

Appendix A

Key solid waste laws

There are several state laws that help give perspective and direction to the activities in this Plan.

The Oregon Bottle Bill. The Oregon legislature passed the Oregon Bottle Bill in 1971 and it took effect on October 1, 1972. This bottle bill was the first of its kind in the nation. Its purpose was to reduce litter and divert all beer and carbonated beverage containers from the waste stream so that they could be reused or recycled. The bill requires that a refund be paid to any person who returns empty soft drink or beer bottles or cans to a retail store.

1983 Opportunity to Recycle Act. The Opportunity to Recycle Act, passed by the Oregon legislature in 1983, was ground-breaking legislation that required:

- Residential on-route (curbside) recycling collection in cities of 4,000 or more people.
- Recycling at solid waste disposal sites.
- Education and promotion programs designed to make all Oregonians aware of opportunities to recycle and the reasons for recycling.

Although Oregon already had an extensive recycling infrastructure, both private and public, before the passage of the act, the system was enhanced through this legislation. The recycling programs called for have been implemented throughout the state.

1991 Oregon Recycling Act. In 1991, the Oregon legislature took recycling legislation a step further and passed the Oregon Recycling Act. Among other things, the Oregon Recycling Act established a recovery level goal of 50% by the year 2000. The Metro region was required to achieve a recovery level of 40% by 1995.

The Oregon Recycling Act also mandated the development of a statewide solid waste plan by 1994 and the performance of waste composition studies and required cities with a population greater than 10,000 population and the Metro area to implement certain waste reduction practices. Certain materials, such as whole tires and leadacid batteries, were banned from landfills. The act also specified purchasing preferences by government agencies for materials with high percentages of recycled content and high degrees of reusability/recyclability.

Finally, the act established minimum recycled-content requirements for newsprint, telephone directories, glass containers and rigid plastic containers sold in Oregon.

1997 2% Credits for Waste Prevention. The session produced a bill that provided a means of enabling local governments to obtain credit for more than just their recycling programs. The program allows 2% credits for wastesheds such as Metro that establish and maintain programs in waste prevention, reuse and backyard composting. DEQ has established guidelines and evaluation criteria for wastesheds that allow them to earn up to 6% total credits toward their recovery goals for qualifying programs.

2001 State and Wasteshed Goals. In 2001, although most of the wastesheds in the state were meeting their individual required recovery goals, DEQ confirmed to the legislature that these accomplishments were nevertheless not going to produce a statewide recovery goal of 50%. The legislature responded with HB 3744 (amending ORS 459.010) that set a statewide recovery goal of 45% for 2005 and 50% for 2009 and adjusted individual wasteshed goals. Metro's goal became 62% by 2005 and 64% by 2009 (these rates can include any credits received under the "2% waste prevention credits" program).

The bill set out review procedures regarding the goal:

If a wasteshed does not achieve its 2005 or 2009 waste recovery goal, the wasteshed shall conduct a technical review of existing policies or programs and determine revisions to meet the recovery goal. The department shall, upon the request of the wasteshed, assist in the technical review. The wasteshed may request, and may assist the department in conducting, a technical review to determine whether the wasteshed goal is valid (ORS 450.010(6)(e)).

In addition, HB 3744 established statewide waste generation goals:

- By 2005, there will be no annual increase in per capita municipal solid waste generation;
- By 2009, there will be no annual increase in total municipal solid waste generation.

Electronics - Oregon HB 2626. Creates a producer responsibility system for the management of obsolete electronics where manufacturers will either provide collection and recycling for their e-waste or pay for a program that's contracted by the state. The legislation requires safe, convenient and environmentally sound recycling of specific electronic devices such as televisions and computers. Programs will begin operating in January 2009. Beginning in January 2010, electronic devices will be banned from disposal.

Metro's Solid Waste Obligations and Authorizations under State Law.

In addition to the key solid waste laws noted above, Metro has additional obligations and authorizations related to solid waste management for the watershed. Oregon Revised Statutes (ORS) Chapter 459 covers solid waste management administration roles, disposal sites, hazardous waste management, enforcement and penalties.

ORS 459A covers reuse and recycling program requirements in the state. Oregon Administrative Rules (OAR) Chapter 340 sets out implementation standards, reporting requirements, recovery rate requirements, recovery rate calculation methods, etc. The following state law chapters and sections specifically pertain to the region's waste and toxicity reduction plans, policies and programs:

ORS 459.055
Prepare and adopt a waste reduction program.

ORS 459.250
Provide recycling collection at transfer stations.

ORS 459.340
Implement the program required by 459.055.

ORS 459.413(1)
Establish permanent HHW depots.

ORS 459.413(2)
Encourage use of HHW collection.

ORS 459A.010
Require waste reduction program elements and reporting.

ORS 459A.750
School curriculum and teachers' guide components.

OAR Chapter 340, Division 90
Implementation standards & reporting requirements.

ORS 268.317(5)-(7) & 268.318
Solid waste regulatory authority.

ORS 268.390
Functional planning authority.

ORS 459.095
Local government compliance with RSWMP.

Appendix B

Regional Disaster Debris Management Plan

The Regional Disaster Debris Management Plan (RDDMP) is intended to enhance the preparedness of the Portland metropolitan area to deal with the removal and disposition of debris generated by a natural or human-caused disaster. The RDDMP specifies goals and objectives for disaster debris removal and disposal, describing potential implementation strategies to ensure that disaster debris efforts are coordinated, efficient, effective, and environmentally sound.

The RDDMP is based on seven principles:

1. Ensure debris management efforts are coordinated and cooperative throughout the region.
2. Manage disaster debris according to the federal and state-mandated hierarchy describing solid waste practices:
 - Reduce
 - Reuse
 - Recycle
 - Recover
 - Landfill
3. Use local resources for collection, recycling, and disposal before seeking outside assistance.
4. Restore normal garbage collection and disposal as quickly as possible.
5. Ensure accurate and organized debris and expense tracking systems.
6. Manage disaster debris in a fiscally responsible manner that minimizes the economic impact of debris processing.
7. Ensure the health and safety of the public and all parties involved in debris management.

Plan background

The RDDMP is a component of the Regional Emergency Management Plan being developed by the Regional Emergency Management Group (REMG). The REMG was formed in 1994 through an Intergovernmental Agreement among agencies in the five-county, bi-state Portland/Vancouver metropolitan area. The purpose of REMG is to: 1) recommend policy and procedures on regional emergency management issues; 2) develop an ongoing, inter-jurisdictional training and exercise program; 3) establish mutual aid agreements to ensure effective management of resources during an emergency; 4) coordinate efforts in the region to obtain funding for emergency management matters; and 5) develop a regional emergency management plan.

The REMG has two committees – a technical committee (REMTEC) comprises emergency management professionals and a policy advisory committee (REMPAC) that includes an elected or appointed official from each of the signatory agencies.

The RDDMP is also part of the Regional Solid Waste Management Plan (RSWMP). The RSWMP is the document that gives the Portland metropolitan region (encompassing Washington, Multnomah and Clackamas counties) direction for meeting solid waste objectives through 2017.

Plan development process

In 1995, the disaster debris removal subcommittee of REMTEC created a disaster debris management goal and five objectives. The goal and objectives were adopted by the Metro Council and included in the 1995-2005 RSWMP, serving as the guide for development of the RDDMP.

In January 1996, a task force of local government officials and private sector interests was formed. The task force met monthly over a nine-month period to develop the RDDMP. The resulting plan provided guidelines and recommendations for management of disaster debris. However, the Plan did not define the actions or details that need to occur in a debris management program, nor did it outline the responsibilities of Metro and other local governments in the disaster debris management process. Metro Council adopted the plan in May 1997.

In 2004, the disaster debris advisory group of local government officials and private sector interests was reconvened for the purpose of updating the 1997 RDDMP. The Regional Disaster Debris Management Advisory Group met several times over a three-month period, completing its work in July 2004. The result of the group's effort was a policy document that created a framework for preparing a separate operational plan to define the actions and responsibilities of the various parties involved in debris management.

Throughout both the 1995 and 2004 planning processes, REMTEC, the Solid Waste Advisory Committee (SWAC), the Metro Council, local governments, Oregon's Office of Emergency Management (OEM), and the U.S. Army Corps of Engineers (USACE) were kept apprised

of the Plan's contents and progress, and were asked to comment on the drafts of the task force's work. A final draft of the RDDMP was also sent for review and comment to neighborhood associations, haulers, and other interested parties.

Next steps: The RDDMP sets policy direction, but doesn't define the actions or details that need to occur within a debris management program. Instead, the RDDMP calls for the development and maintenance of a separate operational plan to define the actions of the different parties involved in debris management. Without the operations plan, the RDDMP by itself provides little actual guidance to the region's emergency managers to ensure that the debris is managed in accordance with the principles and objectives described in this document and the RSWMP.

Metro's role in disaster debris planning

Metro is responsible for solid waste planning within the tri-county region of Washington, Multnomah, and Clackamas counties.

Metro's authority to develop the RSWMP derives in part from ORS 459.017(b), which states that "local government units have primary responsibility for planning for solid waste management." Metro was designated as the local government unit responsible for solid waste planning for the local area under State of Oregon Executive Order 78-16. The RSWMP was also created, in part, to address a requirement under ORS 459.055 and ORS 459.340 that Metro develop and implement a waste reduction program.

The RDDMP was developed and is included within the RSWMP to ensure that debris management activities after a disaster are effectively coordinated and address the waste management hierarchy. Consistent with ORS 401.015 to 401.105, 401.260 to 401.325, and ORS 401.355 to 401.580. The RDDMP plans for the management of disaster debris at the local level, requesting state and/or federal assistance when the appropriate response to an event is beyond the capability of the local governments to manage the event. The operational plan being developed under the policy guidance of the RDDMP will include appropriate intergovernmental agreements between Metro and cities and counties within the region to help ensure that debris activities are coordinated and effective.

