



# **Deconstruction and Building Materials Reuse - Innovations and Opportunities**

**U.S. EPA**

**Sustainable Materials Management Web Academy**

**April 19, 2018**

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# GREENLYNX DIVISIONS



## Deconstruction

Houses  
Commercial wood structures  
Remodels



## Reuse Store

Fixtures  
Cabinets  
Lumber



## Woodworks

Reclaimed wood tables  
Benches  
*Showroom open late April*

# Rapid Growth

- Deconstruction division began 2013 with 3 part time staff
- Completed over 50 residential deconstruction and commercial reuse logistics projects
- Reuse store opened August 2017 with 5 full time staff
- Woodworks in development adding 3 additional staff
- Projecting 30 staff by 2023 with new volume lumber division





"The Voice of the Reuse Community"

Revitalizing organization as a:

- Local network for distribution reclaimed, surplus, and durable used goods
- Incorporating reuse into Disaster Relief
- Research & advocacy for reuse industry innovation
- Reuse Business incubator/fiscal sponsorships
- Here to assist government agencies with access to our members

# Best Practices & Priorities for Decon

Deconstruction can be best utilized to preserve old growth wood that we will never see again, to save reusable materials for those less fortunate, and to save modern fir in large volumes to use in manufacturing homes and lumber products.

- 01 | Save furniture grade lumber**
- 02 | Save modern fir for manufacturing**
- 03 | Reclaim durable and historic**



# Barriers to Deconstruction & Reuse

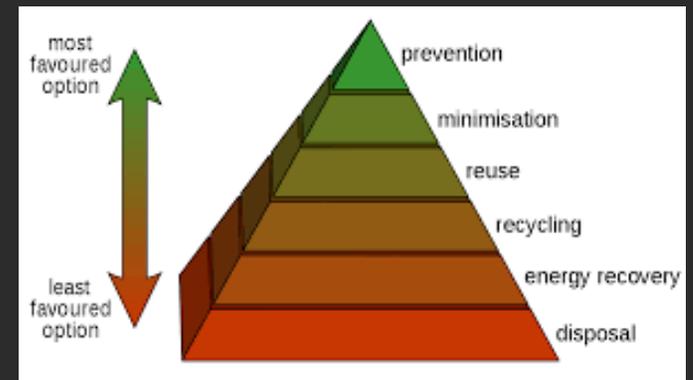
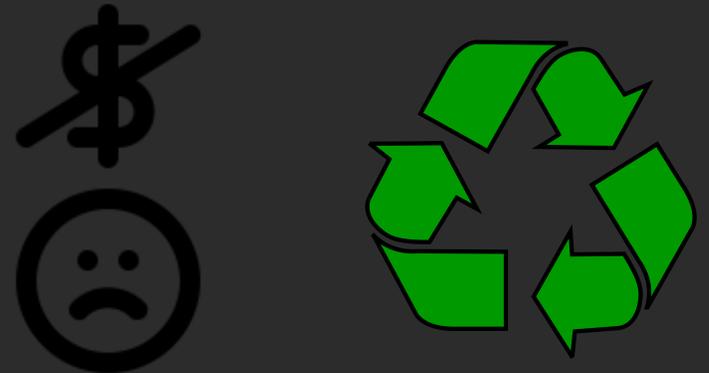
Deconstruction meets many barriers in the planning process for construction. In general, deconstruction takes 1 week per 1,000 sq ft for residential buildings vs. 1 hr of excavator time and 1-2 days of hauling.

