

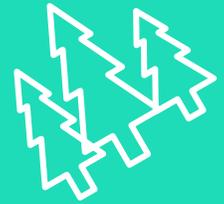


 **CAMBIUM**  
CARBON

Building a circular economy that reforests America.

# Total US Reforestation Opportunity

Carbon removal through tree cover restoration in the United States



60 BILLION TREES ACROSS  
330 MILLION ACRES

= 540 MILLION TONS OF CO<sub>2</sub>e  
REMOVED EACH YEAR

WITHOUT DISPLACING AGRICULTURE



WORLD  
RESOURCES  
INSTITUTE

WORKING PAPER  
EXECUTIVE SUMMARY

## CARBONSHOT: FEDERAL POLICY OPTIONS FOR CARBON REMOVAL IN THE UNITED STATES

JAMES MULLIGAN, ALEXANDER RUDEE, KATIE LEBLING, KELLY LEVIN, JAMES ANDERSON,  
AND BEN CHRISTENSEN

This is the executive summary of a Working Paper. The full Working Paper can be accessed at [www.wri.org/publication/carbonshot-federal-policy-options-for-carbon-removal-in-the-united-states](http://www.wri.org/publication/carbonshot-federal-policy-options-for-carbon-removal-in-the-united-states).

### Highlights

- The United States needs to make large-scale investments in carbon removal in the coming years if the country is to achieve carbon neutrality by midcentury.
- This working paper identifies a consolidated set of high-priority, near-term, federal policy options for advancing terrestrial carbon removal.
- These options would require up to \$6 billion per year in federal funding over the next 10 years, with the lion's share in this first decade dedicated to restoring trees to the landscape. We expect the need for public funding to increase, especially for technological pathways, to support scaled deployment beyond 2030.

*Working Papers contain preliminary research, analysis, findings, and recommendations. They are circulated to stimulate timely discussion and critical feedback, and to influence ongoing debate on emerging issues. Working papers may eventually be published in another form and their content may be revised.*

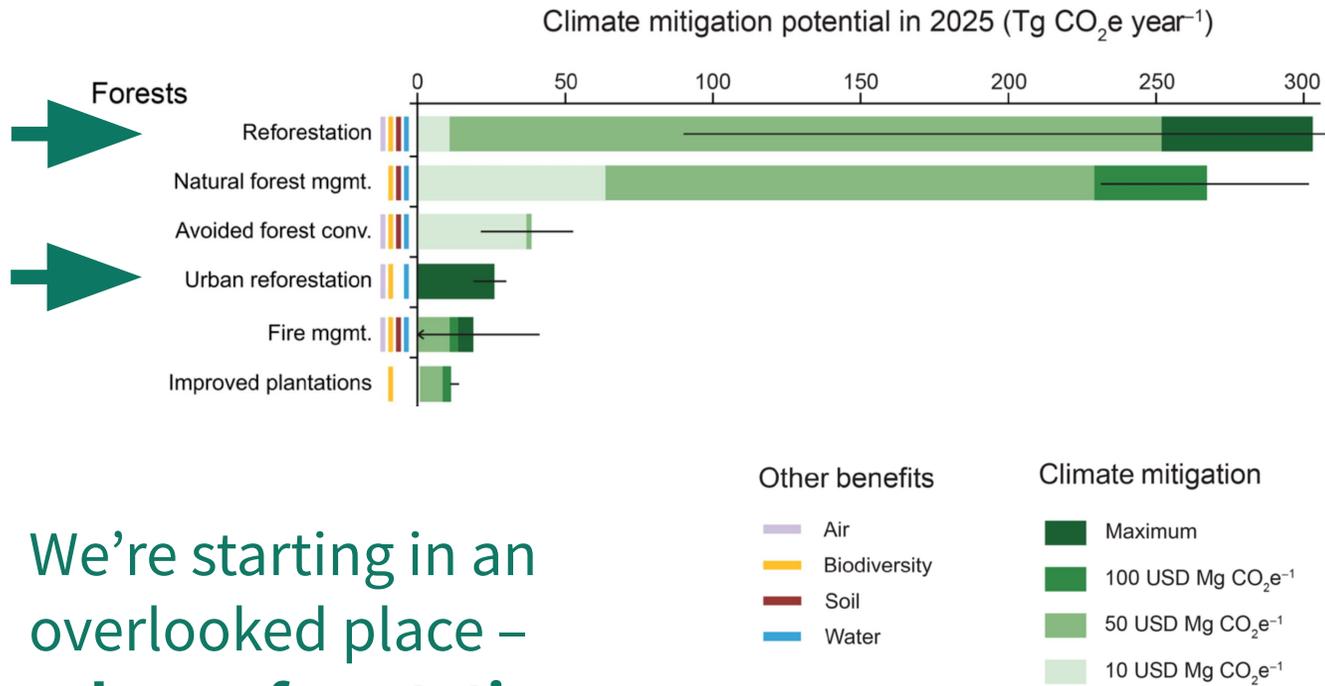
**Suggested Citation:** Mulligan, J., A. Rudee, K. Lebling, K. Levin, J. Anderson, and B. Christensen. 2020. "CarbonShot: Federal Policy Options for Carbon Removal in the United States" Working Paper. Washington, DC: World Resources Institute. Available online at [www.wri.org/publication/carbonshot-federal-policy-options-for-carbon-removal-in-the-united-states](http://www.wri.org/publication/carbonshot-federal-policy-options-for-carbon-removal-in-the-united-states).

