



Mission: Provide hazardous waste disposal and recycling assistance within Hood River, Sherman and Wasco counties.

Goal (specific to compost): Determine best solution(s) for organic solid waste in our area. In furtherance of our goal to seek best practices for yard debris and food waste that comes from Hood River, Wasco and Sherman counties, our program recently began monitoring any relevant discussions we could find in the Gorge. We are observing a wholesome level of discussion from all sectors (individuals, farmers, nonprofits, business and local government). Along with a healthy overlap of ideas and objectives, there also appears to be expected disparity on issues such as: (1) what technology to use, (2) service area, (3) scale of operation, (4) location, and (5) who might own/operate.

We Are Now Studying:

The best solution(s) for handling organics from the solid waste stream of the Oregon Tri-County area (Hood River, Wasco, and Sherman Counties).

Organics, in simple terms, includes yard debris, food scraps, and soiled paper. This goal will be achieved by identifying, evaluating, ranking, and discussing viable organics management options.

The primary goals are to:

1. Gain a more detailed understanding of organic materials generation patterns, with estimated tonnages, by county, by incorporated city, by broader Columbia Gorge region (Oregon Tri-County area, plus Skamania and Klickitat Counties), and by type of generator.
2. Obtain up-to-date information on the existing capacity of the organics collection, transfer and processing infrastructure in the Tri-County area and in the broader Columbia Gorge region.
3. Identify estimated internal (e.g., capital, operating) and external (e.g., carbon footprint, etc.) costs and likely start-up funding sources.
4. Solicit and review community input regarding potential options for organics management.
5. Identify, discuss, and rank organics management options.
6. Develop specific and clear program and infrastructure recommendations for various organic materials generated in the Tri-County area.

In its work, Cascadia will use independent sound professional judgment, which is based on technical, economic, and organizational analysis and experience developed over a 20-year period. Cascadia’s overall approach to meeting these goals is to combine a comprehensive understanding of inputs and outputs; successful organics programs in Oregon, Washington, and elsewhere; collection and processing infrastructure; internal costs (program economics and facility costs); external costs (GHG effects and carbon footprinting); key differences and decision points in different handling strategies; the regulatory and permitting framework for organics processing facilities in Oregon and Washington; the community engagement process; the pros and cons of handling various organic streams; and likely sources of start-up funding.

Cascadia Consulting Group will deliver the following core products:

1. **Organics Inventory Report** (inventory of inputs)
2. **Infrastructure and Regulatory Report** (description of existing relevant infrastructure in the region)
3. **Key Themes and Findings Report** (summary of stakeholder interviews)
4. **Organics Management Options Using an Evaluation Criteria Matrix** (ranking of organics handling options)
5. **Stakeholder Meeting and Leading Options Report** (inform community, gain feedback, select top options for further study)
6. **Final Report** (present recommendations, integrate project reports and information).

Each of these core products corresponds with one of the following six tasks. This scope includes one optional task that is not budgeted.

Task 1—Organic Materials Inventory

Cascadia will conduct a review of the organics found in the solid waste stream. This inventory of “inputs” will include estimates of tons generated, recycled, and disposed, by major material type, by geography, and by type of generator. The materials inventory will rely on published sources of information, other information furnished by the counties included in the study, and Cascadia’s extensive database of waste characterization data, including those from Oregon and eastern Washington (including Walla Walla, Grant, and Yakima Counties).

The materials to be assessed include:

- Yard debris
- Food scraps
- Compostable but non-recyclable paper (“soiled paper”)
- Other materials such as forestry residues, construction and demolition (C&D) debris, and agricultural residues, including wheat straw, and stonefruit culls and other waste from packing houses.

Within the yard debris stream, estimates will be made of percentage and tonnage that is more fibrous (e.g., brush, branches) and the percentage and tonnage that is more putrescible (e.g., grass, leaves). These distinctions can be important in terms of processing. More fibrous materials typically are ground into mulch, turned into boiler fuel, or used as bulking agents for composting operations. More putrescible materials typically are composted or anaerobically digested.

Within the food scraps stream, tonnage estimates will be made for the following categories:

- Pre-consumer and post-consumer (affects collection strategies and level of contamination)
- Vegetative and non-vegetative (determines type of permit)
- Residential, commercial, industrial, and agricultural (each sector has different attributes and generation patterns)

We will also address seasonal fluctuations in organics generation, by material type, either anecdotally or quantitatively to the extent that such data are readily available.

