City of San Diego Long-Term Resource Management Options
Strategic Plan
Resource Management Advisory Committee
Environmental Services Department Auditorium, 9601 Ridgehaven Court, San Diego, CA 92123
Wednesday, Feb. 20, 2008, 2:00 – 5:00 p.m.

Meeting Summary

RMAC Members Present:
Kristen Byrne, San Diego County Disposal Association
Sylvia Castillo, PE, City of San Diego Environmental Services Department
Chris Cate, San Diego County Taxpayers Association
Andrea Eaton, City of San Diego Council District 7
Bob Epler, City of San Diego Environmental Services Department
Richard Flammer, Integrated Waste Management Community Advisory Committee
Shirley Larson, League of Women Voters San Diego
Ted Schleutker, Department of Navy Southwest Division (alternate for Leslie McLaughlin)
Rochelle Monroe, City of San Diego Environmental Services Department
Alan Pentico, San Diego County Apartment Association
Bill Prinz, Solid Waste Local Enforcement Agency

Project Team Members:
Chris Gonaver, City of San Diego Environmental Services Department
Bryan Stirrat, PE, Bryan A. Stirrat and Associates
Christine Arbogast, PE, Bryan A. Stirrat and Associates
Sonia Nasser, PE, Bryan A. Stirrat and Associates
Chip Clements, PE, Clements Environmental
Lewis Michaelson, Katz & Associates
Kelly Thomas, Katz & Associates

Interested Attendees:
Tom Blair, City of San Diego Environmental Services Department
Christina Buchanan, City of San Diego, LEA
Stephen Grealy, City of San Diego Environmental Services Department
Brian Henry, City of San Diego Environmental Services Department
Reg Renaud, STI Engineering
Kip Sturdevan, City of San Diego Environmental Services Department
Ann Wheeler, Allied Waste
Lisa Wood, City of San Diego Environmental Services Department

Welcome/Introduction
Mr. Lewis Michaelson began the meeting at 2 p.m. He welcomed the group and reviewed the agenda for the meeting. The two primary objectives of the meeting were 1) to review the screening criteria the committee discussed at the last meeting and 2) to review a broad range of resource recovery and waste management options that will be considered in the Strategic Plan. Committee members were encouraged to ask questions throughout the presentations.

Refined Screening Criteria
Mr. Michaelson reviewed the revisions to the screening criteria and advised the committee that the project team had revised the screening criteria based on the committee's recommendations

during the last meeting. A copy of the revised screening criteria was provided in each of the committee members' binders. The refined screening criteria will be used to narrow the list of resource management options to a manageable number of options that will be further analyzed in Phase 2 of the Strategic Plan development.

Zero Waste Presentation
Note: a copy of the Power Point presentation was included in each of the committee members' binders, and extra copies were available for the public.

Mr. Chip Clements of Clements Environmental and part of the consultant team provided an overview of zero waste management program features. Mr. Clements began by explaining a fundamental paradigm shift in viewing waste as a resource rather than as waste, which can lead to increased source reduction, recycling, composting and conversion technologies. In this new paradigm, landfills are considered the last step and last resort in resource management. A zero waste approach means a jurisdiction tries to dispose of as little waste as possible. Some jurisdictions, like the City of Los Angeles, have adopted specific goals of diverting 90 percent of waste from landfills.

Implementing a zero waste approach involves both "upstream" (pre-consumption) and "downstream" (post-consumption) strategies. Upstream strategies include more significant, society-level changes such as extending the lifespan of consumer products, reducing product packaging and increasing recycled content in products. Downstream strategies include increasing resource diversion rates, increasing processing capacity at Material Recovery Facilities and implementing conversion technologies to turn waste into fuel.

Mr. Stephen Grealey reviewed which of these strategies the City of San Diego is currently implementing. A handout with the complete list of these initiatives is attached to this meeting summary.

Mr. Clements then presented and explained several types of facilities that are part of the zero waste infrastructure:
- "Safe" centers for household hazardous waste, e-waste and universal waste
- Transfer stations to load waste from collection trucks onto larger vehicles, which transport waste to distant landfills
- Curbside Material Recovery Facilities (MRF), which use magnets, screens and hand sorting by employees to sort recyclables. San Diego has three MRFs.
- Commercial MRFs to recycle commercial waste, especially cardboard
- Construction and demolition processing centers to sort and recycle wood, concrete, green waste and drywall
- Green waste chipping, grinding and composting facilities

Ms. Christine Arbogast, BAS Consultants, reported that a study to determine the feasibility of building a MRF at Miramar Landfill had been conducted. The study found that Miramar would be able to accommodate a material recovery and transfer facility that could process 5,000 tons per day in a 200,000 square foot building. A separate area could also possibly accommodate a conversion technology.

One of the RMAC members asked the following during this presentation:

Q: You stated that there are air pollution considerations with composting. I don't understand why there are issues with windrows that just turn compost into mulch.