Consistency with other plans

The RDDMP is consistent with disaster debris management plans adopted by counties within the tri-county metropolitan area and with the State of Oregon's Emergency Operations Plan. The RDDMP is also consistent with and embraces the incident management principles outlined in the National Response Plan (NRP) and the National Incident Management System (NIMS).

The NRP was adopted by the Federal Government in 2004 to "integrate Federal Government domestic prevention, preparedness, response, and recovery plans into one all-discipline, all-hazards plan" under the authority of the Secretary of Homeland Security. The NIMS provides a consistent nationwide framework to standardize incident management practices and procedures. It integrates existing best practices into a nationwide approach that is applicable at all jurisdictional levels and across functional disciplines in an all-hazards context. A key aspect of the NIMS is its adoption of the Incident Command System (ICS) as the standard model for incident management.

Acknowledgements

The RDDMP was developed with the cooperation and assistance of many people in the region's solid waste industry and emergency management system. The following members of the 2004 Regional Disaster Debris Management Advisory Group were especially helpful in giving their time and expertise to ensure a thorough, thoughtful and highly usable regional plan.

Mark Altenhofen, Washington County

Rob Crouch, City of Portland

Mary Davis, Washington County

Rose Gentry, Oregon Dept. of Transportation

Jeff Hepler, U.S. Army Corps of Engineers

Anita Largent, Clark County

Rich McConaghy, City of Vancouver

Patty Rueter, City of Portland

Dick Schmidt, City of Portland

Dave White, Oregon Refuse & Recycling Association

Susan Ziolkowski, Clackamas County

Definition of terms and acronyms used in this plan

Acronyms

CBRNE	Chemical, biological, radiological, nuclear or explosive
CEG	Conditionally Exempt Generator
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
JIC	Joint Information Center
MRF	Materials Recovery Facility
NIMS	National Incident Management System
RDCC	Regional Debris Coordination Center
RDDMP	Regional Disaster Debris Management Plan
REIC	Regional Information Coordinator
REMG	Regional Emergency Management Group
USACE	U.S. Army Corps of Engineers

Terms

Stafford Act

Provides the federal authority for FEMA's role in managing federal disaster assistance including Coordinating the Presidential declaration process; helping assess damage after a disaster; evaluating a governor's request for assistance; working with state and local governments in a joint partnership to implement the various assistance programs; coordinating the activities of federal agencies and volunteer organizations; and managing the President's disaster relief fund.

Emergency

Any natural or human-caused situation that results in or may result in substantial injury or harm to the population, or substantial damage to or loss of property. As defined by the Stafford Act, an emergency is any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement state and local efforts and capabilities to save lives and to protect property, public health and safety.

Major disaster

As defined under the Stafford Act, "any natural catastrophe or, regardless of cause, any fire, flood or explosion in any part of the United States, which in the determination of the President causes damage of

sufficient severity and magnitude to warrant major disaster assistance under the Act to supplement the efforts and available resources of states, local governments and disaster relief organizations in alleviating the damage, loss, hardship or suffering caused thereby."

Life cycle of an incident

Emergency response phase

The period following the onset of disaster, which is dominated by immediate reactions to eminent threats. Response activities include the immediate and short-term actions to preserve life, property, environment, and the social, economic and political structure of the community.

Emergency recovery phase

The period in which a community restores services and rebuilds facilities after a disaster. Recovery involves actions needed to help individuals and communities return to normal. Recovery programs are designed to assist victims and their families, restore institutions to sustain economic growth and confidence, rebuild destroyed property and reconstitute government operations and services. These actions often extend long after the incident itself. Recovery programs include mitigation components designed to avoid damage from future incidents.

Preparedness

Under the NIMS, preparedness encompasses the full range of deliberate, critical tasks and activities necessary to build, sustain and improve the operational capability to prevent, protect against, respond to and recover from domestic incidents. Preparedness involves actions to enhance readiness and the ability to quickly and effectively respond to a potential incident. Preparedness also includes procedures to share information and disseminate timely notifications, warnings and alerts.

Prevention and mitigation

Actions taken to interdict, disrupt, preempt, avert or minimize a potential incident. This includes Homeland Security and law enforcement efforts to prevent terrorist attacks and hazard mitigation measures to save lives and protect property from the impacts of natural disasters and other events. Includes long-term activities to minimize the potentially adverse effects of future disasters in affected areas.

Joint information center (JIC)

Established to coordinate the federal public information activities on-scene, the JIC is the central point for all news media at the scene of the incident. Public information officials from all participating federal agencies should collocate at the JIC. Public information officials from participating state and local agencies also may collocate at the JIC.

Regional debris coordination center (RDCC)

A center established to coordinate the flow of information among emergency managers and the public about debris management. The RDCC will provide a pre-planned method of determining regional debris needs and priorities as each event develops, communicating with responding agencies and ensuring that regional recovery efforts are in line with established solid waste recycling and disposal goals, public safety needs, financial assistance to communities, and in accordance with FEMA disaster debris public assistance reimbursement requirements.

Conditionally exempt generator (CEG)

Any non-household generator of hazardous waste, including businesses, government agencies, nonprofit organizations, etc. that generates less than 220 pounds of hazardous waste per month and complies with other federal and state requirements to maintain CEG status.

Exempt hazardous waste

Any unwanted hazardous products not subject to full regulation under Oregon and federal hazardous waste laws.

U.S. waste management hierarchy

The Environmental Protection Agency (EPA) and Oregon solid waste management hierarchy: Reduce, Reuse, Recycle, Recover, Landfill.

Putrescibles

Matter that rots or decays, such as food waste.

Putrescible surge

Occurs after a disaster, when people throw away food and other putrescible material stored in freezers and refrigerators after electrical power has been interrupted for an extended period.

Universal waste

A relatively new category of hazardous waste, formerly fully regulated, but now subject to less stringent disposal regulations promulgated by the U.S. EPA in May 1995. Includes batteries, mercury-containing thermostats pesticides, and (in Oregon) fluorescent light tubes.

Local government debris removal coordinator

Person designated by each city or county to coordinate that jurisdiction's management of disaster debris.

National response plan

A consistent, nationwide framework to standardize incident management practices and procedures.

Types of disasters

Although this plan is written for both large and small disasters (whether natural or human-caused), for the purposes of this plan, three types of emergencies require different levels of debris management programs and inter-agency coordination. The following descriptions are used to illustrate the general differences among normal day-to-day garbage flows and these three levels. (Please see the Disaster Debris Management Operations Plan for more information on trigger points, chain of command, individual roles and responsibilities and methods used to deliver programs and information.)

Normal operations

Examples

Households or businesses set out waste and recycling in containers ranging from 20 gallons to 40 cubic yards. Additionally, a lesser quantity of waste and recycling is self-hauled by generators to recycling, composting, and solid waste facilities, as well as landfills. Over 100 recycling and composting facilities operate in the Metro region.

Flow of debris

Waste and recycling is collected by a commercial garbage hauler or independent recycler. Depending on what part of the Metro region the customer is in, the haulers are either "free market" or franchised by a city or county. Collected waste may be hauled to the closest MRF, garbage transfer station or a local dry waste landfill. Recycling is delivered to a source-separated recycler or a MRF, where the recyclables are sorted. The customer pays for the full cost of collection, recycling or disposal services.

Command and control

State law lays out some of the required recycling opportunities. Cities and counties administer the franchise agreements with private haulers in franchised areas. Metro operates two waste transfer stations, and transports waste to the Columbia Ridge Landfill in Eastern Oregon. Landfills and MRFs are regulated by DEQ and Metro. Metro also licenses certain types of recycling and composting facilities.

Level 1

Trigger Point

Declaration or anticipation of a declaration of a disaster by an authorized official of a city or county within the Metro boundary, without a governor-declared state of emergency or a residentially declared disaster.

Examples

Minor earthquake, silver thaw event, trees downed by microburst type of windstorm.

Examples of possible debris programs

Limited- or short-term special city- or county-sponsored collections or special drop sites, information given to affected citizens. Debris collection and management handled by local staff with local resources.

Flow of debris

Other than a small increase in volume, the flow of debris will be little different than normal operations.

Command and control

Management of disaster response and recovery actions is under the control and direction of individual affected cities, districts, and counties, exercised either through individual agencies acting in their areas of responsibility and/or through local EOCs operated under the incident command system. Only limited regional coordination is required.

Level 2

Trigger point

Gubernatorial declaration or anticipation of a declaration of a state of emergency in one or more of the region's three counties (Washington, Multnomah, Clackamas).

Examples

Moderate earthquake, 100-year flood.

Examples of possible debris programs

Longer-term special city- or county-sponsored collections, or special drop sites and information to affected citizens. Debris collection and processing costs could overwhelm local resources. Metro may provide monetary assistance and/or reduce disaster debris recycling or disposal fees, and may open temporary debris sorting or reload facilities.

Flow of debris

Other than volume increases, no significant difference from normal day-to-day operations. Debris is likely to go to the same solid waste facilities and landfills, or be stored for short periods of time before recycling or disposal.

Command and control

Management of disaster response and recovery actions is still primarily under the control and direction of individual affected cities, districts and counties, generally exercised through on-scene incident commanders and local EOCs operated under the incident command system. State agencies may be responding to their own incidents while supporting local government missions. A greater degree of regional coordination is required, and coordination of resource and mission requests from local jurisdictions will take place at both state and regional levels. In extraordinary circumstances, the Governor may choose to assert direct control of certain local resources and assume command of certain normally local activities.

Level 3

Trigger point

Presidential declaration or anticipation of a declaration of a disaster area in one or more of the region's three counties.

Examples

Extensive flooding, Cascadia subduction zone earthquake. (Note: The Cascadia subduction zone is a very long, sloping fault stretching from mid-Vancouver Island to Northern California. Because of the extensive fault area, the Cascadia Subduction Zone could produce a large earthquake, magnitude 9.0 or greater, if rupture occurred over its whole area.)

