Appendix A: Glossary of Terms

Aerobic: relating to, involving, or requiring free oxygen.

Ambient temperature: the temperature of the surrounding environment.

Anaerobic: relating to, involving, or requiring an absence of free oxygen.

Aspergillus fumigatus: a common fungal species found in soil, decomposing leaves, and compost that can become airborne and to which susceptible individuals (such as those with suppressed immune systems, illnesses, or diseases affecting the lungs) may be sensitive.

Bioaerosols: microbes and other living biological particles suspended in air.

Bioassay: a method for testing for the presence of phytotoxic compounds in compost. Testing for seed germination and plant growth are common compost bioassays.

Biocover: a material such as compost or rich in carbon that is used to cap compost piles, such as a layer of at least 2 inches of finished compost, 6 inches of unscreened compost, or 12 inches of woody compost overs.

Bokashi: a method of preserving food scraps in an anaerobic, lactic acid fermented state. If done correctly, this process helps reduce odors and allows food scraps to be stored for some time before being composted.

"Browns": materials relatively high in carbon such as fall leaves, wood chips and shavings, straw, shredded newspaper, and woody yard and garden trimmings. Browns are key to the microbes' balanced diet as they provide the energy needed to metabolize proteins and other nitrogenous compounds.

Bulk Density: the weight of a certain volume of a material. In composting, bulk density is used to estimate porosity in a mix of materials. For example, the average bulk density of wet food scraps is 1,000 pounds per cubic yard. The ideal bulk density of an initial material mix for composting is lighter, around 800 pounds per cubic yard.

Bulking agent: a material that increases porosity and improves the structure of a compost pile, such as wood chips.

Cation Exchange Capacity (CEC): the capacity of the soil to attract and hold on to positively charged mineral ions, or cations. A soil's CEC is increased by the presence of clay and organic matter.

Cellulose: the primary substance that makes up plant cell walls.

"Chimney Effect": describes how air circulates in a compost pile. In a properly built aerobic compost pile, air circulates much like in a house with a hot fireplace and a chimney. As the center of the pile heats up, hot air rises from the middle which pulls cool air into the pile.

Compost: a dark, crumbly, earthy-smelling and humus-rich material produced by the natural aerobic decomposition of organic materials such as garden residuals and food scraps. When added to soil, compost improves its biological, chemical, and physical characteristics, making the soil a better home for plants and beneficial soil organisms.

Composting: the transformation of raw organic materials into compost via the process of aerobic decomposition. It is a natural process that is driven by microorganisms, like bacteria and fungi, which break down organic materials for energy. Composting is the way that nature recycles! We can speed the process by creating the ideal conditions for the microbes to thrive: adequate airflow, sufficient moisture, and the right recipe or food.

Contact water: any water that has come into contact with raw feedstocks or actively composting material. It is not compost tea and needs to be kept from running off-site into waterways and food growing areas. This liquid may contain pathogens and a high-nutrient load. (Note: often referred to as leachate, a term we reserve for the toxic liquid leaking from landfills.)

Curing: marked by a sustained drop in temperature back into the mesophilic range. As the pile cools down, fungi and actinobacteria become more active, metabolizing the more complex cellulose and lignin rich materials. While composting has slowed down during this stage, it is still occurring, and the humus content of the pile is increasing. After being given some time to cure and mature (at least

4 weeks, but sometimes multiple months), the compost has reduced plant toxins and will have a lower amount of oxygen and nitrogen.

Electrical Conductivity (EC): the ability of soluble salts in compost to carry an electric current.

Homogenous: having uniform or similar characteristics. The final product of the composting process should be homogenous, meaning everything is a similar color and texture and none of the original raw feedstocks should be identifiable.

Humus: the dark, complex, stable, carbon-rich organic matter that results from the natural decomposition of organic materials. It increases the capacity of soil to store water and sequester, or store, carbon from the atmosphere.

Feedstocks: raw material inputs for the composting process; these organic material substrates are food for the microorganisms that power the composting process.

