

RELEAF CEDAR RAPIDS

On August 10, 2020, Cedar Rapids, IA, was hit by a record-breaking *derecho* (straight-wind) storm, with gusts hitting 140 mph. In just one hour, the “Emerald City” lost two-thirds of its canopy. Within a week of the storm, the city manager asked Jeff Speck to lead the effort to bring back the city’s trees. Speck built a team with regional nonprofit Trees Forever and Confluence landscape architects to create *ReLeaf Cedar Rapids*, a plan intended to both organize the reforestation of the city and catalyze public support around this mission.

Like many Speck Dempsey efforts, ReLeaf was approached as an opportunity to reinvent its project type. After deep research into successful urban forestry plans, the team found much that worked but also real room for improvement. The heart of the document, the eight *ReLeaf Rules*, runs counter to conventional urban forestry practice in several key ways.

Designed and distributed as a readable magazine format, the plan has instrumentally raised public awareness and funding, including a \$6M USDA grant. It has also been lauded for its replanting prioritization algorithm, which focuses on both visual impact and social equity. Much of the plan’s language is generic and offered as pro-bono shareware for similar plans nationwide. The plan can be downloaded at [bit](#).

CLIENT
City of Cedar Rapids, IA

COLLABORATORS
Confluence,
Trees Forever, Inc.

TIMELINE
2021 - 2022

CATEGORY
Buildings and
Landscapes

STATUS
In implementation;
more than \$15 million
committed

BUDGET
\$30 million

SCALE
74 square miles

AWARDS
Charter Award,
Congress for the New
Urbanism, 2023; Merit
Award for Planning,
ASLA Central States,
2023; Merit Award,
Iowa Chapter, American
Planning Association,
2022

REFERENCE
Jeff Pomeranz,
City Manager,
j.pomeranz@cedar-rapids.org

Cedar Rapids, Iowa

“ReLeaf Cedar Rapids is a visionary plan to build back the 669,000 trees—70 percent of our tree canopy—that was lost. It requires significant investment of resources, but the impact of our efforts will be felt for generations.”

— Jeff Pomeranz, City Manager



Planting trees in fall of 2021



Center Point Road NE
pre-derecho (2019)



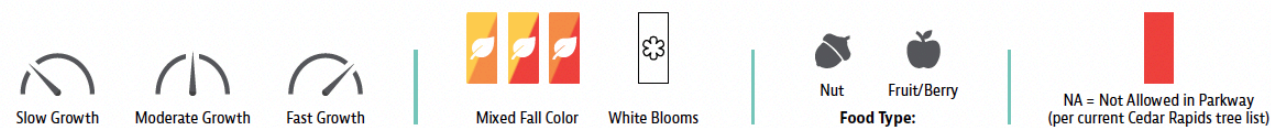
Center Point Road NE
post-derecho (2021)



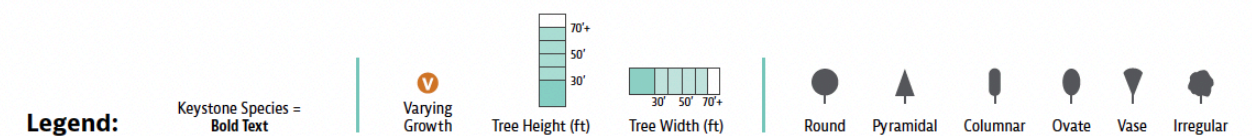
The ReLeaf Tree List

Superior	Cultivar for Consideration	FORM				ATTRIBUTE				SITE				SOILS				Additional Notes						
		Iowa Native	Height/Width	Shape	Growth Rate	Fall Color	Flower	Food for Wildlife	Food for People	Forest	Park	Yard	Parkway	Median	Parking Lot	Tree Pit	Under Utility Lines		Wet	Moist/Well Drained	Dry	Clay Soils Tolerance	Road Salt Tolerance	Compaction Tolerance
Bitternut Hickory <i>Carya cordiformis</i>		Y																						
Shagbark Hickory <i>Carya ovata</i>		Y																						
Butternut <i>Juglans cinerea</i>		Y																						· May be difficult to find in nurseries
Black Walnut <i>Juglans nigra</i>		Y																						· Produces a compound that may damage nearby vegetation confirm tolerance before planting
Elm, American/Hybrid <i>Ulmus x</i>	Princeton, Regal, New Horizon, Triumph, Accolade, Pioneer	N																						· Hybrids exhibit resistance to Dutch Elm Disease

