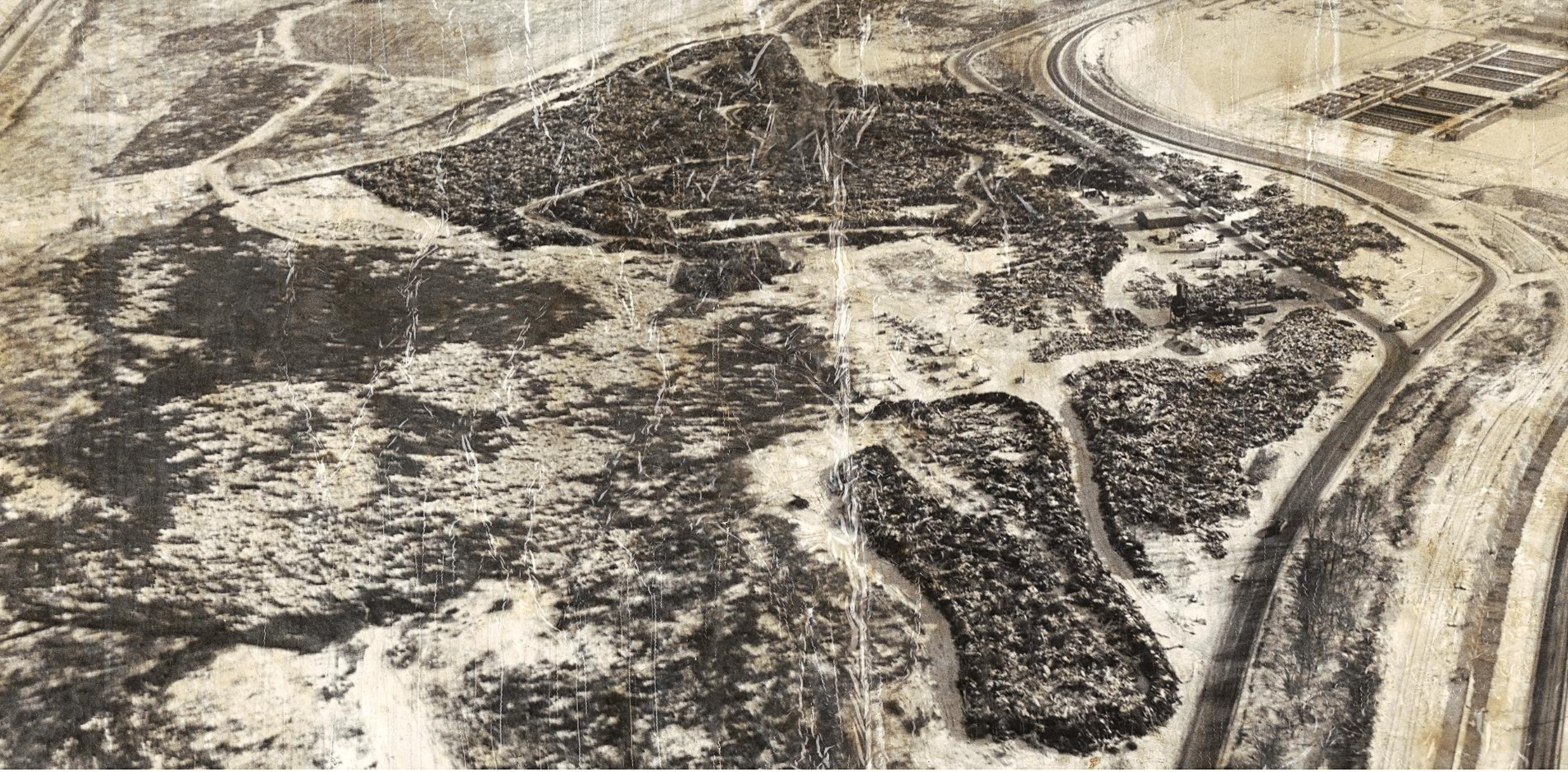


Joint Committee  
House Environment and Natural Resources Finance and Policy  
Senate Climate, Environment and Legacy

Informational Hearing  
Emerald Ash Borer in Minnesota  
*January 10, 2023*





*Tree Waste from Dutch Elm Diseased Trees at Pigs Eye Circa 1979-1980.  
Piles reached 60 feet high.*





