



Environmental Commission Memorandum

TO: Environmental Commission
THROUGH: Deanna Kuennen, Community and Economic Development Director
FROM: David Wanberg, City Planner
MEETING DATE: June 28, 2021
SUBJECT: Overview of Minnesota GreenStep Cities Best Practices related to Trees

Background:

As a Minnesota GreenStep City, the City of Faribault strives to implement GreenStep Cities best practices. Commissioner Nesvold will provide the Commission with an overview of Best Practice 16: Community Forests and Soils. Refer to the attached Best Practice document for potential implementation actions.

Additional best practices that relate to tree preservation and plantings include the following:

1. Best Practice 17: Stormwater Management

- Action 5(f) – Adopt tree trench or tree box standards to promote infiltration of stormwater.

2. Best Practice 29: Climate Adaptation and Resilience

- Action 6 – Reduce the urban heat impacts of public buildings, sites, and infrastructure, and provide resiliency co-benefits.

Commissioner Nesvold also summarized the tree-related best practices of three Minnesota cities (see the attached summary). The Commission should refer to this document to help it identify similar implementation actions the City of Faribault could take related to trees.

Status of Faribault's Best Practices:

There are five steps in the Minnesota GreenStep Cities program. The City of Faribault is a Step One GreenStep City. Before the City can move up to a Step Two City, it must (among other requirements) complete at least two implementation actions related to Community Forests and Soils. The following provides a status of Faribault's best practices:

- 1. Certify as a Tree City USA.** Faribault is a Tree City USA, so the City has completed this action. Paul Peanasky, Director of Parks and Recreation, facilitates the City's participation in the Tree City USA program. Like the Minnesota GreenStep Cities program, the Tree City USA program has levels of accomplishment. The Environmental Commission may want Paul Peanasky to provide the Commission with additional information regarding the status of Faribault in the Tree City USA program. At some point, the Environmental Commission may want to have a joint meeting with the City's Tree Board.
- 2. Adopt best practices for urban tree planting/quality. Require them in private developments and/or use them in at least one development project.** The City of Faribault has limited best practices related to tree plantings. Meaningful implementation of this practice could include creating brochures, webpages, and other documents that outline best practices related to tree plantings and acceptable tree species. If appropriate, the City could also supplement its existing ordinances related to tree plantings and preservation.
- 3. Budget for and achieve resilient urban canopy/tree planting goals.** The City has made limited progress on this best practice. Recently, the City received a grant to provide boulevard tree plantings. However, meaningful implementation of this best practice could include analyzing the existing tree canopy and developing a plan for strengthening the tree canopy in priority areas. Paul Peanasky could provide additional background and additional direction on this best practice.
- 4. Maximize tree planting along your main downtown street or throughout the city.** The City has a goal to provide additional trees in the downtown area. However, increasing the number of trees in the downtown can be at odds with increasing parking and other uses in the

downtown. Meaningful implementation of this best practice could involve analyzing the existing trees in the downtown and developing a plan to increase the downtown trees.

5. Adopt a tree preservation or native landscaping ordinance. The City does not have a tree preservation ordinance of significance, but the Environmental Commission is working on an ordinance. The City has a native landscaping ordinance. But based on recommendations from the Environmental Commission, the City will refine the ordinance to avoid discouraging property owners from installing native landscaping while ensuring that landscapes and yards are properly maintained.

6. Build community capacity to protect existing trees by having trained tree specialists, supporting volunteer forestry efforts, and/or adopting an Emerald Ash Borer/forest management plan or climate adaptation plan for the urban forest. The City does not have a City Forester on staff or Consulting City Forester. The Parks and Recreation Department has a staff member who knows trees and tree diseases, but trees are not his primary responsibility. Paul Peanasky can provide the Environmental Commission with information regarding volunteer tree planting efforts. Paul Peanasky can also provide information regarding the City's efforts to address the Emerald Ash Borer.

In conclusion, the City could technically report that it has implemented at least two of the above-referenced best practices. Still, if the City wishes to maximize the benefits of trees, it should strengthen its existing best practices and develop and implement additional best practices. The Environmental Commission should coordinate all recommendations with Paul Peanasky and the Tree Board.