**01 | Timing**

**02 | Ineffective waste ordinances**

**03 | No funding – no infrastructure**

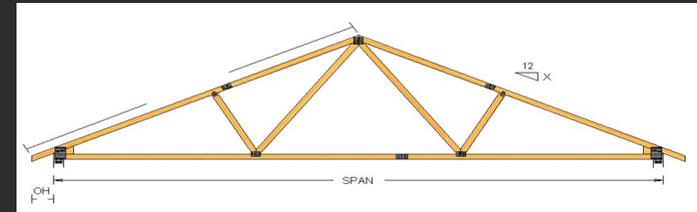
**04 | Lack of Data**



# Benefits of Deconstruction & Reuse

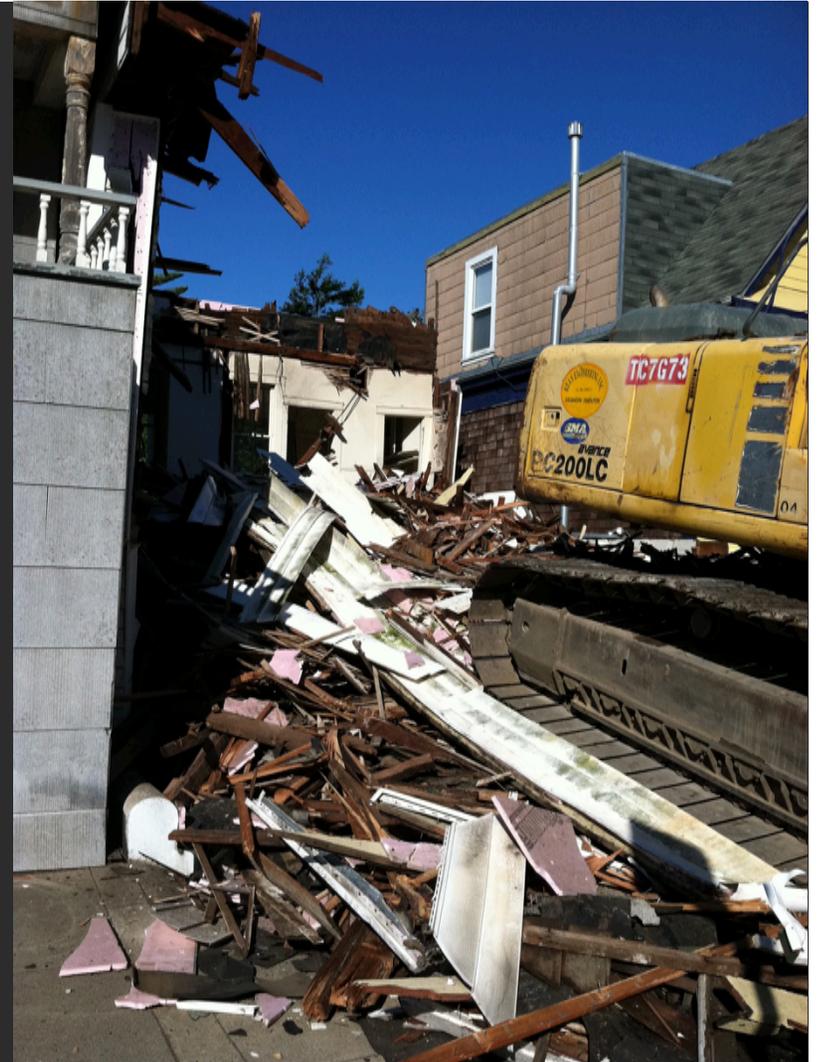
Deconstruction employs 4-5 more people per thousand square feet than demolition. Reuse employs 61 more people at 10,000 TPY than landfilling. Deconstruction and reuse build our local resiliency and ability to cope with natural disasters and changes in global trade.