January 1989



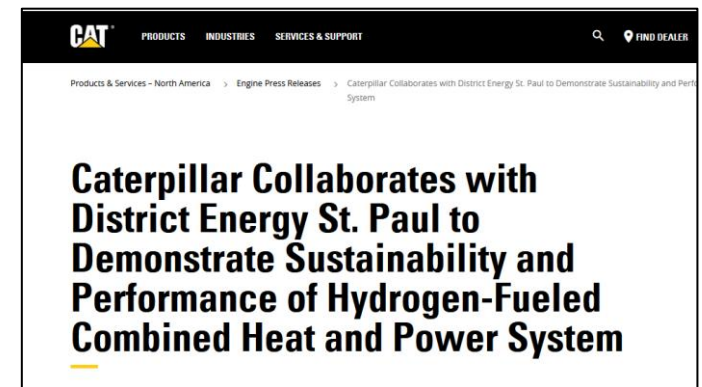
# St. Paul Cogeneration Biomass-Fired Combined Heat and Power

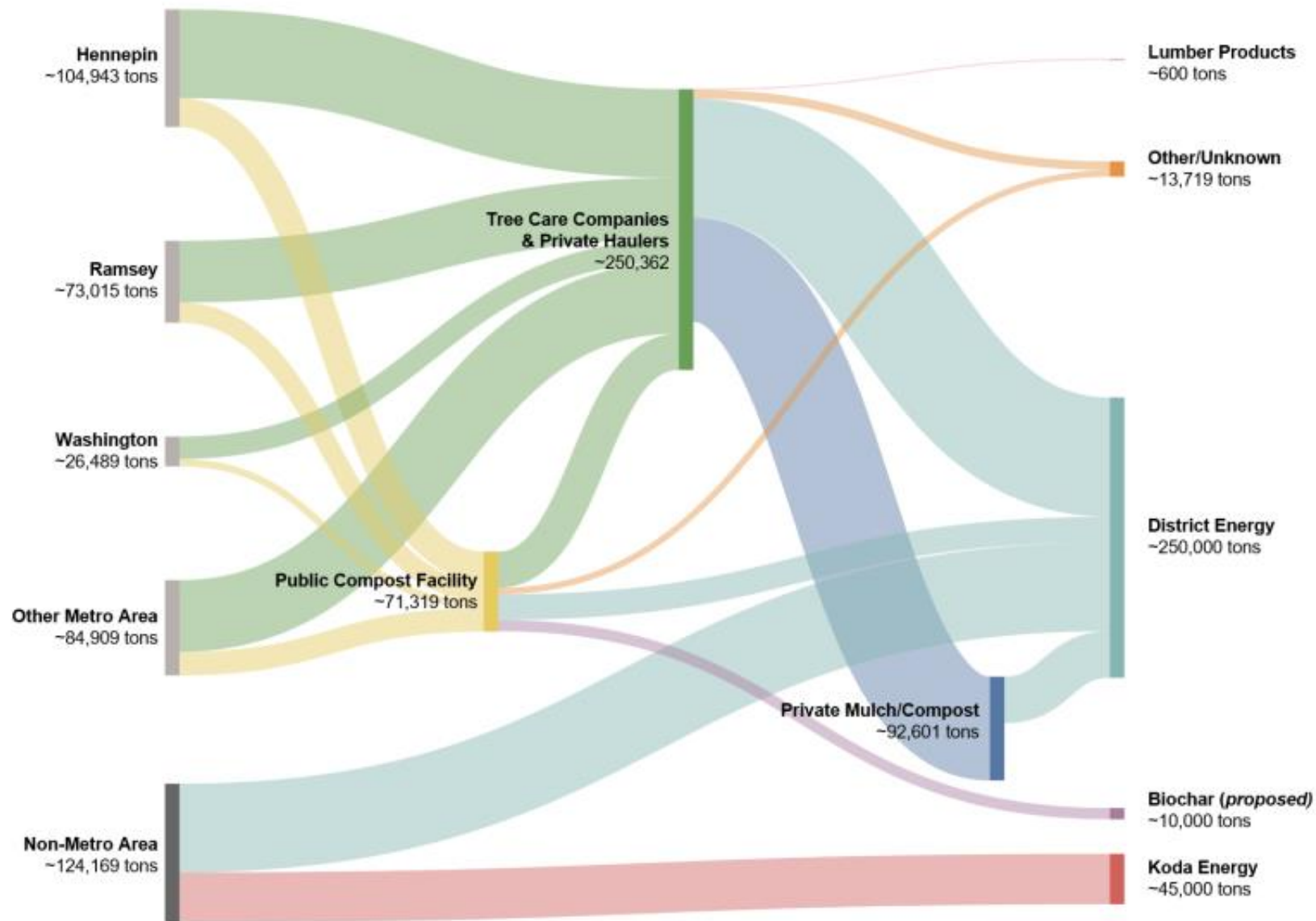


- Combined heat and power (CHP) or cogeneration generates both electricity and heat from the same fuel source increasing efficiency.
- 25 MW of electricity sold to Xcel
- Heating for District Energy customers
- Renewable, clean, urban tree waste
- Greenhouse gas CO<sub>2</sub> reduced up to 80,000 tons per year

# District Energy St. Paul

- Largest hot water district energy system in North America
