



Life-cycle Greenhouse Gas (GHG) Analysis

looking beyond the boundaries of your control

2011 TRB Waste Management and Resource Efficiency Workshop

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overview

- introduction to Good Company
- West Linn Solar Highway
- North Vancouver Avenue Bridge
- Q & A



our firm, **Good Company**

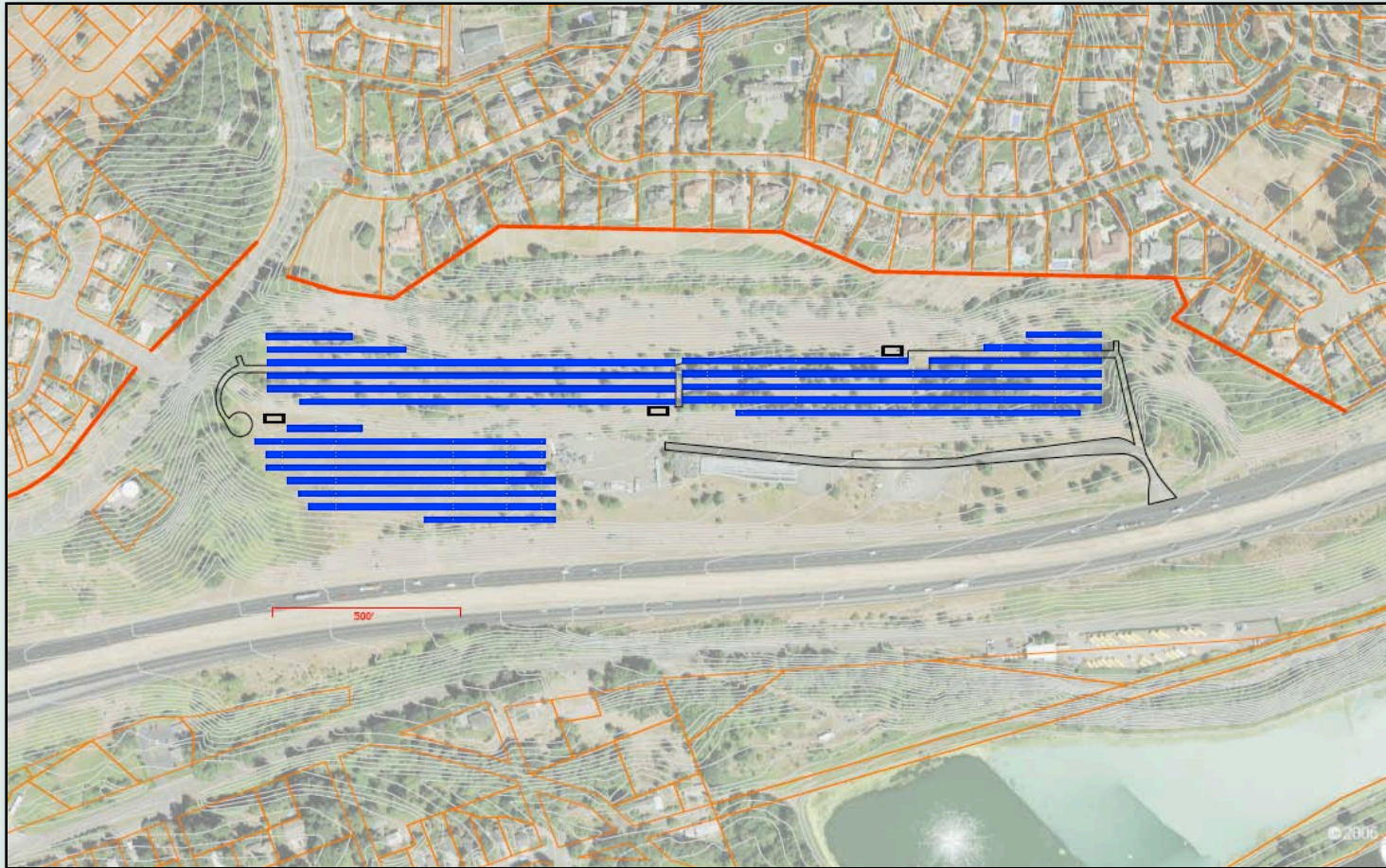
- sustainability research and consulting firm
- 10 years in business
- 75+ clients in 10 states, Canada and Mexico
- mission-driven, for-profit
- industries: civil infrastructure, renewable energy, water, food, transportation, waste management, clean technology



