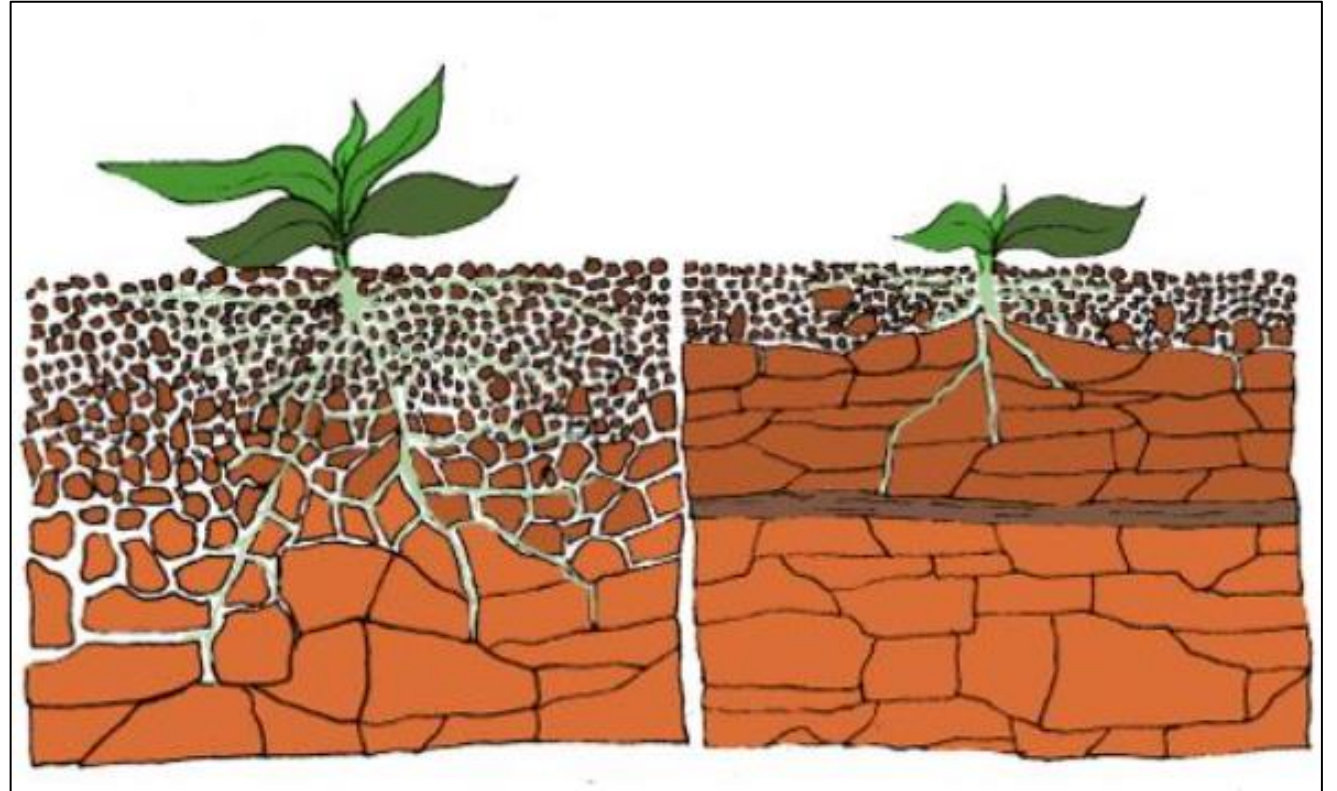


Urban Soil Health Project

WHY AN URBAN HEALTHY SOILS PROJECT?

- Urban/suburban soils are often highly impacted from historical uses and past land development techniques, which negatively impacts stormwater management.
- The complexity and variation in urban/suburban landscapes can limit the use of traditional and conventional stormwater treatment strategies and options.
- Healthy soils are an important component of high-functioning ecosystems, including in urban/suburban areas, and healthy soils can provide another stormwater strategy and option towards achieving broader water management goals and additional co-benefits.
- Use and adoption of an urban healthy soils strategy is currently limited by lack of knowledge, information, experiences, technical guidance, and current conditions, which can lead to a perception that healthy soils are not a viable option because it does not work, is too costly or would be difficult to maintain.



WHAT ARE THE ANTICIPATED OUTCOMES OF THE PROJECT?

- Compilation of recent research, science and practical expertise that can be used to develop a technical standard or urban soil health strategy.
- Preparation for pilot project that implements an urban health soil practice for water quality and other co-benefits.
- Framework/outline for a public education and outreach initiative to improve stakeholder and public awareness.



- Urban soil health practices should be incorporated in other DNR storm water technical standards.
- The DNR urban soil health technical standard should consider the following:
 - Urban soil health practices should mitigate the loss of hydrologic characteristics of soil that have been or will be disturbed and compacted by urban development.
 - Urban soil health practices should protect, restore or create biologically active soil profiles to maximize infiltration and water holding capacity.
 - Urban soil health practices should focus on the upper 2 feet of the soil profile.
- Urban soil health practices should control runoff and associated pollutants at the source. They should not be used to treat runoff/run-on from other source areas.
- For construction sites, the following urban soil health strategies should be considered:
 - Topsoil should be evaluated and managed properly.
 - Soil disturbance and compaction should be avoided to the extent possible.
 - When avoidance isn't possible, the soil profile should be renovated.
 - Grading plans should identify compacted, uncompacted and no disturbance areas.
- Topsoil removal, stockpiling and replacement should be done using methods that consider soil health:
 - Minimize compaction during topsoil replacement (e.g., loose tipping method, maximum penetration resistance standard).
 - Amend topsoil with compost.
 - De-compact subsoil prior to topsoil replacement.
 - Use alternative topsoil stockpiling methods.

