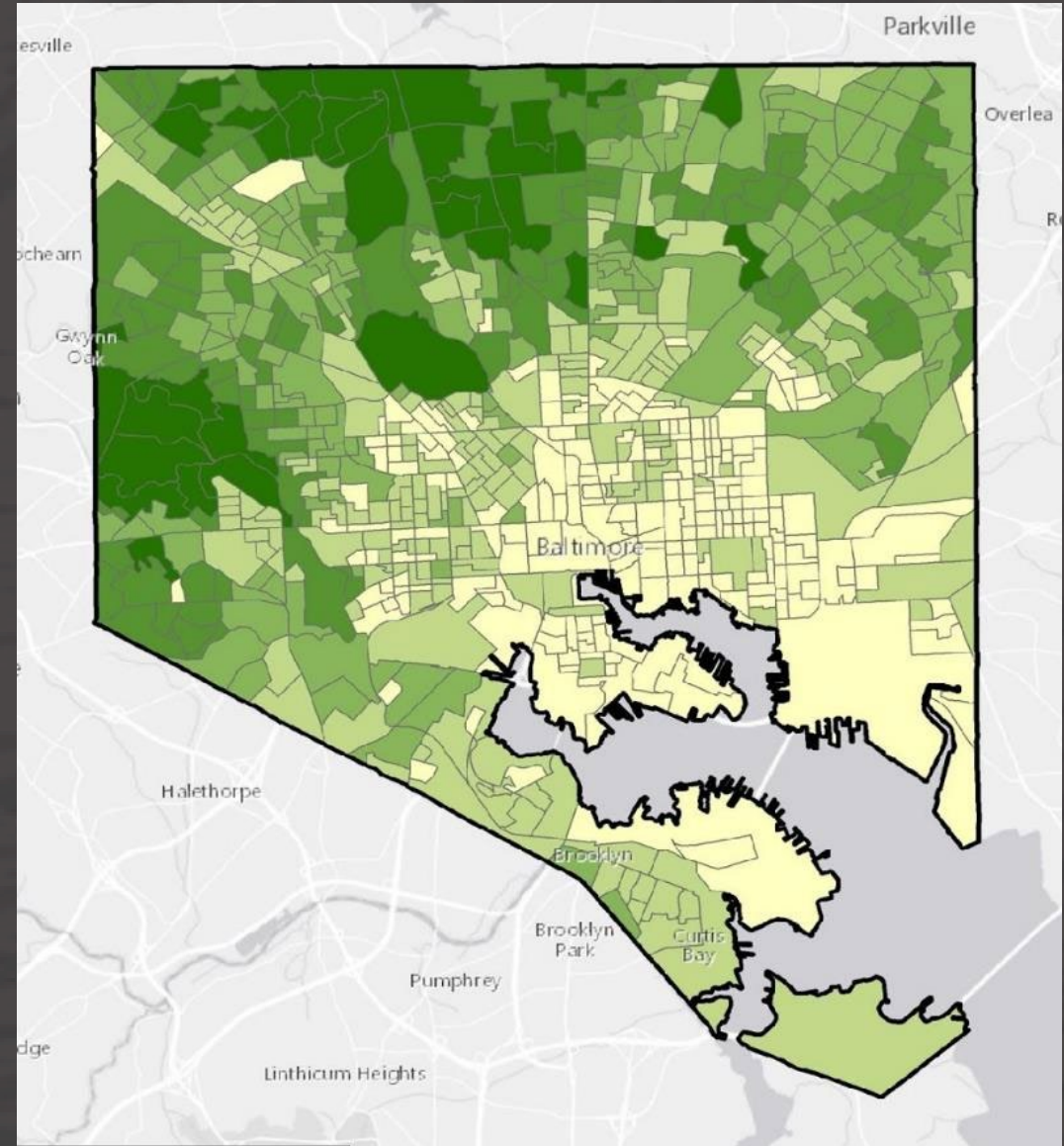
# PROBLEMS

Incarceration



# PROBLEMS

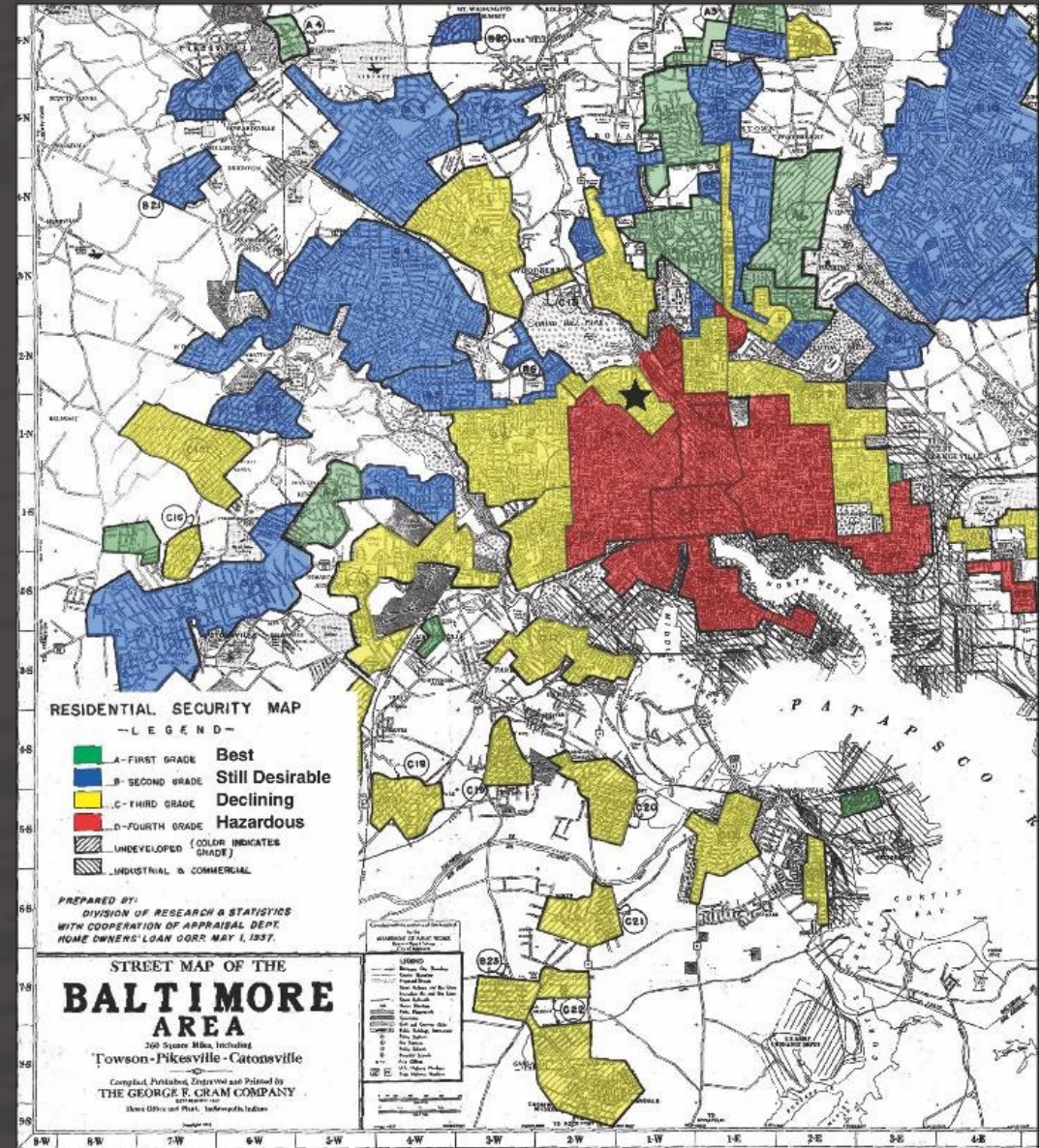
Environment and Tree  
Canopy Cover





# PROBLEMS

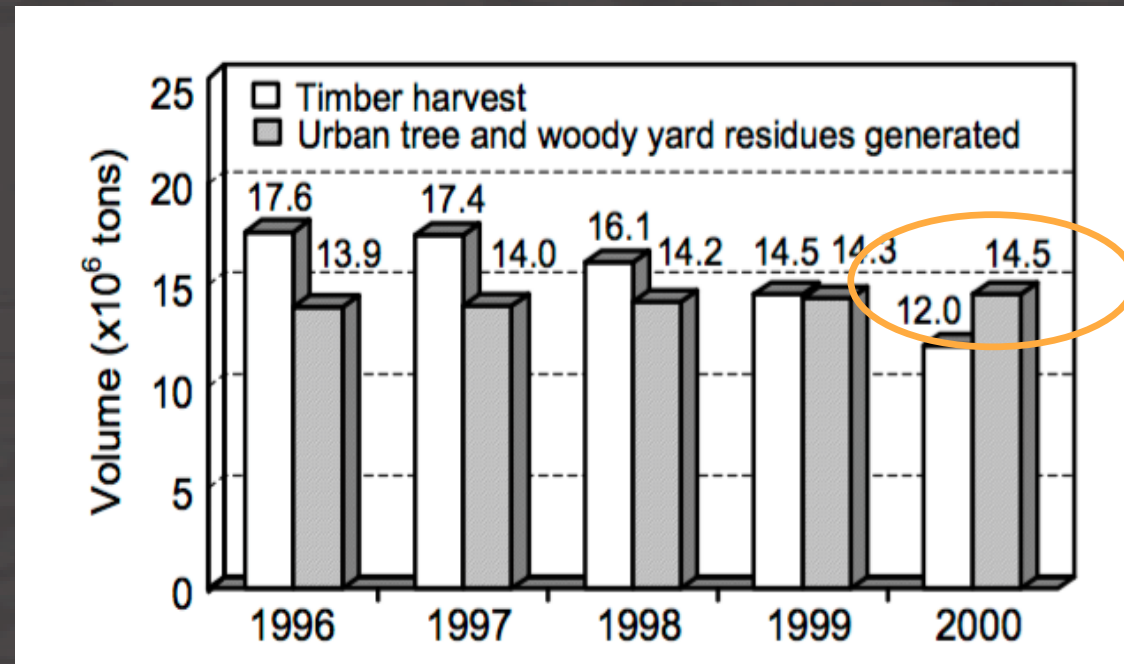
Legacies of Social and  
Racial Injustice -  
Redlining



# PROBLEMS

## Wasted Urban Wood

The Abundance of Urban Wood



Timber harvested from National Forests compared with urban tree and woody yard residues generated, 1996-2000.

# PROBLEMS

## Wasted Urban Wood



Original article

## Annual biomass loss and potential value of urban tree waste in the United States



David J. Nowak<sup>a,\*</sup>, Eric J. Greenfield<sup>a</sup>, Ryan M. Ash<sup>b</sup>

<sup>a</sup> USDA Forest Service, Northern Research Station, 5 Moon Library, SUNY-ESF, Syracuse, NY 13210, United States

<sup>b</sup> SUNY College of Environmental Science and Forestry (ESF), Heiberg Memorial Forest, 7393 Maple Ridge Rd., Tully, NY 13159 United States