Attachments:

- Summary of Minnesota GreenStep Cities Community Forests and Soils Best Practices
- Summary of Three Minnesota Cities Tree-Related Best Practices



Best Practice

GreenStep City Best Practices: Environmental Management

Community Forests and Soils {BP No. 16}

Add city tree and plant cover that conserves topsoils and increases community health, wealth, quality of life.

Best Practice Actions

1. Certify as a **Tree City USA**.
2. Adopt **best practices for urban tree planting/quality**; require them in private developments and/or use them in at least one development project.
3. Budget for and achieve resilient urban **canopy/tree planting goals**.
4. **Maximize tree planting** along your main downtown street or throughout the city.
5. Adopt a **tree preservation or native landscaping** ordinance.
6. Build community capacity to **protect existing trees** by one or more of:
 - a. Having trained tree specialists.
 - b. Supporting volunteer forestry efforts.
 - c. Adopting an EAB/forest management plan or climate adaptation plan for the urban forest.

Step 3 Recognition Best Practice for Category A and B cities

Category A cities: implement this best practice by completing any two actions.

Category B and C cities: implement this best practice by completing any one action.

Step 4 Recognition Metric for Category A, B and C cities

Metric # 8: Open Space, Parks, Trees

Summary

Investments that protect and enhance a city's green infrastructure, which includes trees, soil, living snow fences and other plant cover, deliver many financial, energy, heat island, quality of life and carbon sequestration benefits, just as do investments in a city's traditional grey infrastructure of roads and utilities (sewer, gas, electric and telecommunication lines). People love and gravitate toward tree-lined streets. Given a limited city budget, which always includes money for streets, the most effective expenditure of funds to improve a street would probably be on trees, funded through the street fund and augmented by storm water funding, as trees and vegetated infiltration can typically be worked into the street right-of-way.

Greenstep Advisor



Valerie McClannahan, Community Forestry Coordinator, MN
Department of Natural Resources: 651-259-5283,
valerie.mcclannahan@state.mn.us,
www.dnr.state.mn.us/forestry/urban

Connection to State Policy

Use of trees is an optional measure in the Minnesota Green Communities criteria, used by the Minnesota Housing Finance Agency in awarding funding for building affordable green multi-family housing.

Benefits

- The environmental, economic, and human health benefits of ash trees in Minnesota have been quantified. According to the National Tree Benefit Calculator, a 20-inch diameter ash tree near a residence provides benefits worth \$197/yr. When these benefits are weighed against the cost to purchase, plant, prune, protect, and eventually remove a tree, the benefits outweigh the costs by a margin of about three to one. The dollars spent to remove and replace one average-sized city ash tree could instead be used to preserve, for over 20 years, 2 ash trees that will provide four times the tree benefits of the one replacement tree.
- The national Arbor Day Foundation's tree benefits page calculates how much the trees in a residential yard are worth. Also see a tree benefit graphic, *The Human Health and Social Benefits of Urban Forests* and the MN Dept. of Natural Resources page on energy conservation through trees.
- The National Tree Benefit Calculator shows the financial and environmental benefits individual trees provide, and the USDA Forest Service iTree Design tool shows the best place to plant a tree and the benefits that tree will provide over time.
- The USDA Forest Service **i-Tree tools** offer a variety of state-of-the-art, peer-reviewed software that help communities measure tree canopy cover and the value of community trees for energy savings, stormwater management, carbon sequestration, air pollution reductions, and property value enhancement. The Green Infrastructure Center provides tools and case studies about trees & stormwater to help city staff make the case for using trees in stormwater management.
- Trees and vegetative cover need healthy, undisturbed soils, or disturbed soils improved with compost to support vigorous plant growth resulting from the soil ecosystem services of rainfall infiltration and storage, adsorption of excess nutrients, filtration of sediments, biological decomposition of pollutants, and moderation of temperatures. Common development practices include removal of topsoil during grading and clearing, compaction of remaining soil, and planting into unimproved soil or shallow



depths of poor quality imported topsoil. These conditions typically increase long-costs, producing unhealthy plants that die prematurely and need replacement, and that require excessive water, fertilizers and pesticides that contaminate runoff and increase associated costs of repairing impaired waters.

