

6. EXISTING SOLID WASTE MANAGEMENT

6.1. REGULATIONS AND DEFINITIONS

The federal Resource Conservation and Recovery Act (RCRA), an amendment of the Solid Waste Disposal Act of 1965, was enacted to address municipal and industrial waste generated nationwide. Nonhazardous solid wastes, household hazardous wastes and hazardous wastes generated by conditionally exempt small quantity generators are regulated under RCRA Subtitle D. RCRA Subtitle D's provisions are designed to protect human health and the environment by ensuring that endangered species, surface water, ground water and floodplains are not threatened by solid wastes. The provisions specify design, operating and closure procedures for municipal landfills, including groundwater monitoring, corrective action and financial responsibility. Additionally, disease vectors, open burning, explosive gas, bird attraction, public access and wastes containing certain types of pollutants are restricted at disposal facilities under RCRA. ADEQ enforces federal and state solid waste regulations through facility plan approvals, self-certification, Aquifer Protection Permits, notice of intent forms, and/or best management practices. In addition, local solid waste codes are in effect.

According to the U.S. Environmental Protection Agency, "solid waste" includes:

- garbage and refuse;
- sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility;
- nonhazardous industrial wastes; and
- other discarded materials, including solid, liquid, semi-solid or contained-gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities (EPA, 2003a).

In general, RCRA Subtitle D covers all wastes not classified as hazardous. Municipal solid wastes are a subset of nonhazardous solid wastes, and include "durable goods, nondurable goods, containers and packaging, food wastes, yard trimmings, and miscellaneous organic wastes from residential, commercial and industrial nonprocess sources" (EPA, 2003a).

6.2. DISPOSAL OPTIONS

Solid wastes in Pima County are currently managed via landfills and transfer stations, recycling, land application of biosolids and household hazardous waste disposal programs.

There are also several documented and undocumented wildcat dumps in Pima County (PAG, 1995, 1995a, 1996a). Wildcat dumps are areas where solid waste is illegally disposed, and can contribute to stormwater runoff pollution, wildlife habitat degradation, and disease vector breeding grounds. Pima County Solid Waste Division staff regularly investigate known wildcat dumps, issue citations as appropriate and respond to tips reported to the Illegal Dumping hotline.

6.2.1. Landfills and transfer stations

There are four active municipal solid waste landfills, nine public transfer stations, two construction debris landfills, and nine private solid waste facilities in Pima County. Figure 6-1

shows the locations of the landfills and transfer stations, and Table 6-1 indicates the historical tonnage volumes disposed of at each landfill.