#### ARTICLE INFO

Handling Editor: Wendy Chen

**Keywords:**

Leaf nutrients  
Tree biomass  
Urban forests  
Urban tree recycling  
Wood products

#### ABSTRACT

Urban trees provide numerous benefits to society, but upon removal, this resource is underutilized and often considered a waste product to be discarded. However, urban trees have a potential to be utilized for various products, create jobs and an income stream for cities. The latest data on urban forests in the United States were used to estimate the potential annual value that could be derived from urban tree waste. Assuming a mortality rate of 2%, annual urban woody biomass loss in the U.S. equates to about 46 million tonnes of fresh-weight merchantable wood or 7.2 billion board feet of lumber or 16 million cords of firewood. The potential annual value from urban wood waste ranges between \$89-786 million depending upon the product derived (e.g., wood chips to lumber). States with the greatest urban wood product potential are Florida (\$6.6–57.6 million/year) and Georgia (\$6.0–52.7 million/year). Along with woody biomass, annual leaf loss has a potential to produce value. The value of nutrients in annual leaf litter is estimated at \$551 million per year. In addition to direct revenue from sales, other environmental benefits can be derived through tree waste utilization that reduces landfill waste, use of fertilizers and fossil fuel use in energy production. There are various reasons why this potential maximum value from urban tree waste is not and likely cannot be attained, but its current use and value can be increased. Creating markets and systems to utilize urban tree removals and leaves can help enhance income for urban forest management as well as create social and environmental goods.

