Construction, development, and other human activities can create poor soil conditions which negatively impact young tree establishment and long-term success. Research that tests trees on extremely tough sites is important in suggesting species and varieties for use in urban and community forests. The history of use at the High Bridge – and its transformation from coal car rail yard – make it a perfect choice for this type of trial. The bottom line: trees that work well here will have a good chance of performing well elsewhere. This site is also being designed to take advantage of the views to downtown Saint Paul and the expansive long corridor that runs its length.

In the spring of 2012, Xcel Energy volunteers joined City of Saint Paul Forestry staff and University of Minnesota faculty, staff and students to plant 156 trees at the newly established High Bridge Dog Park underneath the Smith Avenue Bridge. Nine different species were planted using two different root types:

**Species Used**
- Black Maple – RootTrapper Fabric Container
- Northern Catalpa – RootTrapper Fabric Container
- European Black Alder – Bareroot
- Prairie Dream Paper Birch – Bareroot
- Prairie Horizon Manchurian Alder – Bareroot
- Regal Prince Hybrid Oak – RootTrapper Fabric Container
- Showy Mountain Ash - Bareroot
- Triumph Hybrid Elm – RootTrapper Fabric Container
- Valley Forge American Elm - Bareroot

At planting, trees were treated with one of four different organic matter amendments. The organic matter was sourced from a Minnesota company which produces it from composted wood waste adjusted to a carbon to nitrogen ratio (C:N) of 20:1.

**Amendment Treatments**
- Topdressed – (36in x 2in) - All Species
- Incorporated – (1:1 by volume with existing soil) – All Species
- Topdressed + Incorporated - Regal Prince Only
- No Amendment - All Species

After a season severe drought the plagued most of Minnesota during 2012, this project experienced very high mortality during the first winter – about one-third of all trees were lost. Also, due to heavy browsing by rodents most of the Regal Prince oaks were completely or partially girdled during the first winter and were removed from any further analysis. Preliminary data suggests that the use of incorporated organic matter reduced first year winter mortality by nearly fifty percent (see chart below).
Additional trees were planted during Xcel Energy’s Day of Caring in 2013 to explore the use of tree tubes and organic matter amendments on additional species. This planting was intended to fill some of the gaps created by winter losses during 2012-2013 and to complete the original vision of the park which included an area of tree tube trials.

**Tube Plantings - 2013**

- Bur Oak – Seedling Plug
- Kentucky Coffeetree – RootTrapper Fabric Container
- Northern Catalpa (MPRB Heritage Selection) – Seedling Plug
- Red Oak – Seedling Plug
- Espresso Kentucky Coffeetree (male)
- Quaking Aspen
- Yellowwood

Annual data collected includes stem caliper increase, stem and crown condition ratings. A full report of results will be released in 2018.