Fitness for use: testing that gauges a compost sample's fitness for use measures the level of free ammonia and volatile organic acids present in compost. Compost is considered fit for use when these compounds are no longer present as they are toxic to plants.

"Greens": materials relatively high in nitrogen such as raw vegetable and fruit scraps, coffee grounds, fresh grass clippings, and garden scraps. High-nitrogen materials help the microbes produce proteins. Greens often can also provide needed moisture in the pile.

Leptospirosis: a bacterial disease that affects humans and animals. In urban areas, rodents can be vectors for this disease.

Lignin: a complex and slow-to-decompose organic substance that makes woody materials rigid.

Macroorganisms: larger organisms that mostly act as "shredders," chewing materials into smaller pieces that are more accessible to microbes. Animals and insects such as snails, earthworms, nematodes, millipedes, flies, and beetles are "shredders" that thrive in mesophilic conditions (temperatures less than 105°F).

Mesophilic: the phases of the composting process that occur between 50 - 104°F. During the first mesophilic phase, mesophilic bacteria will begin to eat substrates with high-energy yield like sugars, starches, and fats. A compost pile will return to a mesophilic range during the curing process.

Microorganisms (or microbes): the powerhouses of the compost pile, chemically transforming raw materials into stabilized humus. They are too small to see with the naked eye. In a pile, bacteria rush to eat up the fruit and vegetable scraps, which are full of simple and energy-rich components such as sugars and starches. As they work, they generate heat in the pile and allow other microorganisms to begin their work.

Organic materials: anything that was once alive and can be decomposed by composting organisms. Organic materials in feedstocks are what feed the composting organisms.

Organic matter: organic material that has been stabilized by the decomposition process. It is an output of the composting process. Compost is a a source of organic matter for the soil.

Overs: Big pieces or "leftovers" from the compost screening process, often lignin-rich materials, such as wood chips and branches, that do not fully break down in one pass through a compost system. Overs can also include contaminants such as plastics that are screened out.

Passive or cold composting: a low-effort method of composting that involves little attention to turning and watering or otherwise optimizing composting conditions. Because the composting process is not optimized, materials won't break down quickly and producing finished compost may take more than a year. Weed seeds and pathogens may persist, as temperatures above 130°F are needed to kill them. This method is not appropriate for community sites composting food scraps.

Pests: include rodents, flies, cockroaches, and other unwanted animals and insects that can act as vectors of pathogens and disease.

pH: a scale that represents the relative acidity or alkalinity of a substance.

Phytotoxic: a compound that is toxic to plant growth.

Process to Further Reduce Pathogens (PFRP): compost processing time and temperatures should be sufficient to

kill most weed seeds, and reduce pathogens such as E. coli or salmonella, and vector attraction (unwanted critters).

Putrescible: a material that decays and putrefies easily.

Runoff: refers to water that drains off a compost site.

Selectively permeable covers: fabric covers used to protect actively composting piles, curing piles and finished compost piles by shedding rainfall, blocking UV rays, while still allowing piles to breath.

Solarization: involves using radiant heat from the sun to kill pests, pathogens, and unwanted seeds. Most simply, this can be achieved by placing the material to be treated in a black plastic trash bag and leaving it in a sunny spot for four to six weeks.

Stability: can be gauged by the amount of energy-rich feedstocks remaining for composting microbes to consume and whether or not decomposition is still occuring. Stable compost will have no remaining feedstocks for microbes to consume.

Thermophilic: the phase of the composting process where temperatures reach above 104˚F. During this stage, heat-tolerant bacteria continue to eat simple compounds with high-energy yield. With sufficient food, water, and air, these microbes can bring the temperature up to 150˚F or higher. Most weed seeds are killed at 145˚F, but tomato seeds may persist until around 153˚F. Much above 155˚F, composting microbes begin to die off and decomposition slows.

Thermophilic composting: a method of composting that involves more attention to piles so that they achieve temperatures higher than 104°F. This approach produces a finished product more quickly than passive composting does. In order to reach optimal temperatures to kill weed seeds and pathogens and speed the process, you will need to regularly turn the pile and maintain adequate moisture.