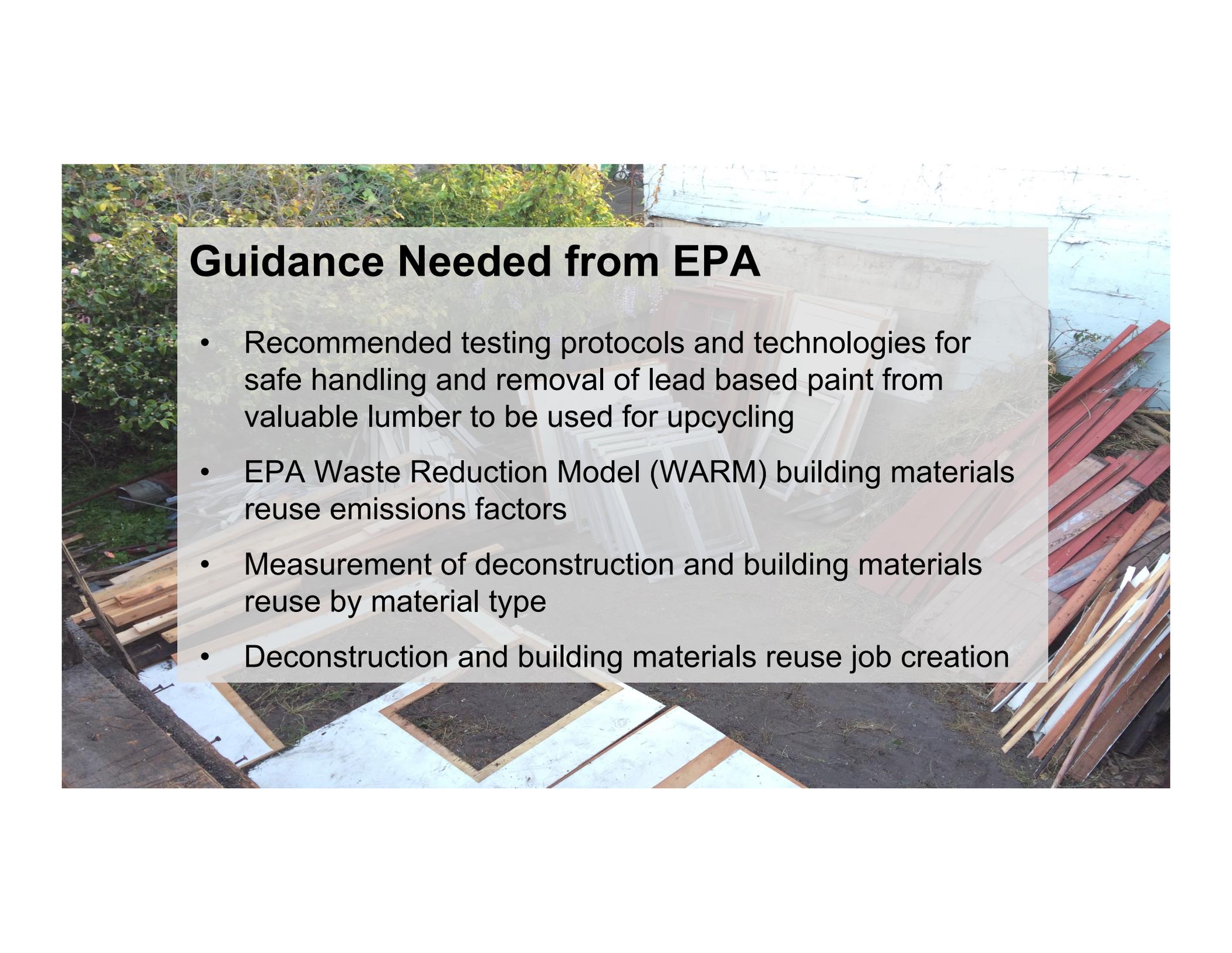
- 01 | Increased job creation**
- 02 | Carbon and Methane sequestration**
- 03 | Preserving historic**
- 04 | Toxic containment opportunity**