Figure 6-1. Public Landfills and Transfer Stations in Pima County

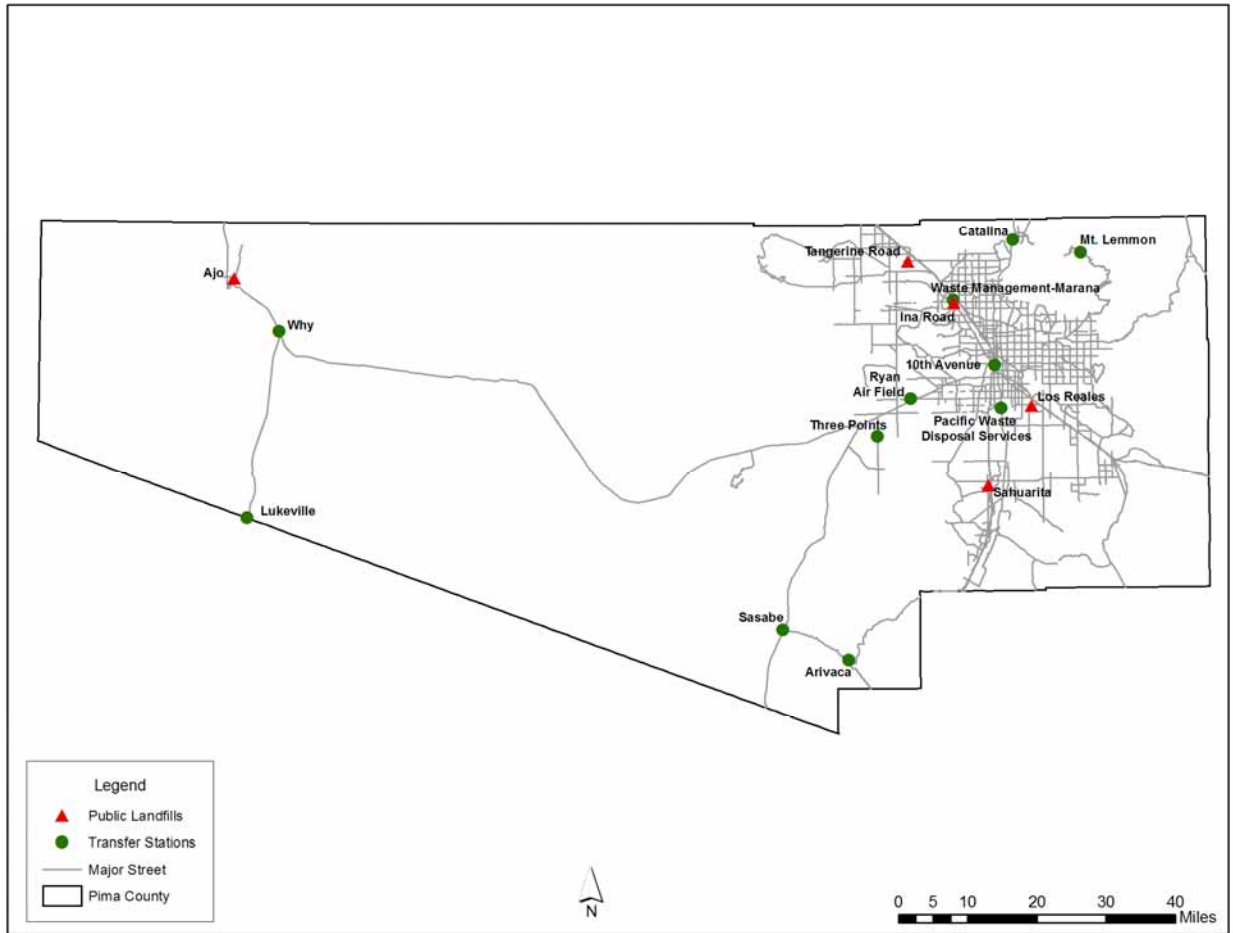


Table 6-1. Disposal Tonnage per Landfill, 1996 – 2002
(ADEQ, 1997, 1998, 1999, 2000, 2001, 2002)

<i>Landfill Name</i>	1996	4/1997- 3/1998	4/1998- 3/1999	4/1999- 3/2000	4/2000- 3/2001	4/2001- 3/2002
Ajo Municipal	11,864	3,322	3,322	3,322	3,322	2,206
Ina Road Municipal	3,687*	20,072	19,977	31,108	24,658	34,198
Sahuarita Municipal	30,649	29,197	30,505	32,549	42,342	61,922
Tangerine Municipal	171,005	87,216	70,004	78,482	101,736	117,888
Resource Recovery Trust-Speedway	46,160	41,354	51,737	54,821	38,345	24,345
Harrison Road Municipal	228,046	Closed				
Los Reales Municipal	315,918	466,706	427,338	509,990	529,463	515,321
ASARCO Mission				427	854	425
ASARCO Silver Bell				37	121	58
Cyprus Sierrita				797	1,593	360

*ADEQ indicates "inactive"

Three of the four active municipal solid waste landfills (Ajo, Tangerine Road, Sahuarita) are owned and operated by Pima County (ADEQ, 2004d). A small landfill serving the Ajo area, the Ajo landfill is 17.6 acres. Pima County Solid Waste Division estimates it will reach its capacity in another two years, at which time a (most likely vertical) expansion will be needed. Located near Tangerine Road and I-10, the Tangerine Road Landfill also is nearing capacity. Pima County Solid Waste Management Division staff are in the process of vertically expanding the landfill to extend its operational life by one and a half years to mid 2007. It is currently 52 acres. The Sahuarita Landfill is located near Helmet Peak Road and La Canada on the west side of the Town of Sahuarita. An expansion permitting process is also in progress for that site. It is currently approximately 20 acres, and the expansion would add another 21 acres, 2.8 million cubic yards, and another 15 years to the site. Pima County municipal solid waste landfills accept wastes from private refuse hauling companies and residential self-haulers.

