Soil organic matter certainly plays many roles in the urban landscape, but knowing what type of soil you have is key to getting started. There are three main soil types that are encountered by homeowners: sands, clays and loams. And there are many combinations of the three types. The key differences among soil types are related to particle size and pore space (air spaces).

**Sands**
Sands have the largest particles, the least pore space, and the least water-holding capacity.

**Clays**
Clays have the smallest particles, the most pore space and highest water-holding capacity.

**Loams**
Loams are intermediate particles and have as much or more plant-available water capacity as clays, despite overall lower water-holding capacity. That does not seem to make sense and leads us to the how and why of soil organic matter.

Loams have a wide variety of pore sizes, where sands and clays tend to have more uniform pore sizes — large for sands, small for clays. Tiny soil pores cause clay soils to hold very tightly to water molecules. The large soil pores of sands mean that water can drain through without being held.

Loams might have some real advantages over clays and sands. Loams tend to be well-draining, have good soil infiltration rates, yet retain water and most importantly, allow it to be more available to the plant than clays or sands. The secret is the variety of pore sizes in a loam.
When added, soil organic matter plays a large role in creating a variety of pore sizes. Sands and clays benefit the most from this. Organic matter added to sands helps create smaller pore spaces that can retain water. Organic matter added to clay helps create larger pores that allow better drainage, faster soil infiltration, and loosens the tight hold clay particles exert on water molecules, making water more available to the plant.

It is very difficult to change a soil type, but organic matter is a secret weapon that gives us the variety of pore sizes needed to improve available water in any soil, even loams.

Do irrigation intervals matter?

The longer the interval between irrigations, the better the chance that Mother Nature will fill in with rainfall and lessen our need to irrigate. The fewer irrigations, the less system waste there is, provided run-times did not increase on the remaining irrigations. The ability to extend the irrigation interval means less-stressed turf that can maintain its health through challenging conditions.

Amending the soil with organic matter may seem like an unnecessary step. But it does make a difference. Organic matter should be amended at rates of at least 3 cubic yards per 1,000 square feet. That translates to about an inch depth of organic matter before it is tilled in.

Organic matter must be incorporated into the soil to yield benefits. Incorporating to 6 inches is common. Deeper is better, as long as more organic matter is then applied.

Tillage helps develop a deep rooting zone. In the Front Range clay soils, there is often a constricted layer that keeps water from moving downward and that roots have trouble penetrating. Tillage can help break this layer up. A shallow root zone is a recipe for poor drought tolerance, high frequency irrigation and plant health problems.

Adding organic matter and tilling it in properly provides the best possible environment for rooting depth and growth, soil water availability, and water conservation.