- Heating and cooling ~85% of downtown St. Paul
- Over 32 million square feet served
- Academic institutions, healthcare, office, residential, city, county, state, hospitality
- 1.2 MW solar thermal, 7 million gallons of thermal storage
- 68% carbon reduction between 2000 and 2021
- Goal of carbon neutral by 2050



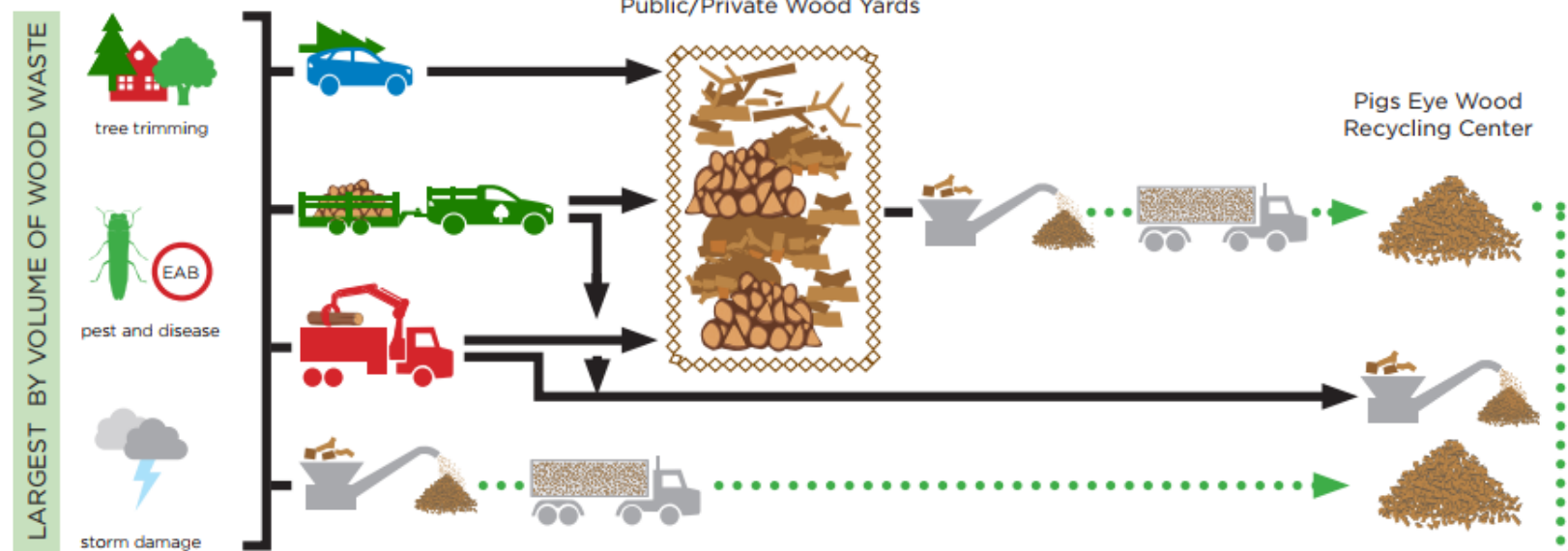


**Figure 8: Twin Cities Wood Waste Flow Sankey Diagram (Illustrative Only)**

Source: Twin Cities Metro Area Emerald Ash Borer Wood Waste Study prepared for Partnership on Waste & Energy by Cambium Carbon October 2022