Examples of possible debris programs

Special, longer-term city-county- or USACE may establish a mission to work with the local jurisdiction in charge to run collections or special drop sites. Extensive information to affected citizens. Possible Metro monetary assistance coordinated with FEMA assistance and reduced disaster debris recycling or disposal fees at collection centers. Debris collection and processing costs very likely to overwhelm local and regional resources.

Flow of Debris

Likely to be drastically different than normal operations. Debris is likely to go to different solid waste facilities and landfills or be stored for long periods of time before being recycled or disposed.

Command and Control

Although local jurisdictions retain responsibility for directing disaster response and recovery actions within their boundaries, coordination demands are greatly increased due both to the overwhelming nature of the event and to the influx of federal and state resources

requiring management. The typical national model calls for local resources (county/city/district) to be supplemented by state resources and federal resources acting generally to perform missions requested by the local jurisdiction or the state. In the Metro region, an additional level of government exists, with jurisdiction over regional aspects of disaster debris management. In a Level 3 event, Metro and the Regional Debris Coordination Center might be expected to provide coordination between city/county activities and state/federal activities, including establishing debris management missions to be performed by USACE, and ensuring effective and efficient use of regional resources including local hauling, and disposal resources.

Roles of participants involved in disaster debris management

The detailed roles, responsibilities, authorities and reporting requirements of all of the public and private parties involved in managing disaster debris vary based on the type and severity of the disaster. Elaboration on this kind of information will be available through the companion document to the RDDMP, the Disaster Debris Management Operations Plan, in late 2007.

Disaster debris management goal

In the event of a major natural or human-caused disaster such as an earthquake, windstorm, flood or homeland security incident, the regional solid waste system is prepared to quickly restore delivery of normal refuse services. The system has the capability of removing, sorting, reusing, recycling, and disposing of potentially enormous amounts of debris.

Objective 1.0. Ensure the coordination, communication and commitment of local, state and federal governments and the private sector.

Objective 2.0. Develop and provide both accurate and reliable information to use to predict the types and quantities of debris from a disaster event and information about the resources available for responding to and recovering from disasters.

Objective 3.0. Develop an emergency response phase plan that coordinates emergency debris management services and maximizes public health and safety.

Objective 4.0. Develop a recovery phase plan that maximizes the amounts of materials recovered and recycled, and minimizes potential environmental impacts.

Objective 5.0. Provide for flexible fiscal and financial arrangements that promote efficient and effective implementation of response and recovery plans.

Objective 64.0. Ensure that disaster debris resulting from a homeland security incident is managed in such a way to identify and preserve potential crime scene evidence.

Objective 1.0 – Ensure that debris management efforts are coordinated

Develop and maintain a working group of emergency managers, local government solid waste staff, solid waste haulers and other parties to coordinate the activities of the public and private entities involved in disaster debris management.

Key concept and approach

Properly coordinated disaster debris management efforts will be critical to ensure that those efforts are orderly, efficient and effective.

Key elements

- a) Create a Disaster Debris Operations Plan in cooperation with all of the public and private entities involved in regional disaster debris management. This Operations Plan describes the roles and responsibilities for the parties involved and the timing for delivery of the key components listed. The Operations Plan is a companion document to the RDDMP and is being created by the Regional Disaster Debris Management Task Force.
- b) Create a process and schedule by which the Regional Disaster Debris Management Advisory Group will meet, for the purpose of creating and maintaining the Disaster Debris Management Operations Plan. (The advisory group contains members of REMG, solid waste and recycling local government, and hauling industry representatives.)
- c) Develop standard operating procedures and job descriptions for the staff who will operate the RDCC.
- d) Prepare mutual aid agreements among local governments as necessary.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Objective 2.0 – Develop strategies for sharing and disseminating information

Ensure that current and usable information is available to plan and implement disaster debris removal.

Key concept and approach

To plan for and implement disaster debris removal activities, certain information must be available to those involved in these activities. It is also important that this information is updated regularly.

Confusion is the common denominator of disasters. The havoc and destruction caused by a major disaster creates conditions that make confusion inevitable. Basic necessities of life – water, food, and shelter – may be difficult or impossible to obtain; utility services may be disrupted or destroyed; streets may be filled with debris, making travel slow and hazardous; and the emotions of citizens and officials may be taxed to the breaking point.

Among the many demands created by disaster conditions, government agencies should be prepared to tell the community when, where, and how garbage collection will resume, as well as to provide special instructions for collecting, sorting, reporting and processing disaster debris.

Key elements

- a) Inventory regional solid waste disposal, recycling and processing facilities, including location, storage, processing, and market capacities, and material specifications.
- b) Assess capacity of regional markets to absorb recyclables produced by recovery activities, including market specifications.
- c) Predict debris tonnage, by geographical area and type of debris.
- d) Inventory potential temporary debris disposal sites around the region.
- e) Predict the need for Metro hazardous waste management services.
- f) Develop real-time assessment of system capacity for debris removal.

- g) Create a process for updating contact information for city, county, state, and federal emergency management and debris removal staff.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Objective 3.0 – Develop emergency response phase strategies

The emergency response phase coordinates and mobilizes resources and efforts, with the priority on immediate services that will preserve life, safety and public health.

Key concept and approach

In order for disaster debris management programs to be ready to rollout following a disaster, the majority of the planning and interagency coordination, including drills and exercises, should occur during peacetime, well in advance of any actual emergency situation. During the time period when responders' efforts are focused on life, safety, and health issues, the parties responsible for planning debris removal have a limited window of opportunity to gather data and fine-tune how debris management programs will be implemented. The response phase can last anywhere from two hours for small emergencies, to two weeks or more in major disasters. During this time period, a response strategy should be finalized that would mobilize resources, including executing contracts for debris removal. Priorities established for the removal of putrescible surge and debris in critical areas of the community, such as emergency transportation corridors.

Key elements

- a) Designate Metro and local government debris removal coordinators.
- b) Develop a regionally coordinated plan for the gathering and dissemination of information.
- c) Define the activities of and activate and staff the Regional Debris Coordination Center.
- d) Develop criteria to determine the extent of need and the degree to which regional or local response is required.

- e) Execute contracts with haulers and contractors responsible for initial work, until local resources are exhausted.
- f) Execute intergovernmental agreements and mutual aid agreements as required, e.g., between haulers and/or governments.
- g) Recommend that franchise agreements include a description of the triggers and the process for the suspension of the standard franchise agreement in a disaster situation.
- h) Develop criteria for the prioritization of cleanup areas.
- i) Develop criteria for the selection of properties that may be appropriate places to stage debris collection, recycling, processing, reload or disposal. Identify potential debris sites and make financial arrangements with owners of potential sites.
- j) Work with local, state and federal agencies to identify and find mutually agreeable solutions to potential conflicts between proposed disaster debris management programs and existing solid waste and environmental protection system conditions. (Examples include hauler franchise agreements/boundaries; Metro Designated Facility Agreements; Metro Non-System License Agreements; Metro solid waste facility licenses or franchises; the need to collect Metro, city, county or state fees/taxes on disaster debris tons disposed; DEQ landfill permitting; air or water quality discharge permitting; open burning regulations; Federal Endangered Species Act requirements; and the Marine Protection, Research and Sanctuaries Act.)
- k) Update and track the real-time operational status of the designated emergency transportation routes throughout the region in order to manage resources during the disaster recovery process.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Objective 4.0 – Develop emergency recovery phase strategies

The emergency recovery phase is generally defined as the period in which a community restores services and rebuilds after a disaster. Disaster debris management efforts in the recovery phase should minimize environmental impacts to the greatest extent possible and be handled according to the solid waste management hierarchy (reduce, reuse, recycle, recover, landfill). The duration of the recovery phase varies depending on the disaster; it may take weeks, months or years.

During the early part of the recovery phase, the importance of disaster debris management activities moves to the forefront. People are concerned with getting rid of the debris material that resulted from the disaster, and getting on with the process of rebuilding. Recovery phase strategies are designed to help jurisdictions make the process of managing disaster debris more efficient and effective, and to give them the information and the tools they may need to make better decisions.

Key concept and approach

Debris disposition should be handled in an efficient, orderly and cost-effective manner that minimizes adverse environmental impacts, respects the solid waste management hierarchy and supports overall health and safety efforts. To ensure that equipment, labor and services are supplied efficiently and cost effectively, existing local resources used to manage disaster debris should be used in accordance with the solid waste hierarchy. State and federal resources will only be utilized once local resources are exhausted.

Key elements

- a) Develop guidelines for removal of debris from residential, commercial and government properties consistent with the solid waste management hierarchy - reduce, reuse, recycle, recover, landfill - while balancing the preservation of health and safety and the environment.
- b) Coordinate multi-jurisdictional debris clearing efforts.
- c) Continue efforts to mobilize local resources by executing contracts with haulers and contractors.

- d) Create disaster debris removal contracts that include language requiring recycling and prescribing recycling methods and locations.
- e) Develop guidelines to manage and operate temporary drop-off, reload, recycling, processing, or disposal sites.
- f) Develop strategies to mitigate the surge of putrescible.
- g) Develop guidelines to properly collect and process or dispose exempt hazardous waste.
- h) Develop a process for business and household cleanup efforts including a plan that defines the process, time limits, requirements and restrictions.
- i) Develop contingency procedures to collect, sort, recycle and dispose of debris in the event that usual options are unavailable.
- j) Develop guidelines to prevent and control illegal dumping.
- k) Develop guidelines for the use of burning or ocean dumping as a disposal option.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Objective 5.0 – Develop fiscal/financial arrangements

Ensure that disaster debris management activities will be properly and efficiently funded, through coordination among public agencies and the private sector. Ensure compliance with all applicable federal, state and local disaster assistance requirements and proper accounting procedures.

Key concept and approach

The communication and coordination of disaster debris management efforts between and among jurisdictions and pertinent agencies is important to ensure that efforts are not duplicated and that recordkeeping is accurate. These and similar types of problems can strain resources, impair the ability to be reimbursed by FEMA, and potentially jeopardize other sources of funding.

