

The Knowledge Now series features practical research on timely topics from the Colorado Municipal League.

EMERALD ASH BORER THREAT ADDS URGENCY TO MUNICIPAL WOOD UTILIZATION EFFORTS

By Angela Poulson, Colorado State Forest Service

For municipal foresters in Colorado, disposing of the excess woody material that results from normal tree decline, storm damage, and pruning has always been part of the job. But renewed fire mitigation efforts in rural communities, and now the arrival of invasive insects into communities statewide, threaten to drive up the volume of excess wood that municipal foresters have to deal with. Many cities and towns already have found ways to divert some of their excess wood from landfills by using it as mulch, fuel, or lumber. But municipalities lacking a wood utilization plan that begin to experience increasing wood residue volumes may be faced with growing disposal costs — directly when they drop woody material at landfills, or indirectly as their tree service contractors factor these costs into their bids.

One invasive pest that is bringing more attention to community wood disposal costs and the benefits of wood utilization was first detected in Colorado in 2013 in the City of Boulder. The emerald ash borer (EAB) — which threatens to wipe out 15 percent or more of the urban and community trees in Colorado — is expected to dramatically increase the amount of excess urban wood municipalities are faced with as the infestation spreads across the state. EAB kills 99 percent or more of ash trees (genus *Fraxinus*) not protected by continuous chemical treatments, and threatens to transform more than a million Colorado ash trees into thousands of tons of dead wood.

The experience of EAB-affected cities in the Midwest suggests that ash trees may be infested for up to four years before EAB symptoms become

detectable, after which point tree mortality rates tend to accelerate rapidly.¹ Because of this, and because the pest can spread quickly from one community to the next via infested firewood or nursery stock, some Colorado municipalities may only be a few years away from rapid increases in wood waste. While avoiding urban wood disposal costs through increased utilization has always been something worth considering, EAB is drawing new attention to the idea, and more cities and towns are beginning to explore how they might put their excess wood to use as mulch, wood fuel, or material for local mills and craftsmen.

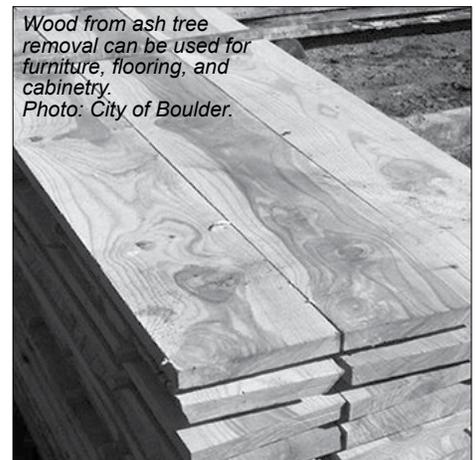
Municipalities along the Front Range are laying the groundwork for wood utilization programs that offset tree removal and disposal costs, support local businesses, and make communities more sustainable. But getting these wood utilization programs up and running takes time and money. Before new programs can even move past the planning stage, everyone involved must be on the same page. Tim Reader, utilization and marketing forester for the Colorado State Forest Service (CSFS), says that in larger cities, wood utilization planners must engage with a whole host of different functionalities within city governments.

“Operations, facilities, forestry, utilities, city councils — all of those different functional aspects of a city have to kind of coalesce around the potential to look at utilizing urban wood, and that takes a

¹ Knight, K., & Hermes, D. (2013). *Predicting Ash Mortality due to Emerald Ash Borer*. Northern Research Station: USDA Forest Service.



Ash tree. Stock photo.



Wood from ash tree removal can be used for furniture, flooring, and cabinetry. Photo: City of Boulder.



Wood chips for biomass. Photo: City of Boulder.

lot of time up front,” Reader said. He adds that cities and towns that start this process early on will be in a better position “if and when” they are faced with EAB or some other exotic pest.