## Demolition Results:

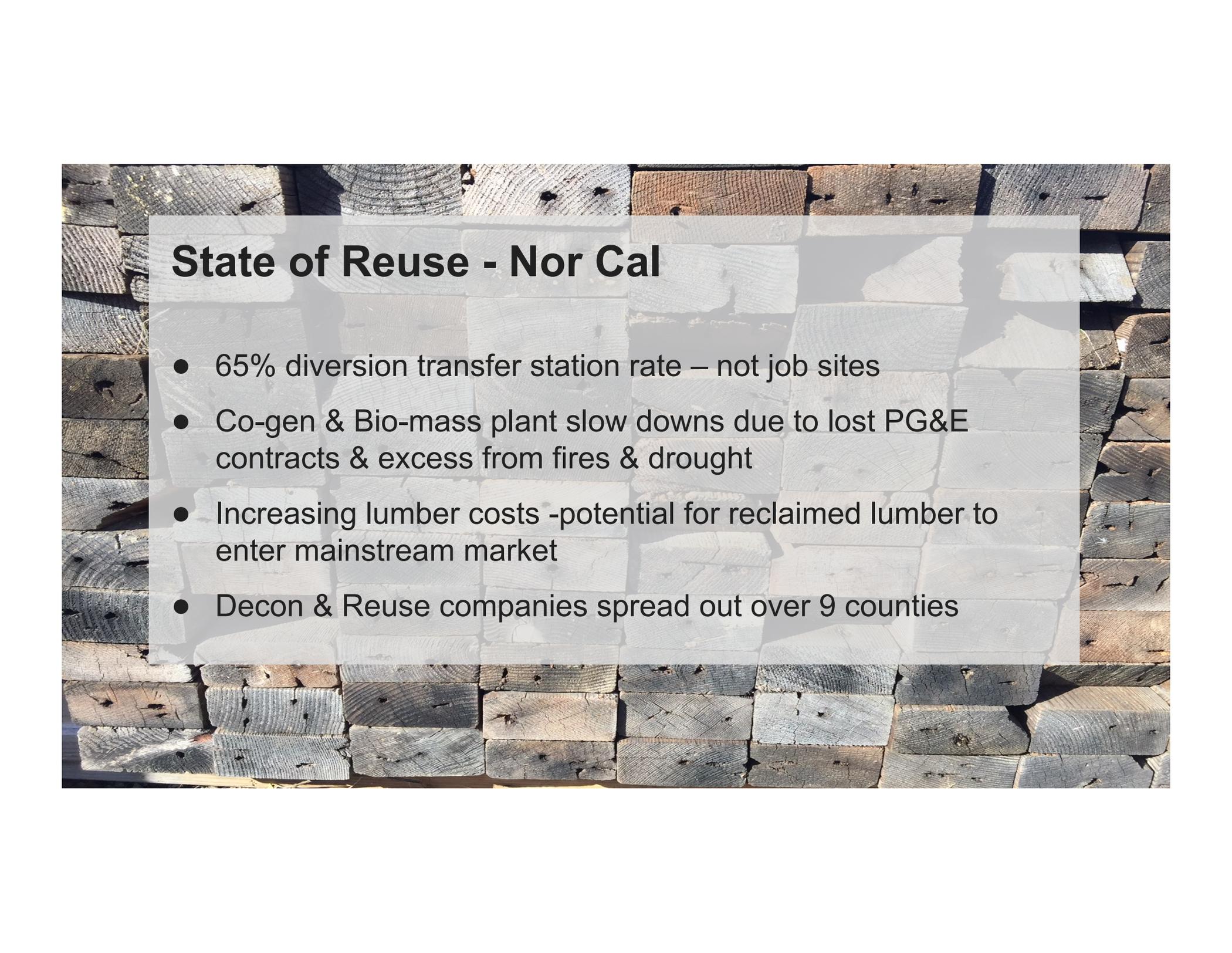
- Landfill or incineration of valuable/ historic wood
- Lead contamination in all container loads
- Lead-dust fall
- Reuse not possible
- Detroit halts demolition 2018



The background image shows a deconstruction site. In the foreground, there are several wooden window frames and door frames lying on a dark, possibly asphalt, surface. To the right, there is a large pile of red-painted wooden planks and other debris. In the background, there is a building with white siding and a window. The scene is outdoors, with some green foliage visible on the left side. A semi-transparent grey text box is overlaid on the center of the image, containing the title and a list of bullet points.