selected clients



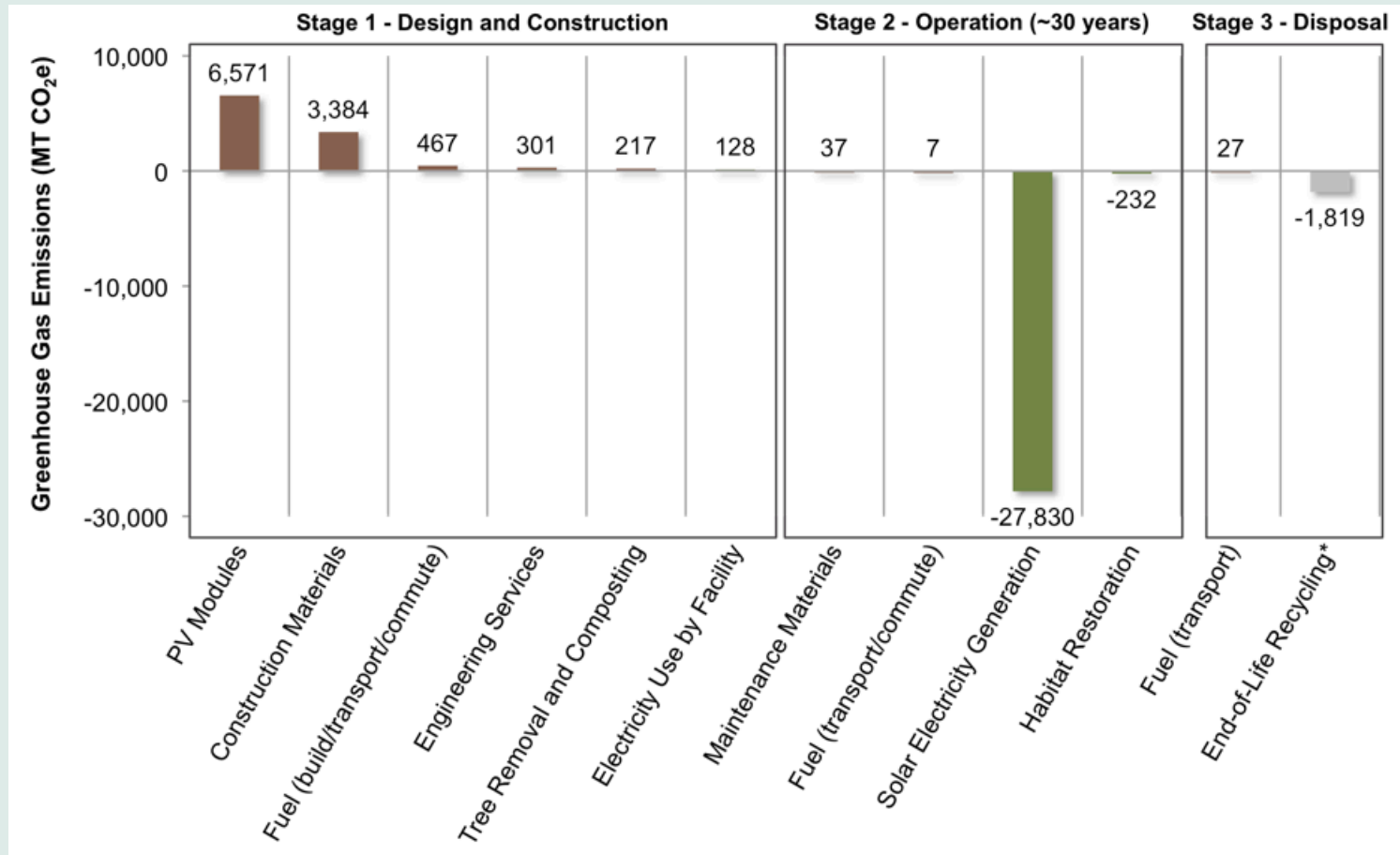
Solar Highway





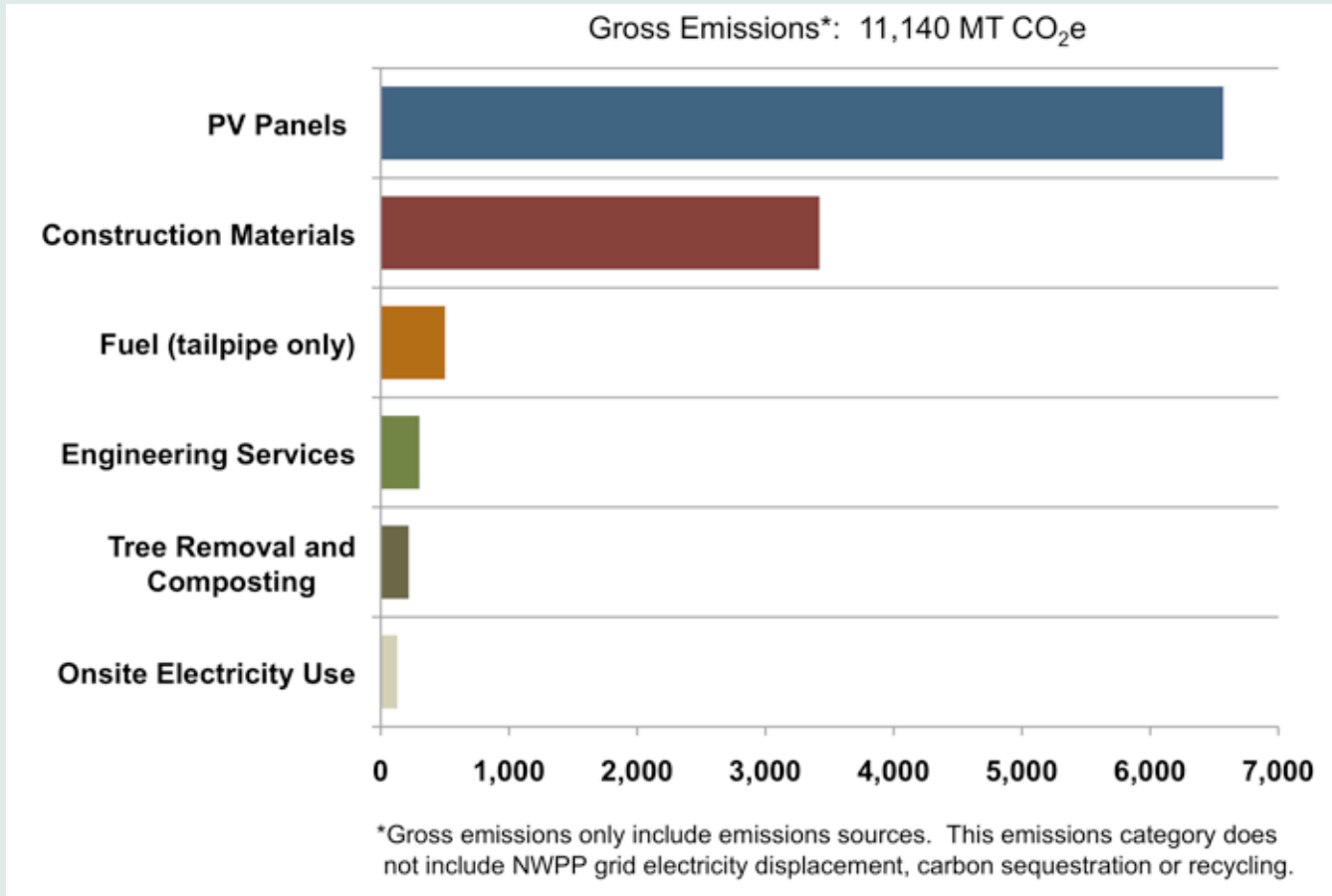
proposed West Linn facility

overview

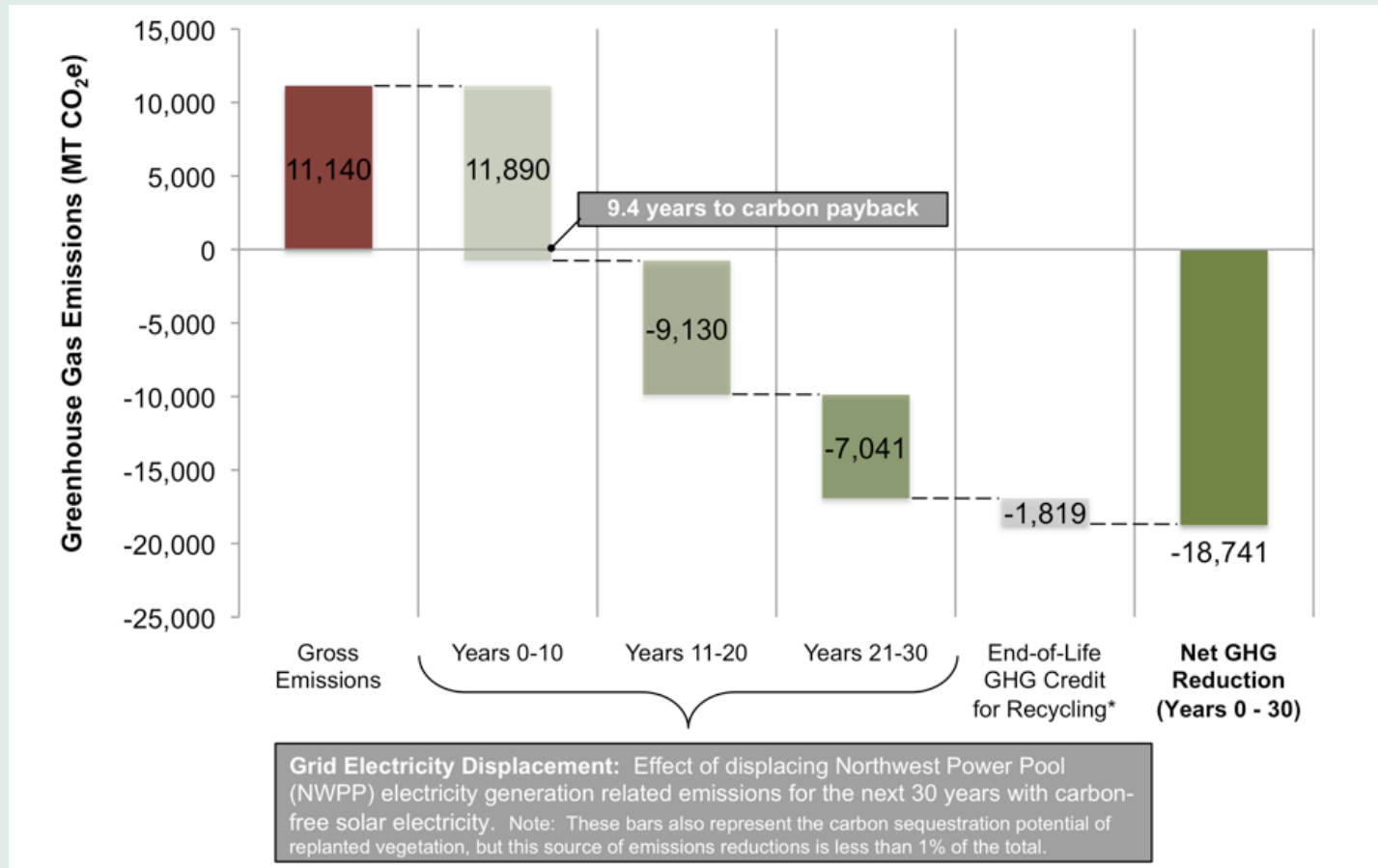




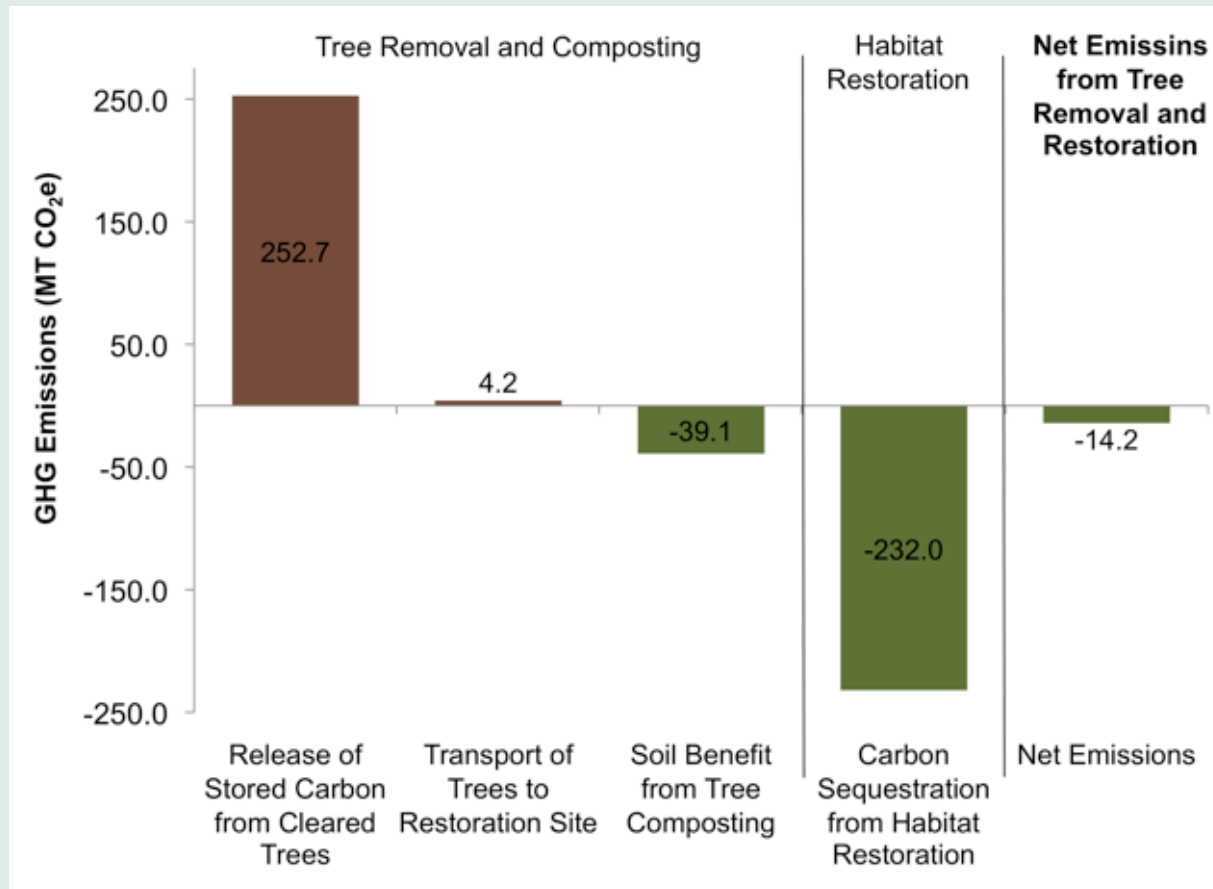
gross project emissions sources