Jessica Simons, a private consultant for the Southeast Michigan Resource & Conservation Development Council and for Recycle Ann Arbor, has been involved with wood utilization efforts in her state since just after EAB was first discovered there in 2002. From her experience, when EAB already has started killing large numbers of ash in a city or town, “it is already too late to begin the conversation about what you’re going to do with the [woody] materials.”

“There are so many moving parts to dealing with an emerald ash borer outbreak in a community, from just inventorying trees that need to be removed to figuring out the logistics of how that’s going to happen,” she said. “With all that on your plate, it is very hard to also start building relationships for the first time with members of the wood industry ... and to figure out how to plug them into what is already a very complicated program.”

Even for municipalities that begin planning early, Simons says it can be hard for new programs to gain traction. Without someone to champion them, she says, new programs often fizzle out. That is why Simons recommends putting knowledgeable and highly motivated people in place to drive programs forward.

“One of the big lessons we have learned is to find your champions, and find them quickly,” she said.

Another challenge new programs face is the difficulty of creating new markets for the wood products, which is why Simons recommends focusing on existing markets whenever possible. “We have found the greatest success in leveraging businesses that were already out there and trying to connect them with people who are generating wood, and helping to streamline those activities, trying to make them more visible and more efficient, rather than trying to build wholly new industries,” she said.

Another obstacle to creating new programs is cost, especially for cities and towns that want to efficiently use

their wood to generate heat or electricity. Woody fuels are not currently cost-competitive with more widely used fuels such as natural gas, and the high cost of replacing existing gas-fed systems with biomass systems prevents many projects from moving forward.

New facility constructions, like a City of Fort Collins facility currently in the planning stages, present a more cost-effective opportunity for adding biomass. Ralph Zentz, Fort Collins assistant city forester, is looking into the feasibility of incorporating a biomass heating system into the design of two new buildings. He says using excess urban wood for city forestry operations to heat the new facilities would be a better use for it than simply turning it into mulch, and he says using this renewable source of energy would complement the city’s goal to reduce its carbon footprint.

For municipalities without biomass systems of their own, partnerships can help bridge this gap. An ongoing collaboration between the City of Boulder and Boulder County is a great example. While the city has been faced with escalating disposal costs as a result of its existing EAB infestation, the county has been faced with the high transport costs of delivering native, non-ash wood from its sort yards in Allenspark and Nederland to its biomass facilities in Boulder and Longmont. Establishing a county-run sort yard closer to its biomass facilities would be difficult, says Brett Stadvold, county EAB coordinator. The large plot of land, the concrete slab to keep chip piles clean, the fencing and the staffing required for such a facility would all come at a significant cost. “And the public perception of a sort yard is a difficult one to tackle,” he says. “Processing wood is loud; it can be dirty. It really looks like an industrial operation.”

The county has worked to overcome these challenges by partnering with the City of Boulder to use ash wood from its EAB-related removals. Stadvold says the transport costs of using wood from Boulder’s forestry yard in the city, which is less than a mile away from the biomass facility at the Boulder County Jail, are much lower. And Stadvold says adjusting the biomass systems to accommodate this new hardwood-based

fuel source was actually easier than expected. “There was a little bit of worry that when we transitioned to urban wood that there might be a learning curve with the system, but from what I have been told, it was a pretty smooth transition,” he said.

The City of Boulder benefits from the partnership, as well, giving it a much-needed outlet for surplus wood from ash tree removals. “It is a good deal for both of us,” said Forestry Assistant Tom Read. He says the partnership allows the city to put low-quality woody material that would otherwise go to the landfill to good use, while saving the city thousands of dollars in disposal costs.