# WOOD WASTE FLOW DIAGRAM ST. PAUL COGENERATION

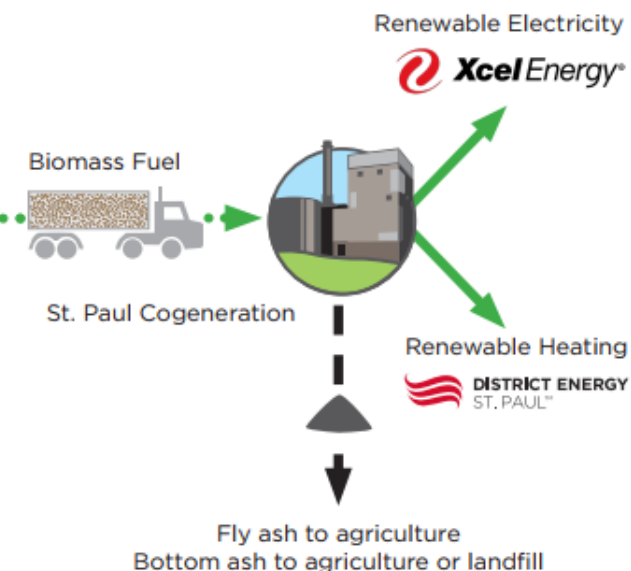
## Urban Forestry Management



## Land Clearing



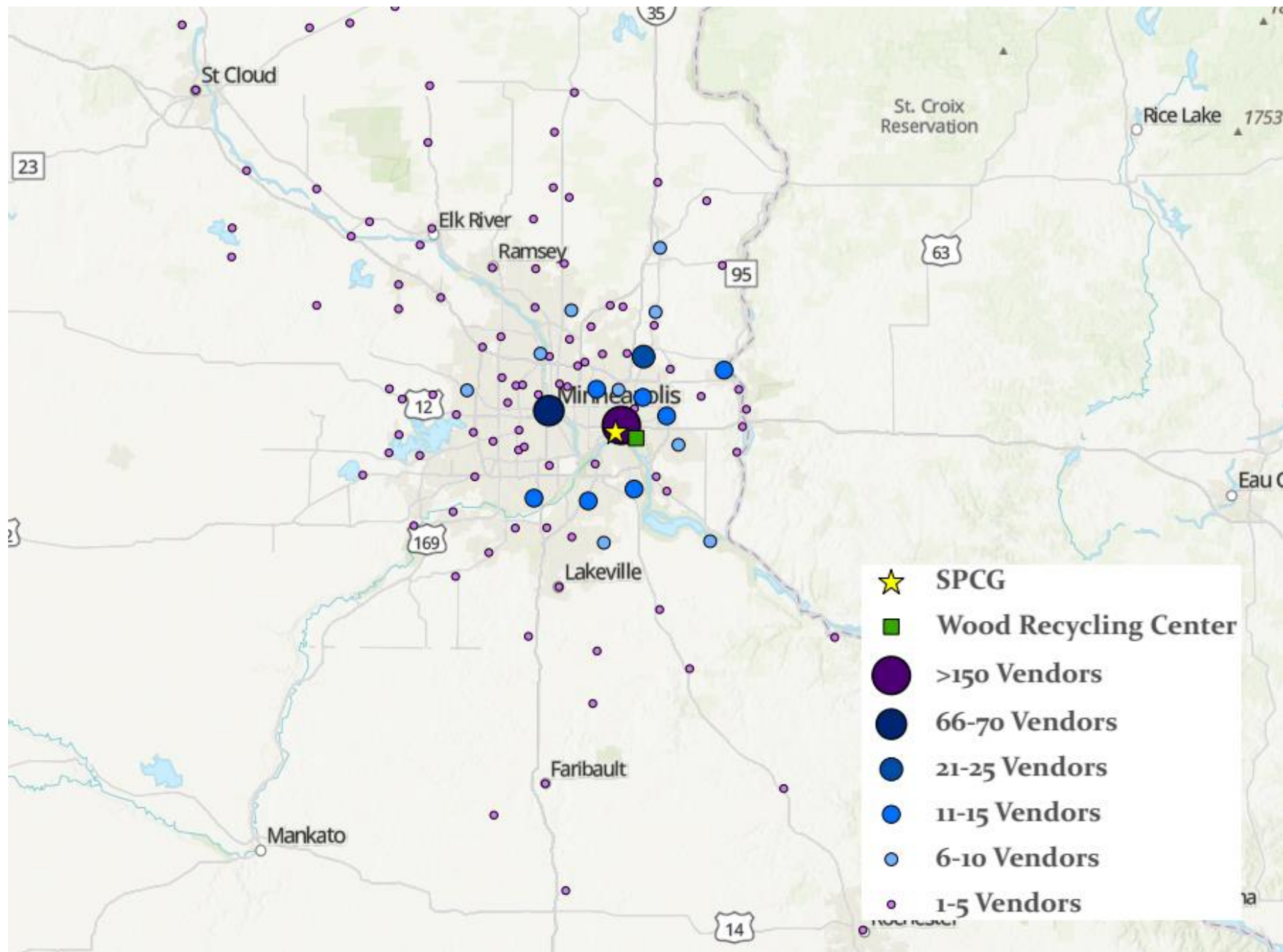