Recent estimates suggest urban lumber potential to be about 3-4 billion board feet per year and at maximum 7 billion board feet per year, a substantial contribution to our national forest products economy (Nowak et al. 2019).



# USDA Forest Service History of Conservation & Restoration



1911

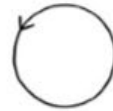
2020

# Systems Thinking

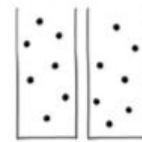
## TOOLS OF A SYSTEM THINKER



LINEAR



CIRCULAR



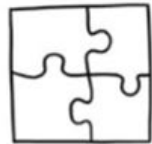
SILOS



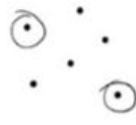
EMERGENCE



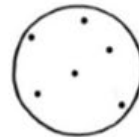
PARTS



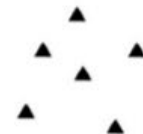
WHOLES



ANALYSIS



SYNTHESIS



ISOLATION



RELATIONSHIPS

# What can the USDA Forest Service do?

- Research & Development:
  - Understand organizational, technical, data, and financial opportunities and barriers to building regional urban-supported wood employment, businesses, and markets
- State & Private Forestry:
  - Catalyze, scale up, and share success among regional urban-supported wood economies in the United States



# What can the USDA Forest Service do?

## Supply Chain

### AMOUNT

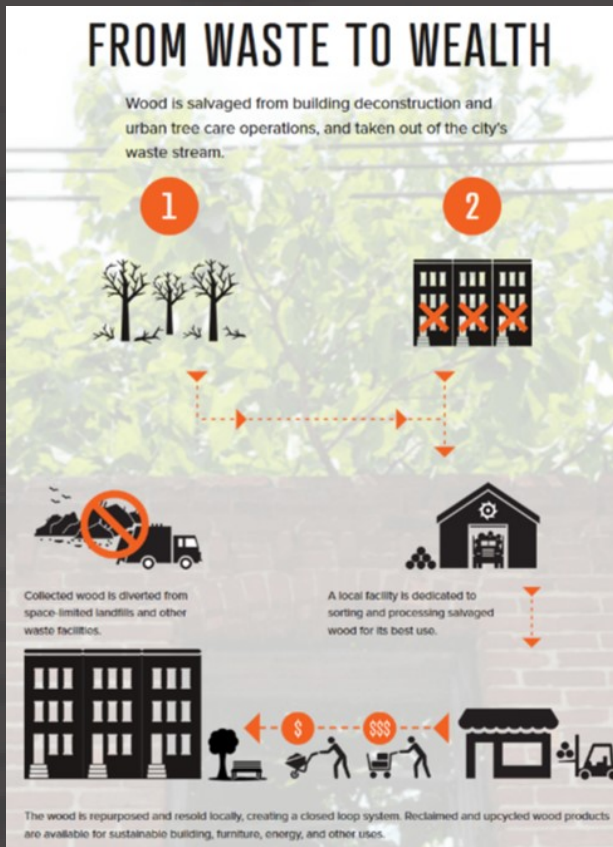
1. Volume
2. Variety
3. Quality

### CONSUMERS

1. Connect with regional and national retailers
2. Foster emerging markets



## Production



## Financing

### AMOUNT

1. Increased profits
2. Avoided costs
3. Unaccounted for revenues

### TYPE

1. Improved efficiency
2. New fund sources
3. Reduced risk and improve stability



# Fresh Cut Wood



# Camp Small

- City would pay an average of \$60,000 annually to have the site partially cleared.
- In 1994 the cost of removal was \$350,000
- There were no programs in place to capture higher value from the material collected





# The Zero Waste Initiative

- Baltimore's Office of Sustainability and Recreation and Parks' Division of Forestry put together a 5 year management plan for Camp Small
- In 2015 the Bureau of the Budget and Management Research (BBMR) awarded the Zero Waste Initiative an Innovation Fund of \$98,000



