

No Soil Required: City of New Richmond's Unique Gravel Bed Nursery is improving the Tree Canopy & Saving Taxpayer Dollars

In 2015, the City of New Richmond received a grant from the Bosch Community Fund to construct a gravel bed nursery at the Wastewater Treatment Plant. Gravel bed nurseries use pea gravel contained in a large wooden box (bed) and irrigation to grow bare-root trees without using soil. The practice has only been utilized by municipalities in Wisconsin within the past three to five years in response to emerald ash borer, one of the most destructive tree pests seen in decades, as local governments have struggled to find a way to grow a diverse and hardy supply of trees in a cost-effective manner. In a gravel bed nursery, trees grow an extensive root system that increases the tree's capacity to absorb water and nutrients, which makes the trees much more resilient when transplanting them. The difference in the root system after just three to four months of growing in the gravel bed system is dramatic. There are also significant cost savings and ease of planting benefits. A balled and burlapped sapling can cost \$200 to \$300 each, while a bare-root sapling is only around \$30. Transplanting the trees out of the gravel bed nursery is much easier, limiting the need for heavy equipment.



Above: City staff receive a grant from local Bosch representatives in the spring of 2015



Above: A comparison of the root system before (left) and after growing in a gravel bed system.



Above: The City of New Richmond's gravel bed nursery in the summer of 2016.

In addition to growing trees that have a strong root system and are more affordable, one of the other goals of the gravel bed nursery is to grow a wide variety of trees to be planted in the City of New Richmond's boulevards. Years ago, many streets were lined with beautiful elm trees that provided shade over the streets and yards. After Dutch elm disease devastated the elm population, ash trees were frequently planted because they grew quickly and were affordable. Today, with millions of ash trees being destroyed by emerald ash borer, we are beginning to understand the importance of biodiversity and having a variety of trees that are not susceptible to just one single pest. One might consider what would happen in the future if all maple trees were destroyed.



Above: City staff plant trees on North Starr Avenue in September 2016

The City of New Richmond's Public Works Department planted the first bare-root trees in the gravel bed nursery in the spring of 2016, and included a variety of St. Croix Elms, pear trees, lilacs, and flowering crabapples. After sixteen weeks of daily watering with a sprinkler system, the trees developed a tremendous root system and were transplanted in the early fall as part of the street and utility projects in the Paperjack Drive and North Starr Avenue/East Hughes Street neighborhoods, as well as around some of the stormwater ponds along St. Croix Avenue and Roosevelt Drive, and at the newly constructed skate park.



Above: Boulevard trees on Paperjack Drive, May 2017

By the spring of 2017, it was clear that all of the trees that were planted survived the winter and appear very healthy. Although it will take time for a young tree to grow large enough to provide the shade and beauty of a thirty or forty-year old tree, planting these trees today is an investment in the future, and will ensure that New Richmond remains “The City Beautiful” for the next generation.



Above: City staff plant new bare-root trees in the gravel bed nursery, April 2017

Given its initial success, about 100 more bare-root trees were planted in the spring of 2017 thanks to an Urban Forestry Grant received from the Wisconsin DNR. The grant is designed to help the City of New Richmond prepare for the arrival of emerald ash borer, and to begin planting replacement trees in our boulevards and parks and trails system. This summer, a geographic information systems (GIS) intern will be completing an inventory of all trees located in boulevards and parks, and City staff are currently preparing an emerald ash borer management plan and educational materials for the community.

Public Works Operations Manager Michael Mroz is in the process of becoming a certified arborist, and the DNR grant funds are also helping provide new safety equipment and training opportunities for the Public Works Department to enhance its urban forestry program. In the future, City staff are interested in possibly expanding the size of the gravel bed nursery in order to plant more trees in the City of New Richmond.

Residents who are interested in seeing the gravel bed nursery in-person or who would like to learn more can contact the City of New Richmond’s Director of Public Works Jeremiah Wendt at 715-246-4268 or jwendt@newrichmondwi.gov.