The results of the materials inventory will be presented for the following geographical areas:

- Hood River County
- Wasco County
- Sherman County
- Hood River, Wasco, and Sherman Counties combined
- Columbia Gorge area (Hood River, Wasco, Sherman, Skamania [WA], and Klickitat [WA]).

An **Organics Inventory Report** will be delivered as the outcome of Task 1, Organic Materials Inventory. (August)

Task 2—Analysis of Existing Infrastructure and Regulatory Framework for Handling Organics

We will conduct an infrastructure analysis for the major organics material types that are found in the solid waste streams of the Tri-County area. This analysis will provide updated information on the existing capacity of the organics collection, transfer, and processing infrastructure in the Columbia Gorge area. Tons of unused facility capacity, permitted materials, and other relevant details will be presented for the Tri-County area, the broader Columbia Gorge area, and areas further westward (e.g., Metro area) and eastward (e.g., Morrow County). A comparison of organics processing regulations and permitting requirements in Oregon in general, the Columbia Gorge area in particular, and Washington will be included in this task. Our infrastructure and regulatory analysis, combined with the analysis presented in Task 1, will help to ensure that decision-makers and stakeholders have a common understanding of the ability of the existing recycling infrastructure to handle various components of the organics stream.

An **Infrastructure and Regulatory Analysis Report** will be delivered as the outcome of Task 2, Analysis of Existing Infrastructure and Regulatory Framework for Handling Organics. (September)

Task 3—Stakeholder Interviews

Cascadia will work with Tri-County staff to conduct interviews with public and private-sector stakeholders, including the following:

- Wasco, Sherman, Hood River, Skamania, and Klickitat counties
- The cities of Hood River, The Dalles, and Vancouver (WA)
- Service providers, such as Waste Connections, Cedar Grove, and processors in the Metro region
- Oregon DEQ
- Washington Department of Ecology
- Metro
- Other interested parties, such as those identified in the *Anecdotes for Tri-County Organics Management RFP*

Through these interviews, Cascadia will collect information and identify key issues, needs, and opportunities (including any proposed relevant projects) in order to grade the “plausibility” of recommendations based on an informed understanding within a regional context. (October)

We will prepare a **Key Themes and Findings Report** summarizing the stakeholder interviews.

Task 4—Organics Management Options

Cascadia will identify organics management options for:

- Yard debris (woody fraction only; putrescible fraction only; combined)
- Yard debris plus vegetative food scraps
- Yard debris plus all types of food scraps
- Yard debris plus all types of food scraps plus soiled paper
- Yard debris and food scraps, mixed with selected agricultural, food processing, and/or forestry biomass and/or C&D materials

For collection, we will discuss various options, such as:

- Collecting yard debris at curbside from residents of more densely populated areas or throughout the Tri-County area, on a seasonal or year-round basis.
- Collecting organics (e.g., yard, debris, food scraps, soiled paper) from businesses and residents of certain areas.

We will discuss these and other options in terms of education and outreach needs, indoor and outdoor container considerations, collection frequency, equipment needs and estimate of upfront investment required, and related topics.

For transfer to potential processing sites, we will list distances in miles and in estimated travel time for collection or transfer vehicles. We will convert these data into tons of carbon dioxide equivalents, to estimate the greenhouse gas effect of various transfer options. This section will address various handling strategies, including:

- Processing Tri-County area feedstocks locally
- Importing additional feedstocks from the Metro region
- Exporting feedstocks to the Metro region, to Washington, or further east

We will highlight some of the key factors and issues in deciding whether to use a single processing operation or to use multiple facilities. Likely among the key program planning issues that we will evaluate are:

- Local vs. regional processing
- Public vs. private ownership
- Lower-cost yard debris-only programs vs. higher-cost organics programs.

For processing, we will categorize the options as either “in Tri-County area” or “outside Tri-County area”; some options may involve a combination of in-area and out-of-area processing infrastructure. As part of this phase of the work, we will compare the organics processing facility permitting and regulatory process in Oregon with that found in Washington, with attention to particular air quality regulations and concerns associated with the Columbia Gorge area.