# “Setting up Shop”





# Logs to Lumber

- Looked at upcoming Recreation and Parks Capitol projects for ways to utilize the logs harvested from large City clearings – District of Columbia Public Works (DPW) & Baltimore Gas and Electric (BGE)
- Set up a 3 year contract with a local sawmill to cut, dry and mill
- Over 50,000 board feet of lumber has been produced and has provided BCRP a savings of more than \$150,000 - Flooring, Wall Cladding, Pressure Treated Decking, Tree Planting Stake



# Next Steps for fresh cut

- Promoting awareness of Camp Small and making products more accessible
- Increasing production of valuable materials through procuring additional equipment.
- Expanding the program through increasing staff with workforce development employees
- Strengthening partnerships to aid one another in the goals of employment and reduced waste



# Trifecta of Social Innovation





# Deconstructed Wood

**Details**  
DECONSTRUCTION  
A HUMANIM SOCIAL ENTERPRISE



a Humanim Social Enterprise





















# Reclaiming Materials & Lives

Reclamation totals to date:

- 1,400,000+ bricks
- 450,000 bf of lumber and flooring

Employment goals fiscal year (FY) 19 & 20

- 32 employees - City contract
- 175 employed since 2012





# Investments & Revenues

## Investment

- Initial - \$500,000
- Subsequent - \$500,000

## Break even

- 24 months
- Lost money in the next 18 months

## FY 19 revenue projection for deconstruction

- \$3.8 million gross annual
- Cover direct expenses
- Cover Humanim overhead 16-18%
- Net revenue 1%