## Guidance Needed from EPA

- Recommended testing protocols and technologies for safe handling and removal of lead based paint from valuable lumber to be used for upcycling
- EPA Waste Reduction Model (WARM) building materials reuse emissions factors
- Measurement of deconstruction and building materials reuse by material type
- Deconstruction and building materials reuse job creation

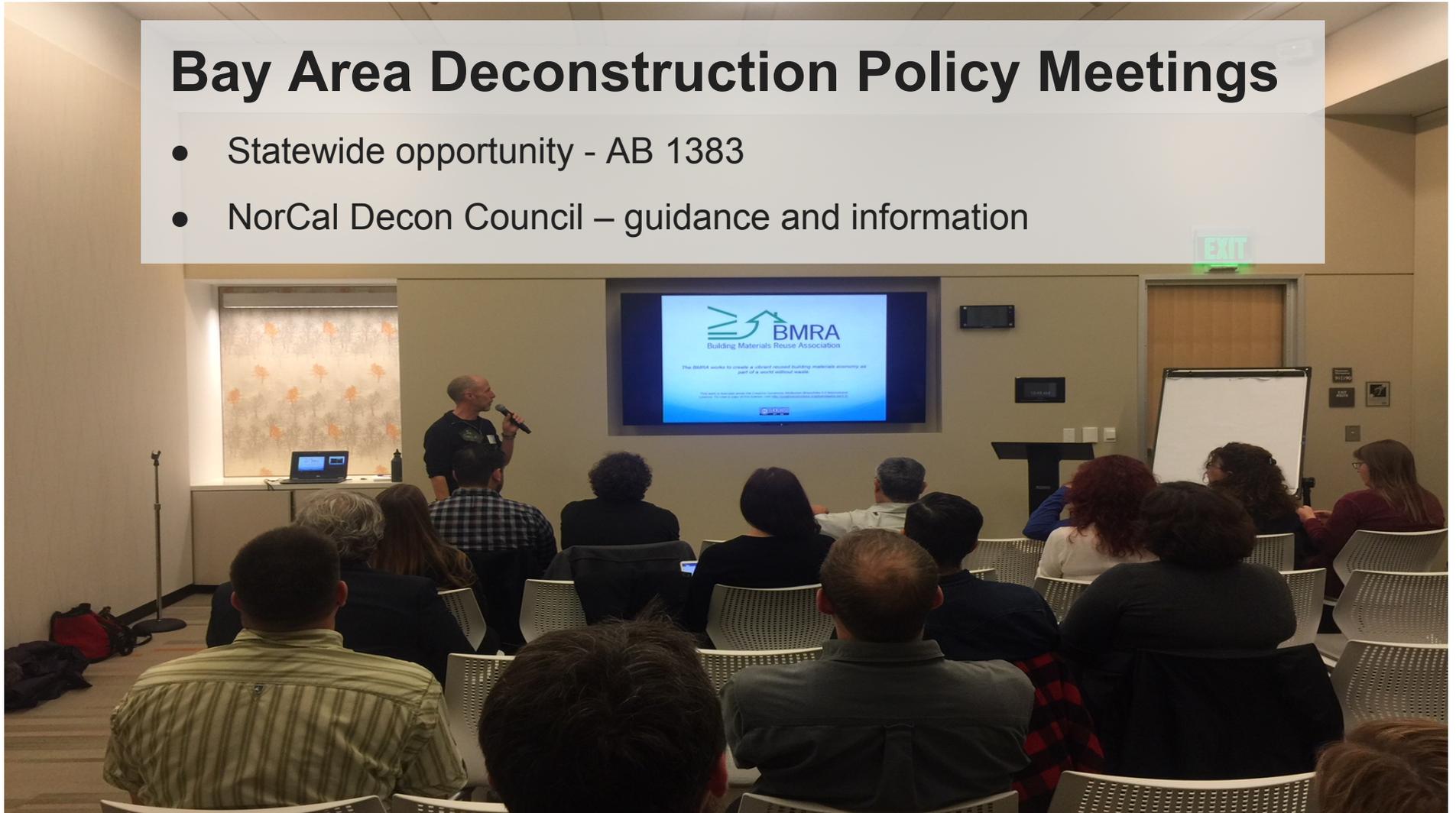


## State of Reuse - Nor Cal

- 65% diversion transfer station rate – not job sites
- Co-gen & Bio-mass plant slow downs due to lost PG&E contracts & excess from fires & drought
- Increasing lumber costs -potential for reclaimed lumber to enter mainstream market
- Decon & Reuse companies spread out over 9 counties