## Miscellaneous



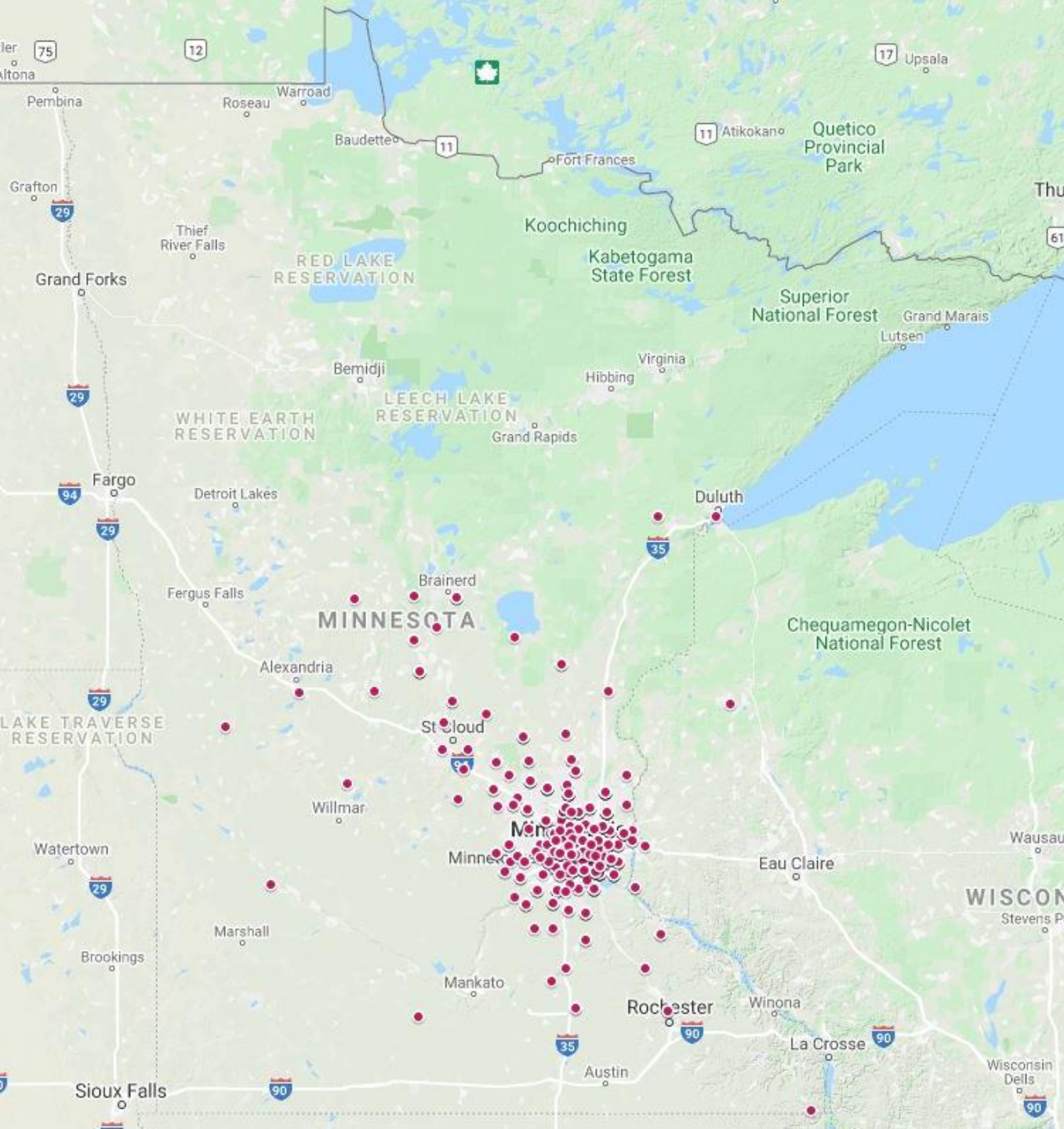
## Legend

- unprocessed wood waste: brush, logs, and dimensional lumber
- processed wood waste: mulch and chips
- renewable energy
- ash