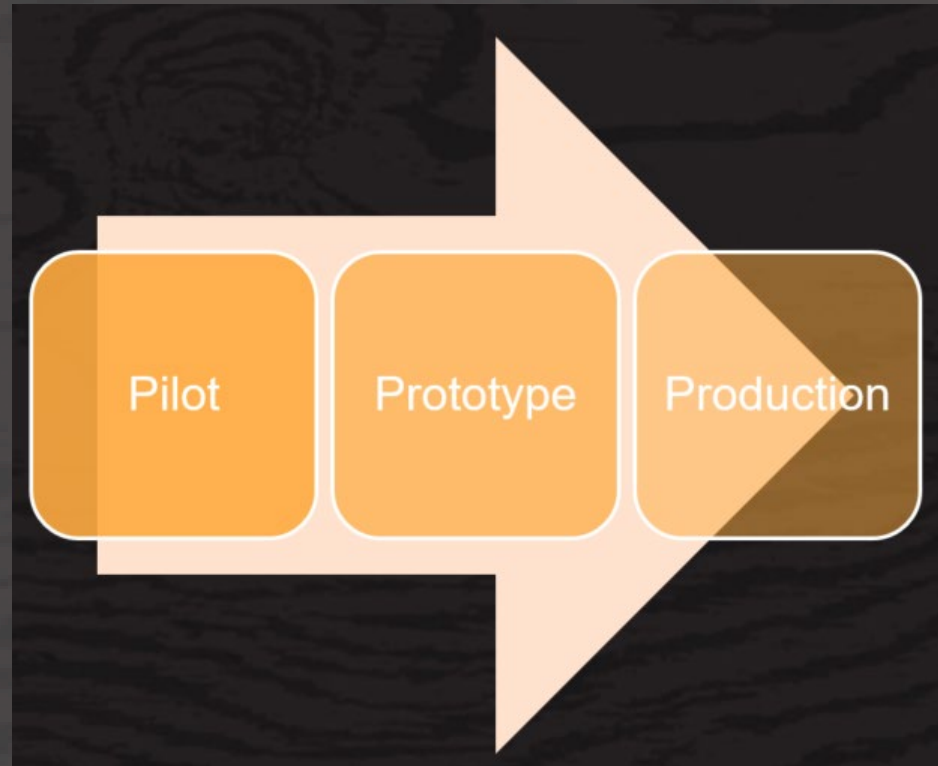






# Replication

How & Why





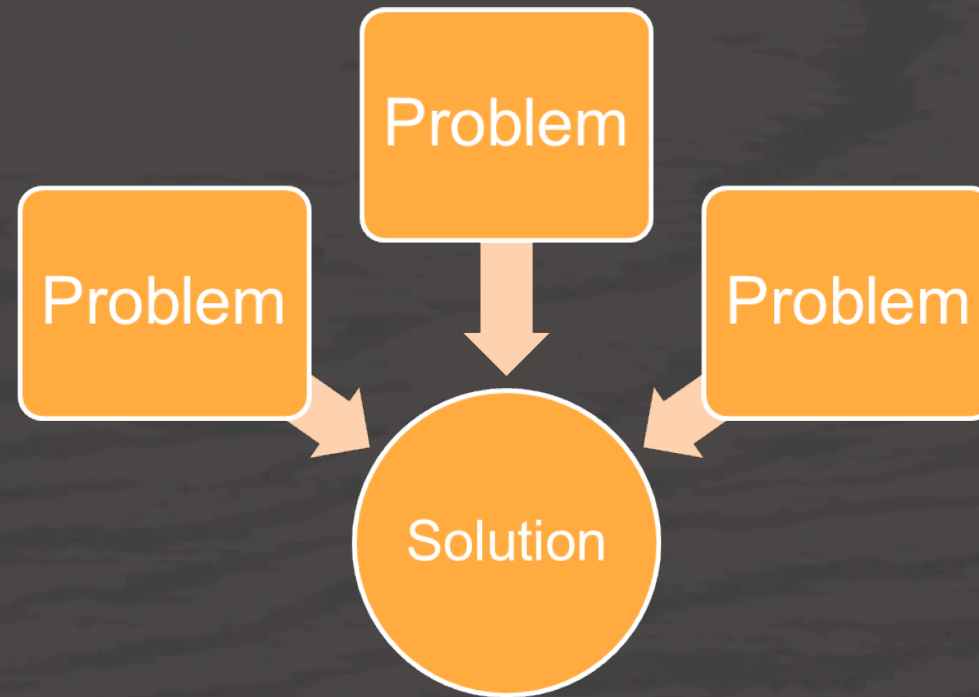
# Collaboration for Waste to Wealth Workforce Initiatives



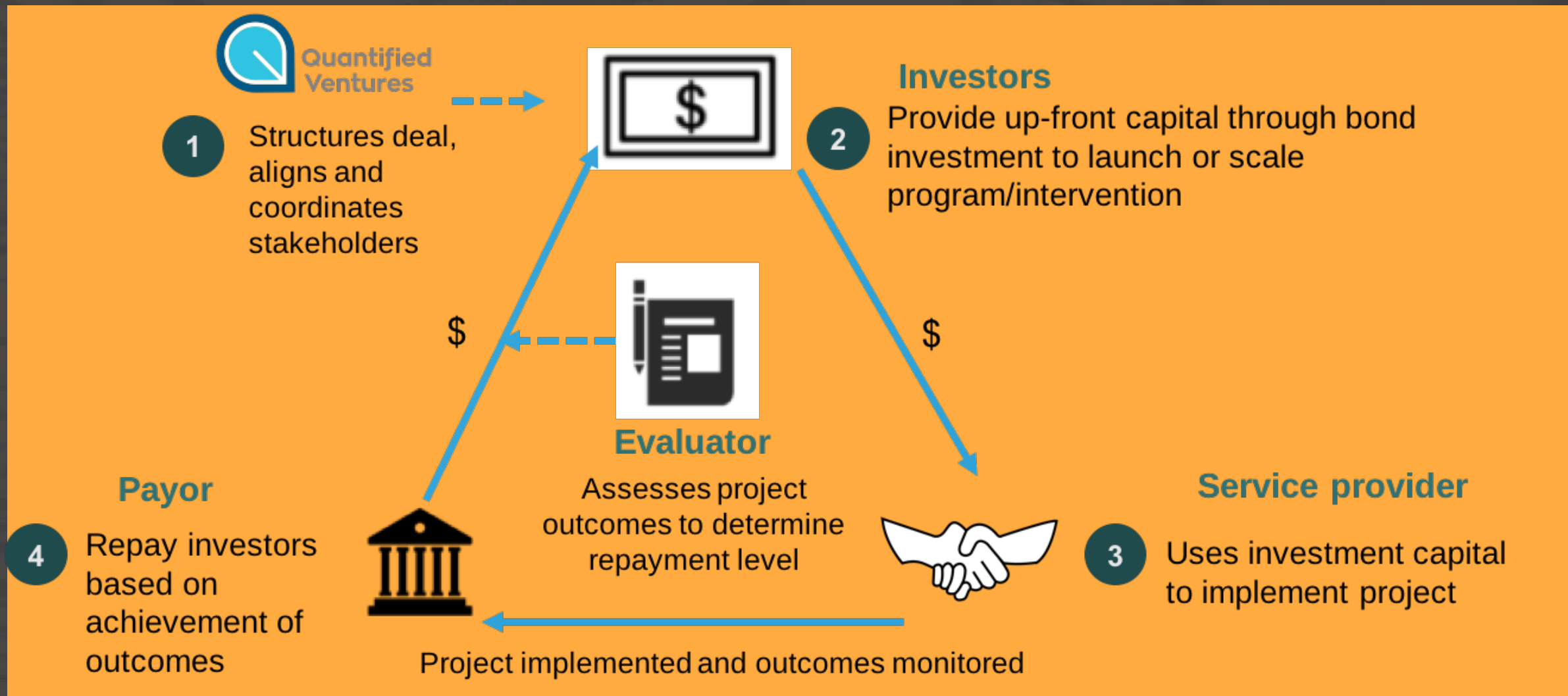
# Collaboration for Waste to Wealth Workforce Initiatives