# Bay Area Deconstruction Policy Meetings

- Statewide opportunity - AB 1383
- NorCal Decon Council – guidance and information





# Deconstruction Policy Opportunities

- **Mandatory Deconstruction Policy**
  - **Whole Home** – Portland Model
  - **Renovations** – Could limit by:
    - Size - square footage
    - Dollar value of renovation (for example - over \$100,000)
    - Age of home – Newer and/or pre-1940s to recover higher value materials
    - Sale Date - Homes recently sold within 2-5 years – more likely to have speculative renovation
  - **Deconstruction Audit/Appraisal and Plan Submission**
- **Salvage Requirements** – Specific salvage percentages or dollar value of materials recovered



## Deconstruction Policies – Time

**General Guideline** - *Deconstruction takes about 1 week per 1,000 sq. ft.*

- **Fast-Track Deconstruction Permits**

- Fast track projects that agree to deconstruction over demolition when a project will be under review for 4-6 months or more - exceptions for historic buildings and projects not approved, etc.
- Provide additional time allowance for deconstruction based on square footage to incentivize contractors and owners



# DEMOLITION DEBRIS RECOVERY PLAN

DDRP # \_\_\_\_\_



## Deconstruction Policy Opportunities

Environment Code Chapter 14; Ordinance No. 27-06; SFE Regulations 06-05-CDO

### • Building Codes

- Design/Install for Reuse Deconstruction Requirements
- Deconstruction requirements (percentage diversion – could target certain building types/construction dates, etc.)
- Allow reuse of undamaged used structural lumber – Oregon Building Code Model

### • Consistent Reporting Forms –

Different local government reporting requirements are a barrier to deconstruction in metro-areas. Requirement from different departments (Environmental, Public Works, Building, etc.) & agencies.

### • Space –

Require Transfer Station or other space for building materials diversion/off-site de-nailing

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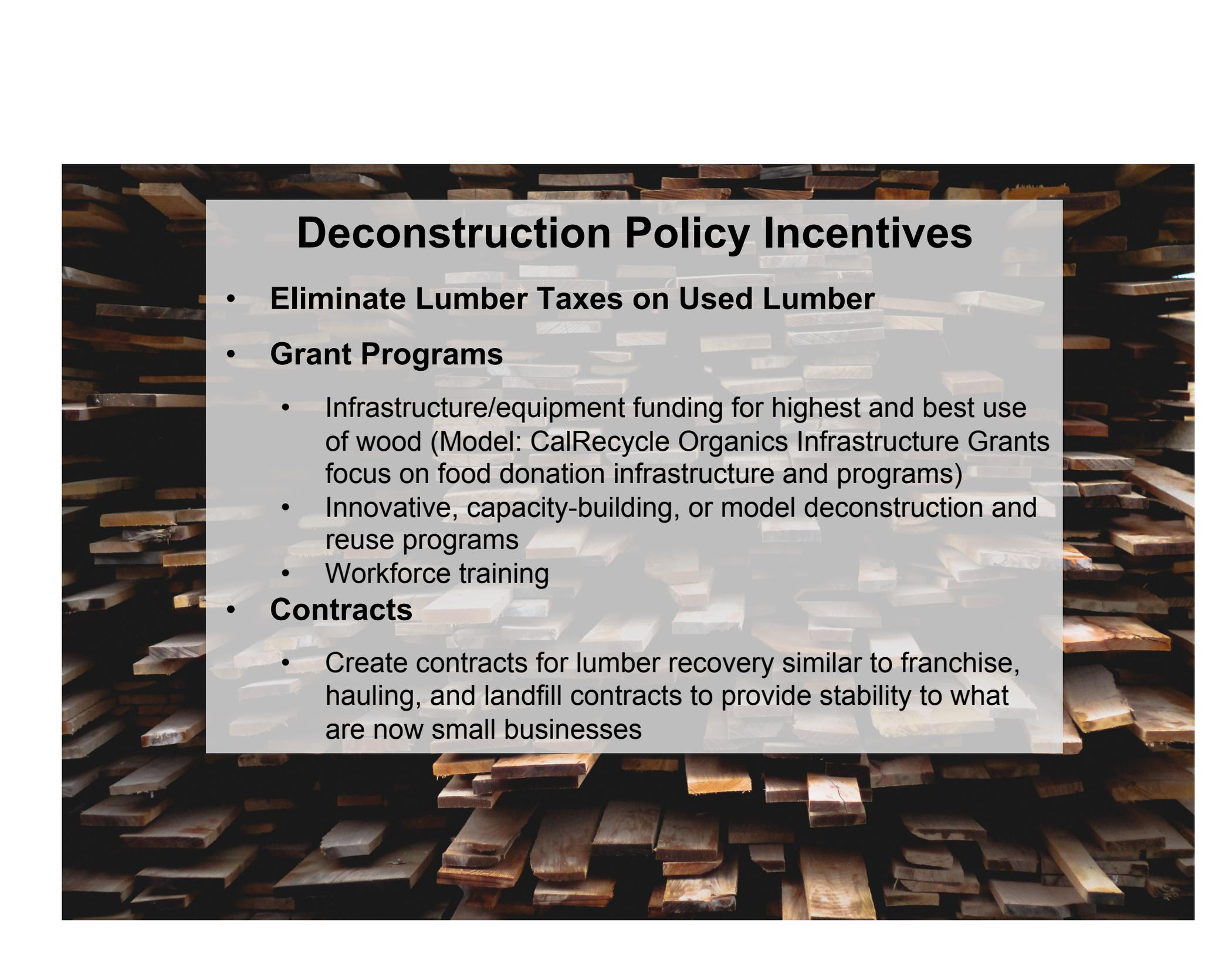
Demolition Permit Applicant Address \_\_\_\_\_