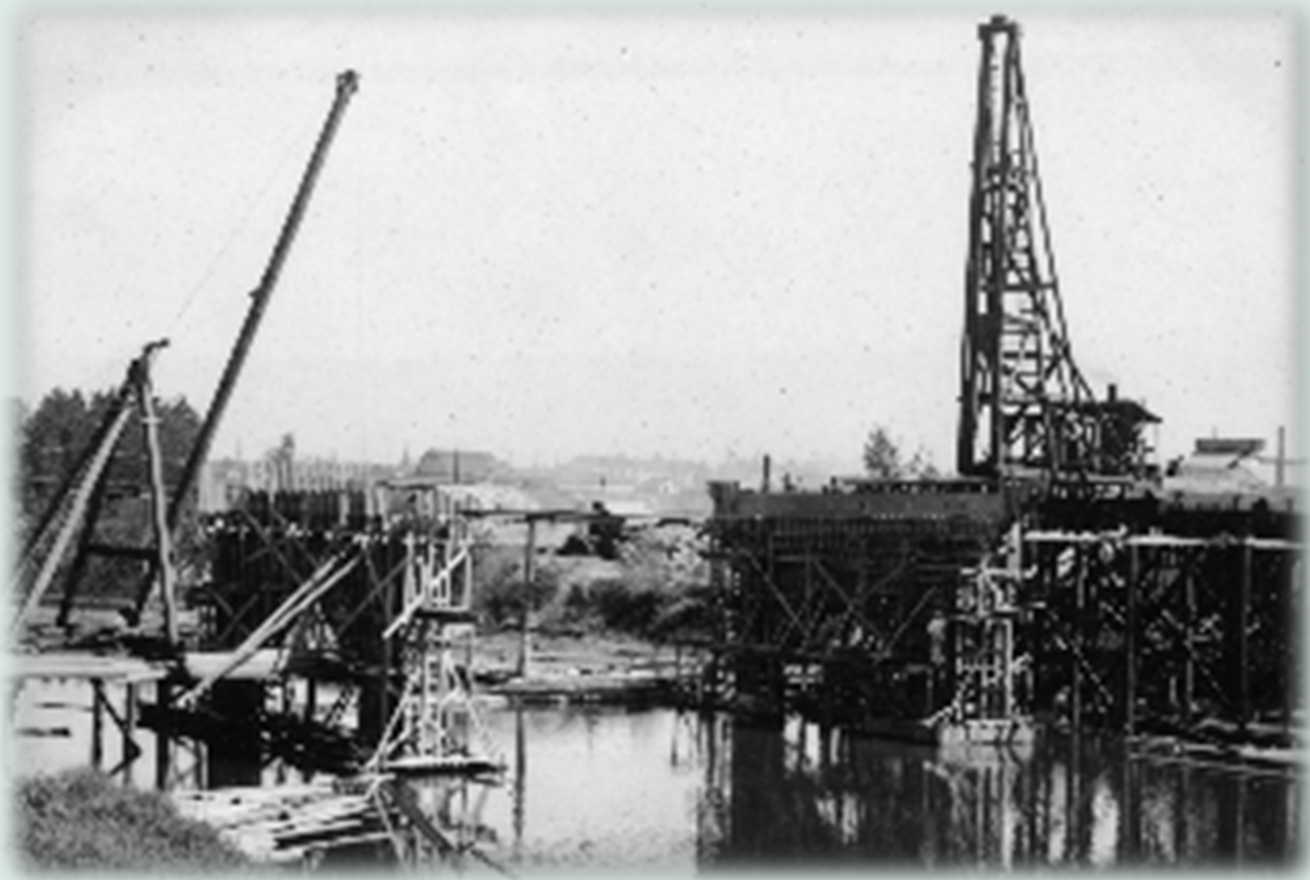
emissions reductions



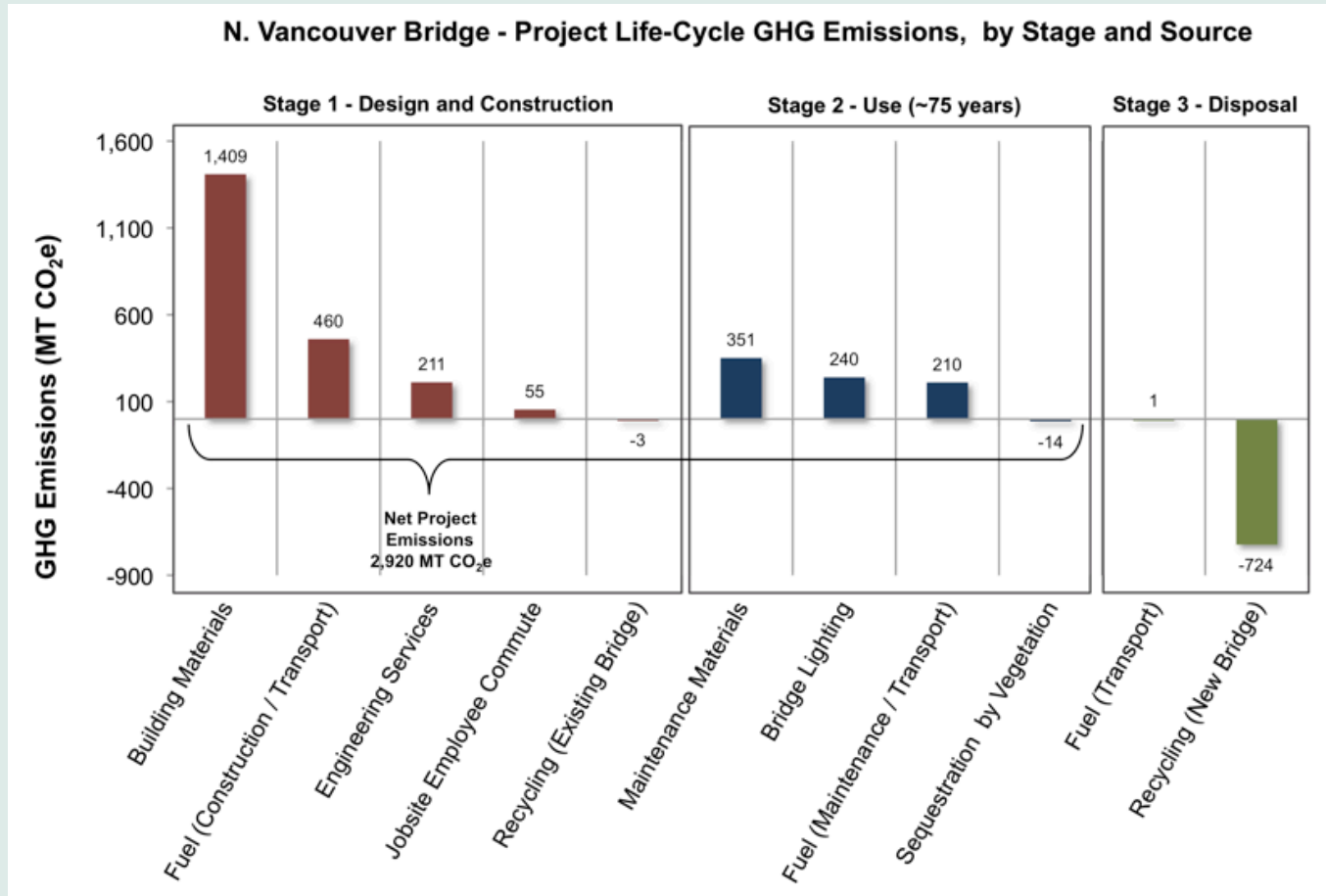
carbon implications of tree removal



North Vancouver Avenue Bridge



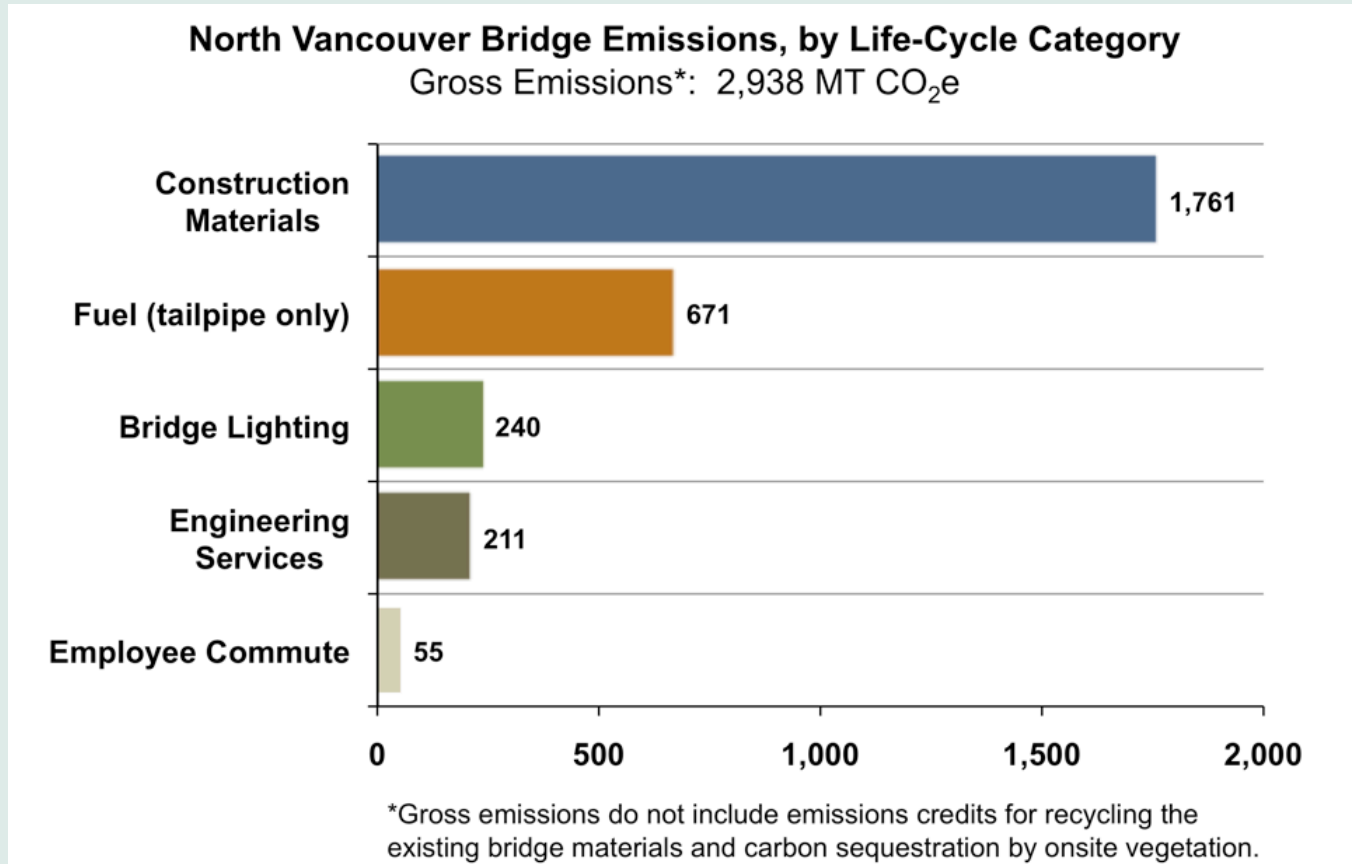
overview



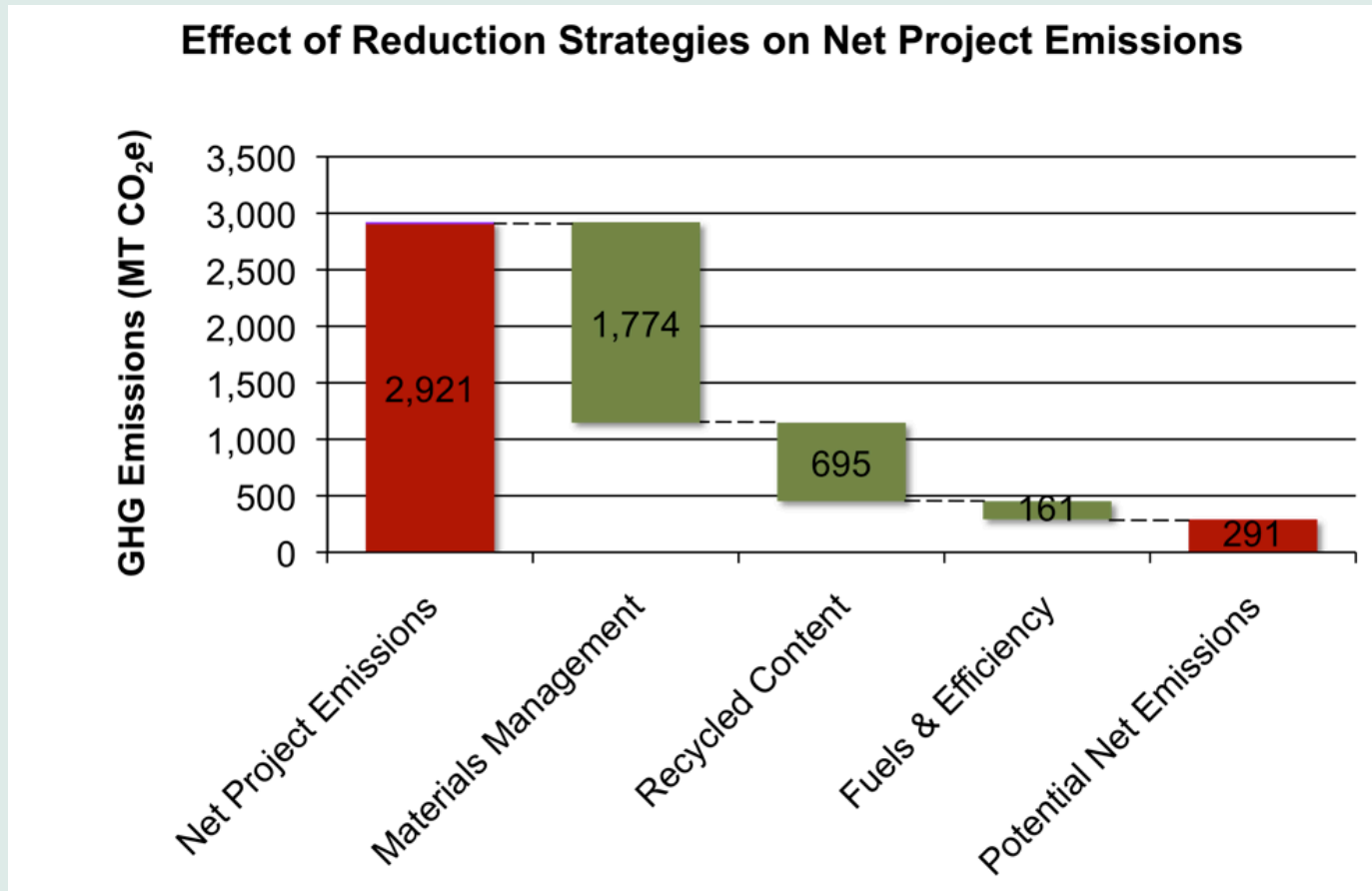


