



## HEALTHY LAWNS AND THE HEALTHY SOILS BENEATH THEM ARE A STORMWATER BEST MANAGEMENT PRACTICE

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### Turf Management for Increased Infiltration

As urban communities grow and development occurs, turf grass has replaced the native plants, prairies, forests, and even wetlands. The undisturbed soils coupled with deep-rooted native plant communities naturally allowed for great water infiltration, nutrient removal, and provided a diverse habitat for animals



and plants to thrive. In urban and developed communities, turf grass now dominates the majority of yards, but also parks, open spaces, and recreational and sports fields. While protecting remaining undisturbed natural prairies, forest and wetlands should be the first choice, keeping and providing for healthy turf and the soils beneath it will support many recreational uses and aesthetics and can provide the benefits of and need for water infiltration and removal of pollutants. Healthy turf and soils can mean cleaner surface water in our communities and provide for reductions runoff volume that may otherwise lead to areas prone to flooding.

In areas where turf has existed for decades, it may be necessary to reinvigorate the turf grass and remediate the soils to restore many of the natural and beneficial properties that promote infiltration as well as provide for healthy environment for plants (including turf) to thrive. To maintain the natural healthy aspects of soils, common practices such as top soil stripping and compaction from heavy equipment should be avoided. .

### **REPAIRING OR RENOVATING AN EXISTING LAWN**

The vegetation on the soil surface (turf grass) may require renovation to reinvigorate it. For more information on repairing or renovating an existing lawn, see the publications at

<http://www.extension.umn.edu/garden/yard-garden/lawns/>

### **REMIEDIATING SOILS: BREAKING UP COMPACTION AND ADDING COMPOST**

To reinvigorate soils beneath turf grass, reversing compaction and incorporating compost may provide those needed benefits including increased infiltration. Severe compaction can be reduced through the use of tillage or special subsoil equipment that breaks the areas of compaction within the soil profile. Incorporating compost, peat, or other high quality organic matter source with this tillage will assist with infiltration and add many more soil and plant benefits. Moderate compaction can be relieved through regular core aeration to depths of 3-5 inches.



Following core aeration, organic matter can be lightly applied over the turf grass and raked into the core holes. By continuing on a regular core aeration and organic matter topdressing program, soil infiltration and turf grass health will be gradually improved over time.

### **THE BENEFITS OF COMPOST AS A SOIL AMENDMENT:**

- improve soil aggregation;
- increase infiltration;
- reduce runoff;
- improve soil porosity;
- increase soil moisture holding capacity (reduce water demand of lawns and landscaping);
- reduce erosion;
- absorb or aids in degradation of certain pollutants, including hydrocarbons, solvents and heavy metals (due to increased cation exchange capacity);
- reduce fertilizer needs by improving soil nutrient holding capacity;
- reduce pesticide and herbicide needs;
- low cost; and
- does not increase maintenance needs.

When using compost as a soil amendment to reinvigorate turf and water infiltration there are best management practices for the material used, design and application process, and precautions for nutrients from the compost material. The Turf section of the Minnesota Stormwater Manual provides guidance, as does the Proper Soil Preparation section of the Sustainable Urban Landscape Information Series.

### **BEST PRACTICES FOR USING COMPOST AS A SOIL AMENDMENT**

- ✓ Use the right compost material for your situation. Compost material composition has varying nutrient composition and maturity of the compost is an important consideration. If the material chosen is not fully composted, microbes in the soil will deplete oxygen that is required for turf grass growth.
- ✓ Determine your existing soil conditions - use a soil test to determine soil type, organic and moisture content, and degree of existing compaction.
- ✓ Use application rates suggested in the Minnesota Stormwater Manual For turf areas, incorporate (tillage is best) 1.75” of compost into the top 6 or more inches. .

### **REFERENCES & RESOURCES**

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