The other municipal solid waste landfill in Pima County is owned and operated by the City of Tucson (ADEQ, 2004d). Operated by its Environmental Services Department, the Los Reales Landfill is the largest landfill in Pima County. It is currently 220 acres and 110 feet above grade in places, with a planned expansion to 430 acres. The proposed expansion should extend the capacity of the landfill 60 years (Mikolaitis, 2005) from its current fill date of 2016 (City of Tucson Environmental Services, 2002). Los Reales accepts waste from the City of Tucson residential and commercial refuse trucks, private refuse hauling companies and residential self-haulers.

There are three private, industrial landfills in Pima County. Two are owned by ASARCO Inc., and are located at the Mission Road and Silverbell mines. The other one is owned and

operated by Cyprus-Sierrita Corp. for its mining operations. Both hold mining wastes and do not accept wastes from outside parties.

Pima County's Ina Road Landfill and the private Resource Recovery Trust-Speedway landfill in Tucson are construction debris landfills for commercial haulers only. A former municipal solid waste landfill, the Ina Road landfill is located near Ina Road and I-10. As a result of nearing capacity elevations, expansion plans will have to be drafted in the near future. It is currently 75 acres.

Both Pima County and the City of Tucson operate transfer stations. Pima County owns and operates eight transfer stations throughout the county, and the City of Tucson operates one. Refer to Figure 6-1 for locations. Roll-off bins are provided in Three Points, Why, Lukeville, Mt. Lemmon, Sasabe and Arivaca, and are periodically hauled to the county landfills. Permanent transfer station sites are in Catalina and Ryan Air Field. They accept bagged household trash, green waste, and wood from self-haulers and private trash companies. According to ADEQ records (ADEQ, 2005a) there are two private transfer stations in Pima County. Waste Management Inc. owns a transfer station on Ina Road, west of the I-10 interchange. Located southwest of the Tucson Airport, Pacific Waste Disposal Services also operates a private transfer station.

6.2.2. Biosolids

Biosolids are the solid components of treated raw sewage. Sewage from Pima County Wastewater customers in metropolitan Tucson and private septage haulers is treated for volatile solids and pathogens at the Ina Road Water Pollution Control Facility (WPCF) and the Roger Road Wastewater Treatment Plant. From there, biosolids are transported to the Regional Biosolids Management Facility (RBMF) located near the Ina Road WPCF. At the RBMF, biosolids are further thickened. They are then transported to area farms for land application. Table 6-2 indicates the biosolids volume applied to area farms over the last four years, and the number of participating farms. In 2004, all of the participating farms were located in the Marana area (Pima County WWM, 2005). Agricultural lands in the Marana area have been receiving biosolids since 1983 (McGinley, 2002).

Table 6-2. Historical Volumes of Land Applied Biosolids
(Pima County WWM, 2002a, 2003, 2004, 2005)

<i>Year</i>	<i>Sites (number)</i>	<i>Volume (dry tons)</i>
2001	27	8,721.80
2002	38	8,188.78
2003	36	7,567.4
2004	24	8,455.65

There are several state and federal regulations covering land application of biosolids to protect human health and the environment. Public access to fields where biosolids are applied is restricted. Lag times between application and harvest are called for, and biosolids must be prevented from entering waterways. Land-applied biosolids must meet vector attraction, pathogen, metals and nitrate standards. State rules (R18-9-1005) also limit cumulative pollutant loading rates for metals and the types of crops that can be harvested where biosolids are applied.