Mr. Clements responded that windrows emit volatile organic emissions, carbon dioxide and nitrous oxides as a natural part of the decomposition process. This illustrates the point that no strategy truly has zero emissions. There are ways to trap the emissions, but these increase operating costs.

Resource Recovery Parks
Two general types of resource recovery parks exist: large parks to encourage symbiotic relationships among industrial users to reuse and dispose of waste in one area and public service parks where residents drop off and pick up free materials. These are usually located near landfills or transfer stations.

One RMAC member mentioned that Habitat for Humanity manages a store in Mission Valley where contractors donate and buy used construction materials.

Conversion Technologies
After reuse and recycling, a residue made of about 70 percent organic material typically remains. Conversion technologies convert this organic material into steam, electricity, compost and/or gas using one of several technologies. Many of these technologies are currently being implemented in Western Europe and Japan, and some facilities are in operation or are being constructed in the United States. Of these technologies, biomass facilities are the most popular in the United States. California has 30 biomass facilities that convert green waste and low-grade papers into electricity.

Several projects involving conversion technologies are going on in California right now:
- City of Los Angeles completed a first phase feasibility study of potential conversion technologies and issued a request for proposals (RFP) to develop its first plant. Interviews are currently being conducted. The City of L.A.'s situation is different from San Diego's because it controls a lot of the waste stream itself, owns the land that will be used for the plant and can sell converted power to its own utilities (L.A. Water and Power).
- County of Los Angeles is focusing on combining conversion technologies with its existing MRF transfer station. Currently, four conversion technology vendors and four MRF operators are competing to construct this facility.
- City of Santa Barbara completed feasibility studies and is issuing an RFP for a conversion technology facility.

Several factors must be considered in siting waste management infrastructure, such as:
- Zoning issues
- Access to roads and freeways
- Distance from sensitive receptors like residences and schools
- Environmental justice concerns
- Service area
- Reducing truck traffic
- Aesthetics
- Environmental impacts
- Overall diversion rate
- Renewable energy potential
- Cost and overall economic benefit

Waste to Energy
Whereas conversion technologies use biologic, thermal and other technologies to turn waste into gas that can be burned, waste-to-energy facilities burn waste directly. This technology produces up to 30 percent of the weight of the original waste as ash, which can then be mixed to create concrete. Newer facilities use better pollution controls and can limit the amount of ash waste. Currently the United States has 100 waste-to-energy facilities.

Initially, there was concern in California that waste-to-energy technology would discourage recycling efforts, so diversion credit for waste-to-energy facilities was limited to 10 percent of the 50 percent diversion requirement. The legislature is trying to determine which strategies should count toward diversion rates and is considering changing current legislation in California.

One RMAC member noted the possible value in limiting diversion credit for waste-to-energy facilities, because it is important to prevent these facilities from using resources that could be better used or reused elsewhere in the waste processing stream. Mr. Clements mentioned that the project in Los Angeles includes requirements to remove any materials that could be better processed elsewhere.

One member also mentioned the importance of considering the full cost of certain management strategies by accounting for environmental impacts and the costs of operation and maintenance for the whole life cycle.

Landfill Optimization Techniques
Ms. Sonia Nasser presented this portion of the presentation. She mentioned that after reusing, recycling and converting resources, some residual material will need to be disposed. In the new paradigm, landfills are the last step used to dispose of this small residual, and several technologies exist to optimize the space in landfills and extend their lives. San Diego is unique because Miramar Landfill is the first municipal landfill to meet International Standards Organization standards. To meet this goal, the landfill was audited, and an environmental management system was developed to monitor whether operations were running as efficiently as possible.

Miramar Landfill already implements several of the following landfill optimization techniques:
- Compaction, including increasing accuracy of layer thickness, using less soil over landfill material and placing soil stockpiles to compact unused areas
- Alternative daily cover – Miramar uses a tarp fabric over the face of the landfill, which uses less space than a soil cover.
- Leachate recirculation – Leachate is liquid within the landfill that can be recirculated onto the same landfill cell from which it was taken, as opposed to hauling the leachate offsite.
- Steam injection injects steam into the landfill to increase the decomposition rate. A pilot project was conducted at Miramar in 2005-2006 by STI Engineering. The results of the study showed that Miramar landfill material was very dry, which means there is less leachate than needed for steam injection. The study also discovered difficulties in heating liquid to steam because solids in the leachate would clog the injector lines.
- Bioreactor techniques use anaerobic and aerobic digestion techniques to process landfill waste into forms that use less space. A pilot study showed bioreactor techniques could result in settlement rates of up to 25 percent.
- Landfill reclamation recovers material from old areas of landfills, such as soil, aggregate materials, recyclables and organic materials. There is currently a work plan being developed

for a pilot landfill reclamation project at North Miramar. One RMAC member mentioned that the landfill in the former Naval Training Center area near Terminal 2 of San Diego International Airport is being excavated for reclamation purposes.