Allowed	Cultivar for Consideration	FORM				ATTRIBUTE				SITE				SOILS				Additional Notes					
		Iowa Native	Height/Width	Shape	Growth Rate	Fall Color	Flower	Food for Wildlife	Food for People	Forest	Park	Yard	Parkway	Median	Parking Lot	Tree Pit	Under Utility Lines		Wet	Moist/Well Drained	Dry	Clay Soils Tolerance	Road Salt Tolerance
Yellow Birch <i>Betula alleghaniensis</i>		Y																					May be difficult to find in nurseries
River Birch <i>Betula nigra</i>	Heritage, Dura-Heat	Y																					- Vibrant fall color - Unique, peeling bark
Quaking Aspen <i>Populus tremuloides</i>		Y																					- Tree can sucker - Is highly susceptible to ice damage
Black Cherry <i>Prunus serotina</i>		Y																					- An important contributor to the food web - Use should be limited to naturalized areas due to susceptibility to breakage from ice and potential to spread due to heavy fruit production
Black Willow <i>Salix nigra</i>		Y																					- An important contributor to the food web - Use should be limited to naturalized areas due to susceptibility to breakage, mess, and potential for water/sewer utility damage
Ohio Buckeye <i>Aesculus glabra</i>	Early Glow	Y																					Not to be planted near horses or livestock to whom the nuts produced are poisonous
White Pine <i>Pinus strobus</i>		Y																					Evergreen
Limber Pine <i>Pinus flexilis</i>		N																					- Evergreen - Less prone to storm damage than native pine
Tuliptree <i>Liriodendron tulipifera</i>	Emerald City	N																					- Black Walnut tolerant - Unique flower and leaf-shape



The ReLeaf Tree List

[illegible]

The ReLeaf Rules

Boiling the past chapters down to their essence, best practices in urban forestry can be distilled into the following eight simple mandates that apply citywide.

1

Right Tree, Right Place, Right Reason

Trees belong everywhere; the trick is choosing a tree that belongs in a given spot.

The Right Tree, Right Place rule has driven urban forestry for decades. It simply acknowledges that different trees fit, and thrive, in different places. A tulip tree looks great in a park, but its low salt tolerance makes it a bad choice along busy roads. Other trees do better in wet soils or in dry soils, and some even tolerate the compacted soil under a sidewalk. Right Reason adds a new twist, focusing not just on survival, but purpose: different trees serve different needs, from blocking wind to evaporating and slowing stormwater. These qualities should drive selection and are embodied in the ReLeaf Tree List ahead.

2

Citywide Diversity & Local Character

We should meet overall diversity targets while grouping species locally.

The threat of blight means that the City must adhere to the 10-20-30 rule (page 37) and plant no more than 10%, 20%, and 30% of any one tree species, genus, or family respectively. But this rule applies citywide, not locally; even its originator advocated for groupings of the same species in one location, to create a diversity not just of trees but of places. The most beautiful streets often hold just a single repeated tree, and same-species trees are the best at supporting each other underground. (The only exception, and an important one, is that oaks should be kept at least 100 feet apart, due to oak wilt.) Let us all remember that trees do not know if they are public or private; when residents overplant a single genus, like maple, the City needs to compensate with its own choices.

3

Locals Not Imports

Don't plant a non-native tree where a native tree will thrive.

Non-native trees do not support native animals and insects and can actually undermine the efforts of those that do. All trees provide some ecosystem services like cooling and CO₂ absorption, but only natives support the food web. But true natives can be hard to find. Much more common are native cultivars (cultivated varieties), which have a mixed record when it comes to feeding insects. We are only now slowly learning which cultivars do that job well. The proper strategy for choosing a tree for any location is to first look for a true native that will thrive there. If that fails, select a native cultivar. Non-native trees should only be planted where a native tree can't be expected to achieve a healthy maturity.

4

Big Not Small

Don't plant a small-species tree where a large-species tree will thrive.

The typical large-species tree has a canopy roughly ten times the volume of the typical small-species tree. Almost one hundred percent of a tree's benefits come from its canopy. Large canopy trees can also be ideal for tight spaces, where they grow tall enough to shelter the space. The only bad location for a large tree is under utility wires, or where there is not enough room underground for roots to spread. Small, flowering trees can be lovely, but before planting one, ask whether the funds and effort would be better spent on a canopy ten times as large.