Pima County is researching the feasibility of applying biosolids from the Green Valley Wastewater Treatment Plant to Asarco's Mission Mine tailings as part of a revegetation effort

(Pima County, 2004a). Developing a method to produce higher quality biosolids from lower quality biosolids and evaluating the potential health and environmental effects from revegetating mine tailings with biosolids constitute the core of the research.

Small public and private wastewater treatment plants employ many biosolids disposal options. Transport to the regional Pima County wastewater treatment plants (Roger Road and Ina Road), land applied at the treatment facility, dried in drying beds or landfilled constitute the most common disposal options (Pima County WWM, 2003).

6.2.2.1 Septage

Pima County Ordinance 13.20.060 requires septage haulers to transfer all loads to the Roger Road Septage Receiving Facility at the Roger Road Wastewater Treatment Plant, acquire a discharge permit and pay a disposal fee. At the receiving facility, the septage is dewatered and equalized and then introduced to the influent of the Roger Road WWTP. In 2001, nearly 2.7 million gallons were transferred to the RBMP, and 1.6 million gallons were transferred in 2002 (Pima County WWM, 2002a; Pima County WWM, 2003).

6.2.3. Recycling

Recycling solid wastes as an alternative to landfilling is encouraged in many communities. Pima County and the City of Tucson provide extensive recycling programs for common recyclable materials like aluminum cans, newspapers, plastics, glass, paper and cardboard. Services include weekly, curbside pick-ups of commingled, unsorted materials for residential and commercial customers. In addition, neighborhood recycling center drop-off bins are located throughout metropolitan Tucson. Approved recyclables also can be dropped off at Davis-Monthan Air Force Base, Los Reales Landfill, Catalina Transfer Station, Sahuarita Landfill and Tangerine Landfill. The neighborhood recycling centers and other sites recycle the same materials as the weekly pick-ups.

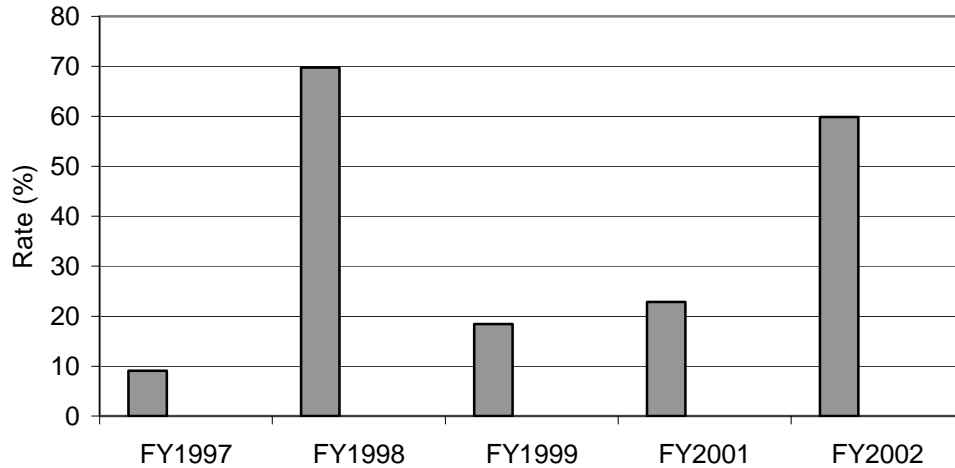
In addition, metal appliances, scrap metal, passenger car and truck tires, and computers and peripherals can be dropped off at the Los Reales Landfill, Catalina Transfer Station, Sahuarita Landfill, and Tangerine Landfill for recycling. Both jurisdictions, through contracted intermediaries, sell the materials as raw materials to manufacturers making new products. Table 6-3 indicates the volumes and types of materials collected in Pima County.

