



# A COMPOST PROCUREMENT POLICY FOR MEMPHIS

Model policy written by the Environmental Law Institute and Natural Resources Defense Council



# OVERVIEW

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In 2022, Clean Memphis gathered City and County municipal partners to pitch the procurement of compost for local projects.

## MUNICIPAL REPRESENTATIVES:

- City Parks
- Solid Waste
- Planning and Development
- Sustainability and Resilience
- Public Works
- Engineering

**Key Discussion:** A compost procurement policy requires or encourages in some manner that municipalities purchase and use finished compost in public projects such as landscaping, construction, and stormwater management.



# CONNECTING POLICY TO PLANNING

Clean Memphis used existing objectives in the municipal Climate Action Plan and Memphis 3.0 to connect compost procurement to municipal priorities.

### Memphis 3.0 Objectives

- 3.4 Expand sustainable approaches to material and waste management and reuse
  - 3.4.1 Work with Shelby County and other municipalities to develop a long-term regional solid waste management plan that supports a vision of zero waste.
  - 3.4.2 Incentivize material reuse.
  - 3.4.11 Increase the City's capacity to divert and process food, yard, and wood waste for productive use.
  - 3.4.12 Incentivize construction projects to utilize repurposed materials.
  - 3.4.15 Identify value chain options for mulch, leaf litter, and yard trimmings.

### Memphis Area Climate Action Plan:

“Current strategies to increase the amount diverted and recycled can include the support and creation of new circular economies and generating revenue streams from those products. Incentivizing both larger commercial operations and homeowners to reduce the amount of waste generated through creating marketable alternatives is a regional effort, seeking creative uses for products that would otherwise be landfilled.”



# COMPOST SOLVES PROBLEMS

A leave-behind from the Compost Research and Education Foundation served as a guide for each division on HOW the use of compost could solve issues in their current projects.

## LANDSCAPE GARDENS USING COMPOST

**Description:** This work consists of incorporating compost within the plant-root zone in order to improve soil quality and plant growth. This specification applies to all types of plantings including trees, shrubs, vines, ground covers, and herbaceous plants.

**Key Benefits/Return on Investment:**

- Improves soil structure.
- Nutrient savings – minimum 75% (possibly for 2 years).
- Water savings – 25 - 50% annually.
- May reduce or eliminate lime/gypsum application, and
- Improves seed germination and transplant success.

Various research papers identify great benefits surrounding planting beds with compost, and even more results are typically found when soil amending and mulches are used in conjunction.

**Construction Requirements:**

- Compost should be uniformly applied over the planting area at an average depth of 1 to 2 inches.
- Lower compost application rates may be necessary for salt sensitive plants, where compost possessing higher salt levels are used, or where plants with low nutrient requirements are to be established.
- May increase application rates (when lower) where deeper (9-12 inches) incorporation is required in sandy soils and where reduced water usage is desired. In these cases, a lower nutrient content compost is suggested (e.g., yard trimmings-based).
- For native species not requiring much fertilizer, use compost which are both stable (being highly stable) and contain lower nitrogen contents.
- Incorporate uniformly to a depth of 6 inches using a rotary tiller or other appropriate equipment.

**Additional Information:**

- Planting beds for woody ornamentals (tree and shrub) typically require lower application rates of compost (and nutrients).
- For vegetable gardens (fruit and vegetables), especially heavy feeders, require higher application rates of compost (and nutrients).

**General:**

**Compost Analysis:** All compost products have different characteristics. Before selecting a compost product, a compost analysis should be completed by a reputable laboratory\* to determine the characteristics of the material, so that the right material can be used for the appropriate purpose. Once determined, the soil should be appropriately amended to a range suitable for the plant species to be established and results desired.

**Soil Analysis:** Before any soil project, this procedure ensures the results should be completed by a reputable laboratory to determine the soil's pH, nutrient levels, pH and organic matter. If necessary, these determinations should be completed to determine the range suitable for the plant species to be established. Compost application rates should be determined based on soil analysis, plant species, and water irrigation management plan. The use of stable compost may minimize the variability within fertilizer requirements by the amount of available nutrients in the soil.

**Notes:**

- Avoid incorporation when soils are excessively wet or dry.
- Pre-plant fertilizer and pH adjusting agents (e.g., lime and sulfur) may be applied in conjunction with compost incorporation, but at a lower application rate.
- Rake soil surface smooth prior to planting.
- The soil surface should be smoothed free of large clods, rocks, twigs greater than 2 inches, and other material which will interfere with planting and subsequent site establishment.
- Rake thoroughly after planting and apply mulch.

CITY PARKS - LANDSCAPING

## TURF MAINTENANCE USING COMPOST

**Description:** This work consists of spreading a uniform layer of compost over existing turf in order to improve soil and vegetation. This specification applies to both cool and warm season grass species and is most beneficial when done in conjunction with aeration.