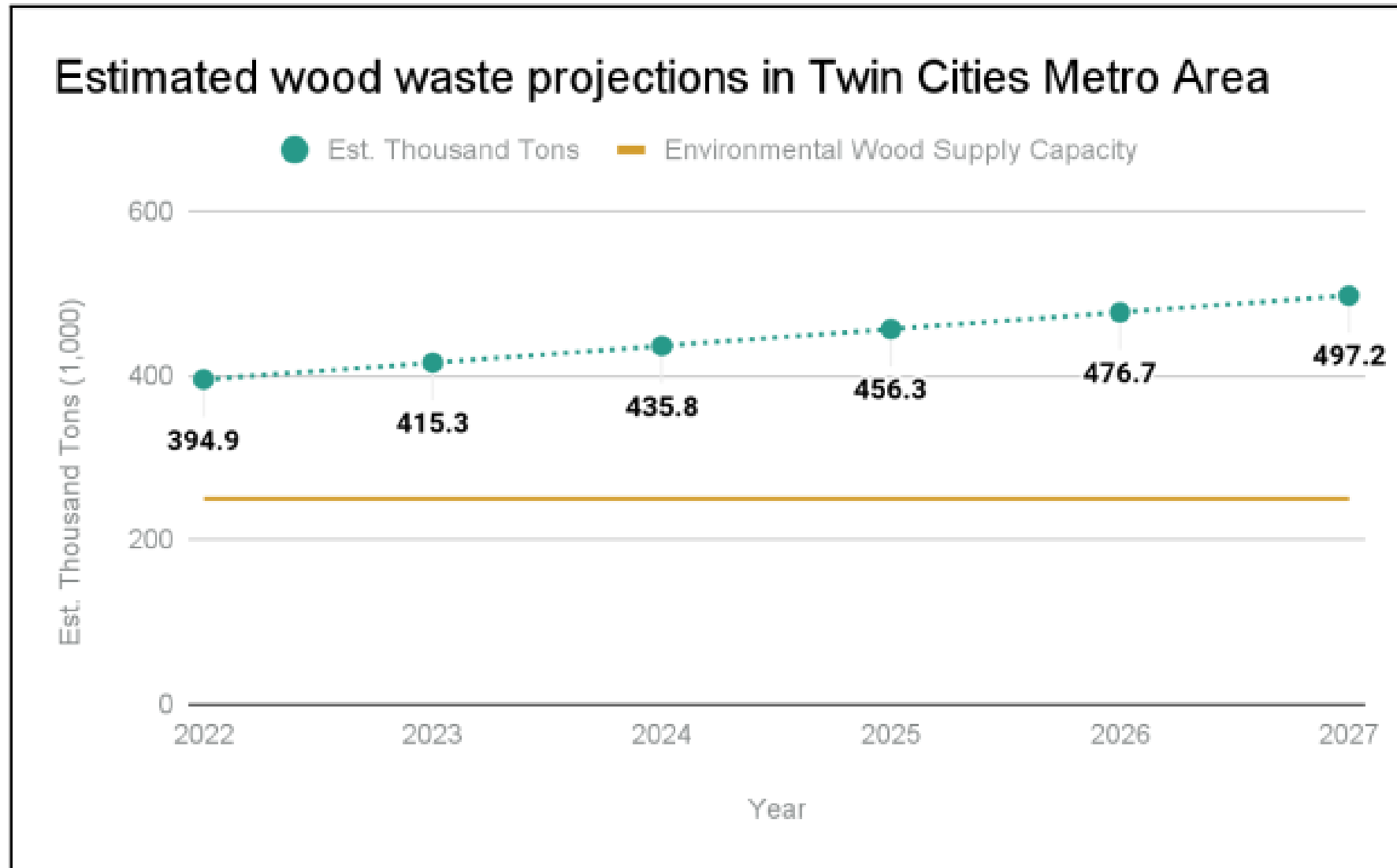








# Zip Codes of Businesses



**Figure 2: Projection of estimated wood waste (thousand tons) in Twin Cities Metro Area**

Source: Twin Cities Metro Area Emerald Ash Borer Wood Waste Study prepared for Partnership on Waste & Energy by Cambium Carbon October 2022