5

Tots Not Teens

If they can be protected, plant trees when they are young.

Transplanting a tree is a traumatic event that dramatically curtails root growth. The most resilient trees start in place as the smallest seedlings. But seedlings are vulnerable to being trampled, weed-whacked, or eaten. For locations where each tree matters, like along a street, established saplings are the proper choice. The City currently requires saplings to have a caliper (diameter) of 1 1/2 inches but, in less vulnerable locations, like parks, a 1-inch caliper is preferred. 1-inch caliper trees generally catch up in size with 2-inch caliper trees within five years, and then surpass them in growth and vitality. This rule change will also expand the supply chain. And in less urban locations, carpet-bombing with seedlings is likely the most economical and productive strategy for expanding the canopy.

6

Let Trees Mingle

Where possible, plant trees in groups and close together.

The misapprehension that trees thrive best when given "space to breathe" is disproved in nearly every forest. Trees, especially same-species trees, share nutrients and information through their roots. More significantly, an intertwined root network makes groups of trees more resilient against windstorms than isolated "sitting ducks." The only reason to keep trees apart is economical: to shade more land with limited stock. This is most important above paved surfaces, where the best outcomes come from planting trees in a steady rhythm at a distance smaller than the width of their full mature canopy.

7

Plant With A Plan

Every tree planted needs a designated caretaker and plan.

Saplings are not "plug and play;" to survive and thrive, each needs at least two years of manual watering and periodic pruning. Private residents should reach out to Trees Forever for any needed guidance with their yard trees. Each City-owned sapling, when planted, must be assigned a waterer, given a pruning schedule, and logged into the City database. This database should be expanded to provide all relevant information about the tree, including its ecosystem value, which should be made publicly accessible to inspire its care.

8

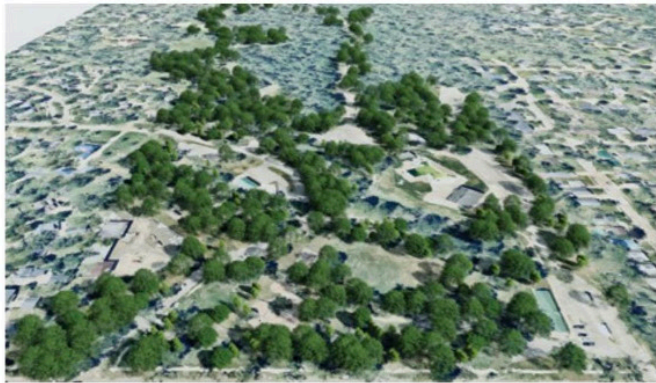
Break The Grass Habit

Don't plant grass when other groundcovers will do.