# Complex Value Proposition



# Pay for Success Transactions





# Benefits to Pay for Success

- Access to Impact Capital
- Reduced Risk
- Link to Outcomes
- Improved Data Collection
- Stakeholder Engagement Support
- Promote Sustainable Practices

## State Benefits

Sales taxes on reclaimed materials (revenue)

Income taxes and avoided welfare costs (revenue and avoided cost)

Reduced recidivism (avoided cost)

Increased state property state taxes (revenue)

## Municipal Benefits

Avoided landfill opportunity costs (avoided costs)

Avoided police and fire service costs (avoided cost)

Increase city property taxes (revenue)

# Room&Board



# Room&Board

John Gabbert  
Owner/Founder of Room & Board  
Established in 1980



*"Our focus on American manufacturers has really not been a marketing focus, it's been simply a business focus because that's where we think we can create the best product at the best price with the best quality."  
– John Gabbert*



Our wood is primarily **US-grown**, as well as **reclaimed** from buildings, barns and factories, or **salvaged** from urban sources.







Room&Board

**HUMANIM**  
HUMAN PURPOSE. HUMAN IMPACT.



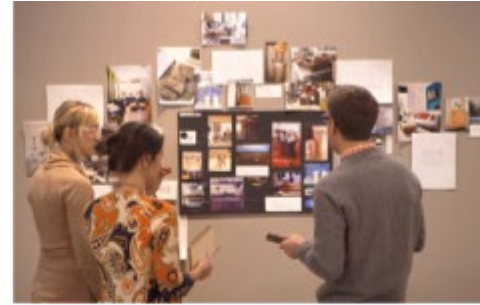


Our McKean Cabinet uses reclaimed pine roof decking from Baltimore row houses, processed at Brick + Board in Baltimore and combined with Charcoal stained US Ash. Cabinet made in Pennsylvania, steel base made in Minnesota.

# Room&Board

## Design Process

- Design goals are centered on creating long-lasting, heirloom-quality products with simple designs and incredible value
- Fully integrated design process with vendor participation as well as feedback from customers, sales associates and staff throughout the process
- Attention paid to maximizing material yield and reducing waste, with a focus on sustainability







# Room&Board

Urban Wood Project Assortment

We developed several new products and matched our concepts to manufacturing partners in close proximity to the source of the material.

Vendors include:

- Spectra, located in Pennsylvania
- Newport, located in Vermont
- Open Works, located in Maryland









For every one job created by a demolition project, deconstruction creates six to eight positions. All while keeping thousands of pounds of materials out of landfills.





Room & Board is a founding member of the Sustainable Furnishings Council.



More than 90% of our products are made in America using top-quality U.S. and imported materials.

*"What is the use of a house if you haven't got a tolerable planet to put it on?"*  
-Henry David Thoreau





## Question and Answer Session

# Contact

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