



## Deconstruction in Portland, OR: Part II

PNREC 2018

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## Report I (2016): Estimate of Deconstruction Requirement Impacts

### Motivation:

- Portland's real estate market: *Yikes!*
- Development pressures throughout the metro area
- Sharp increase in residential demolitions
- City of Portland Bureau of Planning and Sustainability (BPS) deconstruction requirement, October 2016
  - Applies to all residential buildings constructed prior to 1916, and residential buildings designated as historic.

## Context – Residential demolitions in Portland

### Benefits:

- Quick (2-3 days)
- Easy
- Inexpensive (< \$8/ft<sup>2</sup>)

### Costs:

- C&D waste  
*(42 Tons/project)*
- Hazardous material exposure  
*(80-90% of homes)*
- Site impact
- Water, carbon impacts
- Waste of “embodied energy” in building materials

## Context – Residential *deconstruction* in Portland

### Costs:

- Longer project time
- Labor-intensive
- More expensive

### Benefits:

- Diverts up to 90% of waste
- Lower hazardous material exposure
- Smaller site impact
- Preserves “embodied energy” in building materials

## Context – Residential *deconstruction* in Portland

### Costs:

- Longer project time
- Labor-intensive
- More expensive



*How much more?*

### Benefits:

- Diverts up to 90% of waste
- Lower hazardous material exposure
- Smaller site impact
- Preserves “embodied energy” in building materials



*How valuable?*

## Key result: demolition vs. deconstruction costs

*Average: 1400 ft<sup>2</sup> Single-family home*

	Demolition	Deconstruction
Project time	2 business days	10-15 business days
Crew size	2-3	6-8
Total labor hours	32-48	480-960
Cost of structure removal	\$10,300	\$14,000
Cost/ft <sup>2</sup>	\$7.40	\$10
Additional cost of foundation removal	\$0	\$4,800
<b>Total gross costs</b>	<b>\$10,300</b>	<b>\$18,800</b>

## Key result: demolition vs. deconstruction costs

	Demolition	Deconstruction
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**Salvage revenue:**  
\$0

**Salvage revenue:**  
\$5,000 - \$10,000

## Labor share of costs

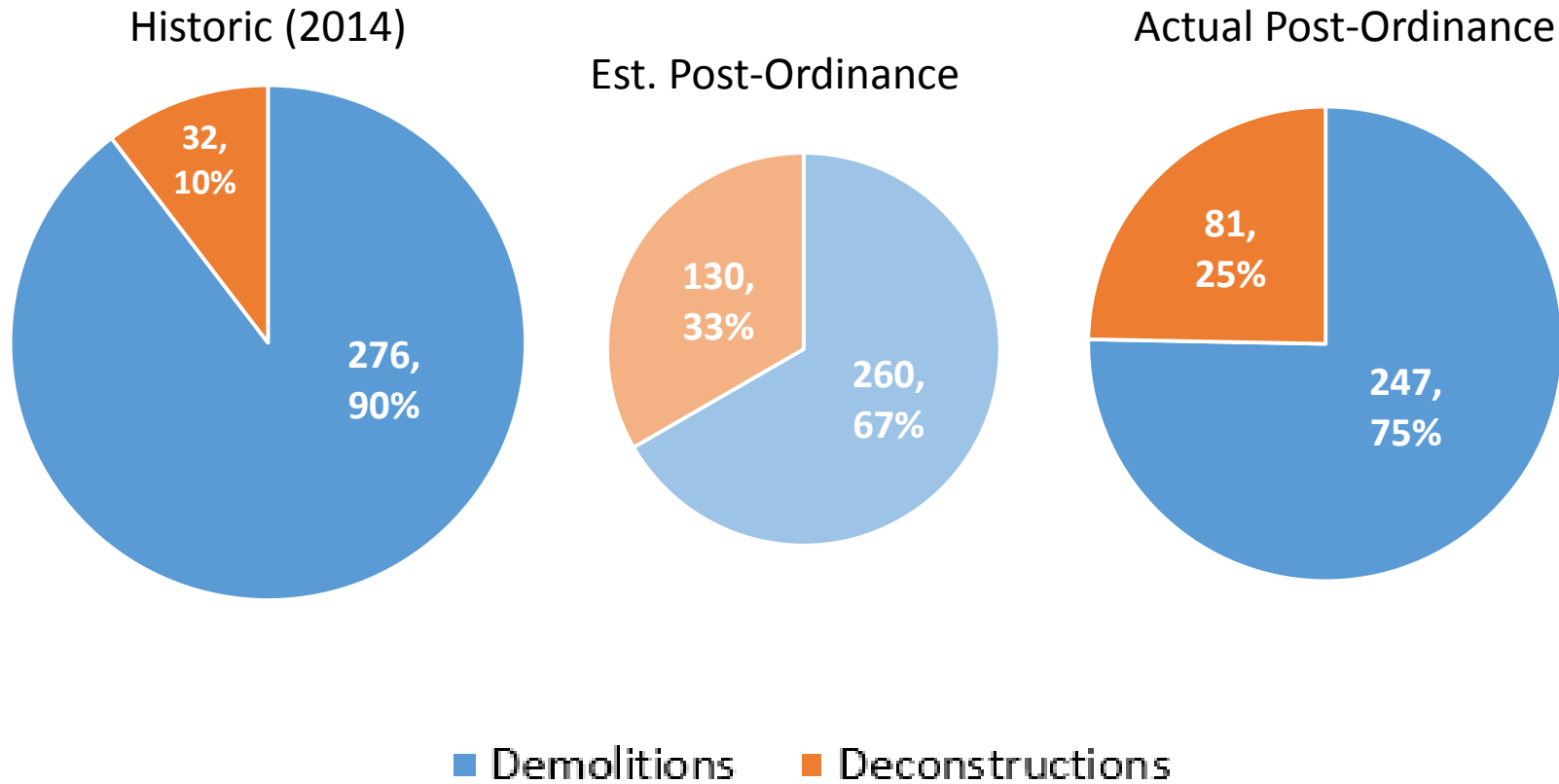
- Demolition: **30%** of project costs attributable to labor
- Deconstruction: **60-80%** of project costs attributable to labor