### Background

**Avoiding the worst impacts of climate change will require not only steep reductions in emissions but also the removal of carbon dioxide (CO<sub>2</sub>)**

Report published in January by Ben (founder) and James Mulligan (advisor)  
In the news: Forbes, Bloomberg, Fast Company

# The opportunity:



We're starting in an overlooked place – **urban reforestation**



Managing and growing American forests have six different pathways

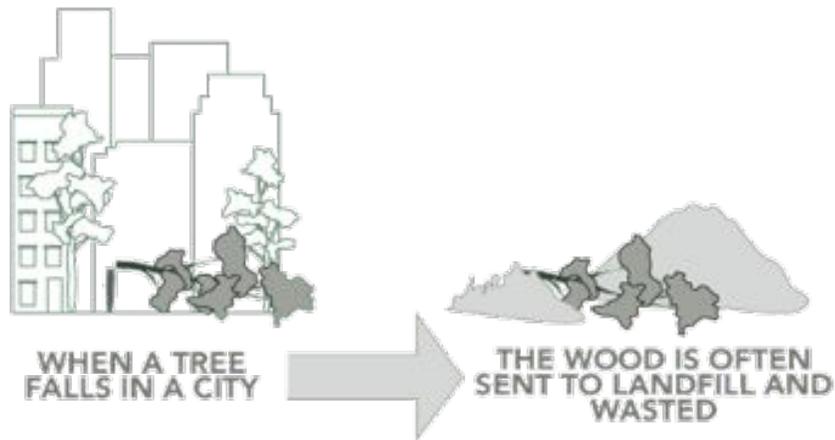


Co-benefits are high – particularly in urban areas



Upfront costs are a clear obstacle

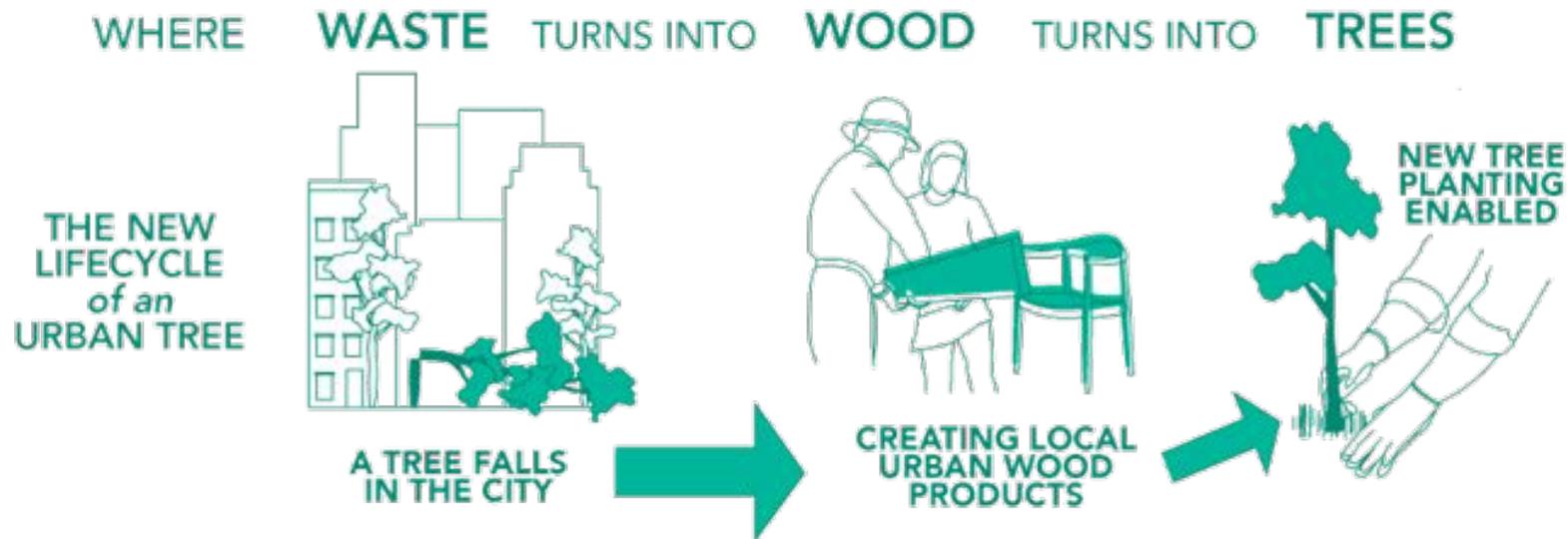
## THE CURRENT SYSTEM IS BROKEN



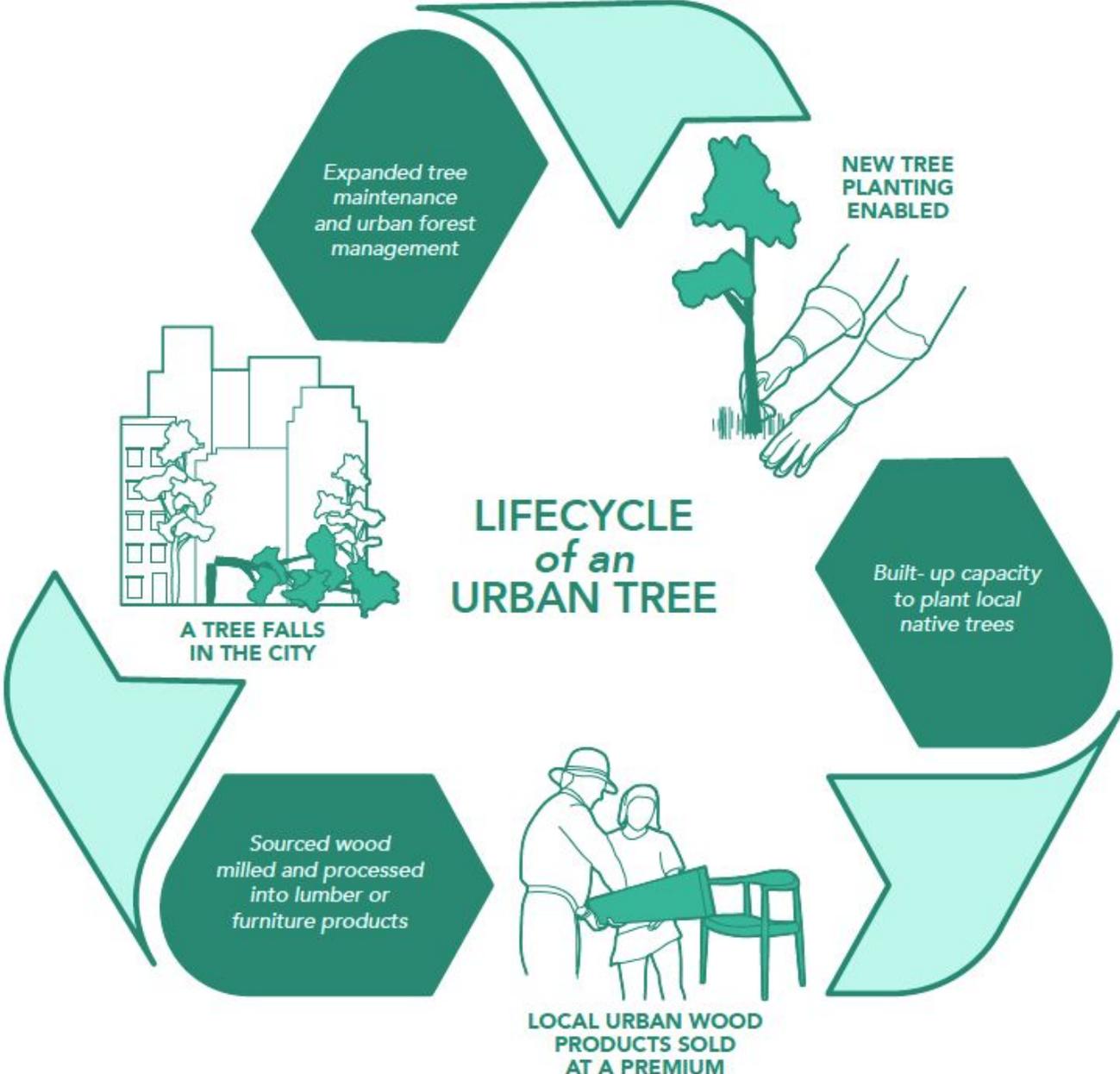
*US cities generate **46 million tons** of urban wood biomass each year*