We will also categorize the alternatives as “public,” private,” or “public/private.” We will identify a range of processing technologies, such as size reduction through grinding; open windrow composting; forced air or covered pile composting; anaerobic digestion; and other options as described in the RFP. Primary environmental advantages or potential disadvantages of each option will be addressed. To the extent that such information is readily available and thought to be reliable, we will compare the estimated greenhouse gas impacts of various processing system types.

In terms of “outputs,” we will describe end product types, uses, and estimated quantities, based on various assumptions about feedstocks and processing options. We will describe in general terms the markets and range of wholesale prices for these end products, as well as local government and institutional demand for various end products.

We will prepare an analysis and ranking of technologies, organized in an **Evaluation Criteria Matrix** for decision making. This ranking will help guide the stakeholder engagement process and further analysis.

The following technologies that potentially could be used for processing the primary organics found in the solid waste stream will be evaluated:

- Composting (windrow; full-service; vermicomposting)
- Pelletization (mobile; fixed location)
- Energy conversion technologies (biodigestion, bio-energy park, plasma gasification)
- Others as determined by Cascadia Consulting Group

The Evaluation Criteria Matrix and the resulting analysis will address multiple factors. For each criterion and potential technology option, we will provide ratings and explanations of the basis for the ratings. We expect to address the following factors:

- Technical feasibility and track record in the U.S.
- Minimum material inputs, by type and quantity
- Input limitations
- End product markets
- Operational flexibility
- Capital and operating costs of collection, transfer, and processing
- Regulatory issues in Oregon and Washington
- Degree of reliance on entities other than governments in the Tri-County area
- Greenhouse gas reduction potential and carbon footprint
- Time and ease of implementation
- Impact on waste diversion and materials recovery potential
- Overall plausibility

In addition, the review could also consider other local factors such as the following:

- Service to population centers versus rural areas
- Projected changes in the region's population over time
- Physical geography (e.g., rainy/dry, high/low altitude)
- Air quality issues
- In-county versus out-of-county transport and processing
- Degree of risk

We view the local overlay of people and institutions, and their engagement, as essential factors in reaching overall rankings of appropriate management options for the Tri-County area. (October)

Task 5—Stakeholder Meeting and Report

We will participate in a stakeholder or public meeting that could involve local government and DEQ staff, haulers, transfer station operators, processors, large organics generators or end product users, local residents, businesses, and other organizations. To help inform the discussion, we will bring the results of our work to date to this meeting and present them to the stakeholders. The goals of the stakeholder meeting include the following:

- Further inform the community and interested parties of the topic, its issues, and the results of the Evaluation Criteria Matrix and initial analysis and ranking of options
- Obtain feedback (using questions and comments period and a voting exercise) on the ranking of the list of options and to gather any other pertinent information
- Recommend, and ideally to obtain consensus for, three options for further evaluation.

This report will include a summary of stakeholder rankings, the rationale for selecting the three leading options, and other key input from stakeholders. (November)

Task 6—Analysis and Final Report

Based on the results of the stakeholder meeting and discussion with Tri-County staff, Cascadia will further evaluate the three leading options. This analysis will integrate feedstocks, collection, processing, markets, economics, and other relevant system details, and will be presented in the Final Report.

The Final Report will address the essential question—“What is the best solution(s) for handling organics from the solid waste stream of the Oregon Tri-County area of the Columbia Gorge?”

Cascadia’s set of recommendations, and all of the preceding reports and documents, will be included in the **Final Report**. The Final Report will also include an Executive Summary, including a summary of the leading options and our set of recommendations. (December)

Task 7 (Optional)—Post-Report Follow-up

Cascadia is available to provide follow-on assistance to the Tri-County area to take initial action steps that go beyond the submittal of the report. This assistance could include refining strategy development, conducting additional research and program planning, or other assistance, at the request of the Tri-County Hazardous Waste & Recycling Program.

Work Schedule

We expect to complete all work on this project in the timeline presented below. The optional task, proposed in the previous section, is shown in the schedule as well but expected to start after the final report is submitted. On a month-by-month basis, the expected timeline is as follows:

Task	Oct	Nov	Dec	Jan	March	April
Task 1. Materials Inventory						
Task 2. Analysis of Infrastructure						
Task 3. Stakeholder Interviews						
Task 4. Management Options						
Task 5. Stakeholder Meeting						
Task 6. Analysis and Final Report						
Task 7. (Optional) Follow-up						