Alternative Landfill Disposal Options
Ms. Arbogast presented this portion of the presentation and began by stating that at the very bottom of the paradigm shift pyramid is finding other landfill sites in and around San Diego County to use once the West Miramar Landfill closes, which it is currently projected to in 2012.

In-county and out-of-county alternatives:

- The most feasible alternative is Sycamore Landfill, owned by Allied Waste. The City has an agreement in place with Allied Waste to take residential waste collected by the City after West Miramar closes. However, city waste only accounts for about one-third of the current waste stream going into West Miramar.
- A landfill facility is proposed for Gregory Canyon in north San Diego County. A landfill on this site is proposed to provide 30 million tons of capacity. This project has been in the permitting stage for over 10 years and is currently trying to obtain a solid waste disposal permit. It is planned to serve north San Diego County but could also take City of San Diego waste if it opens.
- Out-of-county landfills would be considered once all in-county landfill capacity has been exhausted. Imperial County has a few small sites, but the closest is 120 miles away. Riverside County has a closest landfill that is 80 miles away from San Diego that will take imported waste.
- A landfill in Orange County (Prima Deshecha in San Juan Capistrano) currently takes 750 tons of San Diego waste per day; this agreement expires in 2015.

Rail Haul
Mr. Bryan Stirrat then discussed the rail haul options that might be available to San Diego. The residual waste remaining after other processing techniques would be loaded onto container trucks at a transfer facility and shipped to a distant landfill. The Mesquite Landfill in Imperial County, owned by the L.A. County Sanitation District, is already permitted for this purpose and would be the largest landfill in the world when it is fully operational. San Diego would need access to an intermodal facility to connect to a nearby rail facility to access this landfill. However, currently, rail capacity from San Diego is limited.

Next Meeting
The project team thought it would be beneficial to take a tour of the waste management facilities at and near Miramar Landfill to give the committee a better sense of how those facilities work. This tour is scheduled for March 26, 2008 from 12:30 until 4:30. Lunch and transportation will be provided. Tour attendees should wear close-toed shoes.

The next regular RMAC meeting is scheduled for April 30. Before that meeting, the consultant team will use the screening criteria to develop a preliminary list of options to carry to Phase 2, and the committee will provide feedback on this list at the April meeting.

The meeting was adjourned at 5 p.m.

Environmental Services Department
Zero Waste Efforts Currently Undertaken
(independent of Long-Term Resource Management Options Agreement)

- Council Ordinances / Policies / Administrative Regulations
  - Construction and Demolition recycling ordinance
  - City recycling ordinance for commercial, multi-family and single family sectors
  - Recycled Products Procurement (Council Policy 100-14) – Purchase of recycled content products
  - Sustainable Building (Council Policy 900-14) – LEED Silver Certification for new City facilities and fast track permitting for private LEED projects
  - Energy Efficient Products Policy (Council Policy 900-18) – Purchase of Energy Star equipment
  - Energy Conservation and Management (Council Policy 900-02) – Adherence to energy conservation guidelines
  - Environmentally Preferable Purchasing Policy (EP3) –Administrative Regulation

- On-going effort to expand organics diversion
  - Effort with commercial sector to maintain food waste composting and partner in zero waste events
  - Effort to double size of Miramar Greenery composting facility and upgrade permit
  - Foodwaste partnership with SeaWorld, Petco Park, SDSU, PLNU, Del Mar Fair
  - Backyard Composting Bin Events
  - Compost Bin Demonstration Gardens in partnership with Zoo, Wild Animal Park, and SeaWorld, and own site at Ridgehaven Green Building
  - Backyard Composting workshops and informational booths at community events
  - Vermicomposting in schools partnership with Solana Center (siting vermicomposting bins in schools)
  - Master Composter training
  - Christmas tree recycling
  - Bagged compost sales

- Outreach and Education:
  - Waste reduction guide
  - Unwanted mail reduction
  - Holiday Waste Reduction
  - Recycle Or Else
  - Other educational initiatives such as environmental workshops, tours, etc.
  - Commercial & multi-family technical assistance and annual award recognition for top waste reducers
  - Commercial & multi-family waste audits
  - Zero Waste Earth Day Event in Balboa Park
  - Support of Zero Waste at San Diego County Fair and Del Mar Fairgrounds
  - Ridgehaven Green Building/Xeriscape Demonstration Project

- Legislative Initiatives we actively supported at state level:
  - Curbside recycling funding
  - E-waste
  - Clopyralid
  - Other initiatives

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- Non-Profit/charity oversight – to encourage reuse, allow charities free disposal of residue, but must have at least 50% diversion
- Economic Incentive of $18-$19 per ton for source-separated recycling
- Resource Recovery at Miramar Landfill
  - Partnership with Goodwill adjacent to recycling center
  - Salvage operation (currently in operation)
  - CEQA review for C&D facility and other future resource recovery facilities currently underway