- For restoration of large areas, use suburban subsoiling methods:
 - Conduct deep ripping and incorporate compost
 - Use DNR S100 compost
 - Create construction specification for this method
 - Consider the impact of increased infiltration on adjacent structures
- For restoration of small areas, use methods that consider conflicts with underground utilities and other urban features:
 - Use complete cultivation method.
- Urban soil health demonstration/monitoring sites should be designed to consider the following goals:
 - Determine runoff volume control based on soil texture.
 - Determine total suspended solids and phosphorus concentrations and loads from surface discharges.
 - Demonstrate restoration methods for contractors.
 - Demonstrate evaluation methods for inspectors.

Suburban Subsoiling Euclid Middle School : Overview



Table 1. Expected Hydrologic Change from Suburban Subsoiling
by Texture

Largest Expected Change	Smallest Expected Change
Clay Loam	Clay
Sandy Clay	Loam
Silt	Loamy Sand
Silty Clay Loam	Sand
Silty Loam	Sandy Loam

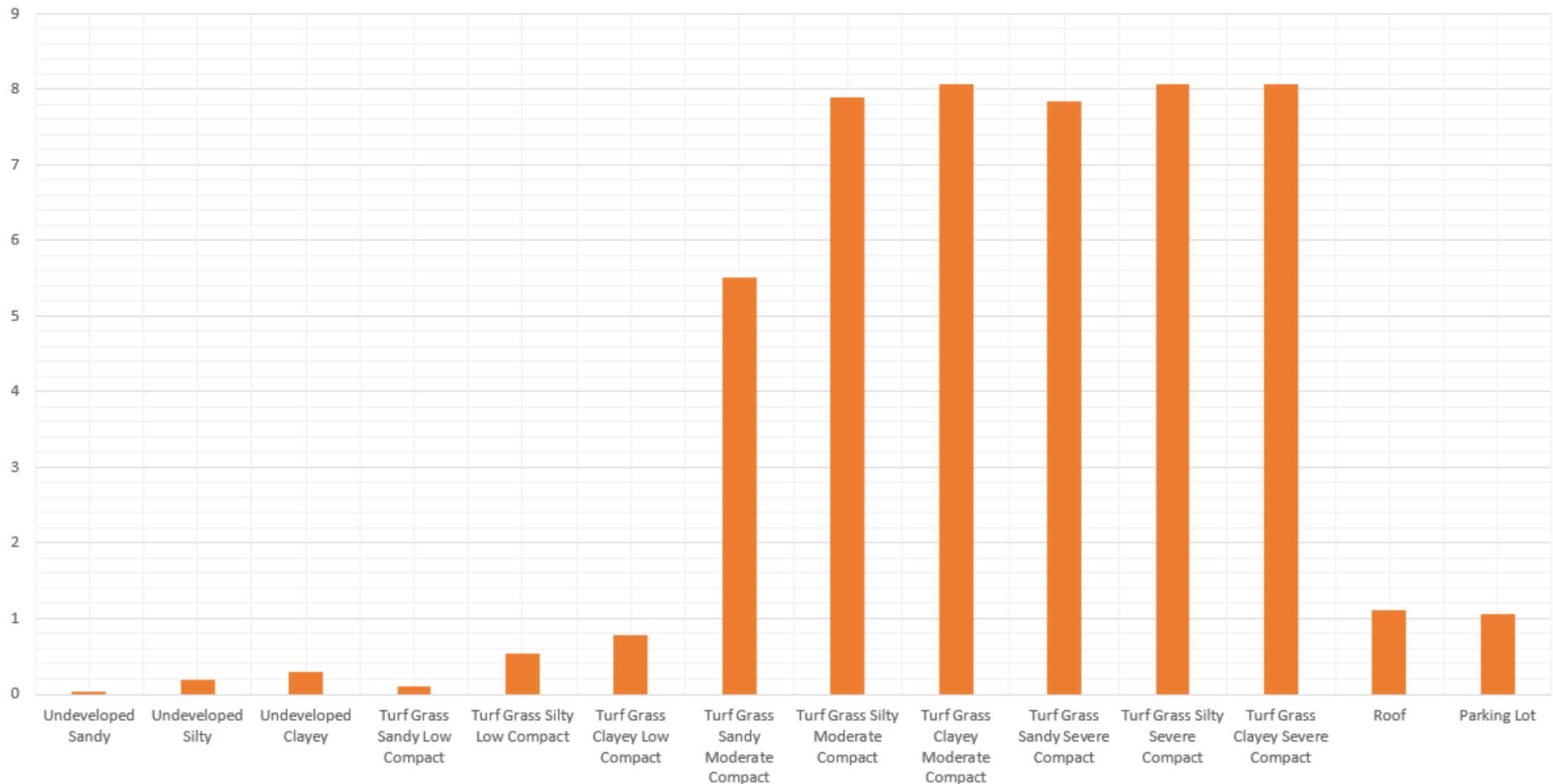


Figure 7 Non-contact placement of unconsolidated soil with a soil slinger



Figure 1 An excavator removing soil.

TP Loading (lbs/acre/yr)



CONNECT WITH US

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