Key elements

Develop regionally coordinated systems and procedures for the following:

- Tracking system for disaster debris management expenses, including collection, hauling and processing and/or disposal costs incurred.
- Tracking system for disaster debris tons recycled, processed, and/or disposed at each facility in the region.
- Contingency procedures for fee collection at public and private solid waste facilities.
- Fraud control procedures.
- Contract language that protects Metro and local governments from legal liability resulting from illegally dumped or uncollected disaster debris.
- Mitigation plan to minimize future costs for disaster debris collection and disposal.
- Standard form contracts for facilities, contractors and haulers that establish scope and schedule of work, contract price and payment methods, obligations, etc.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Objective 6.0 – Ensure preservation of crime scene evidence

The events of September 11, 2001 changed the way in which emergency managers view and manage solid waste resulting from a terrorist attack or suspected terrorist attack. Preserving the integrity of and documenting the chain of custody for several thousand tons of debris/evidence requires that solid waste and recycling staff, haulers, and anyone else who touches the debris have a plan and coordinate their activities much more closely with emergency managers and law enforcement officials.

Key concept and approach

The communication and coordination of disaster debris handling from a chemical, biological, radiological, nuclear or explosive incident needs to be well-coordinated among all parties who will come in contact

with the debris. The management strategy for this type of event will likely require larger staging and sorting areas, with less emphasis on volume, speed and material recovery, and more space for law enforcement staff to sort, collect, warehouse and take possession of potential evidence.

Key elements

- a) Invite law enforcement officials to participate in the Disaster Debris Management Advisory Group to share with the task force the requirements for preserving crime scene evidence.
- b) Coordinate debris removal activities with local, state and federal law enforcement agencies to get their recommendations on the sections of the Disaster Debris Management Operations Plan that relate to crime scene evidence.
- c) Create standard operating procedures for tracking and handling debris from several different scenarios of CBRNE incidents.
- d) Create procedures to ensure that the information on crime scene preservation in the Disaster Debris Management Operations Plan remains current.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Appendix A – Conditions for Metro Regional Disaster

Debris Disposal Assistance

EXECUTIVE ORDER NO. 67

EFFECTIVE DATE: March 28, 1997

SUBJECT: CONDITIONS FOR METRO REGIONAL DISASTER DEBRIS DISPOSAL ASSISTANCE

PURPOSE:

The purpose of this Executive Order is to identify the conditions under which Metro will provide regional disaster debris disposal assistance. No formal criteria currently exist to guide Metro on the level of response to events that generate substantial amounts of debris in short periods of time. In the past, this has hindered the timely coordination of response among local governments, haulers, and residents in the region. It has also caused delays in Metro's ability to provide assistance.

The criteria in this Executive Order will be followed by Metro in the event of a disaster or other emergency that produces a substantial amount of debris. These criteria are to be incorporated into a set of standard operating procedures for managing emergencies by Regional Solid Waste and Recycling (SW&R) as those procedures are developed.

CONDITIONS FOR METRO REGIONAL DISASTER DEBRIS DISPOSAL ASSISTANCE

Metro desires to provide assistance for disaster debris disposal to citizens and local governments in the region in order to help protect public safety, health, and welfare and to minimize the hardships created by natural or man made disasters that produce substantial amounts of debris. To enable Metro to provide this kind of assistance in a consistent and orderly manner, SW&R will be developing a set of standard operating procedures for emergency and disaster situations. These procedures will be used in conjunction with the Regional Disaster Debris Management Plan to guide and direct the decisions and actions of SW&R personnel during an emergency or disaster. When completed, the SW&R standard operating procedures will be incorporated into the Metro Emergency Operations Plan.

Until these standard operating procedures have been developed, at least one of the following conditions must occur before Metro may initiate disaster debris assistance. Different conditions will trigger the different levels of response that are described below. If one or more of these conditions have been met, SW&R may immediately mobilize an appropriate response, as described below. Unless one or more of these conditions have been met, no Metro disaster debris assistance may be initiated without prior recommendation of the Executive Officer and approval of Metro Council. The conditions and appropriate responses are:

1. Declaration of a disaster by an authorized official of a city or county within the Metro boundary. Without a governor declared state of emergency or presidential declared disaster, upon request by the official declaring the disaster, Metro response will be limited to non monetary assistance, such as provision of volunteers and information dissemination through Metro Recycling Information. The response may involve re allocation or prioritization of work to address specific needs.
2. Governor declaration of a state of emergency in one or more of the three counties in the Metro region (Washington, Multnomah, Clackamas). Metro response may include monetary assistance. The exact nature and level of the response is to be assessed at the time of the event and each event will be assessed individually. Assistance efforts under a governor declared state of emergency may be less restrictive than #1, above, but will be more restrictive than under #3, below.
3. Presidential declaration of a disaster area in one or more of the three counties in the Metro region (Washington, Multnomah, Clackamas). Metro response may include monetary assistance. The exact nature and level of the response is to be assessed at the time of the event and each event will be assessed individually. Assistance efforts under a presidential declaration may be more aggressive than #1 or #2 above, due to the potential of federal disaster relief.

When one or more of the above conditions have triggered a response, the SW&R Director or his designee will meet to determine the exact and immediate course of action SW&R should take. The intent is to allow SW&R to be able to respond quickly and decisively in these events. SW&R management will take the first possible opportunity to brief the Metro Executive Officer and Council on the specifics of the response. The Council must approve, and the Executive Officer must be consulted on commitments by Metro to long term responsibilities or major expenditures, or that conflict with the above criteria for Metro disaster debris assistance.

Possible Services / Assistance Metro May Provide

The particular services or assistance Metro may choose to provide if one or more of the above conditions are met should always be determined at the time of the event. Each disaster event will be different. The needs particular to that disaster will become apparent at that time, and solutions appropriate to those needs are to be explored. However, any assistance implemented by Metro should recognize and be consistent with the implications of the following:

- Services and assistance to the region's residents should be provided through a partnership between local governments and Metro. As outlined in the Regional Disaster Debris Management Plan (RDDMP), local governments have primary responsibility for the collection and hauling of waste in their jurisdictions and ensuring that that collection is appropriate and adequate. Metro has primary responsibility for ensuring safe and adequate disposal options. Metro and local governments should strive to provide collection, hauling, and disposal services for disaster debris that are cooperative, efficient, and work well as a system.
- Controlling fraud is an important element in any kind of assistance or service provision. Fraud is best controlled when all of the service providers Metro, local governments, haulers, and private disposal facilities work together to ensure that the guidelines established for assistance or services are abided by. Control of fraud is also aided by the existence of clear guidelines for the allocation of any government assistance funds.
- The Federal Emergency Management Agency (FEMA) has issued guidelines that it uses to reimburse local and state government agencies for debris removal. If a disaster is presidential-declared, thereby making FEMA assistance available, services and assistance offered by local and state governments for disaster debris must follow these guidelines if FEMA reimbursement is expected. In general, FEMA views debris removal from private property as the responsibility of the individual property owner aided by insurance settlements and assistance from volunteer agencies. FEMA assistance is not available to private property owners for this purpose. However, local or state governments may pick up and dispose of disaster related debris placed at the curb by those private individuals, as long as the service is carefully controlled with regard to extent and duration. Also, if the debris on private business and residential property is so widespread that public health, safety, or the economic recovery of the community is threatened, the actual removal of debris may be eligible.

ORDERED by the Executive Officer this ____ day of ____ 1997.

Mike Burton, Executive Officer

Appendix C

Disposal System Planning

Final Report

Metro Transfer System Ownership Study

Prepared for



METRO
PEOPLE PLACES • OPEN SPACES

June 2006

Prepared by

CH2MHILL
CH2M HILL
P.O. Box 91500
Bellevue, WA 98004

In association with ECODATA, Inc.

Executive Summary

Background

The Disposal System Planning Project (DSP) is a component of the Regional Solid Waste Management Plan update. The project will be completed in two phases. Phase 1 began in 2005. Phase 2 is expected to begin in FY 2006-07. The primary purpose of Phase 1 is to answer the question: *What is the best way to deliver safe, environmentally sound and cost-effective disposal services to this region?* An important component of this question is Metro's role in the disposal system. The primary purpose of Phase 2 will be to implement the decisions of Phase 1.

Over time, the private solid waste industry has become more concentrated, both nationally and locally. Since 1998, Metro has recognized the public and political interests in relaxing its role as the primary provider of services, and has begun to franchise limited private transfer operations throughout the region for commercial haulers. Given growing pressure from transfer station interests within the industry to accelerate the pace of private facility authorizations, this project will take a step back and take a comprehensive look at what is the best course for the region as a whole for the long-run.

Project Purpose

The purpose of this transfer system ownership study is *to analyze different transfer station ownership options to provide information for the Metro Council to decide what Metro's role should be in the disposal system.* The analysis has four essential elements:

1. The project team worked with the Council and various stakeholders to identify the criteria to be used for evaluating the quality of the disposal system – cost, material recovery, equity, flexibility, etc.
2. The project team worked with stakeholders to construct different ownership options that address the transfer component of the regional solid waste system. Options investigated include public ownership of all transfer facilities, mixed public and private ownership, and a totally privately owned system.
3. The ownership options were analyzed against the performance criteria listed above.
4. Finally, the Metro Council will make a decision. A choice, for example, of a totally private system implies that Metro should ultimately exit the disposal business. The choice of a mixed public-private system, on the other hand, implies that Metro should remain in the business. The choice of a public system implies an increased role for Metro in the provision of transfer system services.