**Key Benefits/Return on Investment:**

- Nutrient savings – 50% or more of fertilization for the first year.
- Water savings – may be significant with multiple compost applications, or when done along with core aeration.
- Reduces soil compaction when completed along with aeration.
- Assists in the degradation of thatch.
- Enhances the rate of establishment and overall appearance, and
- May provide soil-borne disease suppression, reducing pesticide applications.

Extensive practical experience illustrates successful turf top dressing on residential, commercial and sports turf.

**Construction Requirements:**

- Mow grass to preferred mowing height or slightly lower.
- Core-aerate the entire area to be treated with compost. Ideally, use deep (4 to 6 inch long) 1/2 inch aerator, minimum, hollow tines for best results. Larger holes will more easily allow for compost to be worked into them.
- Aeration may also be completed with solid tine aerators or a verti-drain.
- Make 4 to 5 passes over the area to be treated, moving in two directions. If compaction is a significant problem, then 8 to 10 passes with the aerator may be beneficial.
- Uniformly apply approximately 1/4 to 1/2-inch of compost across the turf area to be treated.

**Additional Information:**

- Finer, low in odor, and nutrient rich compost and manure compost are preferred for this application.
- If top dressing is being completed to level the turf surface, then banking compost with a wheelbarrow or sand should not be a preference.
- When applied in the fall, the compost top dressing should require the fall water irrigation application.

**General:**

**Compost Analysis:** Not all compost products have similar characteristics. Before selecting a compost product, a compost analysis should be completed by a reputable laboratory\* to determine the characteristics of the material, so that the right material can be used for the appropriate purpose. Once determined, the soil should be appropriately amended to a range suitable for the plant species to be established and results desired.

**Notes:**

- Finer compost are required for this application, and lower application rates of compost should be used if the turf is mowed at a 1-inch height or below.
- Various types of spreading equipment may be used for top dressing, including a farm manure (with rear flails) or large lime/fertilizer (with rear spinners) spreader. However, specialized turf dressers (with rear flails) are preferred and often result in the best results. Compost top dressing equipment should be used to spread the compost through the turf canopy, avoiding the turf surface.
- Do not top dress if the grass is still wet from the previous irrigation, as the compost will stick to the grass blades.
- Back drag the entire area with a weighted chain-link fence, rake or specialized implement, to break up the cores and allow them with the compost to fill the aeration holes.
- Over watering may be completed before or after the compost is applied. If done after top dressing, make sure the sand into the compost layer to cover it.
- Water the treated area well.

CITY PARKS - MUNICIPAL GOLF COURSES

## EROSION CONTROL BLANKET USING COMPOST AS A MEDIA

**Description:** This work consists of applying a coarser compost onto a sloped soil surface to prevent runoff, reduce erosion and enhance vegetation establishment for long-term slope stabilization.

**Key Benefits/Return on Investment:**

- Reductions in sediment movement: 67-99%.
- Stormwater runoff reductions: 60-97%.
- Nutrient savings: 50-100% for multiple years.
- Water savings – minimum of 25%.
- Enhances seed germination, plant establishment and slope cover percentage.
- Cost of 1 and 2 inch application is equal to single and double rolled erosion control blankets, and less if seeding, and
- Assists with building projects seeking LEED credits.

This technique can be used for both temporary and permanent erosion/sediment control applications in areas affected by sheet flow erosion patterns (not concentrated flow). It is appropriate for slopes between 2:1 grade (horizontal distance:vertical distance), but may also be used on up to 1:1 slopes with proper compaction to length of slope and compost application rates (above). In severe cases, an erosion netting that is staked to the soil surface may be used under or over the blanket.

**Construction Requirements:**

- Coarse compost should be uniformly applied over the graded surface using a grading blade, pneumatic blower, slinger, or other spreading unit, to a depth described below. The goal is to achieve 100% soil coverage with the compost layer. Areas receiving greater precipitation, possessing a higher erosivity index, or which will remain unvegetated, may require greater application rates.
- For slopes greater than 2:1, the soil surface should be prepared using a grading blade, pneumatic blower, slinger, or other spreading unit, to a depth described below. The goal is to achieve 100% soil coverage with the compost layer. Areas receiving greater precipitation, possessing a higher erosivity index, or which will remain unvegetated, may require greater application rates.
- Apply compost over uniformly, achieving 100% coverage, approximately 3 feet beyond the top of the slope to protect it from existing vegetation. On high erosion areas, use compost in conjunction with high erosion control erosion control measures (followed by seeding or grass planting if desired). Where possible, this compost should be applied to the slope, before or after a compost application, using a tracking bulldozer or other appropriate equipment. The indentations can capture water and prevent any water from moving down the soil-compost interface.

**Product:** Use only a well-composted product that contains no substances toxic to plants when establishing grass, wildflowers, or other vegetation. Very coarse compost may need to be applied if the slope is to be landscaped or seeded, as it will make turning and crop establishment more difficult. Compost containing fibrous particles that snag in soil or have a more stable compost binder.