*Cities spend an estimated **\$600 M** sending wood waste to landfill*

## CAMBIUM CARBON IS CREATING A NEW SYSTEM



# The Reforestation Hub Model



# Key Goals of a Reforestation Hub

- **Close the loop on urban wood waste**
  - Track material flows; divert wood from landfill
- **Harness the value of urban wood**
  - Process wood; connect products to the market
- **Catalyze new tree planting**
  - Ensure local nursery capacity; support underserved areas
- **Support local workforce development**
  - Create green jobs pathways

# Societal value of the opportunity

10-Year estimated benefits for one large metropolitan area:

## Environment

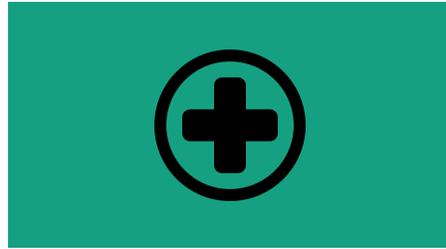


**90K** MT CO<sub>2</sub>e Reduction

**180K** Tons Landfill Waste Diverted

**1.3M** Trees Planted (Urban & Rural)

## Public Health



Air Pollution Sequestered

Reduced Urban Heat Island Effect

Green Spaces

## Economy

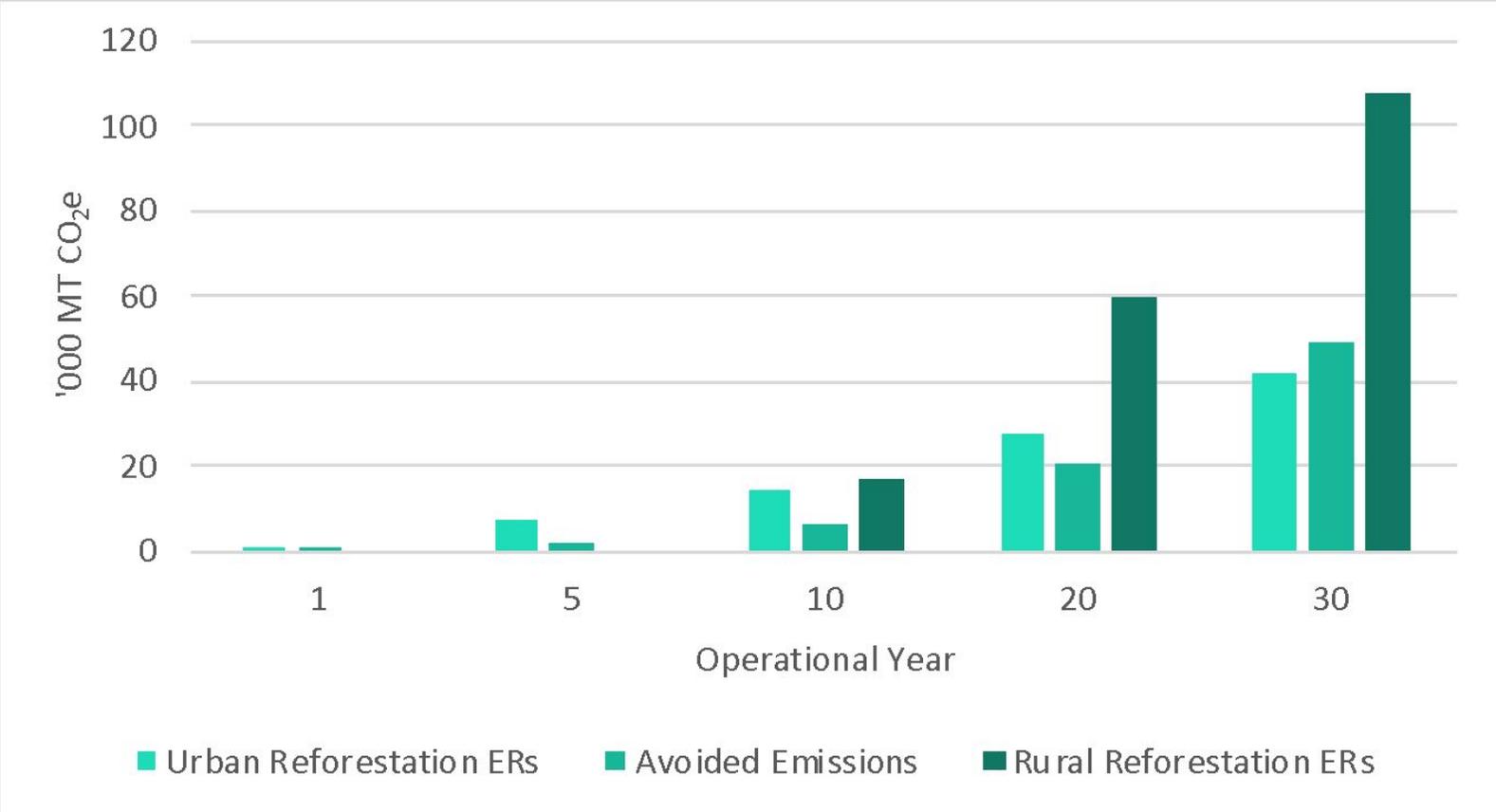


**\$20M** Local Economic Growth

**\$12M** Avoided Community Landfill Fees, Energy Costs

**45** Direct Jobs Created

# Estimated annual climate benefits of a single Reforestation Hub ('000 MT CO<sub>2</sub>e, Years 1-30)



# Case Study: Philadelphia

- **5,000 tons** of organic materials composted in 2019
- estimated **60,000 tons** of yard & wood waste landfilled in 2019
- **7.8%** of Philadelphia's total wood waste market captured
- **\$3.9M of landfill tipping fees** could be avoided if ORC takes 100% of projected wood waste



# Cambium Carbon: Where We Are



**City Outreach**  
on-the-ground  
engagement

**Select pilot cities** for  
Reforestation Hub  
needs assessment

**Conduct Analysis**  
identify opportunities  
and bottlenecks

**Pilot** tree planting and  
carbon projects  
**Develop** offtake markets

Fall 2020

Winter 2020/2021

Spring 2021



*Thank You*