Approach

The choice of system ownership option is dependent upon a number of factors that relate to the ultimate objectives and values of the region's residents, businesses, and industry stakeholders. The Metro Council is responsible for making decisions about the transfer system that best meet these objectives and values. It is important to consider the environmental, social, and financial aspects of different system ownership options, and to be aware of risks that may need to be managed should changes to the current system be implemented. Thus, the analysis of different system ownership options was conducted from the following perspectives:

- Documentation and consideration of stakeholder input
- Analysis of Metro solid waste system economics
- Definition of system options
- Value Modeling of non-monetary aspects of system options
- Economic analysis of system options
- Risk Assessment of system options

Results and Conclusions

Competition in the Metro Disposal System

The Metro disposal system can be viewed as a series of inter-related elements: collection, transfer/processing, transportation, and disposal (waste reduction, recycling, and source-separated processing are not typically considered to be part of the disposal system). Economic theory and the results of the analysis of the system suggest the following conclusions about competition in the Metro disposal system:

- **Collection:** Commercial collection in the City of Portland is arranged by subscription i.e., multiple firms compete for business in a competitive market. Residential collection, and commercial collection outside the City of Portland, is provided under a system of exclusive franchises. Thus, there is no competition for the majority of collection services in the Metro region.

It is estimated that collection accounts for 81 percent of the total cost of residential disposal, and a very high percentage of the total cost of commercial disposal. As a result, the greatest opportunity to inject competition into the Metro disposal system is in collection, which is the responsibility of local government and outside the control of Metro.

- **Transfer/processing:** A fundamental fact about transfer stations is that there is little competition in the provision of transfer/processing services regardless of whether these services are provided by the public or private sector. This occurs for a number of reasons. First, it is only economic to deliver waste to a facility relatively close to the collection route resulting in a type of "natural geographic monopoly". Second, collection firms that are vertically integrated (i.e., they own transfer stations and/or landfills) gain an additional margin of profit by delivering waste to a station they own: it often makes economic sense for such firms to drive past a transfer station they don't own and

continue on to deliver waste at a station they do own. Finally, transfer and processing per-ton costs decline as more tons are received; this results in a seeming paradox in which prices paid for transfer can *increase* as more transfer stations are put in place.

Metro injects one important element of competition into the transfer/processing market in the region by bidding out the operation of their stations. This helps lower the total cost of disposal for local governments that use the Metro transfer rate as a benchmark for establishing the disposal component of the collection rates charged by the franchised collection firms they regulate.

- **Transportation:** Transportation of waste from a transfer/processing facility to a disposal facility is generally done at competitive market prices. There are few barriers to entry and many trucking firms willing to compete for this business. Barge and rail transport also have the potential to be competitive with trucking for transportation of waste from Metro to distant landfills.
- **Disposal:** At least 90 percent of the wet waste in the region is disposed of at a Waste Management landfill under the terms of a contract that was procured years ago using a competitive process in a market with few options for disposal. The price paid by Metro is equal to or lower than that paid by other jurisdictions in the Pacific Northwest that have long-term contracts for disposal at regional landfills. Today, however, there are multiple firms with regional landfills that would be interested in providing disposal services to Metro. It is possible that the disposal price paid by Metro is higher than the price it would pay in a competitive market for disposal, or if its disposal contract were re-bid. Metro is legally bound to this contract through 2014, and the contractor can extend the contract until 2019. After this contract expires, it is possible that Metro would realize a reduction in the price paid for disposal.

Metro as Regulator and Competitor

During the conversations with stakeholders conducted as part of this project, one concern expressed by private transfer station operators is that Metro is both their regulator and a competitor. This concern exists for a couple of reasons. First, as tons flow to private facilities rather than a Metro-owned facility, Metro's per-ton cost of transfer increases. The transfer station operators believe that this provides an incentive for Metro to limit the amount of wet waste delivered to the private stations thus limiting private sector growth and revenue-generating potential. Second, Metro establishes fees and taxes that must be paid by private facility owners: some private facility owners feel that those fees and taxes are too high. They particularly dislike paying for Metro general government and paying for certain services and costs associated with the Metro transfer stations.

A very different perspective is held by the independent collection firms that were interviewed. They were of the unanimous opinion that there should be no private wet waste transfer stations in the region: their interests would be best served by a system in which Metro owns all transfer stations *and* disposal facilities. This is mainly because vertically integrated firms that provide collection and transfer and/or disposal services have a competitive advantage over firms that provide only collection services. The vertically integrated firms are both competitors and service providers to smaller independent firms. It is safe to conclude that continued Metro ownership of transfer stations will result in a

collection market that includes more small independent collection companies than would be the case if Metro did not own any transfer stations.

The independent dry waste processing facility owners interviewed felt the Metro should continue to both own and regulate facilities.

Surveys of both commercial and self-haul customers (households and businesses) indicated a high degree of satisfaction with the level of service provided by Metro. When asked where they would take waste should the Metro station they were using close, the majority of self-haul customers said they would use the other Metro facility or had no idea where they would go.

Metro Disposal System Economics

The analysis of the economics of the Metro solid waste system results in the following conclusions and recommendations:

- The greatest potential for cost savings is in collection; which is outside Metro's control.
- Metro rates are used in setting collection fees, which is good, particularly when Metro competitively procures transfer station operation services. This injects an important element of competition in a market that otherwise would not have many characteristics of a competitive market. Therefore, Metro should try to maximize competition in contracting for each of these services. For example, it could consider evaluating price as a function of distance in its disposal contract, or perhaps jointly procuring transfer, transport, and disposal or transport and disposal.
- In recent years, national solid waste firms have increased market share in the local solid waste industry. These firms seek to achieve vertical integration to maximize profits. Without measured steps by Metro and/or local government to preserve competition, vertical integration, profitability, and prices are likely to increase in the Metro region.
- Economies of scale are significant in transfer, thus, adding transfer stations increases per-ton costs. Also, handling small loads increase per-ton costs compared to handling large loads. Therefore, Metro should be careful to not allow too much excess capacity in the region's transfer system: adding stations reduces throughput at existing facilities and thereby, other things equal, increases the cost of transfer.
- Significant unused transfer capacity exists in the region.
- Transfer is the smallest cost component of the transport, transfer, and disposal system.
- On average, Metro transports waste to landfills a greater distances than does the private sector.
- The private sector typically earns its highest profit margins on disposal.

Evaluation of Different Ownership Options

The advantages and disadvantages of private, public, or a hybrid public-private ownership of the Metro region transfer system were analyzed from a variety of perspectives, including:

- An analysis of how well each option met the Metro Council's stated values
- The estimated cost of each option
- The risk associated with each option

A variety of methods including in-person interviews, surveys, and focus groups were used to elicit the opinions of key stakeholders such as private facility owners, independent waste collection firms, independent dry waste facility owners, local government representatives, Metro staff members, and Metro transfer station users. The opinions of stakeholders were used to help define the system options and analyze the performance of the options in meeting Council objectives.

A brief summary of the results of the value modeling, economic analysis, and risk assessment follow.

Value Modeling

The Metro Council outlined the following values associated with the disposal system:

1. Protect public investment in solid waste system
2. "Pay to Play"- Ensure participants pay fees/taxes
3. Environmental Sustainability- ensures system performs in an sustainable manner
4. Preserve public access to disposal options (location/hours)
5. Ensure regional equity- equitable distribution of disposal options
6. Maintain funding source for Metro general government
7. Ensure reasonable/affordable rates

These values were reworded slightly to facilitate analysis. One value (ensure reasonable/affordable rates) was captured in the economic analysis, and one additional value was added: Ensuring support from system participants.

The results of the value modeling analysis indicate that the public system is clearly preferred to the other ownership options. The results of a sensitivity analysis of the relative importance of each Council value indicate that this result is not sensitive to the relative importance assigned to each value.

One additional sensitivity analysis was performed that incorporated challenges associated with implementation. That analysis showed that as more importance is placed on the difficulties associated with acquiring existing private transfer stations, the hybrid system eventually becomes preferred to the public system.

Economic Analysis

The cost of the three systems is not likely to have a large impact on the cost of the Metro solid waste system. Regardless of the option selected, costs are not expected to increase or decrease by more than about two percent. Other findings of the economic analysis include:

- The hybrid is the only option with the potential to reduce system costs.
- Both the public and the private options are projected to increase system costs (i.e., collection, transfer, transportation and disposal). The cost increase for the public option is estimated at 0.1% to 0.7% and the increase for the private option is estimated at 1.4% to 2.2%.

- The largest cost impacts occur in the collection market; although Metro does not control collection, collection costs can be affected by Metro's actions.
- Increasing the number of transfer stations tends to increase the cost of transfer, but these increases can be more than offset by decreases in collection costs.
- These cost estimates depend on a series of assumptions that are of course subject to variance; while different assumptions would result in different cost estimates, it is not likely that the relative ranking of the options would change.
- The key impact of the Private option is the likely further concentration of the collection industry, increased vertical integration, a probable reduction in the number of small independent collection firms, and probable cost-plus price creep.

Risk Assessment

There is considerable uncertainty at this time about exactly how any of the system options would be implemented and exactly how aspects of the system would develop through time. When considering major new programs or system changes, it is important that organizations such as Metro evaluate the risk associated with such changes by identifying, assessing, and develop strategies to manage those risks.

Risks were identified by the project team during a brainstorming exercise during which 10 risks and 6 related uncertainties were identified that may be relevant to the choice of ownership option. Once identified, a qualitative assessment of these risks was performed. The assessment was done using a qualitative risk signature approach in which the signature for each risk was determined by first assessing the likelihood and impact for each risk, then using a risk matrix to determine if the risk is low, medium, high, or critical.

The assessment of risks is shown in Exhibit E-1. The results of the assessment indicate that there is more risk associated with implementing the private system than the public or hybrid system. However, the only risk scored as critical is challenges associated with implementation in the public system. The hybrid system has relatively low risk.