The City of Boulder utilizes surplus wood in a variety of ways. Its new Tree Debris to Opportunity program — funded by a \$200,000 Knight Foundation grant — makes good use of the city’s highest-quality wood. The program is a partnership with the Bridge House’s Ready to Work program, which provides work opportunities for Boulder’s homeless and working poor. Participants in the new program will learn how to turn milled wood residues from the EAB epidemic into goods and art that can then be sold locally, at farmers’ markets and/or local retail stores. The program builds links between the many different entities involved in bringing locally sourced wood products to market, including city foresters, mills, craftsmen and retailers. Programs like these can help to reduce the state’s reliance on imported wood; according to a 2015 report by the Colorado State Forest Service, more than 90 percent of wood-based products Coloradans use are imported.²

For cities that can overcome the challenges inherent to establishing successful wood utilization programs, the long-term cost savings can be significant. And the positive publicity they can expect has value as well. “The wood use effort can be a bit of positivity in what is otherwise a very negative story,” said Simons. While the emerald ash borer will mean the loss of many beloved community trees, she says wood utilization programs give communities and the media an

² (2016). 2015 Report on the Health of Colorado’s Forests. The Colorado State Forest Service.

opportunity to talk about how trees can still deliver value to communities even after they've been taken down.

The CSFS's Reader says the threat of EAB is helping to open municipal eyes to the consequences of simply sending their wood waste to the landfill.

Municipal inquiries to the CSFS's wood utilization assistance program have increased over the past six months, and Reader says the emerald ash borer is one reason for that. "EAB is helping to show communities that they probably had enough [disposable] wood to do this all along."

For more information on wood utilization options in Colorado, email CSFS Wood Utilization Education and Outreach Coordinator Kristina Hughes at kristina.hughes@colostate.edu.

FIVE THREATS TO COLORADO'S COMMUNITY FORESTS

Community trees in Colorado provide many economic, social, and environmental benefits that far outweigh the relatively minor expenses of planting and caring for them. But Colorado's trees are threatened by many factors, including:

1. **Invasive pests and pathogens.** Millions of acres of Colorado's native forestlands have been impacted by destructive beetles including mountain pine beetle and spruce beetle in the past two decades, and now the exotic tree pest emerald ash borer (EAB) is threatening the state's planted urban forests. The potential economic impacts of EAB in the Metro Denver area alone could be as high as \$82 million annually — based on a loss of services provided by the canopy of existing ash trees susceptible to the pest, and not even considering tree treatment, removal and replacement costs. Douglas-fir tussock moth, thousand cankers disease and many other pests and pathogens also threaten community trees.
2. **Fire.** Wildfire presents a very real risk to the residents of Colorado's expanding wildland-urban interface (WUI) communities. Colorado's WUI population grew from 980,000 people in 2000 to more than 2 million people in 2012. Forward-thinking communities in the state are working to mitigate this risk through fuels reduction and other fire mitigation strategies, and Colorado boasts 128 Firewise Communities/USA — ranking second in the nation.
3. **Development.** According to the U.S. Census Bureau, Colorado was the third-fastest growing state in the nation between 2010 and 2015, with a growth rate of 8.5 percent. This rapid development puts existing trees at risk of being removed to make room for new buildings and infrastructure.
4. **Severe weather.** Large-scale floods like the one Colorado's Front Range faced in September 2013, and dramatic seasonal temperature swings like the one the state experienced in November 2014, can damage or destroy thousands of community trees. A changing climate may increase the frequency of these severe events.
5. **A lack of diversity.** After Dutch elm disease wiped out thousands of elm trees in Colorado in the 1970s, many of those trees were replaced with ash species, which are now under threat from the emerald ash borer. Because of increasing globalization and the resulting influx of invasive pests into the United States, communities must start planting for greater tree diversity to limit the impact of invasive pests and other forest threats in the future. City foresters who would like help setting diversity goals or selecting suitable replacement species for lost ash trees can download the Colorado Ash Tree Replacement Selection Tool available at the Colorado Tree Coalition website, www.coloradotrees.org.

For more information on the current health of Colorado's forests, read the 2015 Report on the Health of Colorado's Forests at csfs.colostate.edu.



KNOWLEDGE *now*

Colorado Municipal League
1144 Sherman Street
Denver, CO 80203-2207