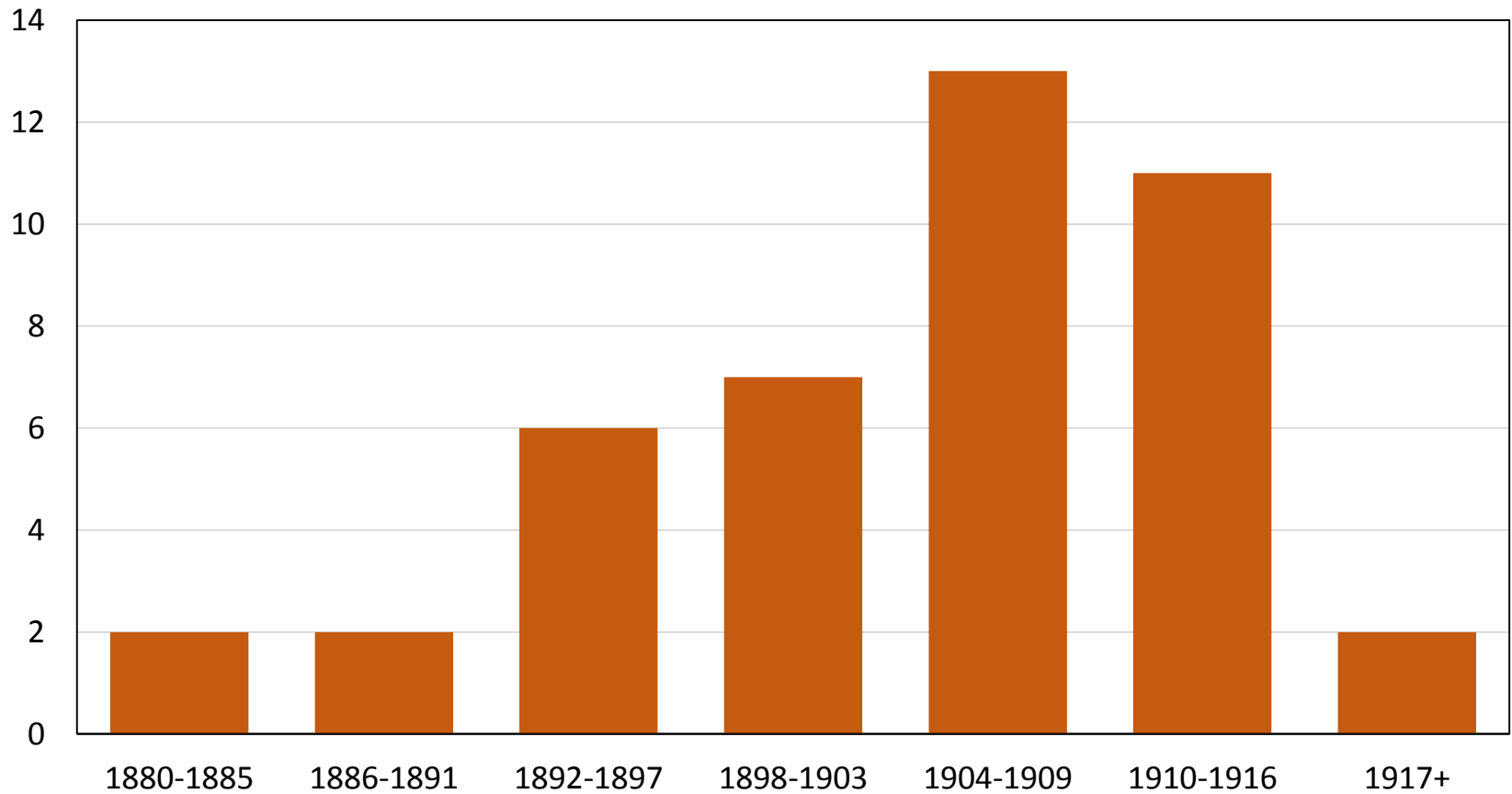
## Report II:

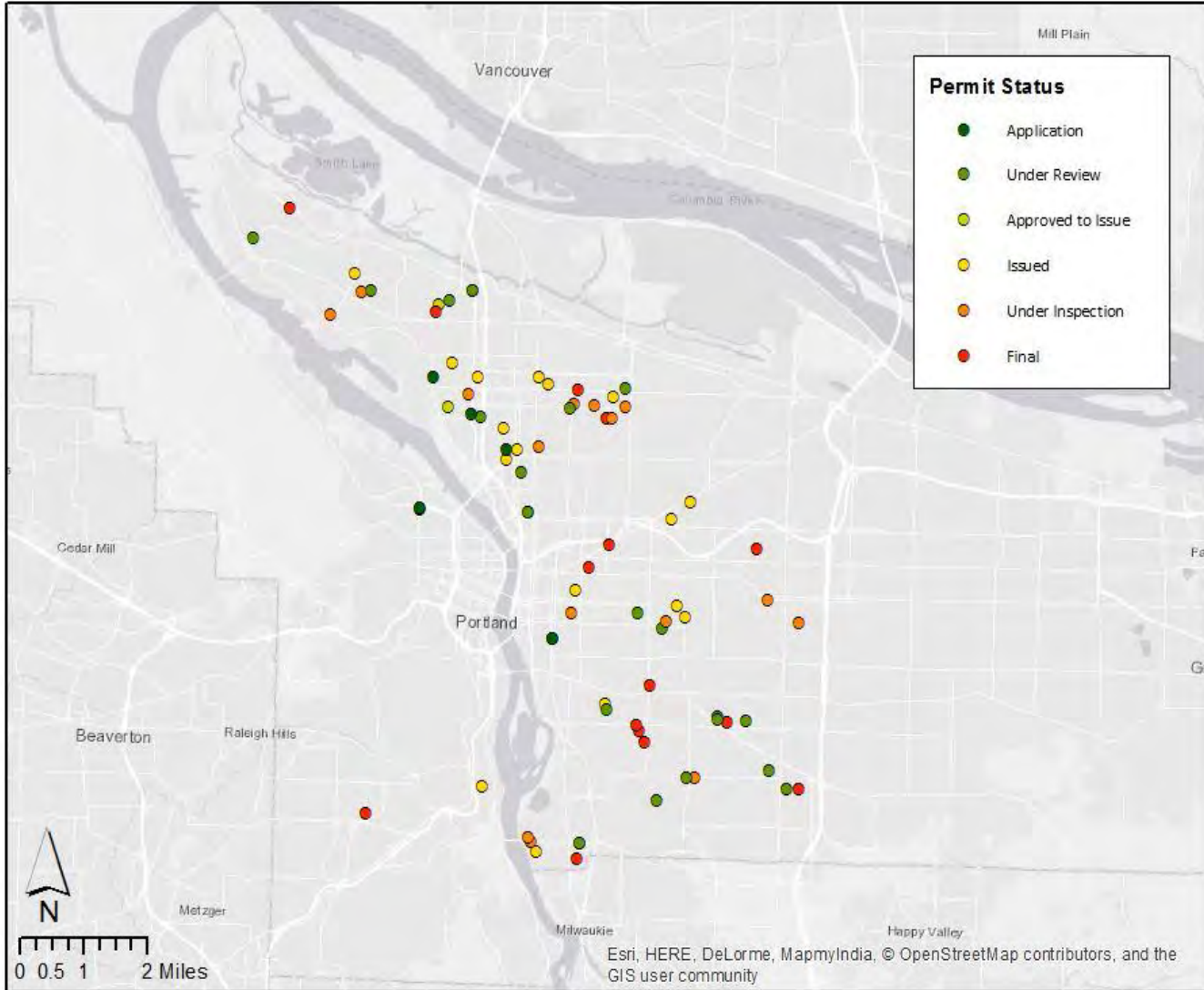
- Two parts:
  - Analysis of permit data
  - Market attributes
- Data:
  - BPS permit records
  - Interviews with deconstruction contractors