EXHIBIT E-1
Risk Assessment

Risk	Risk Signature		
	Private	Public	Hybrid
1. More difficult politically to collect regional system fee and excise taxes	High	Low	Low
2. Metro's credit rating could worsen if it is perceived to be less able to collect taxes	High	Low	Low
3. It could be more costly and more difficult administratively for Metro to respond to future changes in state-mandated Waste Reduction requirements	High	Low	Low
4. It could be more costly and more difficult administratively for Metro to deliver new WR/R initiatives	High	Low	Low
5. Potential increase in vertical integration and potential resulting increases in transfer station tip fees	High	Low	Low
6. Reduced ability to meet dry waste recovery targets	Medium	Low	Low
7. Additional cost to Metro of fulfilling Disposal contract	Medium	Low	Low
8. Inability or added cost to maintain current level of self-haul and HHW service	Medium	Low	Low
9. Likelihood of successful flow control challenge	High	Low	Low
10. Political challenges or protracted legal proceedings resulting from condemning private transfer stations or allowing wet waste franchises to expire	Medium	Critical	Low

Summary of Results

A summary of the results of the value modeling, economic analysis, and risk assessment are shown in Exhibit E-2. The results for each option are as follows:

- The private option has the lowest value score, has the highest projected cost increase, and the most risks that would need to be managed.
- The public option has the highest value score, small projected cost increases, and one critical risk that would need to be managed.
- The hybrid system has a value score between the two other options, neutral or possibly decreased cost, and no significant risk.

EXHIBIT E-2
Summary of Results

	Private	Public	Hybrid
Values – Results of value modeling analysis. Normalized scores where the best score =1, worst score =0.	0.35	0.62	0.49
Cost – Estimated long-run percent change in system cost (i.e., collection, transfer, transport, disposal).	Low: 1.4% High: 2.2%	Low: 0.1% High: 0.7%	Low: -0.5% High: 0.1%
Risk – 10 measured risk signatures that incorporate likelihood and criticality. Each risk rated low, medium, high, or critical.	6 High 4 Medium	1 Critical 9 Low	10 Low

Appendix D

System Improvements

Work Plan

Following the transfer system analysis, several other system issues need further analysis and policymaker review. The end result desired is a set of System Management Principles to guide future Metro decisions. A summary of these key system issues, a system improvements work plan, follows:

- (1) Wet waste allocation – Metro allocates wet waste in the system through tonnage authorization limits on local transfer stations and by granting non-system licenses for the 10% of wet waste not committed to our disposal contract. (These tonnage limits are a form of economic regulation.) The issue of policy drivers for determining future wet waste allocations in the region has been raised as part of the Disposal System Planning process. The primary desired outcome in waste allocation is that the ratepayer should benefit.
- (2) Public/private pricing – The Rate Policy Subcommittee’s report, presented to SWAC in March 2006, identified several areas to address in regional tip fees. These included the sensitivity of the public facilities to tonnage shifts and the private facility economics that improve with an increase in the tonnage charge and transaction fee and/or a drop in the Regional System Fee (RSF) and excise tax, even in the absence of any other change in cost or service to the private facility. Local government regulators have expressed concern that changes in fees for transfer and disposal services may not be directly related to costs or service. The desired outcome of addressing system finance issues at the heart of this matter is that the ratepayer should benefit.
- (3) Self-haul services at the region’s solid waste facilities - Approximately one-fourth of the region’s solid waste is delivered to facilities by other than licensed or franchised haulers. These

self-haul loads at the region’s facilities contain about 30 to 40% recoverable material, but achieving high levels of material recovery from self-haul loads is hampered by insufficient space, small load sizes and a demand for services that sometimes exceeds the capacity of the facilities receiving the waste. A balance between demand and capacity is needed, with the desired outcome being the efficient provision of service to these customers and higher recovery of self-hauled loads. Whether this should be more generator-focused (in reducing or managing demand) or more facility focused (increasing capacity to serve self-haul in the region) or a combination is a key question.

- (4) Facility regulation – Metro controls the entry of new facilities into the solid waste system. The highest barriers to entry are for transfer stations or any other facilities handling wet or putrescible waste. Metro authorizes new transfer facilities from time to time after conducting cost/benefit and/or impact analysis. Previous cost/benefit studies have relied on measures of system cost, tip fee impacts, access, or travel time reductions. A recent local transfer station authorization was granted (Columbia Environmental) after consideration of these criteria, as well as an ad hoc criterion of supporting smaller, independent haulers in the region. Applicants and decisionmakers alike might benefit from clear guidance on the circumstances under which new transfer applications might be granted. Another issue in facility regulation that has been raised at the Metro Council is whether Metro should rate-regulate private transfer facilities as part of approved entry into the marketplace. The desired outcome on this issue is a determination of clear entry standards and regulatory controls on transfer facilities.

Appendix E

System and Non-System Facilities

DISPOSAL FACILITIES	
<p>Designated system facilities (outside the region, and need a Metro designated facility agreement)</p> <p>Coffin Butte Landfill Columbia Ridge Landfill Finley Buttes Landfill Lakeside Reclamation Landfill Hillsboro Landfill Roosevelt Regional Landfill Wasco County Landfill Weyerhaeuser Landfill</p>	<p>Non-system facility (outside the region and haulers need a Metro non-system license)</p> <p>Riverbend Landfill Covanta Waste to Energy (WTE) Facility</p>
TRANSFER STATIONS	
<p>System transfer stations (inside the region, franchised or owned by Metro)</p> <p><u>Public:</u> Metro Central Transfer Station (transfer & recovery) Metro South Transfer Station (transfer & recovery)</p> <p><u>Private:</u> Forest Grove Transfer Station (transfer only) Columbia Environmental (transfer & recovery) Pride Recycling Company (transfer & recovery) Troutdale Transfer Station (transfer & recovery) Willamette Resources, Inc. (transfer & recovery)</p>	<p>Non-system transfer stations (outside the region, haulers need a Metro non-system license)</p> <p><u>Public:</u> Sandy Transfer Station (transfer only)</p> <p><u>Private:</u> Canby Transfer Station (transfer only) Newberg Transfer Station (transfer only) Central Transfer & Recovery Center (transfer & recovery) West Van Material Recovery Center (transfer & recovery)</p>
MATERIAL RECOVERY FACILITIES	
<p>System facilities (inside the region, licensed by Metro)</p> <p>Aloha Garbage Company East County Recycling K.B. Recycling, Inc. Pacific Land Clearing & Recycling I (specialized) Pacific Land Clearing & Recycling II (specialized) Pacific Land Clearing & Recycling III RB Recycling (specialized) Tire Disposal & Recycling, Inc. (specialized)</p>	<p>Non-system facilities (outside the region, haulers need a Metro non-system license)</p> <p>None</p>

COMPOSTING FACILITIES	
<p>System facilities (licensed or designated by Metro)</p> <p>Allwood Recyclers, Inc. City of Portland Leaf Composting Facility Clackamas Compost Products, LLC Grimm’s Fuel Company, Inc. McFarlane’s Bark, Inc. Northwest Environmental & Recycling Cedar Grove (Everett & Maple Valley, Washington)</p>	<p>Non-system facilities (outside the region, haulers need a Metro non-system license)</p> <p>Nature’s Needs</p>
RELOAD FACILITIES	
<p>System facilities (licensed or designated by Metro)</p> <p><u>Dry Waste:</u> Greenway Recycling Thermofluids (specialized) Wastech</p> <p><u>Yard Debris:</u> Best-Buy-In-Town, Inc. Greenway Recycling, LLC Landscape Products & Supply QuickStop (Cloudburst) Dan Davis Recycling, (City of West Linn) S & H Logging, LLC WoodCox Wood Waste Management</p>	<p>Non-system facilities (outside the region, haulers need a Metro non-system license)</p> <p>None</p>

Appendix F

Waste Reduction Programs Timetable

Program Areas	Ongoing	Near term (2007-09)	Middle term (2009-12)	Long term (2012-17)
Residential	1.0 Outreach campaign; improve the quantity and quality of residential setouts. OP (see key below)	2.0 Identify service provision changes and incentives to increase recycling; evaluate new collection technologies. NP		
	3.0 New materials as markets allow. OP 4.0 Educate residents about management of yard debris and food waste. OP		5.0 Develop residential organics collection. NP	
Multi-family	2.0 Education & outreach program. OP	2.0 Continue	1.0 Program assessment. NP 2.0 Program assessment 3.0 Evaluate new collection technologies. RP	
	1.0 "Recycle at Work " outreach program. OP 2.0 Develop information and resource materials. OP 3.0 Outreach campaign. OP	1.0 Program assessment 4.0 Implement waste reduction & sustainable practices at government facilities. RP 5.0 Identify opportunities for increasing recovery. RP	5.0 Program assessment	2.0 Program assessment
Business	6.0 Review end markets. OP			
Building industry	2.0 Outreach program. OP	1.0 Develop regionwide construction & demolition system. NP 2.0 Program assessment	1.0 program assessment 3.0 Include sustainable practices and products at government facilities. NP	3.0 Program assessment
	4.0 Review end markets. OP			
Commercial organics		1.0 Outreach & education programs. RP 3.0 Organic waste recovery at government facilities plan. NP 4.0 Compost product specified for use in government projects.	2.0 Enhance access to organics recovery services. NP 3.0 Organic waste recovery at government facilities implementation. NP	
	5.0 Review end markets. OP			

Numbered programs correspond to those in Chapter IV.