No

mit.

Project Block/Lot#

Phone (\_\_\_\_) \_\_\_\_\_



# Deconstruction Policy Incentives

- **Eliminate Lumber Taxes on Used Lumber**
- **Grant Programs**
  - Infrastructure/equipment funding for highest and best use of wood (Model: CalRecycle Organics Infrastructure Grants focus on food donation infrastructure and programs)
  - Innovative, capacity-building, or model deconstruction and reuse programs
    - Workforce training
- **Contracts**
  - Create contracts for lumber recovery similar to franchise, hauling, and landfill contracts to provide stability to what are now small businesses

The background of the slide features a scenic view of the Golden Gate Bridge in San Francisco, California. The bridge's iconic towers and suspension cables are visible against a clear blue sky. In the foreground, a sandy beach stretches across the bottom, with gentle waves lapping at the shore. The overall atmosphere is bright and clear.

# Deconstruction Policy Synergies

- **Recycling, Zero Waste, or Solid Waste Diversion -** Policies or Requirements
- **Asbestos** – Require early project Asbestos Permits, Surveys, and removal if necessary to allow safe, timely deconstruction
- **Air Regulations and Inspections** – Deconstruction generates less dust and uses less heavy diesel equipment than demolition
- **Greenhouse Gas Emissions Policies** – Deconstruction keeps wood out of landfills and reduces methane emissions
- **Economic Development & Job Creation**

# Reuse Store

Appliances  
Cabinets  
Doors  
Light Fixtures  
Plumbing Fixtures  
Windows  
&  
Lumber



# Reclaimed Lumber Yard





Reclaimed Wood



Reclaimed Wood

# Deconstruction



# Deconstruction



# Deconstruction



Deconstruction



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# Custom Woodworks





## Deconstruction Results

## Resources

- *Changes to Lead Concentration In Air and Soil During House Deconstruction and Demolition: Case Study*  
Springwells, Detroit, Michigan  
[https://digitalcommons.wayne.edu/oa\\_theses/337/](https://digitalcommons.wayne.edu/oa_theses/337/)
- “Detroit to halt some demolitions over lead concerns”  
Detroit News March 20, 2018
- <https://bmra.org/library/>
- <https://ilsr.org/recycling-means-business/>

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