- A 2017 publication by USDA Forest Service researchers quantifies the residential building energy conservation and avoided power plant emissions by urban and community trees in the United States. In Minnesota, the benefits include:
 - Estimated energy savings of 325,500 MWh and associated value of \$35,100,000 statewide due to trees around residential buildings.
 - Avoided emissions from power plants for the state of 1,077,000 (metric) tons CO₂, 1,300 tons NO_x, 1,632 tons SO₂, 33 tons PM_{2.5}, 23 tons PM₁₀, and 5 tons VOC.
- Among 2005 U.S. Forest Service studies are data showing that single trees in southern or central Minnesota can generate a net benefit (total benefits minus initial and annual maintenance costs) of \$160 - \$3,040 during a 40-year period. The nearly 200,000 public trees in Minneapolis alone provide a total gross annual benefit of \$24.9 million. Benefits analyzed are:
 - Energy savings and reduced CO₂ emissions. Shading/wind breaks reduce residential energy used in air conditioning and heating (25% in summer and 20% in winter).
 - Increased property values and rents. Humans are hard-wired to value the natural world and will pay 9% more for a house with a tree within 50 feet. Properly placed trees can increase property values from 7-21% and buildings in wooded areas rent more quickly and tenants stay longer.
 - Beauty and all the resulting intangible and financially significant personal/mental health and social benefits.
 - Improved retail sales in tree-rich commercial districts. People have been found to spend up to 12% more on products if they are shopping in a district with mature trees.
 - Increased life of asphalt. Shading reduces degradation of paved road surfaces by 40-60%.
 - Reduced stormwater runoff and improved water quality. Old growth trees can decrease runoff by 59%.
 - Improved air quality. Trees filter pollutants: 90 lbs. of CO₂, 3 lbs. of particulates and 4 lbs. of ozone per large tree per year. A recent study estimated that in 2010, trees

in the urban areas of Minnesota removed 4,600 tons of pollutants from the air and that this resulted in \$26.7 million in reduced health care costs.

- Improved wildlife habitat. Trees provide nesting places and food for birds and other animals that make up a well-functioning ecosystem.
- Reduced crime. One study demonstrated that apartment buildings with high levels of greenery had 52% fewer crimes than those without greenery.
- Noise reduction. Trees absorb sound. According to a North Carolina State University report, a well-placed tree can reduce noise by as much as 40%.

Summary of Three Minnesota Cities Tree-Related Best Practices

Bloomington:

- Gravel bed nursery with 15 tree species
- Removal and replacement of EAB trees beginning 2013, lasting 11 years
- Arbor Day Tree Sale
- Main downtown: Streetscapes, pocket gardens, sidewalk tree plantings, rain gardens, benches
- Tree preservation, single family residential development: City Code Ch 19, sec 53
- Native Landscaping: City Code Ch 10, sec 38

Golden Valley:

- Urban Trees best practices and uses MNDOT specifications
- Aerial and digital photos determine where trees needed
- Various grants for tree planting and monitoring survival rates
- City tree canopy = 40.5% determined by Earth Define Geospatial Data
- 10,000 to 30,000 spent per year on tree replacement
- Two full-time staff members with Forestry and Horticulture degrees advise residents about pest management
- Recommended tree species on website

Savage:

- Has an Urban Forest and Shade Tree Management Comprehensive Manual: Several meetings with residents, home builders, developers, DNR, city forestry staff. See City Code 102. The manual includes the following topics:
 - Tree inventory
 - Preservation Ordinance addressing EAB, OW, DED, Climate change
 - Trees in city right of ways
 - Knowledge requirements for staff
 - Natural areas and highly maintained areas (find a balance)
 - Turf management
 - Weed control
 - Water issues
- Partnerships
 - South of the River Group, has met annually for 25 years

- Partner with Shakopee Mdewakanton Sioux
- Consult UMN Extension