Annual Rainfall	Total Precipitation & Rainfall Erosivity Index	Application Rate for Vegetated* Compost Surface Mulch	Application Rate for Un-vegetated Compost Surface Mulch
Low	1-25"	1" - 1 1/2"	1" - 1"
Average	26-50"	1 1/2" - 2"	1 1/2" - 1 1/2"
High	51" and above	2" - 2 1/2"	2" - 2"

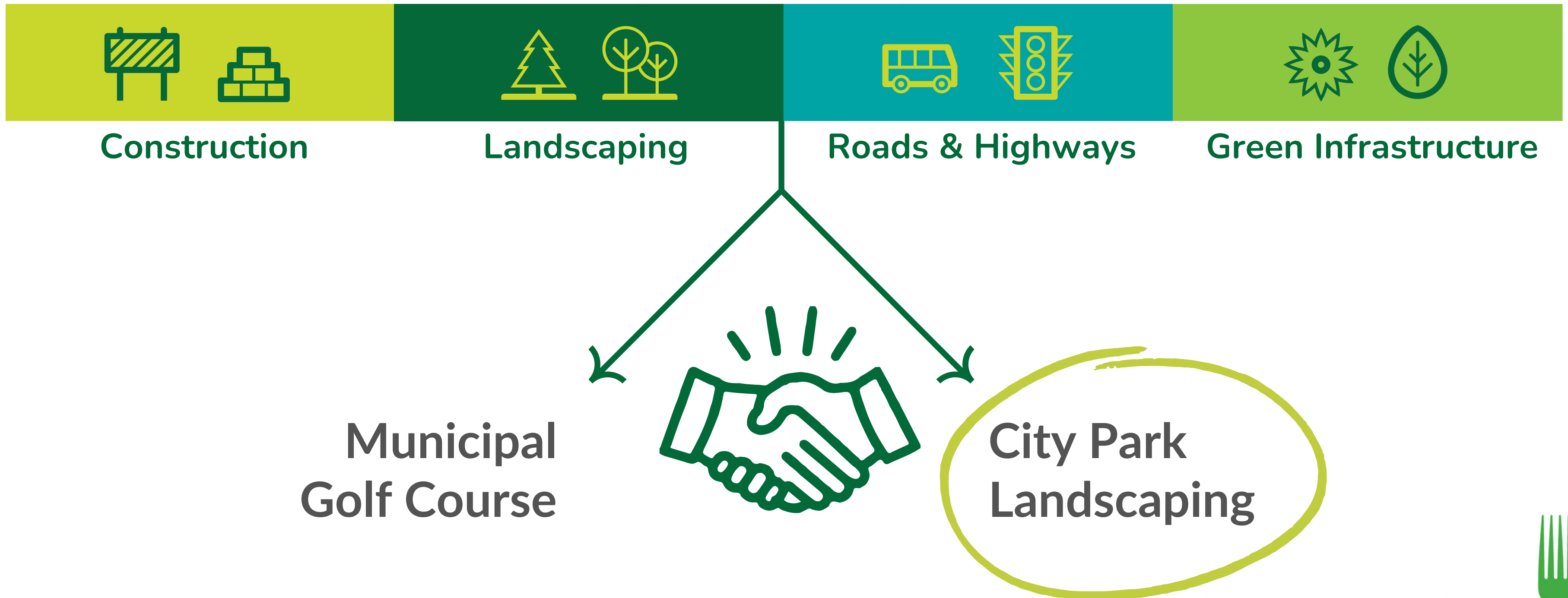
STORMWATER

Contractors working with local government are often unaware of the benefits of using compost in their work. These guides act as a tool for them as well.



# PILOT ESTABLISHED

Potential projects were identified as opportunities to implement a pilot. A city park was selected to receive the first round of compost.



# WINS AND CHALLENGES

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The completion of this project marked an overall positive step towards future compost procurement projects in Memphis and Shelby County.



- Pilot project fostered relationships between Clean Memphis and municipal leadership.
- Offered a plug and play guide for all parties.
- **Provided Clean Memphis with an opportunity to connect our work with city/county sustainability priorities.**
- Created a replicable process for future compost procurement.



- **Changes in leadership hinder continuity and data collection.**
- Local procurement challenges include compost supply availability and packaging methods.
- **Commercial organics recycler loss in 2023 led to local procurement issues.**



## NEXT STEPS

- City of Memphis conducting a waste characterization study and updating the Climate Action Plan.
- Solid Waste finalizing contract with an organics recycler to reinstate compost production.
- Clean Memphis continues advocacy, reconnecting with early adopters of sustainable policies and fostering a relationship with Mayor Paul Young and his administration.
- Clean Memphis to reconvene leadership to identify the next opportunity for compost procurement.
- Clean Memphis will shore up data collection process and assign a champion to judge the success of the next pilot.





# THANK YOU!

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