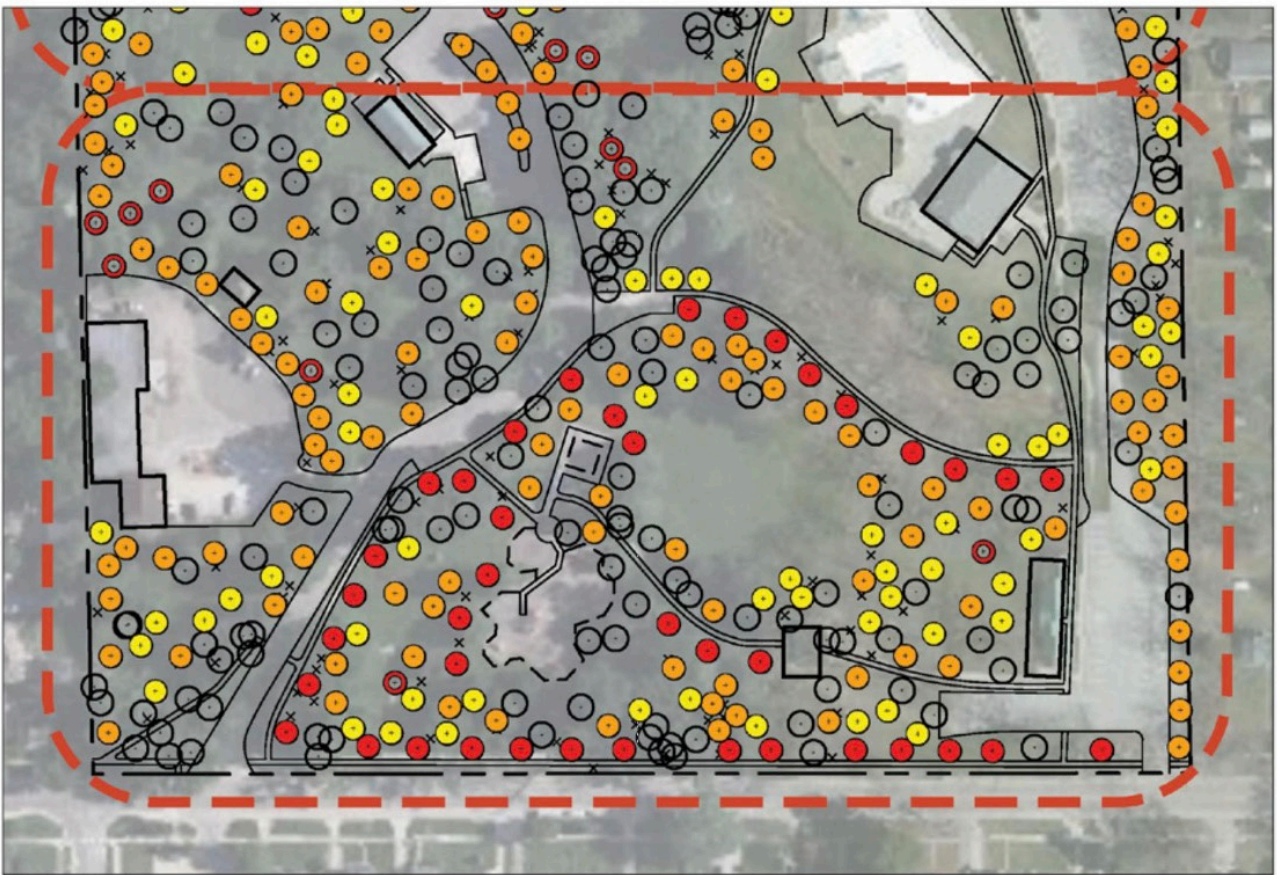
As lovely as it looks, grass is one of the least ecological uses of soil. It wastes water, inspires the spraying of carcinogenic toxins, causes tremendous CO₂ emissions through mowing, and interrupts the food web by killing most caterpillars that fall on it. While Iowans can't be expected to change our landscaping habits overnight, we can make a concerted effort to provide native prairie and woodland plants directly under trees so that they can properly support the food web.

38 Plans for 97 Properties

The city of Cedar Rapids identified 38 of its parks as in need of detailed planting plans subsequent to the derecho. Designs for these parks are included in this plan's Appendix. Bever Park and Daniels Park are presented here as an example of the approach described on the previous pages.

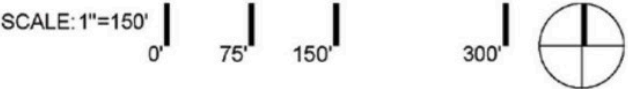


Left: Phased replanting plan for Bever Park. Top: Pre-derecho tree cover. Middle: Day after the derecho. Bottom: Replanted condition after 10 years Adjacent Page: Bever Park Replanting Plan enlargement with more detail .



LEGEND

- NEW TREE (PLANTED) - 31
- NEW TREE 1-2 YR
- NEW TREE 3-7 YR
- NEW TREE 8-10 YR
- EXISTING TREE TO REMAIN
- TREE REMOVED - 322



REPLANTING SUMMARY

TIMEFRAME (YR.)	QTY.	EST. COST (\$)	SIZE
1-2	48	24,420	1.5" cal
3-7	270	155,100	1.5" cal
8-10	162	106,700	1.5" cal

SITE AND SPECIES SELECTION NOTES

Bever Park is comprised of large oak trees in groves on rolling hillsides. There was significant loss of tree quantity, but the character of the old oaks persisted with the remaining trees.

Reforestation will help to reinforce the remaining tree groves and provide age diversity for the future of a healthy tree canopy.

Replanting Diagram BEVER PARK - LOWER SOUTH

Cedar Rapids, Iowa



12-01-2021