North Vancouver Bridge replacement

gross emissions



effort of reduction on gross emissions





emissions reduction strategies

Emissions Reduction Strategies	Maximum Potential Reductions MT CO ₂ e
1. Deconstructed Materials Management	-1,774
a. Existing Bridge	
<i>i. Wood</i>	-1,031
<i>ii. Steel</i>	-11
<i>iii. Concrete</i>	-8
b. New Bridge (~75 years from now)	
<i>i. Steel</i>	-628
<i>ii. Concrete</i>	-96
2. Increase Recycled Content	-695
a. Concrete - Fly Ash Substitution	
<i>i. Deck Concrete</i>	-657
<i>ii. Pre-Cast Beams</i>	-30
a. Steel	
<i>i. Pedestrian Railing</i>	-8
3. Low-Carbon Fuels and Fuel Efficiency	-161
a. Low-Carbon Fuels	
<i>i. B20 in Construction Equipment</i>	-122
b. Fuel Efficiency	
<i>i. Anti-Idling Policy</i>	-17
<i>ii. Equipment Efficiency</i>	-22
MAXIMUM POTENTIAL REDUCTION:	-2,630

overall takeaways

- materials: the big story
 - embodied emissions; also life-cycle emissions
 - metals and concrete/cement have high carbon intensities and are used in large quantities
 - displacing virgin material with waste products reduces embodied and life-cycle GHGs
 - steel generally has high recycled content and is recyclable, concrete is not recyclable
- fuel: not as big as you think
- vegetation: not a major factor



Thank you!

Feel free to contact me:

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