OP = Ongoing Program, RP = Revised Program, NP = New Program

Appendix G

Guiding Direction: Policies, Goals and Objectives*

Regional Policies

1.0 System performance	The regional solid waste system will perform in a manner that is: <ul style="list-style-type: none"> • Environmentally sound. • Regionally balanced. • Cost-effective. • Adaptable to change. • Technologically feasible. • Acceptable to the public.
2.0 Preferred practices	Solid waste management practices will be guided by the following hierarchy: <ul style="list-style-type: none"> • First, reduce the amount of solid waste generated. • Second, reuse material for its originally intended purpose. • Third, recycle or compost material that cannot be reduced or reused. • Fourth, recover energy from material that cannot be reduced, reused, recycled or composted so long as the energy recovery facility preserves the quality of air, water and land resources. • Fifth, landfill solid waste that cannot be reduced, reused, recycled, composted or from which energy cannot be recovered.
3.0 Evaluating opportunities for sustainability	Opportunities for increasing the sustainability of business practices or programs will be evaluated based on: a) technological feasibility; b) economic comparison to current practice or conditions; and c) net environmental benefits.
4.0 Recycling services provision	Recycling services will be offered as a component of residential and commercial waste collection in the region. Recycling services will be standardized in the region to the extent possible, to minimize confusion on the part of residents and businesses and to construct cooperative promotion campaigns that cross jurisdictional boundaries.
5.0 Source separation	Source separation is the preferred approach in the region for ensuring quality secondary materials for recycling markets, but other forms of material recovery, such as post-collection separation, will not be precluded.
6.0 Market development	Enterprises that can significantly expand end-use opportunities for reuse or recycling will be fostered by the region.
7.0 New facilities	The current system of transfer stations provides reasonable access for haulers and sufficient capacity for the consolidation and transfer of solid waste to disposal facilities. New transfer stations may be considered if they provide a net benefit to the public. Factors in evaluating net benefit include capacity and access, whether the facility will be publicly or privately owned, and the impacts on material recovery and ratepayers. Other types of new solid waste facilities shall be considered if they significantly support and are consistent with the policies of this plan.
8.0 Facility ownership	Transfer facilities in the regional solid waste system may be publicly or privately owned. The public interest is best served by continued public sector facility ownership in the system. Public ownership ensures a comprehensive range of services are accessible to regional customers at equitable and affordable rates.
9.0 Facility siting	Appropriate zoning in each city or county will utilize clear and objective standards that do not effectively prohibit solid waste facilities.
10.0 System regulation	Solid waste facilities accepting waste generated within the region will be regulated to ensure they are operated in an acceptable manner and are consistent with the policies of this Plan. All facilities performing post-collection material recovery shall meet minimum recovery requirements. Regulatory control will be implemented through a system of franchises, contracts, public ownership, and licenses. Government regulation will ensure protection of the environment and the public interest, but not unnecessarily restrict the operation of private solid waste businesses.
11.0 Host community enhancement	Any community hosting a solid waste "disposal site" as defined by ORS 459.280 shall be entitled to a Metro-collected fee to be used for the purpose of community enhancement.
12.0 Disposal pricing	Charges for disposal services shall be sufficiently transparent to allow regulators to judge whether such charges are fair, acceptable, and reasonably related to the costs of services received. The establishment of charges for disposal services at publicly owned facilities shall balance cost recovery, revenue adequacy, and adopted regulations and policies, including the policies and objectives of this Plan. In addition, such charges shall be structured to ensure that the public sector is able to meet its long-term obligations such as investments, debt, contracts, and fixed costs undertaken by the public sector on behalf of the public. Charges to residents of the Metro district who may not be direct users of the disposal system should be related to other benefits received. To the extent possible, rate adjustments will be predictable and orderly to allow affected parties to perform effective planning.

*Contained in Chapters III, IV and V.

Goals

Objectives

Waste Reduction Goal: Increase the sustainable use of natural resources by achieving the waste reduction goal of 64%.	
Single-family residential	<ul style="list-style-type: none"> • Conduct annual outreach campaigns that focus on preventing waste, reducing toxicity and/or increasing the quantity and quality of recycling setouts. • Identify and implement service provision changes and incentives to maximize recycling, and identify and evaluate new collection technologies. • Expand curbside service by adding new materials as markets and systems allow. • Promote home composting and appropriate onsite management of yard debris and food waste. • Develop residential organics collection programs when economically and technically feasible.
Multi-family residential	<ul style="list-style-type: none"> • Implement a program suited to the needs of multi-family housing that is uniform and consistent throughout the region. • Provide annual regional education and outreach targeting multi-family housing. • Identify and evaluate new collection technologies for implementation on a cooperative regionwide basis.
Business	<ul style="list-style-type: none"> • Provide businesses with annual education and technical assistance programs focused on waste reduction and sustainable practices. • Develop information and resource materials that demonstrate the benefits of waste reduction and sustainable practices to support the business assistance program. • Conduct annual regional outreach campaigns to increase participation in the business assistance program and to promote recycling opportunities and other sustainable practices. • Implement waste reduction and sustainable practices at government facilities. • Identify and implement opportunities for increasing recovery in the business sector, including service provision options, incentives for recycling and regulation. • Periodically review end-use markets to assess cost-effectiveness, material quality and capacity.
Building industry	<ul style="list-style-type: none"> • Develop a regionwide system to ensure that recoverable construction and demolition debris is salvaged for reuse or is recycled. • Provide the building industry with annual outreach, education and technical assistance programs that demonstrate the benefits of green building, including building material reuse and recycling. • Include sustainable practices and products in the development, construction, renovation and operation of government buildings, facilities and lands. • Support the development of and access to viable end-use markets for construction and demolition materials.
Commercial organics	<ul style="list-style-type: none"> • Provide outreach and education programs for targeted businesses to support and increase organic waste prevention and diversion practices. • Enhance access to organics recovery services throughout the region. • Implement organic waste recovery programs at government facilities where feasible. • Work to ensure that compost products are specified for use in government projects. • Periodically review the viability of end-use markets and assist with market development efforts.

Goals

Objectives

<p>Education services</p> <p>Goal: Increase the adoption of sustainable practices through increased knowledge, motivation and commitment.</p>	<ul style="list-style-type: none"> • Provide a regional information clearinghouse and referral service. • Provide education and information services for residents and businesses that are targeted to specific waste streams, materials or generators. • Provide education programs that help teachers incorporate resource conservation concepts, including waste prevention and toxicity reduction, into their teaching. • Provide programs at the elementary level that establish fundamental concepts of resource conservation and environmental awareness through active learning experiences. • Provide programs at the secondary level (middle and high school) that will extend concepts established at the elementary level and prepare students for making responsible environmental choices in everyday adult life. • Work with schools and teachers to increase support for regional solid waste programs and create opportunities for partnerships.
<p>Hazardous waste management</p> <p>Goal: Reduce the use and improper disposal of products generating hazardous waste in order to protect the environment and human health.</p>	<ul style="list-style-type: none"> • Provide hazardous waste education programs that focus on behavior change. • Provide hazardous waste education programs that focus on those products whose toxic and hazardous characteristics pose the greatest risks to human health and the environment, or that are very costly to properly dispose or recycle. • Provide hazardous waste reduction messages and information to all customers bringing waste to household hazardous waste collection sites. • Coordinate hazardous waste education efforts with related efforts conducted by government agencies and community groups in the region and in other areas. • Research and develop tools to measure the generation, impacts and reduction of hazardous waste, when this can be accomplished at a reasonable cost. • Manage collected waste in accordance with the hazardous waste hierarchy: reduce, reuse, recycle, energy recovery, treatment, incineration and landfill. • Coordinate collection programs with waste reduction and product stewardship efforts. • Conduct waste screening programs at solid waste facilities to minimize the amount of hazardous waste disposed with solid waste. • Use solid waste facilities efficiently and effectively for the delivery of collection services. • Maximize the efficiency of public collection operations, search for the most cost-effective methods and place a high priority on worker health and safety. • Offer a Conditionally Exempt Generator (CEG) program to manage waste from small businesses. • Implement bans on disposal of specific hazardous products as needed to address public health and environmental concerns.
<p>Product stewardship</p> <p>Goal: Shift responsibility to manufacturers, distributors and retailers for ensuring that products are designed to be nontoxic and recyclable, and incorporate the cost of the product's end-of-life management in the purchase price.</p>	<ul style="list-style-type: none"> • Prioritize product stewardship activities by evaluating products based on the significance of environmental impact (e.g., resource value, toxicity), current barriers to recycling, and financial burdens on governments for recovery programs. • Implement industry-wide product stewardship agreements or individual company stewardship programs in the region. • Educate public and private sector consumers about product stewardship and, in particular, their role in purchasing environmentally preferable products. • Work at the local, regional, state and national level to develop and implement policies, such as recycled-content requirements, deposits, disposal bans and advance recycling fees, that encourage product stewardship programs.

Goals

Objectives

<p>Sustainable Operations</p> <p>Goal: Reduce greenhouse gas and diesel particulate air emissions</p>	<ul style="list-style-type: none"> • Implement plans for greater energy efficiency. • Utilize renewable energy sources. • Reduce direct emissions of greenhouse gases from landfills and other facilities. • Reduce diesel particulate emissions in existing trucks, barges and rolling stock through best available control technology. • Implement long-haul transportation and collection alternatives where feasible.
<p>Goal: Reduce stormwater run-off</p>	<ul style="list-style-type: none"> • Implement stormwater run-off mitigation plans.
<p>Goal: Reduce natural resource use</p>	<ul style="list-style-type: none"> • Implement resource efficiency audit recommendations. • Implement sustainable purchasing policies. • Reduce disposed waste.
<p>Goal: Reduce use and discharge of toxic materials</p>	<ul style="list-style-type: none"> • Implement toxics reduction and management plans.
<p>Goal: Implement sustainability standards for facility construction and operation</p>	<ul style="list-style-type: none"> • Implement sustainability standards for site selection. • Require new construction to meet the Leadership in Energy and Environmental Design (LEED) or equivalent program standards. • Provide incentives for existing facilities to meet LEED or equivalent program standards.
<p>Goal: Adopt best practices for customer and employee health and safety</p>	<ul style="list-style-type: none"> • Reduce injuries by automating operations where effective. • Implement health and safety plans that meet or exceed current minimum legal standards.
<p>Goal: Provide training and education on implementing sustainability practices</p>	<ul style="list-style-type: none"> • Train key regional waste industry employees, government waste reduction staff and political officials in adopted sustainability practices. • Inform suppliers, contractors and customers of the adoption of sustainability goals and practices.
<p>Goal: Support a quality work life</p>	<ul style="list-style-type: none"> • Pay a living wage and benefits to all workers. • Promote community service. • Strive to employ a diverse work force.
<p>Goal: Employ sustainability values in seeking vendors and contractors</p>	<ul style="list-style-type: none"> • Request sustainability plans from potential vendors and contractors. • Assist vendors and contractors in achieving sustainable practices. • Support local vendors when feasible.