## Demolition and Deconstruction Permits: Oct. 2016-Oct. 2017

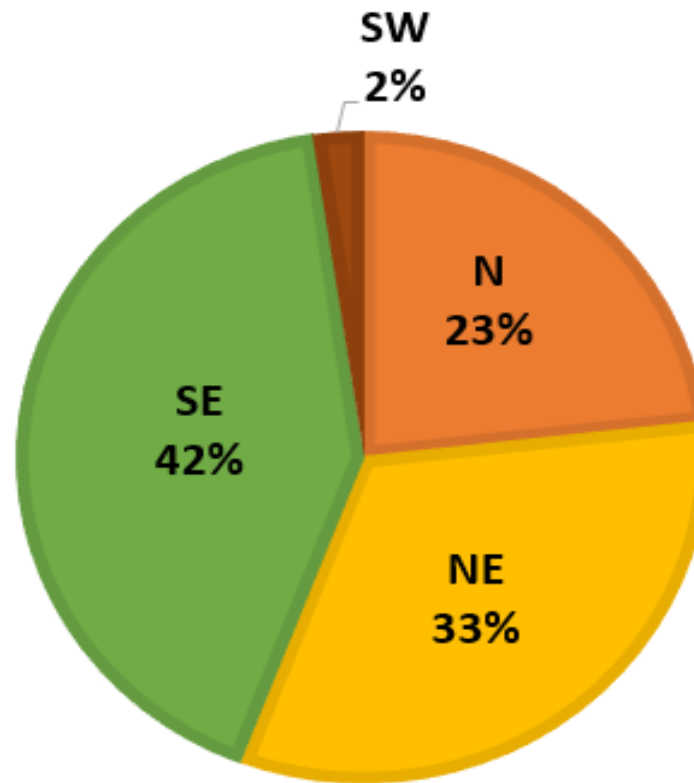


## Deconstruction Permits by Year Built





## Issued Deconstruction Permits by Area



## The Contractors

- Four contractors are active (out of 11 interviewed)
- $\geq 6$  deconstructions 10/2016 – 9/2017
- ~80% of issued permits.

## The Labor Force

- Approximately ~20 FTE positions (rough estimate), distributed among 33 workers in total.
  - New and supported.
  - 14 new hires since 10/2016.
  - Firms estimate ~13 hires in the next 6 months.
  - Wages range from \$12-\$40 an hour, with a likely median of \$15
- New data became available after the close of the project, indicating that labor hours may be lower than estimated.
  - Deconstruction grant program, Sept 2015 – Aug 2017
  - Labor hours for 20 projects: Average of 353.5 hours.
  - This would bring supported FTE down to 2-11 FTE positions.
  - We believe that this is too low, and there are other aspects to employment hours that are not captured.

## Contractor Challenges

- Availability of experienced labor
  - Importance of efficiency, due to high labor costs
  - Oregon construction labor shortage (OED)
- Salvage resale issues: space, time, processing, etc.
  - Possibility of “glut.”
  - Need for better sales channels and streamlined process for consumers.
- Bidding appropriately
  - The learning curve is real, and there is considerable uncertainty.



## Recommendations for the Future

- Expanding the Deconstruction Requirement
  - Should the cutoff be moved up to 1926?
  - Contractors have mixed views, that can be best summarized as “not yet.”
  - Need for careful consideration of timing with regard to labor availability, salvage market development, and new demo practices being considered by the City.
- Addressing Labor Constraints
  - All individuals who participated in the previous training session were hired, and the active firms stated that they would like to hire 13 more trained workers (in aggregate) over the next several months.
  - All firms were in favor of more training.

## Recommendations for the Future (continued)

- Sustainable Salvage Markets

- This is most significant area for improvement.
- It is very important that this program contain its own costs, and this is the only way to ensure that.
- At the time of writing, it is unclear whether or not there is a current market surplus (1/3 of permits applied for have not even been issued).
  - Sources indicated that the surplus would be manifesting in the spring of 2018.
- There is a desire for a centralized salvage process and sale facility, which would appeal to both buyers and sellers of salvage.
- Alternatively, introducing locally-salvaged lumber to lumber outlets like Lowe's and Home Depot could expand the market.

Thank you.

Questions?