Table 6-3. Recycled Material Weights (tons) in Pima County (ADEQ, 1997, 2000, 2002)

<i>Material</i>	<i>FY1997</i>	<i>FY2000</i>	<i>FY2002</i>
Newspaper	9781.7	8814	25154.29
Cardboard	1701.6	2123	10061.2
Office paper	1579.6	205	1864.99
Aluminum	208.6	337	210
Steel	542	2157	1041.68
PET	381.1	455	418
HDPE	453.2	488	530
Glass	1632.1	3516	5442.8

Figure 6-2 indicates the combined diversion rates over time in Pima County.

Figure 6-2. Combined diversion rates (ADEQ, 1997, 1998, 1999, 2001, 2002)



6.2.4. Household hazardous wastes

The highly successful household hazardous wastes program's primary achievement is reducing the hazardous waste stream entering local landfills. The free service is available to residents and Conditionally Exempt Small Quantity Generators of hazardous wastes. Some of the more common household hazardous wastes are collected at the Los Reales landfill, Sahuarita landfill, Tangerine landfill, and Catalina transfer station. These include antifreeze, batteries, oil and paint. Waste tires are currently collected at the Pima County Ina Road Landfill. Table 6-4 indicates historical waste streams and volumes.

Table 6-4. Household Hazardous Waste Program Historical Waste Streams (pounds)
(Tucson/Pima County HHWP, 1997, 1999, 2000, 2001, 2002, 2003, 2004)

Waste Stream	7/1994-6/1995	7/1995-6/1996	7/1996-6/1997	7/1997-6/1998	7/1998-6/1999	7/1999-6/2000	7/2000-6/2001	7/2001-6/2002	7/2002-6/2003	7/2003-6/2004
Used Oil	125,619	167,926	175,215	327,723	398,312	428,250	476,200	436,180	532,576	555,720
Latex Paint	22,550	50,550	57,200	87,250	112,600	114,450	123,600	135,450	157,100	190,550
Paint Sludge	65,705	48,405	52,209	88,592	80,352	88,646	99,072	94,781	90,434	99,156
Auto Battery	22,045	41,743	45,160	64,125	107,075	136,495	177,005	152,435	198,200	222,255
Metal/Cardboard	0	34,150	36,710	51,010	60,361	62,540	67,006	61,650	68,073	66,708
Flammable Liquid	21,370	30,351	29,337	34,147	40,621	39,332	27,590	22,115	20,280	22,576
Antifreeze	22,680	23,620	27,019	35,344	40,136	35,640	31,998	31,570	32,880	45,480
Soap & Wax	6,809	6,054	6,566	9,512	8,563	9,116	9,369	10,914	13,417	14,423
Dry Battery	8,343	5,500	10,778	12,213	12,354	8,020	19,261	14,789	13,893	3,037
Acid	3,366	3,004	1,521	4,981	5,146	3,474	7,069	6,028	6,446	8,646
Pesticide	12,306	2,533	2,625	3,312	4,209	4,952	5,984	7,754	8,572	10,279
Base	2,538	1,358	1,332	2,559	3,947	5,235	5,219	3,026	2,293	6,607
Fluorescent Lamp	299	900	882	789	555	518	924	548	1,098	2,623
Oxidizer	398	26	0	77	34	0	349	17	230	416
Other	4402	0	0	16,554	26,734	52,566	63,915	67,131	91,293	120,858
Total	329,506	485,513	522,407	790,081	941,264	1,021,843	1,149,011	1,078,456	1,286,311	1,434,260

Materials are treated, recycled, reused or redistributed when they are still useable. Between 1994 and June 2004, the HHW Program redistributed 460,542 pounds of useable materials to residents.

6.3. EMERGING ISSUES

Waste disposal in border areas and decreasing capacity at landfills are two emerging solid waste disposal issues in Pima County. Found on drug smuggling and illegal immigration routes across the Arizona / Mexico border, personal garbage like toilet paper, clothes and bodily wastes on public and private lands near the border is increasing (Sierra Times, 2003). In addition, decreasing capacity at landfills in eastern Pima County is another emerging issue. Existing landfills are approaching their capacities, especially those owned and operated by Pima County. Both the City of Tucson and Pima County have submitted landfill expansion permit applications to ADEQ.