Appendix H

Glossary of terms

These definitions are provided to assist the reader and should not be construed as policies, goals or practices of the Plan, or as amendments to the Metro Code.

Alternative program – A solid waste management program or service that is proposed by a local government and differs from those referenced by and being implemented under this Plan. At a minimum, an alternative program must demonstrate the same level of expected performance as the plan program. Alternative programs allow for local government flexibility in meeting the plan goals and objectives.

Collection service – A service that provides for collection of solid waste or recyclable material or both. (OAR 340-90-010)

Commercial organics – Waste generated by food processing operations, restaurants and institutions.

Commingled recyclables – A source-separated mixture of several recyclable materials into one collection container.

Compost – The controlled biological decomposition of organic material or the product resulting from such a process. (OAR 340-90-010)

Conditionally exempt generator (CEG) – Small businesses that generate small amounts of hazardous waste, as defined by state and federal law.

Construction and demolition waste – Solid waste resulting from the construction, repair, or demolition of buildings, roads and other structures, and debris from the clearing of land, but not including clean fill when separated from other construction and demolition wastes and used as fill materials or otherwise land-disposed. Such waste typically consists of materials such as concrete, bricks, bituminous concrete, asphalt paving, untreated or chemically treated wood, glass, masonry, roofing, siding, and plaster; and soils, rock, stumps, boulders, brush, and other similar material. (OAR 340-93-030)

Curbside collection – Programs where recyclable materials are collected at the curb for single-family units and at onsite depots for multi-family units.

End-use markets – Outlets for materials such as post-consumer paper, which are manufactured into a finished product or materials such as scrap tires that are incinerated to recover energy.

Energy recovery – The process in which all or part of the solid waste materials are processed to use the heat content or other forms of energy of or from the material. (ORS 459.005)

Franchise – The authority given by a local government (including Metro) to operate a solid waste and recycling collection service, disposal site, processing facility, transfer station or resource recovery facility. Often includes the establishment of rates by the local government.

Garbage – A general term for all products and materials discarded and intended for disposal.

Generator – A person who last uses a material and makes it available for disposal or recycling. (OAR 340-90-010)

Grits and screenings – Solids derived from primary, secondary or advanced treatment of domestic wastewater that have been treated through one or more controlled processes that significantly reduce pathogens and reduce or chemically stabilize volatile solids to the extent that they do not attract vectors.

Hauler – The person who provides collection services.

Hog fuel – Biomass fuel, usually consisting of wood waste that has been prepared by processing through a “hog” (a mechanical shredder or grinder). It typically consists of a mixture of bark, wood, sawdust, shavings or secondary materials such as pallets and construction or demolition wood.

Household hazardous waste (HHW) or hazardous

waste – Any discarded, useless or unwanted chemical materials or products that are or may be hazardous or toxic to the public or the environment and are commonly used in or around households. Residential waste that is ignitable, corrosive, reactive, or toxic. Examples include solvents, pesticides, cleaners, and paints.

Local governments – For the purposes of this document, a local government is defined as a city or county within the Metro boundaries.

Materials recovery or recovery – Any process of obtaining from solid waste, by presegregation or otherwise, materials that still have useful physical or chemical properties after serving a specific purpose and can, therefore, be reused or recycled for the same or other purpose. (OAR 340-90-010, ORS 459.005)

Material recovery facility (MRF) – A solid waste management facility that separates materials for the purposes of recycling from an incoming source-separated or mixed solid waste stream.

Mixed waste – Solid waste containing a variety of recyclable and nonrecyclable material.

Multi-family – Residential dwellings of five or more units.

Non-putrescible – Commercial, residential or industrial solid waste, that does not contain food wastes or other putrescible wastes. Non-putrescible mixed solid waste (also called dry waste) includes only waste that does not require disposal at a municipal solid waste landfill (also referred to as a general purpose landfill), as that term is defined by the Oregon Administrative Rules. This category of waste excludes source-separated recyclables.

Organics – Yard debris, land clearing and food waste material.

Plan programs – The programs and services as described in Chapter II of the Plan that will enable the region to reach its 64% waste reduction goal.

Principal recyclable materials – In the Metro watershed these are newspaper, ferrous scrap metal, non-ferrous scrap metal, motor oil, corrugated cardboard and kraft paper, aluminum, glass containers, high-grade office paper, tin cans, and yard debris.

Product stewardship – An approach to managing the lifecycle costs of a product in which a product's designer, producer, seller and user share the responsibility for minimizing the product's environmental impact throughout all stages of the product's lifecycle.

Putrescible waste – Solid waste (other than uncontaminated or only slightly contaminated cardboard and paper products) containing organic material that can be rapidly decomposed by microorganisms, and which may give rise to foul-smelling, offensive products during such decomposition or which is capable of attracting or providing food for birds and potential disease vectors such as rodents and flies.

Recovered – Material diverted from disposal to recycling, composting or energy recovery systems.

Recovery – See material recovery.

Recovery rate – The percent of total solid waste generated that is recovered from the municipal solid waste stream.

Recyclable material – Any material or group of materials that can be collected and sold for recycling at a net cost equal to or less than the cost of collection and disposal of the same material. (OAR 340-90-010, ORS 459.005)

Recycling – Any process by which solid waste materials are transformed into new products in such a manner that the original products may lose their identity. (OAR 340-90-010, ORS 459.005)

Reuse – The return of a commodity into the economic stream for use in the same kind of application as before without change in its identity. (OAR 340-90-010, ORS 459.005)

Solid waste – All putrescible and non-putrescible wastes, including but not limited to garbage, rubbish, refuse, ashes, waste paper, and cardboard; sewage sludge, septic tank and cesspool pumpings or other sludge; commercial, industrial, demolition and construction wastes; discarded or abandoned vehicles or parts thereof; discarded home and industrial appliances; manure; vegetable or animal solid and semi-solid wastes, dead animals, infectious waste and other wastes. The term does not include: (a) hazardous wastes as defined in ORS 466.005; (b) materials used for fertilizer, or for other productive purposes or that are salvageable for these purposes and are used on land in agricultural operations and the growing or harvesting of crops and the raising of fowls or animals, provided the materials are used at or below agronomic application rates. (OAR 340-90-010, ORS 459.005, Metro Code 5.01.101)

Solid waste management – Prevention or reduction of solid waste; management of the storage, collection, transportation, treatment, utilization, processing and final disposal of solid waste; resource recovery from solid waste; and facilities necessary or convenient to such activities. Also see "State hierarchy."

Source-separated material – Material that has been kept from being mixed with solid waste by the generator in order to reuse or recycle that material.

State hierarchy – An established state priority for managing solid waste in order to conserve energy and natural resources. The priority methods are as follows: reduce, reuse, recycle, compost, recover (energy), landfill (ORS 459.015).

Subtitle C – The hazardous waste section of the Resource Conservation and Recovery Act (RCRA).

Subtitle D – Solid, non-hazardous waste section of the federal Resource Conservation and Recovery Act (RCRA).

Sustainable, sustainability, sustainable practices – Using, developing and protecting resources in a manner that enables people to meet current needs and provides that future generations can also meet future needs, from the joint perspective of environmental, economic, and community objectives. [ORS 184.421(4)]

Sustainability principles – Considers use of all economic, environmental and societal resources and is consistent with the Natural Step system conditions so that nature is not subject to systematically increasing:

1. Concentrations of substances from the Earth's crust,
2. Concentrations of substances produced by society,
3. Degradation by physical means; and in that system
4. Human needs are met worldwide.

Waste generator types are defined as follows:

- Commercially-hauled residential waste – generated from single- and multi-family housing units and hauled to disposal facilities in rear, side or front loaders, drop boxes or self-dumping trucks.
- Self-hauled residential waste – generated from single- and multi-family housing units and hauled to disposal facilities in autos, vans, pickup trucks and trailers attached to small vehicles.
- Business waste – generated from retail and wholesale businesses, offices, food and lodging businesses, food stores, education institutions, and service-related businesses.
- Industrial waste – generated from manufacturing businesses, the construction and demolition industry (but not loads containing construction waste materials), agriculture and other industrial businesses.
- Construction and demolition waste – generated from residential, business, and industrial sources containing mostly bricks, concrete, gypsum wallboard, land clearing debris, roofing and tarpaper, wood, insulation, and other building materials.

Waste prevention – Prevention or elimination of waste prior to generation, including where the product is manufactured, purchased or utilized (consumed). The design, manufacture, acquisition, and reuse of materials so as to reduce the quantity and toxicity of waste produced at the place of origin. Also used to describe practices that reduce the amount of materials that need to be managed by either recycling or disposal methods. Home composting of yard debris is generally termed waste prevention, since the material is kept out of both yard debris processing or disposal facilities. Examples also include reducing office paper use through double-sided copying and buying in bulk to reduce packaging waste.

Waste prevention credits – Provision in state law that allows wastesheds to receive up to 6% on the recovery rate for programs in waste prevention, reuse and backyard composting.

Waste reduction – A term used to encompass waste prevention, reuse, and recovery; all practices that either prevent the generation of waste or divert it from landfill disposal.

Waste stream – A term describing the total flow of solid waste from homes, businesses, institutions and manufacturing plants that must be recycled, burned, or disposed of in landfills; or any segment thereof, such as the “residential waste stream” or the “recyclable waste stream.”

Yard debris – Vegetative and woody material generated from residential property or from commercial landscaping activities. Includes grass clippings, leaves, hedge trimmings, stumps, and similar vegetative waste. (OAR 340-90-010)

Zero waste - Designing and managing products and processes to reduce the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Zero waste is intended to eliminate all discharges to land, water or air that may be a threat to planetary, human, animal or plant health.