



FARMINGTON VALLEY TRAILS COUNCIL

MULTI-USE TRAIL SPECIFICATIONS: ROOT BARRIERS

MARCH, 2008

Introduction

In response to numerous complaints of sections of older trail in the Farmington Valley becoming rutted due to the incursion of root structures, the FVTC has decided to contact a number of state and local organizations to see what abatement procedures are available and provide lasting protection.

Paths built in wooded areas present special problems. The roots of shrubs and trees can pierce through the surface and cause it to bubble up and break apart. Preventive methods include removal of vegetation, realignment of the path away from trees, and placement of root barriers along the edge of the path. A 12" deep plastic or metal shield creates an effective barrier; and even greater depth is required for some trees such as cottonwoods.

The use of root barriers can provide protection to the surrounding infrastructure against disruption from tree roots, with minimal impact on the tree. Properly installed root barriers can protect pavement from cracking and lifting caused by certain tree species.

Specification

Trenching is relatively easy with a walk-behind portable machine such as Ditch Witch, Vermeer or Eagle brands. The towns of the Farmington Valley should discuss this issue as it may be in their best interest to mutually rent/purchase such equipment to share and lower total project costs.

Root barriers should be installed vertically in a continuous length in a narrow trench dug on the tree side of the pavement with the top edge flush or slightly below the finished ground surface. If a ribbed root barrier material is used, then the root barrier should be positioned so that the ribs run vertically. The trench should be backfilled and tamped sufficiently to avoid later settling. The barrier should not be torn or pierced. See Figure 1 below.

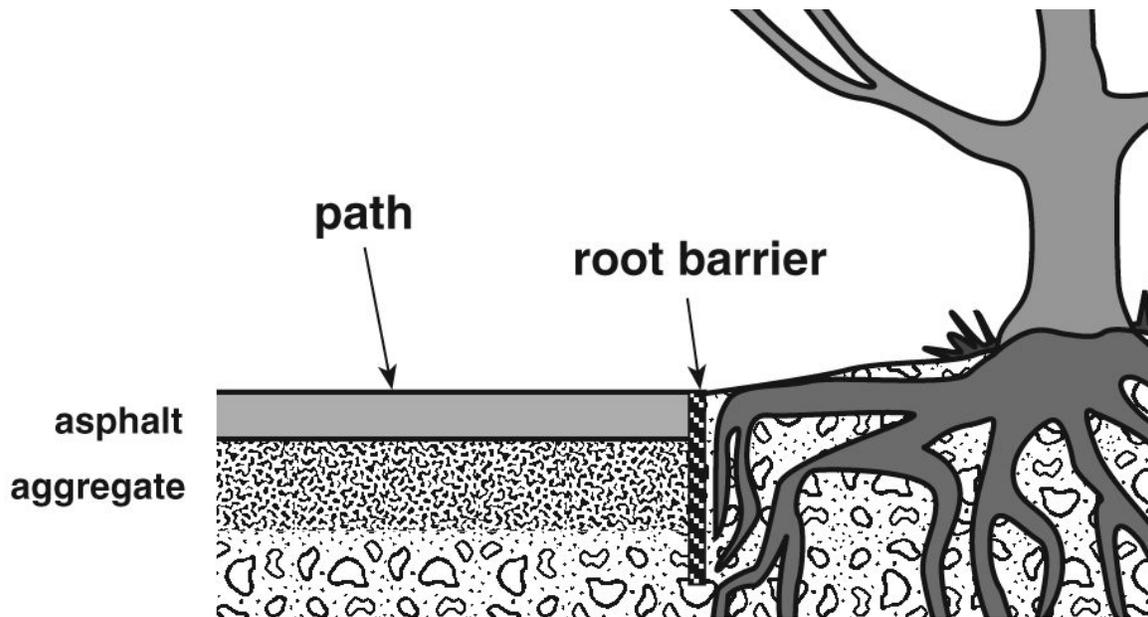
The use of root barriers can provide protection to some of the existing infrastructure against disruption by tree roots, and have minimal impact on the tree. Where root barriers

are installed within the existing feeder zone of the tree it involves severing of roots. A total of no more than 30 per cent of feeder roots should be affected.

Typical specifications include:

- All roots more than 1” in diameter that have been exposed and damaged from the trenching activities shall be removed. Make a clean straight cut to expose damaged portion of root.
- Large exposed roots should be covered in damp burlap to temporarily prevent drying and damage.
- Contractor shall consult a certified arborist regarding thinning of the foliar canopy.
- Root barrier shall be a minimum of 18” deep [median specifications are 24”] and shall be made of [nylon fabric, metal sheeting, plastic panels, etc.] Set 1/2” below finished grade. Center root barrier on trunk of tree.
- Distance between tree and root barrier to be determined by engineer. Minimum distance is tree times the trunk caliper.

Farmington Valley Trails Council
Figure 1. Root Barriers: Multi-Use
Trails



Source: Oregon Bicycle and Pedestrian Plan July 2007, Chapter 7, "Paths".

Barrier Manufacturers

There are a number of manufacturers of barrier materials. The two competing products are herbicide-impregnated fabric and a rigid plastic material with or without internal vertical ribs or anti-lift tabs. Due to the proximity of the Farmington River and other watercourses in the Valley the FVTC must lean away from herbicide use.

The FVTC, after reviewing many products talked to Danny O'Brien from Parks Mass (DCR) who was one of the engineers for the Cape Cod Rail-Trail reconstruction. They have been very satisfied with a system manufactured by DeepRoot Partners, L.P. who are probably the largest national manufacturer. Their product is essentially 24-inch plastic interlocking sheets with anti-lift flanges. Their web-site can be accessed at: www.deeproot.com. It contains their own detailed explanations, including installation instructions. Their specification can be found as *Root Barrier Spec & Installation Manual, 2007.pdf*. A review of this specification results in referencing pages 1-6, 11, 14, 16-18 as being specific to the use on the Farmington Valley Rail Trail.

A carton of (26) 18" X 24" (52 linear feet) panels runs at retail approximately \$140.

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References

Design Standards for Urban Infrastructure. "22 Soft Landscape Design". Urban Services, Environment ACT, Australian Capital Tourism, Sport and Recreation ACT, ACTION, Canberra. 2000.

Oregon Bicycle and Pedestrian Plan. Oregon Department of Transportation, Salem. July 2007.

MassHighway Shared Use Paths and Greenways. MassHighway, Boston, January, 2006.